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"Step after step the ladder is ascended."—GEORGE HERBERT, *Jacula Prudentum.*

THE TROPICAL AGRICULTURIST:

A

MONTHLY RECORD OF INFORMATION

FOR

PLANTERS

OF

Tea, Coffee, Cacao, Cinchona, Sugar, Cotton, Tobacco, Palms, Spices, Rubber, Rice,

AND OTHER PRODUCTS

SUITED FOR CULTIVATION IN THE TROPICS.

[ISSUED ON OR ABOUT THE 1ST OF EACH MONTH.]

COMPILED BY

A. M. & J. FERGUSON,

of the "Ceylon Observer," &c.

BRITISH MUSEUM Z D NATURAL HISTORY

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EDITED BY
A. M. & J. FERGUSON,
Of the "Ceylon Observer."

TO OUR READERS.

In closing the Eleventh Volume of the "**Tropical Agriculturist,**" we would once more direct attention to the large amount of useful information afforded and to the great variety of topics treated in our pages. From month to month, we have endeavoured to embody in these pages the latest results of practical experience and scientific teaching in all that concerns tropical agriculture; and our ambition has been to make this periodical not only indispensable to the planter, but of service to business men and capitalists, never forgetting that agriculture trenches upon every department of human knowledge, beside being the basis of personal and communal wealth.

While directing our attention chiefly to the products prominently mentioned on our title-page, we have always taken care to notice minor industries likely to fit in with sub-tropical conditions; and our readers have an ample guarantee in the pages before them, that, in the future, no pains will be spared to bring together all vailable information both from the West and East, the same being examined in ahe light of the teachings of commonsense as well as of prolonged tropical experience tn this, the leading Crown and Planting Colony of the British Empire.

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A full and accurate Index affords the means of ready reference to every subject treated in this, the eleventh volume, which we now place in our subscribers' hands, in full confidence that it will be received with an amount of approval, at least equal to that which has been so kindly extended to its predecessors.

We are convinced that no more suitable or useful gift can be made to the tropical planter or agriculturist, whether he be about to enter on his career, or with many years of experience behind him, than the eleven volumes of our periodical which we have now made available. They are full of informarion bearing on every department and relating to nearly every product within the scope of sub-tropical industry.

In conclusion, we have to tender our thanks to readers and contributors, and our wish that all friends may continue to write instructively and to read with approval for then, indeed, must the "**Tropical Agriculturist**" continue to do well.

A. M. & J. FERGUSON.

COLOMBO, CEYLON: 1ST JUNE 1892.

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THE

TROPICAL AGRICULTURIST

MONTHLY.

Vol. XI. COLOMBO, JULY 1ST, 1891. [No. 1.

"CORNERING" CEYLON TEA.

WE must await fuller details than those furnished by our London Letter as to Mr. Elwood. May's scheme for the distribution of our teas before we can venture to decide fully with respect to it So far as we can form an opinion upon our correspondent's abstract of that gentleman's letter, we should be disposed to adopt the view already taken of it in London. In the first place, we have always expressed ourselves—as we have felt—to be strongly opposed to the practice universally known by the term of "cornering" which Mr. May apparently suggests. We hold it to be not only opposed to the true principles of genuine trading; but, owing to the ill-effect it has upon thousands of people, to be morally indefensible. Against monopolies of all sorts—especially when they are resorted to by Governments—the public sense of modern days revolts. We do not say that they are absolutely indefensible. In some instances, as in that of our own salt trade, they may be indispensable as a means of securing the cheap and regular distribution of an indispensable food article, as well as of raising revenue, though we could perhaps wish that that and similar forms of taxation could be abolished and compensated for in some other way.

But apart altogether from objections of this nature, to the monopoly in dealing with Ceylon tea which it seems to be Mr. May's desire to create, there is the fact of the utter impracticability of accomplishing the end in view. When first our island-grown teas attracted notice, and when there appeared to be great difficulties in the way of making them popularly known in the countries of consumption, it seemed to many of us that it might be both necessary and desirable to establish agencies having the *imprimatur* of our Planters' Association. It is some central control of that kind which it seems to be Mr. May's desire to establish now. But the day for this has gone past, and it is singular that the fact has not been realised by the President of the American Company established for the sale of our teas throughout that vast continent. We could not, did we desire to do so now upset the manifold private agencies which have been established, and which have already had such a marvellous effect in widening the area of the sale of our teas throughout the United Kingdom.

We do not understand Mr. May to intend to limit his prosposals to the field in which he is now specially working. His idea seems to be that every Ceylon planter should sell his tea to the vast organization he proposes, with himself as its head; that no one outside of that organization should, in fact, be able to procure Ceylon tea for the supply of markets yet established or to be established all the world over. This, as it seems to us, is a thoroughly Yankee notion. But it is very certain that any attempt made to give it effect, to restrict our planters rom selling in the dearest market open to them, would utterly and entirely fail, although some measure of success might possibly have attended it if it had been made in the days when tea planting in Ceylon was a young industry and channels for disposal of its produce had not been opened out. It is no wonder that a reference made to a gentleman specially fitted by his local experience both here and at home to give an opinion on the scheme should have resulted in his emphatically declaring it to be "Moonshine!" A very few minutes of conference with Mr. Mitchell and his colleagues of Messrs. Darley, Butler & Co. will, we feel assured, have convinced Mr. May of the impracticability of any such idea as he has broached. It is only wonderful that he should ever have entertained it, after having conversed with Mr. Grinlinton during his recent visit to the States. Mr. May will certainly return to New York, after his present visit to London a "wiser," though we hope not a "sadder" man. But if mortification should be the result, he must lay the blame on his own "o'er-vaulting ambition,"

THE EASTERN PRODUCE AND ESTATES COMPANY, LIMITED.

REPORT presented at the Fourth Ordinary General Meeting, to be held at Winchester House, Old Broad Street, at 12 o'clock noon, on the 30th April, 1891.

The Directors herewith submit Report and Balance-sheet for the year's working, ending 31st December, 1890. The profit for the year has amounted to £22,122 1s 5d, and, after providing £11,749 13s for payment of Interest on Debentures and Preference Share dividend, carrying £2,800 4s 4d to the Reserve Fund, to complete the required amount of £10,000 and setting aside £3,000 as a Sinking Fund for retirement of Debentures in accordance with the Company's Articles of Association, there remains a balance of £4,572 4s. 1d. to be carried forward. This result which has again been assisted by the yield from the Coffee still remaining on the Estates, and by a satisfactory increase in the Company's Agency and Commission business, indicates a steady annual rate of progress which the Directors venture to think cannot be otherwise than encouraging to the Shareholders. As shewn in the schedule annexed, there are 9,266 acres of the Company's Estates under tea cultivation, of which about 5,400 are over four years old. The yield of tea in 1890 was 1,518,000 lb., the average gross price obtained, inclusive of purchased leaf, being approximately 11½d. per lb. The crop for the current year is estimated at 1,7,10,000 lb. The Directors in the exercise of their discretion have sold Gigran Ella Estate and a store near Colombo, and have purchased the Kolapatna and Gongalla properties. The liquidation of the Ceylon Company Limited having been now finally completed, the balance of amount retained by the Liquidators to meet contingencies has been handed over to the Company and carried, together with an amount released on settlement of the Corbet suit, to the credit of The Estates Reserve A/c in the sum of £13,056 19s. 8d.

Schedule of the Company's estates at 31st December, 1890:—Arapolakande, Asgeria and Maddawella, Bulatwatte Ditto, Belgodde, Colombo (Let on lease), Condegalla, Dandukelawa, Doombagastalawa, Dromoland, Hope. Ingurugalla and Berrewella, Kirrimittia, Koladenia, Kolapatna and Gongalla, Kumaradola, Koladenia, Kolapatna and Gongalla, Kumaradola, Labookellie, Meddecoombra, Montefiore, Norwood, Rothschild, Sinnegodde and Belle Vue, Sogama, Vellai Oya, Wevekellie, Woodslee.

Under Tea	8,696		Acres
,, Tea (with some remaining Coffee)	570		,,
		9,266	,,
,, Coffee		160	,,
,, Cocoa		624	,,
,, Cinchona, Cardamoms and Sundries		382	,,
,, Forest, Grass and uncultivated Land		7,332	,,
	Total	17,764	Acres.

BALANCE SHEET, 31ST DECEMBER 1890.

Dr.

Liabilities.	£	s. d.
To Capital Stock :—		
Nominal Capital, 60,600 Ordinary Shares, £5 each ...	£303,000	
4,000 Preferred Shares, £5 each	20,000	
Ordinary Shares, 59,538 allotted, at £5 ...	297,690	
Ordinary Shares, 289 unclaimed, at £5 ...	1,445	
Preferred Shares, 753 issued, £1 per Share called up ...	753	
,, 6 per cent Debentures	£195,200 0 0	
,, Debentures Interest ...	845 15 4	
		299,888 0 0
		196,045 15 4
', Estates Reserve Account, Realizations and Recoveries		20,620 18 10
,, Fire Insurance Account		905 17 2
,, Sundry Creditor Balances ...		10,386 6 7
,, Bills payable		14,826 5 4
,, Reserve Fund		7,199 15 8
,, Profit and Loss A/c		10,410 1 5
Proposed appropriation :—		
Dividend on Prefered Shares ...	£37 13 0	
Completion of £10,000 Reserve Fund ...	2,800 4 4	
Debenture Sinking Fund..	3,000 0 0	
To be carried forward ...	4,572 4 1	
	£10,410 1 5	£560,283 0 4

Cr.

Assets.	£	s. d.
By Amount representing Landed and other Property acquired at 1st January 1888, under agreement dated 10th October 1887		436,117 4 0
,, Outlay on Tea extensions and acquisition of land		26,419 17 8
,, Balance of outlay on Machinery & Buildings at 31st Dec. 1889 ... ... £4,582 16 9		
Expended in 1890 ... 7,222 19 3		
	£11,815 16 0	
,, Less amount written off for depreciation in 1890 ... ... 1,877 1 8		9,938 14 4
,, Produce on hand		31,554 10 1
,, Advances against produce and supplies for Estates		11,958 5 3
,, Furniture		77 15 11
,, Sundry Debtors		13,799 10 0
,, Loan on mortgage		2,100 0 0
,, Investments		8,482 10 11
,, Bills receivable		301 6 3
,, Cash on Deposit and at Bankers ...		19,533 5 11
		£560,283 0 4

PROFIT AND LOSS ACCOUNT, FOR YEAR ENDED 31ST DECEMBER 1890.

Dr.

	£	s. d
To Produce on hand, 1st January, 1890 ...	27,377 11 9	
,, Expenditure :—		
Upkeep of Estates, including cost of purchased Tea leaf and allowance for depreciation on machinery and buildings	65,450 6 11	
Salaries, Office expenses, and General charges in London and Ceylon, including Directors and Managing Director's and Auditor's remuneration and Income Tax ...	6,306 0 7	
,, Interest on Debentures	11,712 0 0	
,, Balance	10,410 1 5	
	£121,256 0 8	

Cr.

	£	s. d.
By Balance, 31st December, 1889:—		6,801 14 10
Dividend on Preferred Shares	£ s. d. 37 13 0	
Balance te Reserve Fund	6,764 1 10	
		6,801 14 10
By Income :—		
Proceeds of Produce sold and bought to account at 31st December 1890, and profits from Agency business, Interest, &c.		89,701 10 7
Estimated value of Produce on hand at 31st December 1890		31,554 10 1
		£121,256 08

PROPOSED "CORNER" IN TEA.

Mr. Elwood May, one of the Directors of the Ceylon American Tea Company of New York, has called upon many of the firms interested in tea production, with the view of propounding his scheme for

an American Ceylon Tea "corner" on a large scale. What his reception has been I can gather pretty well from the opinions those interviewed have expressed to me in conversation on the subject. Judging of it in the form in which he has submitted his project, they do not hesitate to say that it is unworkable and undesirable. The result of an interview with him is a rather favourable impression of his personality. He is quite young and somewhat of the "masher" in his get up, and cockneyish in his speech. In America only the best of everything was tolerated, and that was why China tea was taking a back-seat and Ceylon leaf coming to the front. Quality made all the running in their great country, and that was the reason why they wished to place the article in a favorable position in their market. In England cheap teas are wanted because the bulk of the public are not wealthy, but too often the reverse, whereas in the great land of the Stars and Stripes, where marvellous developments are taking place, the great bulk of the population are well-to-do, and, being that, they can afford to buy good articles and will have none other, and that is why Ceylon tea has come into favor with them so rapidly. They numbered sixty millions of inhabitants, and they could and would buy sixty million lb. of Ceylon tea if they could get it. They have hitherto been great consumers of coffee, but the berry has risen so much in price that very many were taking to tea in preference when they could obtain it good* His estimate, he said, had been submitted to trade experts and pronounced perfectly sound. Now his idea was that, by judicious combination, they could buy up these sixty millions of Ceylon tea, and, by having it all packed on the spot where labor is cheap, in neat, attractive, and oriental looking packsts much outlay would be saved and if in addition they could procure the sanction of the Ceylon Government to stamping each packet with the official seal or arms of the authorities, by payment of a small royalty, the tea would make rapid way in public estimation with such a prestige as the stamp would give. They should not want for funds, of which they could command any amount when the arrangements for obtaining sole command of the island produce were finished; the strongest financiers would be with them, and the capital required could be had in a day. Mr. May was assured that there would be no difficulty in purchasing crops in advance on contract if the rates suited, without resort to the device of a "corner", but he did not consider that mode of making the arrangement in question would be sufficiently "comprehensive", and preferred absorbing the entire tea interest of the island—how could estate owners possibly object? Claims on their properties could be arranged for, and, though there would perhaps be some having an interest in the existing state of things by shipment to Europe and Australia, that matter could be easily arranged. There is, I think, no doubt but that Mr. Elwood May is thoroughly in earnest and a full believer in the practicability of his "corner"; but as to how many others he will succeed in bringing to his way of thinking is another matter.—*London, Cor.* local "Times."

HOW TO SECURE AMERICANS FOR "PURE CEYLON TEA."—There are two places where, away rom their own Continent, Americans most do congregate, namely Paris and Cairo or Egypt generally. The Indian Tea Association have been before us in Paris and greatly may they continue to flourish. But why should our Tea Fund Committee not take some active step to promote the free sale of pure Ceylon tea in Cairo, Alexandria and Port Said? If once it be known that the Committee want an agent for Egypt to sell only "Pure Ceylon Tea" in its towns, the right man will no doubt quickly turn up.

* This heardly agrees with the previous statement about the buying capabilities of the American people. —ED.

DEVELOPING THE ZAMBESI REGION.

The British South African Company have engaged a practical botanist [A. Whyte, lately of Nuwara Eliya.—ED. T. A.] who has had over twenty years' experience in the cultivation of produce in Ceylon, to proceed to heir territories in Zambesi and superintend the development of their vegetable resources. The gentleman in question, with whom we had an interview a few days ago, leaves early in May for Zanzibar, whence he will proceed by way of the Zambesi to his destination in the neighbourhood of the Shiré Highlands. His attentions will be directed not only to the collection and export of such native products as are likely to find a market in Europe, such as rubber, gums and gum resins, oleaginous plants, and so forth, but he will also try the acclimatisation of tropical and subtropical products. Coffee is already cultivated with success in Zambesia; tea is going to be tried, but the company are alive to the danger of over-production in this article. Cocoa and tobacco are thought to hold out greater hopes of success. As regards drugs, needless to say, cinchona will not be tried. Opium-culture has been experimented in before in Mozambique, the result being a signal failure. Cardamoms and vanilla are among the first drugs to be tried, and the authorities have promised to lend every possible assistance in procuring plants and giving advice as to cultivation. Now that a trained botanist is about to proceed to the country of the strophanthus, we may expect the speedy elucidation of the mystery still surrounding the botanical classification of the drug. The first season or two, however, are likely to be taken up with preliminary investigations of the climatic conditions of the country, meteorological observations, &c. Native labour will be employed in the first instance, under the supervision of overseers from Zanzibar, Ceylon, and British India.—*Chemist and Druggist.*

MICA IN SOUTH AUSTRALIA.

An experienced prospector sent out by a number of gentlemen in Adelaide last December has discovered a large deposit of mica of superior quality amongst the ranges about sixty miles from Farina. The place is called by the blacks 'Milte Miltana,' meaning 'big mica, or great lot of mica'. It is on a steep mountain creek, which is so plentifully strewn with large pieces of mica that a person is continually expecting to come upon the source of the supply, but he has to travel about a mile and a half before the creek cuts sharply through a dyke of fully 150 ft. wide, and exposed on either side to a height of 200 ft. The rock in which it occurs is a compact felspar with veins of quartz and mica throughout it. He reports that there can be no question about the abundance of the mica. The rock is solid, and requires a few shots in it before large pieces can be got, but with proper means he thinks he can send down a large quantity of very fine pieces. He has found a good road for drays into the mica over a saddle in the range, and he says that drays can be taken within fifty yards of the place. The cost of carting to the railway would not exceed £4 per ton.

The Government geologist also reports that several prospecting parties are looking for or obtaining mica in the district of the Alice Springs. The mica is generally found in coarse granite dykes associated with quartz reefs or blows, scattered through the rocks, and also in bunches and layers. It is uncertain in its occurrence, and the small surface outcrops are easily worked. When these have been worked out, shafts will have to be sunk in the granite and gneissic rock, and the bunches and irregular layers of mica sought for by drivers and crosscuts. The mica outcrops are tolerably numerous, but it is only in exceptional cases that the plates are of a size considered worth working.

TECHNICAL AGRICULTURAL EDUCATION IN FRANCE AN EPAMPLE TO CEYLON.

At a meeting at Fakenham, at which Sir Willoughby Jones presided, Mr. Buckmaster referred to the recent efforts of the French Government for the technical education of small farmers. At the annual agricultural show at Chartres, the children, both boys and girls, exhibited a large number of copy-books, which contained descriptions of the best methods of budding and grafting trees, specimens of the various kinds of wheat and other grain grown in the district, specimens of the insects injurious or otherwise, the different grasses and weeds—all illustrated by simple but fairly executed drawings. The children varied in age from ten to thirteen. Now we have nothing like this in English rural schools of much higher pretensions, and with lads of greater age. In the Department of the Haute Marine an agricultural text-book is daily used in all the rural schools, boys are taught to distinguish between the useful and useless, and prizes are given. Mr. Buckmaster concluded as follows:—I see industrial schools in all parts of the country, where lads are daily at work on the land. Cannot something be done with these schools? Is there nothing to learn on the land except digging, and hoeing, and planting? Would not the teaching of these French schools make lads more intelligent, better able to think and to reason, better colonists and better citizens?—*Daily News*.

PADDY AND DRY GRAIN CROPS IN CEYLON.

SEASON REPORTS.

From the abstract of season reports for April 1891 published in the latest *Gazette* we learn that in the Colombo district the condition of the paddy and grain crops was good generally. In some villages of Hewagam Korale the muttes harvest is being reaped and in some parts of Siyane Korale East preparation for the maha cultivation is being made. There is no distress or want of food anywhere, and the health of the district is good. In Kalutara sowing for yala is reported to be nearly finished. There was the usual extent sown but very little dry grain cultivation. In Negombo the fields were being ploughed and sown, there being a fair extent in both korales. Coming now to the Central Province and dealing with the Kandy District it is reported that in Yatinuwara the prospects generally of yala are good and that in Tumpane where the maha harvest has been closed the crop of paddy and dry grain is less than in previous years by a half. In Pata Hewaheta the paddy harvest is also closed. A fair crop has been reaped from irrigated lands but bad from land dependent on rain, some fields have been wholly abandoned. In Uda Dumbara where the maha harvest is in progress the crop of paddy is reported fair and of dry grain middling. In Udapalata yala has been sown with success. In Matale the hill paddy is being reaped and is very poor in Matale North. Of the three districts comprising Nuwara Eliya, Walapane is the only one where there is dry grain and owing to the drought the crop which is being reaped is very indifferent. Here paddy is in ear and the prospects are fair. There are also fair prospects for the crop in Uda Hewaheta and a good paddy crop is being reaped in Kotmale. The Northern Province comes next and opposite Jaffna there are the following remarks:—"Threshing of paddy going on in Karachi division. Rain general on the 7th, 16th, and 25th April. Dry grain crop of the second quarter being gathered in. The grains usually cultivated this quarter are sown in paddy fields mainly dependent on rain, very few of the fields being irrigated from wells. Though the rain proved beneficial, it was not sufficient. Tobacco—a good crop being cut throughout all the district." In Mannar the Kalapokam paddy crops are all reaped. Sowing for Sirupokam has not begun and there is no dry grain. From Vavuniya it is reported that the paddy and dry grain crops have been reaped the former being "bad" and the latter "poor," due in both cases to drought. There is also this remark—"Last year's chenas sown with gingelly; too early yet to judge of probable crop, scarcity of food anticipated shortly and relief works under consideration. From Mullaittivu the report under the heading of dry grain is "fair," and under paddy "Kalapokam crop reaped; good in maritime pattus, bad in Tunukkai and Karunavel pattus, fair elsewhere." In Galle the condition of both crops is good, in Matara the prospects for the whole are favourable, although in one or two places complaint is made of drought. In Udukiriwila some damage has been caused by floods and loss of dams. From the Batticaloa district of the Eastern Province it is reported "Early munmari excellent. Crop of Batticaloa north on about 16,500 acres harvested. Later munmari crop of Batticaloa south on about 7,500 acres is being cut; alleged damage by blight. Early pinmari of Batticaloa south on about 1,000 acres is in ear; later pinmari cultivation is in progress—about 15,000 acres. Tank water not much used as yet owing to river supply being plentiful still. Other grains and vegetables are reported last year (*Sic*)." Regarding the condition of paddy in Trincamalie the following report is made:—"Munmari crop good in the gravets. Tampalakam and Katukulampattu harvests nearly over. In Kottiar, fair, ready for harvest, except at Malliakative, where somewhat damaged by insects. Pinmari cultivation delayed by murrain." In the North-Western Province the prospects are fair but some damage has been done by rain. From Nuwara Kalawiya in the Anuradhapura district of the North-Central Province it is reported: "Rainfall deficient and partial. Some tanks have one-half and one-third filled, others close by have barely drinking water. Rainfall due to local thunderstorm and not general. Rivers here and in North Matale dry. A small meda harvest expected. The showers are beneficial to the growing tala and mendiri chenas. Prospects of yala crop unfavourable. Rice very scarce in villages. Kurakkan sufficient for present needs." In Tamankaduwa the rainfall is reported to have been only middling. The general condition of the crops is fair. In the Badulla district of the province of Uva the dry grain is reported as middling in Bintenne, and the paddy in the same condition in Wellawaya. In Udakinda the paddy crop is improving owing to recent rains, but in Bintenne it has been affected by drought. In Buttala Wiyaluwa poor crops are anticipated owing to the many appearance of worms in many fields. In the Ratnapura District of the Province of Sabaragamuwa the "Operations for sowing yala harvest throughout district much favoured by recent rains, but results of murrain seriously reduce extent cultivated in Meda and Kolonna Korales. Chenas cleared for el-wi and fine grain during month; not burnt off yet." From Kegalla it is reported "Four Korales fields ready for yala sowing Weather favourable. Chenas being cleared for hill paddy. Kurakkan about to be sown in Four Korales. Rain plentiful. Clearings going on for hill paddy. No cattle murrain. Outlook good."

On May 24th a *Government Gazette* Extraordinary was issued containing a return of the grain crop prospects for the first quarter of 1891. In the Colombo district of the Western Province the prospects of

the crops are stated to be fair; and in Negombo "crops damaged owing to want of rain in Sept. 1890;" and in Kalutara rain is desirable during the third and fourth weeks of the second quarter.' In the Central Province it is reported from Kandy that the want of rain is much felt, and the same complaint comes from Matale South. In other districts the crops have been affected not only by the want of timely rain but by insects. Coming now to the Northern Province the remarks opposite Jaffna are—"Prospects generally good, the unusual raino in February andMarch having benefited the standing crops and the pasture for cattle." RegardingVavuniya it is said: "In a month or two food will be scarce. Very little seed paddy in the district for this year's cultivation. From Mannar the report is the rainfall in the previous quarter was deficient, particularly in December, and the tanks did not fill. Very few remarks are made regarding any of the districts in the Southern Province, but regarding the Batticaloa district of the Eastern Province the observations are of a lengthy character. The following general remarks however is perhaps all that is necessary to give:—"With such favourable seasons, there is every prospect of a prosperous year. Trade is reviving, credit restored, and money available for fresh investment, as evidenced by my having already received application for several hundred acres of land for coconuts and paddy. Nor is this surprising, considering that a good year, such as the present promises to be, throws probably an additional R800,000 into the district." From Trincomalee it is reported that the water supply is good expect at Kantali where it is not quite sufficient. In the North-Western Province it is reported from Kurunegala. "Weather at present favourable for yala cultivation, but the rain was too late to do any good to the maha crops." In other districts the supply of seed paddy is said to be short. In Puttalam a failure of the paddy and kurakkan crops was feared but they were saved by a heavy fall of rain towards end of Jan. In Chilaw the prospects are fairly good. The reports from the Province of Uva vary a good deal, some districts suffering from drought, while others have had plenty of rain. In the Province of Sabaragamuwa the harvest seems to have been on the whole good. From the North-Central Province the report is that Chena is sufficient for present needs, but that there is very little rice available at paddy is held up for seed for Yala sowing if the usual rain falls.

VALENTYN'S HISTORY OF COFFEE.

(*Continued from page 874, Vol. X.*)

PART III.

M. Paschius who maintained that Coffee was known in the time of King David—Parallel passages from Scripture—The Author's own opinion about it—Du Four's Book on Coffee—The Parisians believe Coffee to be a species of Mulberry—The opinions pro and con of divers Philosophers, Apothecaries and Physicians as to the effects of Coffee drinking—Nicholas de Blegny's Treatise on Coffee, Tea and Chocolate which appeared in 1687—Mr. Anthony Galland's Book on Coffee—Abdulcader Mohamed and Abdul Gaffar the earliest writers on the subject—One Mohamed Ibu Saib of Dhabban in Arabia Felix goes over to Persia in 1466, and finds some of his brethren there in the habit of drinking Coffee; on his way back, feeling sick, he thinks of it takes a good *strong* draught and finds it very efficacious in raising his *drooping spirits*—How the people of Mecca prepared Coffee from the husk, and how they played Chess and Tjonka and kept attention awake by taking sundry sips of the beverage —The use of Coffee prohibited in Egypt by the Sultan Kair Beg, and, in Mecca, by its Governor, who, despite the arguments of the learned, believed that Coffee like Wine was intoxicating—The Governor summons an assembly of Divines who state their opinion—The matter is then referred to two eminent Persian Physicians of Mecca, brothers, who are both opposed to the use of Coffee—One Benjaazlah, however, comes out strong in favor of the beverage and is backed by a powerful majority; but the Persians insist that Benjaazlah knows nothing about it—All concur however that Coffee has the effect of disordering the "*Organs of the Brain*," the Mufti of Mecca alone dissenting; and the use of Coffee is accordingly prohibited and put down by the strong Arm of the Law—Coffee Bibbers of Mecca persist nevertheless in sipping the beverage by stealth, at the risk of losing their necks, and of being paraded thro' the Town *on the back of a Jack-Ass*—The Sultan of Egypt takes unbrage at certain *assinine* proceedings of his Deputy at Mecca and orders him *forthwith* to rescind the obnoxious decree—The Deputy obeys and rescinds it accordingly—The Persian brothers, thus discomfited, betake themselves to Cairo, where they amuse themselves by lampooning the Grand Signeur Selim, andlose their necks in the bargain.

"A certain gentleman M. Paschius by name maintains in his Latin Work published at Leipsic in A. D. 1700, that the parched corn spoken of in 1st Samuel xxv. 18. which Abigail, amongst her other gifts, presented to David to appease and avert his wrath, was no other than Coffee beans.

Of such parched meal &c. we read in God's Holy Word more than once, as in Lev, vi. 21. vii. 12. and 1st Chron. xxiii. 29; but I cannot admit however, that by that gift of Abigail we can understand anything else than what the word implies, to wit, parched corn more especially as I find in 2nd Samuel xvii. 28, the distinction clearly drawn; for, amongst the presents of Berzillai and other friends of David. mention is made of roasted wheat, barley, and meal, and of parched beans and lentiles; and hence I opine that they were all parched or roasted, not excepting the meal and the wheat, and the passage in question herefore cannot be understood as having nce o Coffee beans in *particular*.

Hence it is clear on the one hand with reference to these nice distinctions, that the parched corn and parched beans in Abigail's gifts, cannot be understood to mean Coffee beans; but on the other hand howevre it appears quite evident from the same passage 2nd Sam. xvii. 28. that the ancients were wont to go in quest of a certain species of beans and lentiles (the same distinction being observed between *beans* and *lentiles*. Ever since I became acquainted with Coffee I was nclined to believe that the beans referred to in this verse could be none other than Coffee beans, or at leat some sorst of beans used in a similar manner as the Coffee. I was not, however, led to this belief by the strong opinions expressed by M. Paschius or any other person; but this idea occurred to me whilst I was occupied in translating the Bible into the Malay language about the year 1690, and it was not till after a careful consideration of the verse referred to that the idea forced itself upon me, (*opgeborreld*, literally, bubbled up. I have since adhered to this opinion There are others again who went still farther and insisted that the red pottage, which Esau longed for Gen. xxv. 30., was nothing more or less than liquid Coffee, though this does not seem to me quite as probable as the foregoing supposition.

But to return to Du Four, who asserts that Coffee was not known in France till after 1645, and that when he wrote his Book, only 25 years had elapsed since Coffee began to be used there; that even it's proper name was not known then, and that when it was first used in Paris, it was believed to be a species of the mulberry.

At a later period when Coffee became more widely known, the Philosophers, Apothecaries, and Physicians were not unanimous in their opinion respecting it's quality or its effects. Some rejected it altogether as a Caput Mortuum, and hence as prejudicial to health.

Others again, more grave and less choleric, were of opinion, that Coffee even after it had undergone the process of roasting still retained many of it's oily and wholesome properties, and that tho' it might not tend to improve the health of persons of a delicate frame, it was very beneficial to persons of a sound and vigorous constitution who used the same moderately and did not overload their stomachs with too copious draughts, nor with too strong infusions. Coffee like medicine however healing in it's effects might, otherwise, prove injurious to health if used immoderately.

In 1687, a small Book appeared which professed to treat of Coffee, Tea, and Chocolate, by Nicholas de Blegny, but it consisted in the main of extracts from Du Four's Pamphlet.

Mr. Anthony Galland who was also a Traveller in the Levant and well skilled in the oriental languages wrote likewise a treatise on the origin and progress of Coffee.

He obtained all his information from a manuscript in the King's Library and afterwards sold his Book in Paris in 1699. The writer of that manuscript was one Abdulcader Mohamed, whose ancestors were natives of Medina. He was born in Mesopotamia and was of the sect or persuasion of Henbeli well known amongst the Moors. The Title of this Book was "What behoves one most to consider and believe concerning the true nature and efficacy of Coffee." That is "Whether it was lawful for the *Mohammedans* to use it."

This little work which consisted of seven chapters dwelt on the Etymology of the word *Caweh*, the virtue of Coffee, and the land where that beverage was first used.

It was written in Egypt, Anno Hegiræ 996 or in the year of the flight of Mahomed from Mecca which according to the reckoning of some (tho' there exists a great difference in the calculations) would answer perhaps to the year of Our Lord 1578.* It seems after all, the Abdulcader Mohamed himself borrowed the subject from the writings of one Szeich Abeddien Ibu Abdul Gaffar, who wrote on the subject long before him.

But in order to point out the exact time when a right knowledke of Coffee drinking was established, it is necessary to seek for information from a remote period.

Dzemaleddien Aboe Abdullah Mohamed Ibu Saib, of Dhabban, a town in Arabia Felix, then Mufti of Aden, repaired about the middle of the year 1466 to Persia and during his sojourn there, found some of his countrymen take Coffee; but he paid no particular attention to the circumstance at the time; on his return however homewards to Aden, finding himself in a very weak state, he thought of the Coffee which he saw used by his countrymen and tried some in the hope that it might do him some good and experienced the relief that he sought. He further discovered many other qualities in the Coffee, viz., that it was efficacious in removing head-aches, enlivening the spirit, and keeping off drowsiness. These stimulating qualities induced him and a Dervise to partake of the beverage when they went to prayers at night.

He likewise partook of it during the performance of many other of his devotional exercises, and since that time this drink became more general in Aden amongst all people of consequence, partly upon the recommendation of Dzemaleddien himself and partly upon that of Mohamed of Hadramaut a town in Arabia Felix.

Prior to this period, Coffee was not known in Arabia where this bean grows, nor elsewhere in the East, but according to this Arabian writer, Coffee was long before this in use in Abyssinia, although Messrs. Jobus Ludolf, Piere Telles, and many others who had written accounts of Ethiopia made no mention thereof.

From Aden this beverage was introduced into Mecca in 1500 where it was not then prepared from the beans, but from the shells (husks) which were brought from Yemen; for Mecca lies not (as many suppose) properly in Arabia Felix, but in the Government and deputyship of a stony region of Arabia which some call Tahamah and others Hidzaar and which is situated on it's border.

*A. D. 622. Era of the Hegyra or flight of Mahomet from Mecca to Medina. Tytler's Table of Chronology.

The use of Coffee now became more general and almost every body partook of it, as he whiled away his time in a game of chess, tzonka, the game of beans or some other amusement of the kind.

From Mecca it passed to the other towns of Arabia, and thence to Egypt especially to Grand Cairo; all which took place not long after 1511. But shortly after this the use of Coffee (which was introduced somewhat later from Cairo into Turkey) was prohibited in Egypt by the Sultan Khair Beg. The Governor of Mecca also who held office under the Prince of the Circassian Mammelukes, then Masters of Egypt, prohibited it's use there, imagining it was wine, for he found some people partook of this liquor in the Temple to keep themselves awake during the recitation of their orations. In spite, however, of the explanation given him of the harmless qualities of Coffee, he was obstinate, and being, at the time, quite ignorant of the innocuous qualities of the beverage which he supposed like wine had an intoxicating effect (and the use of wine was forbidden by their Law) he instantly ordered the offenders to quit the Temple and warned them against a recurrence of similar conduct.

On the following day he summoned an assembly of divines and related to them what had occurred. They were all unanimously of opinion that Coffee drinking was opposed to the Mohammedan Law and consequently that it ought to be suppressed.

They carried this matter, however, to far greater lengths here. An investigation was to take place in order to ascertain whether or not Coffee was deterimental to the *body* as well as the *spirit*; and it was accordingly judged expedient to refer the matter to the Faculty and take their opinion upon the point.

Hereupon the Governor sent for two Persian brothers, the principal Physicians of Mecca, who had but a superficial knowledge, of the art and one of whom had already written something disparagingly of Coffee, and submitted the case to them for opinion. They said that the Coffee husks being in their nature very cold and dry were detrimental and injurious to health; but a Physician of Bagdad named Benjaazlah, who was one of the assembly, observed that Coffee promotes the digestion of the phlegm, and that according to his opinion it was hot and dry (contrary to the opinion of the two others.) The rest concurred with him, and the opinion *that it was not injurious prevailed.*

The Persians then said, that Benjaazlah was misstaken, and that they spoke of another plant altogether, which he mistook for Coffee.

Finally, they came to the conclusion, that be the effects of the Coffee good or bad, it would be the safest plan for a Mohammedan to abstain from the use of it, especially as there were some amongst them, who placed Coffee amongst the things which disordered and confused the brain. *(Te meer, alzoo er zommige waren, die de Coffi onder de dingen stelden, die de herssenen bedwelmden.)*

The Mufti of Mecca alone, a great Jurist and Divine, ventured to argue with some vehemence in favor of Coffee, despite the Governor and the whole assembly; but his opinion and arguements were rejected and laid aside by the Zealots of their Law, and the use of and all dealings in Coffee were prohibited under severe punishment. Injunctions were given to the Chief Magistrates to watch against all Infractions of the order, and all the Coffee found in Mecca was directed to be burnt and destroyed, not excepting the Coffee in the Warehouses, the property of the Merchants. But these rigorous and severe measures did not either prevent or restrain those who were already strongly addicted to Coffee, from continuing the use of it stealthily in their houses, under a consciousness, that the prohibition was the result of an ill-judged sentence of the assembly, especially knowing, as they did, that the Mufti himself was so strenuous an advocate for it.

In the mean time an unfortunate delinquent fell into the hands of the Magistrate. The offender after being severely punished was as a warning to others, mounted upon an Ass, and paraded through all the streets of Mecca (*op een Ezel sittende, door alle de straaten van Mekka wierd geleid.*) But this state of things did not continue long, for the Sultan of Egypt

far from approving the indiscreet zeal on the part of his Governor, was much surprised to find so severe a punishment inflicted on Coffee drinkers, inasmuch as in Cairo, where there were so many abler Physicians than at Mecca, the opinion was in favour of Coffee drinking, and besides none of the teachers of the Mohammedan Law there considered Coffee drinking as opposed to the doctrines inculcated in the Koran. For these reasons, he ordered his Governor to recall and rescind the Decree, which he was obliged to do, tho' much against his will.

The two Persian Physicians finding themselves much despised and looked down upon, since the recall of the Decree, left Mecca for Cairo, and were there put to death for the imprecations hurled by them at the head of the Grand Signeur Selim 1st, who came to wrest Egypt from Campsoni al Gauri, and who was the last Sultan who restored the practice of Coffee drinking in Mecca."

PART IV.

The good people of Mecca sip Coffee *ad libitum* until a certain Cadi shuts up all the Coffee shops; but his successor, a better man, gets them all opened again—Soliman the Great sends forth an Edict denouncing the use of Coffee in Mecca, and it is generally believed that his Sultana is at the "*bottom of the dodge*"—The Pacha of Egypt who is rather fond of Coffee confers with his wise men on the subject and comes to the conclusion that the Great Soliman is a "*fool and a knave*"—Mr. Anthony Galland again; and some *choice* verses on the virtues of Coffee by a Turkish Bard—Constantinople—How Sjenis and Hekem flourished there and how their Coffee houses happened to be always choke-full of Poets, Philosophers and Chess players—The Mosques begin to be neglected the Turkish Divines sound the "*Tocsin of alarm*," and the Mufti or Pope thinks it high time to shut up the Coffee shops, and they are shut up accordingly—The Turks get to be excessively fond of the beverage and won't give it up for "love or money"—Of a Vizier who attempted to suppress the free expression of public opinion and of his two sons who played the part of eaves-droppers and brought certain *innocent* people into scrape—And lastly of certain honest shop-keepers who took advantage of the Coffee drinking mania and sold their good at a high premium.

"After the conquest—of Egypt by Selim (which took place in 1516,) it appears that Coffee drinking was more properly understood in Turkey, and by degrees the use of it became known throughout the country, especially as the use of Coffee was re-established and restored in Mecca, and no further questions were raised there up to the year 1525. The Cadi or Judge of the town, however, caused all the Coffee-house to be closed up that very same year owing to the great irregularities which took place daily, but without preventing, in particluar, any person using the drink in his own house. His successor however, ordered the re-opening of (the Coffee-house, forbiding only the recurrence of simlar irregularities and disturbances.

From Cairo the use of the Coffee spread gradually, 'ere it was known in Turkey, first to Damascus, and then to Aleppo, and eventually to Constantinople.

Subsequently in 1541, a carvan from Damascus reached Mecca with an Edict from Soliman the Great denouncing the use of Coffee, but this order was not strictly observed, as it was generally, known that it emanated from the Turkish Sultana, in her overwhelming solicitude for the Emperor, who indulged in the drink. Whilst at the same time the Bashaw of Egypt took the opinion of all the Teachers of their Law in writing, shewing the *vanity* of such an order, and the *ignorance* of those who condemend this drink.

Howeit theere prevailed some years afterwards a great deiversity of opinion in respect of the use of Coffee at Mecca; the people of that twon being divided into two parties each maintaining a different opinion,

Thus far proceeds the account of the aforesaid Arabian whose manuscript Mr. Galland have availed himself of as also that of a Turkish writer uamed Pitsjevelli (after Pitsjeri a town in Hungary) one of the three Treasurers of the turkish Empire. Mr. Galland also obtained some information from a Poem written by Beligi, a Turkish Poet, which agrees, *in substance*, with he foregoing account, and of which I subjoin a *poetical* translation:

Tot Halep vind m', en tot Damascus by de Grooten
En ook tot Cairo (daar m' al mede weet te ontblooten
De Coffi—Boon van hare schil) de Coffi-vrugt
Die 'leve en diere dronk, die wel zoo'n diepe zugt
Uit menig angstig hart na boven wist te haalen,
Eer die by 't Turks Serail begon te Zegepraalen.
* * * * *

[The following, it must be confessed, is rather a free rendering of the Dutch versian of this short Turkish Poem, from which a few lines have been given above. Your readers will, of course, excuse the shortcomings of the Transla'or in his attempt to give, at least, the *spirit* of the *original* in English verse.]

I sing the Coffee Plant, which, tho' oppos'd by Fate
Has spread thro' ev'ry Country, City, Sta'e,
At Halep, Cairo and Damascus too
It has secur'd the fame which was its due.
Say, who could estimate
The virtues of that drink
Which made not one,
But many thousands th'nk,
And write such works as made the vulgar stare
And fill'd the world with disputations rare ! !
Say, who could well describe its wondrous pow'r
To cheer the heart in "sorrow's lonely hour"
Sustain the drooping spirits of the fair
Who cag'd in Harems, pine in sadness there;
(Unhappy birds, I wish I had the key
To open wide your doors and bid you all be free
Coffee! rare plant
Where'er thou deign'st to grow,
The source of wealth
To hundreds here below:
Some thought that thou dids't *once*
The place of wine supply,
As well as Beer
As some will scarce deny.
Whate'er thou art, fair plant,
Of whatsoever clime,
Thy virtues great have puzzl'd oft
The wits of olden time;
But now we know thee well, fair plant,
And all thy virtues too:—
My task is o'er, farewell my muse
Ye Coffee, plants adieu ! ! !

Prior to the year 1554 very little was known of Coffee atConstantinople and still less of Coffee houses It was the Sultana who did her best to put a stop to Coffee drinking at Mecca, but in the same year nearly a century after Coffee had begun to be first used in Aden, and in the reign of Soliman the Great, two individuals named Sjenis and Hakem, the former of Damascus, and the latter of Aleppo established Coffee houses in Constantinople in a certain quarter called Tahhta-Calah, and sold the liquid to people of learning, Poets, Chess Players (more properly Szah-Players or lovers of the King's Game, for *Szah* signifies a King in the Persian language) or others who were inclimed to amuse themselves with some such games.

These houses were afterwards greatly multiplied and the very Turkish Courtiers resorted to them to regale themselves with a cup of *Caweh*.

As the use of Coffee became now more general and extended, these gentry were oftener to be found in the Coffee shops than at their Mosques. This gave rise to no small stir and grumbling amongst the Turkish, Divines, who loudly declaimed the practice as repugnant to the tenets of their Law, and got the Mufti on their side, who gave his assent to the shops being closed,

Hereupon, all the Coffee houses were immediately shut up, and instructions conveyed to the Chief Magistrates to see this order strictly enforced. Stern and absolute as this order was, it had not the effect of altogether putting an end to the use of Coffee.

Under Amureth the III. this order was again revived, but the abandonment of so agreeable a beverage was not to be endured by the Turks, who, by bribes and the connivance of those whose duty it was to watch over it, still carried on the practice of Coffee drinking, though not so publickly as before, the order being entirely disregarded.

This order was still less regarded during the time of the succeeding Mufti or Turkish Pope) who was not as solicitous about it as his predecessors. He sat aside this order, and not only permitted a free and undisputed use of Coffee, but he himself and the rest of the fraternity indulged in it and their example was immediately followed by the countries, &c.

It is also worthy of remark that these Coffee house brought great gain to the Prime Minister or Chief Vizier, who got from each house from one to two ucats daily, besides the one Asdar* hitherto levied on every cup of Coffee.

Mr. Galland further narrates that since the war of Candia when State affairs were discussed with some freedom of speech in these Coffee-houses by those who frequented them, the same were directed to be closed by the Grant Vizier Koeproeli or Kioeperli, who with his two sons, who acted the part of vigilant informers, spared no pains in visiting these houses *incognito*, and listening to all slanderous discourses against the Government, in order to punish the delinquents with great rigour—and the same vizier during the minority of Mohammed the 4th caused all these houses to be closed up, regardless of the great loss which this proceeding entailed upon himself.

Although the Coffee houses were suppressed there was no diminution in the consumption of that beverage, for it was now carried to the public market and about the principal streets, *fresh* and *hot*, and sold to the public, who partook of it in the neighbouring shops, where the consumers whery very welcome, as it was one of the means whereby the shopkeers succeeded in drawing their attention to the goods exposed by them for sale, and which these Coffee quaff rs were oblighed, *nolens volens*, to purchase."

(*To be continued*)

THE NUWARA ELIYA SHOW.

The promoters of the Agri-Horticultural Show at Nuwara Eliya may well be congratulated on the success which has so aboundantly attended their efforts. It has been the means of creating a great social gathering when all classes, from the Queen's Representative to the native gardeners, have met together with mutual pleasure and, we may hope, with mutual advantage. Other considerations apart, were it for this object alone, such Exhibitions deserve the hearty support of everyone, and should be fostered with all possible solicitude; while the Flower Show has afforded an opportunity for floriculturists to shew others the plants and flowers on which they have bestowed so much attention, and of which they may so justly feel proud. When we come to the exhibition of garden produce, we take leave of the beautiful and the showy, and enter at once upon what is useful though, it may be, inartistic; and, though the culture of flowers is at once interesting and refining, attention to culinary produce is also profitable and conducive to the preservation of health. The addition of a horse and poultry show was, no doubt, an ingenious device to increase the attraction of the exhibition so far as the gentlemen are concerned, many of whom, we regret to observe, fail to regard a lovely flower as "a thing of beauty and a joy for ever." Although there appear to have been a number of small prizes which failed to attract competitors, the exhibition was an exceedingly pretty affair, and afforded a vast amount of pleasure to a great number of visitors from all parts of the country. Regret has been expressed in several quarters that planters prove so indifferent about the exhibition of estate products. No doubt a varied collection of tea, coffee, cinchona, cocoa, &c., &c., would add considerably to the interest attaching to such exhibitions, but it is not altogether unreasonable to suppose that the planters of the present day are disinclined to regard *au serieux* the flower-shows at Nuwara Eliya. Planting interest have undergone very great changes since the days of the highly successful Shows held in Kandy and Colombo some years back. We may remark in parenthesis that Kandy is much more favorably situated for an Agricultural Show than is Nuwara Eliya, and much more likely to secure the exhibition of produce and machinery. When those Shows were held a variety of products had been introduced to take the place of the declining coffee. Cocoa and tea were comparatively new to the public; cinchona was looked upon as a great stand-by; and the different qualities of quill, chips, renewed, &c., &c., were all eagerly inspected by an interested public. But it is quite a different matter now. Tea has taken the place of coffee, and cinchona is totally disregarded; everyone knows all they care to know about cocoa, and even cardamoms and india rubber have fallen into disrepute, to say nothing of annatto, sapan, &c., &c. Moreover, it must not be forgotten that the judging of the tea samples in Kandy was attended by unpleasant differences of opinion, mainly, it is true, about what constituted a fair commercial sample, but nevertheless a feeling of irritation remained in the minds of many in spite of all efforts at explanation. When a planter found the tea he exhibited in Kandy fetching in London a penny a pound more than the gold-medal tea of the Kandy show, he naturally felt that that medal had been wrongly bestowed. Tea-making is now the business by which planters make their living, and when it comes to an exhibition in London or Melbourne, where great interests are concerned, and where the competition embraces the produce of rival tea-producing countries, we have no doubt Ceylon planters will again come forward as they have done in the past, and do their best to take the front place with their estate products. But in these petty local exhibitions it is not worth while; they lead to no business, and they require just the same care and trouble as regards the exhibits as do the more important Shows in foreign countries. In short, the flower-shows at Nuwara Eliya and Kandy are regarded as mere sources of amusement and sociability; whilst the exhibitions in other countries are meetings of commercial value and importance. Amongst the exhibits at Nuwara Eliya we notice some cinchona crown bark said to have been five times renewed. We should be very glad to know how this "fifth renewal" bark turned out an analysis, as for a long time there was an impression abroad that "renewed" bark, as well as very old "original," was apt to lose its value by deterioration: In regard to the india-rubber not thoroughly drying, but becoming hard outside, whilst the interior shoued a mass of soft decaying milk, it is pretty evident that it had not been exposed to dessication in sufficiently thin layers to enable the drying process to be thorough. The Indians in South America are said to smear the coagulating juice over a clay mould something in the shape of a soda-water bottle holding it over a fire, and, as one layer becomes dry, another is put on, until a solid lump is attained. The clay mould is then broken or cut out. On the East coast of Africa, and in Madagascar, the rubber is collected by the natives and brought to the trader in irregularly shaped lumps bigger than a man's fist. These lumps are promptly cut in two with a heavy knife—to see if any earth or stones are present—and then the rubber is weighed. We may add that the rubber has an abominable smell in this stage of preparation, and the same may be said of the rubber which comes down from the Chindwin and other parts of Upper Burmah. We have always thought that rubber cultivation was too hastily abandoned in Ceylon, but at the same time we fail to see any prospect of its being again taken up as a commercial undertaking.—Local "Times."

* A Turkish coin equivalent to three farthings of our money.

IMPORTANT TO PLANTERS.—**An announcement of some importance to planters appears in our advertising columns today. Messrs. J. M. Kirwan & Co., Billiter Square Buildings, London, announce that the planters desirous of giving a trial to the firm's prepared paper for lining tea chests which has now been successfully tested on the London market, can have sufficient to line 25 chests free of charge on applying to Messrs. Bosanquet & Co., Colombo.**

TECHNICAL INSTRUCTION IN NORTHERN INDIA.

We have been favoured with the perusal of a very able Minute on Technical Instruction drawn up by Sir Auckland Colvin for the guidance of his Government in the North-West Provinces of India. As there is much of interest in it to us in Ceylon we append the following summary, and call attention to the prominence given to the need of a training in mechanical industries:—

The minute is an exhaustive document comprising thirty-six heads shows what up to the present moment has been the course of matters in the North-West provinces and what has been done in Madras, Bombay and Bengal. On 16th Sept. 1885 the Government of India forwarded for consideration certain papers from the Madras Government containing a scheme for promoting technical education in industrial arts and manufactures by offering grants-in-aid to encourage the teaching in schools so aided of technical science, arts and handicrafts, and by testing that teaching by a system of public examinations. The aim of the scheme was to create and encourage technical instruction in middle-class schools. In reply to a "note" from the Secretary to the Government of India in the Home Department the Director of Public Instruction pointed out that the question of establishing Faculties of Medicine and Engineering was under consideration in Allahabad University which was also considering the preparatory course for students desiring to matriculate and the course for degrees in law and arts. The question had been brought to a practical issue of Oudh, and in Lahore it had also been considered. The question of agricultural and veterinary schools he proposed should be referred to the Department of Land Records and Agricultural as also the teaching of land surveying. Col. Forbes on the question of instruction in engineering stated that the practical instruction gained by natives at the large railway workshops at Allahabad, Lucknow, and Lahore, and at the Government workshops at Roorkee was now bearing fruit at Delhi where there were at present 17 foundries and mechanical shops, one with a 20 horse-power engine, worked entirely by natives, without European supervision; at Roorkee where there was a small foundry and shop under native management; at Meerut where there were two native foundries and shop, and at other places. He thought it unnecessary therefore for the Government in these places to start schools for technical engineering, but facilities might be given to selected middle or high schools students for going through a four or five years' course of work at a railway or Government workshop. The Director of Land and Agriculture pointed out that surveying and mensuration were largely taught in the schools under the Educational Department and that in every district in these provinces there was a school of practical surveying. He advocated the creation of a Normal School for surveying only at Cawnpore or Lucknow. Lads he so well trained in horticulture at the Saharanpur and Lucknow Gardens; and at the Cawnpore farm there were a few apprentices in training. There should be small scholarships for the maintenance of boys at the various workshops; an art school at Lucknow; agricultural and veterinary schools or classes in high schools; and drawing should be made compulsory;—Dr. Rice, Inspector-General of Civil Hospitals, disapproved of the proposal to teach up to a higher standard than that of the hospital assistant class. After a number of other details the minute goes on to state that the establishment of what has been described as "a special examination of a commercial and practical character" by the University of Allahabad is also under considerations, its aim being to give a preliminary instruction without which no large growth of technical education can be hoped for. The offer of the British India Association to establish a Jubilee School of Industry at Lucknow is also recorded, and various papers from the Bombay and Bengal Governments on the subject of technical instruction referred to, as well as lengthy quotations made from a letter of Sir Alfred Croft and the Government's reply thereto.

Proceeding, the minute says it seemed probable that the railway, Roorkee, and other workshops provide sufficient training for the mere artizan and that his training may be left to them. What seems mostly needed at present in these Provinces is the provision of greater facilities for a somewhat higher class of training in those new mechanical industries which have been introduced by British capital into these Provinces, and in regard to which though there may be a growing demand for skilled labour, there is no indigenous supply. Facilities should be given for gaining a competent theoretical and practical knowledge of the more subordinate grades of mechanical engineering, such as is necessary to a foreman mechanic, more specially in connection with the steam engine, the railway workshops and the iron foundry; and also of the processes of cotton-spinning as employed in the mills established in these Provinces. At Roorkee there is a Government engineering college and Government workshops and it seems probable that there is the nucleus of the instruction necessary. Prior to admission to such classes it would be necessary to establish some such test as the Anglo-vernacular middle-class, to ensure some tolerable knowledge of English, and as a guarantee of the good faith of those who sought for instruction. A three or four years' course of instruction, theoretical and practical, would be required, which would possibly include a term of practical training in the railway workshops and the cotton mills. The proposal which seems most practicable at present is that a certain number of scholarships should be given to be competed for by students desirous of entering the college and that the holders of the scholarships should by means of them, be enable to pass through their course of instruction, whether at Roorkee or, (as part of their course) in attendance at workshops or mills. Before any decision however is arrived at, it is wished to learn the opinions of railway authorities and employers or directors of mill-hands as to whether there is a field of employment for natives trained in the kind of education proposed; that is as foremen mechanics and not mere artizans; and whether for the present the means of instruction for the ordinary artizan are sufficient; and if not what steps are possible in view of the means at Government command for improving that instruction. Assuming the class of instruction proposed is that which is most desirable it will be necessary to learn whether the railway and mill-employers are willing to allow students to go through a practical training at their establishments and if so under what conditions. It is considered premature to go fully into the question of funds until it has been ascertained that the bases on which it is proposed to mild are practical.

BLACK PEARLS AND EXPERIENCE OF THE PEARL FISHERY.

We had a call on May 15th from Mr. W. de Carolis Leather merchant of Kollupitiya who had a fine black pearl to show us. It was one of the finds in the present Fishery and is valued at from R750 to R1,000. It is not a perfect one in shape, though not far out, weighs 7 carats and measures over an inch in circumference. Mr. Carolis had besides half-a-dozen small black pearls and two goodly lots of white ones, the proceeds altogether of his investment in oysters. We were curious to see how his experience had worked out. He had sent three of his relatives to the Fishery and they had bought altogether 64,000 oysters at a cost of some R1,800. In return they brought him one lot of ordinary pearls, some middle size, many small valued at R1,100; another lot value R200; and the black pearl, say R1,000; altogether R2,300. A poor return this considering the expenses of the party and the risk attending the sale—if the pearls should be sold—at these valuations. Mr. de Carolis intends to send the black pearl to the London market.

CEYLON PRODUCE SHIPMENTS—ESTIMATES—AND PROBABLE TOTAL EXPORTS IN SEASON 1891:

TEA.

In their circular of May 14th, Messrs. Forbes & Walker put the total shipments of tea from Colombo at 25 millions lb. from 1st January to 14th May of the current year. At this ratio, we should have to put down the probable total exports of the whole year at 66 millions lb., against estimates varying at the beginning of the season from 52½ millions (Mr. Rutherford's) to 58 millions (Mr. Forbes Laurie's). But it is acknowledged on all hands that, so far as it has gone, the season has been a most unusually favourable one all over the country for tea. There has been no stoppage of flushing due to drought: on the contrary the weather has been so continuously moist all through what is commonly our dry hot season, that the tea bushes have been as if in a forcing house and have kept "flushing" at a rate which set all precedent and estimates at defiance. The experience may be very different if we get a cold raw South-west monsoon with such heavy continuous rain as stops the flush, at least in the higher districts. Still, there is no reason to anticipate a worse monsoon in this respect than usual, while as for the drawback to which low districts chiefly object, namely drought, there is, we fancy, not the slightest chance of that extreme being experienced between June and December on the South-west side of the island.

On the whole then we do not see why the ratio we have adopted should not very nearly hold good for the year; for usually, the percentage of shipments has been heavier in the latter than in the first half of the year. A table in our last "Handbook and Directory" shews the percentages worked out from the experience of the seven years 1883 to 1889 inclusive, as follows;—

SHIPMENTS OF CEYLON TEA CROPS FROM COLOMBO, GALLE AND FOR ISLAND.

For the Seven Years 1883-89, in Each Year and Percentages.

For Colombo.

For Colombo:	Total for 7 years.	Average for 7 years.	Percentage on whole.
1st Quarter	17,820,3[illegible]½	2,545,764	20·39
2nd do	26,220,181½	3,745,740	30·14
3rd do	20,710,055¼	2,958,579	23·72
4th do	22,651,280⅝	3,235,899	25·75
Total, Colombo ...	87,401,878⅜	12,485,982	100·00
For Galle	879,855	125,693	

This shews that we should be justified, according to the above experience, in regarding the shipments of 25 millions lb. up to 14th May as only equal to 36 per cent of the total export for 1891, which should thus aggregate 70 millions lb! In anticipating a total in excess of 60 and not far short of 65—say 63—millions lb., we are therefore apparently well on the safe side, unless the present low prices check shipments.

If we go by the Chamber's latest return and compare the shipments for four seasons up to its latest date with the totals for the years, the result works out as follows:—

Years.	Total Shipments.	Shipments to 11th May.	Per centage.
1891 (say)	63,000,000 ...	24,105,748 ...	38·26
1890 ...	46,901,554 ...	15,038,489 ...	32 06
1889 ...	34,048,085 ...	11,603,616 ...	34 07
1888 ...	24,381,796 ...	6,005,512 ...	24 60

This shows how much less is the percentage (61·74) that we leave for the shipments of the rest of this year, than was required in the three previous years.

We may now show the wonderful way in which the Ceylon tea crops have run up beginning with 1885, and giving the percentage of increase for each year. Of course it will be borne in mind how much less important is a large percentage on a small export, than one on the large shipments of recent years:—

	lb.	Annual increase.	Percentage of annual increase.
1885	.. 4,411,578		—
1886	.. 8,111,137	3,699,559	84
1887	.. 13,800,545	5,689,408	70
1888	.. 24,381,296	10,580,751	75
1889	.. 34,048,085	9,666,789	40
1890	.. 46,901,554	12,853,469	37
1891	.. 63,000,000	16,098,446	34

(To be continued.)

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, April 23rd.

CINCHONA.—The public sales which took place here on Tuesday were rather heavier than the preceding auctions, the catalogues consisting of:—

	Packages	Packages
Ceylon bark	....1,144 of which	1,122 were sold
East Indian bark	1,709 do	1,709 do
South American bark	.... 172 do	150 do
Total	..... 3,025 do	2,981 do

A fairly steady tone prevailed, and nearly the whole of the supply offered sold at rates which are said to show some slight improvement on the last auctions, although they cannot be said to be quotably higher. The average unit may be put at about 1d per lb. The assortment of barks offered was very poor, and again the East Indian cinchonas largely outnumbered those from Ceylon.

The following are the approximte quantities purchased by the principal buyers:—

	Lbs.
Agents for the French manufacturers ...	136,914
Agents for the Brunswick work	130,915
Agents for the American and Italian works	98,211
Agents for the Auerbach works	69,489
Agents for the Frankfort o/M and Stuttgart works	63,678
Agents for the Mannheim and Amsterdam works	63,602
Messrs. Howards & Sons works	55,358
Sundry druggists works	35,012
Total quantity sold ...	653,179
Bought in or withdrawn	9,399
Total quantity offered ...	662,578

QUININE.—The market is just a shade better this week, sales being reported of 5,000 oz. "Auerbach" brand at 10½d, and about 5,000 oz. B & S or Brunswick, all in second hands, at 10½d per oz. It is said that there are no further sellers under 10½d per oz.

TEA IN INDIA.

(From Watson, Sibthorp & Co.'s Report.)

1, HARE STREET CALCUTTA, May 6th, 1891.

They have now the pleasure to give you the figures showing the actual outturn of the Indian tea crop of 1890.

Actual outturn of crop of 1890. 105,836,106

The total shipments to all places from the 1st May 1890 to 31st March 1891 having been 104,954,625 lb., the difference represents the local consumption and any small portion of last season's crop still to go forward. It will be seen from the above figures that the actual outturn was less than the original estimate by more than 9 million lb.

The following figures kindly furnished to the General Committee show the estimate of the crop of 1891:—

Original Estimate of crop of 1891. 119,790,011

being 4¾ million lb. over the original estimate of the crop of 1890. Taking the shipments to other places at 10 per cent over those of last year and making allowance for local consumption, there will remain about 112 million lb. for export to great Britain against 98¾ million lb. shipped there during the past season. It is possible, however, that the actual outturn of the crop of 1891 may be considerably less than the estimate as was the case last season.

TOTAL EXPORTS OF TEA FROM CALCUTTA, FROM 1ST MAY 1890 TO END APRIL 1891.

	1890-91.	1889-90.
Great Britain...	98,132,298	98,303,11$_8$
Australia and New Zealand ...	4,837,998	3,596,04$_2$
America	133,818	187,50$_2$
Bombay	901,297	1,133,97$_4$
Sundry Ports...	307,423	419,50$_3$
	104:,312,834	103,640,142

FLOODING THE PRODUCE MARKETS.

The following editorial from the *Chemist and Druggist* (April 18th) contains a grave lesson to Ceylon planters, who, indeed, know too well already from their experience of cinchona bark, what over-production and ruinously low prices mean. The question is now whether there should be any further extension of tea cultivated here, seeing the heavy production and the scarcity of labour which are likely to be encountered :—

Not the least interesting among the results of the immense expansion which the boundaries of our empire have undergone in Africa and Asia during the last five years, and of the extraordinary revival of the feelings of kinship among the scattered parts of the Empire are the numerous schemes to render the outlying portions of Greater Britain more productive and to utilise their latent resources to a greater extent than heretofore. To say that, from climatic and economic standpoints, there is scarcely a natural product which cannot be produced within the limits of the British dominions is a truism so trite that we almost apologise for repeating it, and general sympathy with all efforts to increase the productivity of any part of the Empire and enhance the well-being of its inhabitants, may be similarly assumed. But enthusiasm for Colonial development has its dangerous side. And to no one should the reverse of the medal be more apparent than to the produce merchant, who with an intelligent interest keeps himself informed of the new sources of production of the raw materials of industry, and compares their probable supply with the demand which may fairly be expected for them. The drug importer in particular enjoys unusual means of observation on this point. No other merchant draws his raw materials from so many sources, and there is probably no other trade in which the grades of usefulness of any given article, from the almost absolutely valueless to the highest excellence, are liable to vary so much as in his.

To the produce importer, who sees the probability and often actually experiences the difficulties attending the glut of his market by the introduction of new developments of enterprise, the proverbial benefactor who enriches the world with that often-mentioned additional blade of grass, is not always so welcome as he expects to be. The authorities of the Royal Gardens at Kew, who are doing eminently useful experimental work in connection with the acclimatisation of produce, are not free from the risk of allowing their zeal to outrun their discretion, from the importer's point of view. It may be suggested even to them that in selecting their new investigations they might at least first ascertain approximately the world's requirements and capabilities of absorption. A case in point has occurred this week. Before the Royal Colonial Institute, on Tuesday night, Mr. Morris, the energetic assistant-director of Kew Gardens, read an interesting paper on the "Leeward Islands"—that little group of western paradises entwining the Caribbean Sea with a girdle of fragrant verdure. Mr. Morris has previously spent many years in botanical pursuits in the Antilles, and has just returned home, filled with re-awakened memories of the unexhausted fertility of the Antilles. He talks of their wonderful productiveness, and urges the investment of a "moderate amount" of capital in their development. Dominica produces annually about 8,000*l.* worth of lime-juice; and in Montserrat a thousand acres are covered with lime plantations. The profits, as a communicative planter rashly explained to him, as it were with a view of inviting others to come and compete, are large. An outlay of 1,000*l.* will establish a 20-acre plantation in full working order, with works and plants complete, and defray the expenses of supervision for seven years. At the end of that time the estate would yield at the rate of 40 hogsheads of concentrated lime-juice, worth 40*l.* each, or 480*l.*; while the yearly cost of cultivation and manufacture would be about half that amount, leaving 240*l.* as the net annual profit. If the industry is such a profitable one at the present time, the happy lime-juicers of Dominica had better rest content in their modern Arcadia, instead of bragging of their gains to the promiscuous visitor; but what prospect is there, we ask, that this rate of profit would be maintained if, say, the acreage under cultivation were doubled or trebled? So with gambier. The Kew authorities have lately been paying special attention to this valuable tanning material, and numerous attempts at its propagation are being made in the West India islands. The United States being among the largest consumers of gambier, it is certainly reasonable to expect that, if they could obtain it as cheaply at their own doors, they would not go to the Straits Settlements for it. But while we do not say that there is not room for an increased output of gambier, it should be borne in mind that its manufacture in the Straits Settlements is practically a monopoly of the Chinese, who have thus far been the only people who can make the culture pay. What Chinese competition would mean, if it is a question of producing cheaply, there is no need to particularise. Are our West Indian colonies prepared, at a time when Australia and the States are compelled to exclude Chinese from their labour markets, to rush in where the European planters of the Straits Settlements have hitherto feared to tread? It is not quite enough that the warm moist valleys of Dominica are likely to suit the gambier-plant in every way. The question is, whether the planters there could face the possibility of a fall in the value of the manufactured product to say 10*l.* per ton, instead of the 40*l.* which it realises now. Again, we are informed that "spices, such as nutmeg and mace, vanilla, black pepper, cubeb pepper, long pepper, cloves, ginger, cinnamon, cardamoms are already introduced into this part of the world. The demand for spices is increasing, and these islands could grow every one of those mentioned, if only the people would give their attention to them and treat them according to their special requirements." But is it not a fact that the cultivation of nearly every one of these products is already, if not overdone, at least so fully provided for that further competition can only prove disastrous from a financial point of view? Pepper, for instance, is almost exclusively produced and brought into commerce by Chinese cheap labour; vanilla is a product the cultivation of which requires not only unremitting care but a dexterity only to be acquired by practice, and any considerable addition to the production of Mauritius, the Seychelles and Mexico, would send prices down to the lowest verge of remunerativeness. The commercial history of cubebs, records price-fluctuations from 35*s.* to 30*l.* per cwte within a few years. The increase in value of thn article has led to an enormous extension of cultivatiod in Java, and the value of the drug—which, it shouli-be remembered, is one of comparatively small signw ficance—has fallen 100 per cent. within the last fem months, while the exports from Java have risen froal 118 piculs in 1888 to 1,373 piculs in 1890. Essentich oils scarcely offer greater promise. Witn those whioh are produced in France and Italy it would require not only a considerable capital, but also a vast fund of practicaly experience to cope. Our knowledge of the chemistr" of essential oils is as yet so limited, and adulteration so difficult of detection that buyers are compelled to rely very largely upon the honour and commercial reputation of the growers with whom they deal; hence custom and prejudice prevail in this trade to an almost incredible extent. A slight innovation—often of the nature of an undoubted improvement—in the packing of

an essential oil is usually sufficient to render the sale of the new product unremunerative, as anyone knows who is acquainted with the wholesale markets. Oils of lavender, eucalyptus, peppermint, geranium, clove, rose, petitgrain, to mention only a few at random, are already distilled in quantities which would render any further competition ruinous.

We have no desire to dissuade Colonial planters or intending investors of capital in Colonial enterprises from carrying out their intentions; we only ask that they should consider the possibility of finding a market for their product before they lay out their plantations. Otherwise it is clear that within a few years the produce markets of the world will be flooded with merchandise from the newly-acquired or commercially revived colonies in all parts of the world, for which there will be no outlet, and the disasters of the cinchona and shellac markets must inevitably be repeated on a larger scale than before.

All this is but too true; but we fear it is only preaching to deaf ears. Each man, as in the case of religious teaching, generously hands over the lesson to his neighbour, but cannot admit the personal reference to himself!

WHAT WE DRINK.

More and more beer; steady in our use of distilled spirits and wine; rather less of coffee and tea as compared with past years. This is an important study, for it has a direct bearing upon the physical and social condition of the people. A simple presentation of the figures is so forcible as to require little comment. And here they are:

PER CAPITA CONSUMPTION.

Year—	Beer. Galls.	Spirits. Galls.	Coffee. Lbs.	Tea. Lbs.
1890 ...	13.66	1.40	7.90	1.34
1889 ...	12.72	1.32	9.20	1.30
1888 ...	12.80	1.26	6.89	1.36
1887 ...	12.23	1.21	8.36	1.46
1886 ...	11.20	1.26	9.20	1.35
1885 ...	10.62	1.26	9.45	1.15
1884 ...	10.74	1.48	9.16	1.10
1883 ...	10.27	1.46	8.53	1.28
1882 ...	10.03	1.40	8.25	1.46
1881 ...	8.65	1.33	8.23	1.54

The decrease in the per capita consumption of coffee during the past four years, as compared with the four years 1883-86, is due to the increased cost of the article. Notwithstanding tea has been cheap, it is not as freely used as it was ten years ago. On the other hand, the use of beer steadily increases from year to year, leaping within ten years from 8·65 to 13·66 gallons per capita. This meant, in 1890, the use of 855,792,335 gallons, all except 2,716,601 gallons of domestic manufacture. The present consumption of foreign wines is only about one-half the quantity, as compared with the quantity used during the period 1870-74. The use of domestic wines has advanced from an average of about 20,000,000 gallons in 1878-82 to about 30,000,000 gallons annually for the past three years.

The consumers of the United States paid at retail for the year 1890, the following sum for drink:

Malt and spirituous liquors	$900,000,000
An increase of $200,000,000 in four years	
Coffee	122,500,000
Tea	30,000,000
	$1,052,500,000

Here is spent for beverages over one billion dollars annually, or about the amount expended by the last Congress. Think of it...two thousand millions per annum for beer, whiskey, coffee, tea and a Congress. Truly we are a great people!!

The Government derives a revenue of $107,000,000 from liquor, which is $26,000,000 less than is required to pay pensions. It looks like robbing Peter to pay Paul.—*American Grocer.*

VALENTYN'S HISTORY OF COFFEE.

(Concluded from page 5.)

PART V.

Coffee houses at Constantinople for the accomodation of Sailors—In spite of Mandates and Edicts, the Coffee Kettle is still "singing on the hearth" and the Turks are sipping away Coffee like mad—If a Turkish wife did not get a *quantum suff*: of Coffee she was entitled to sue her Lord for a *divorce*—People of rank and fashion and their *Ganymedes*—Their Silver Trays and Gold Cups—A few drops of the Essence of Amber or Clove give an agreeable odour to Coffee—Monsr. Thevenot makes a Coffee Party in Paris in 1657, and invites his friends—Of the Venetians who are supposed to have been the first Coffee bibbers amongst European Nations—Petro dalle Valle once more—of the Druggists of Marseilles who carried on a *roaring trade* with the Egyptians—How certain Coffee Houses were established in that rising Town, and how certain Merchants and Brokers discussed Commercial matters and enjoyed their Pipes therein—How certain Doctors and Physicians made another foolish attempt to suppress the use of Coffee and most signally failed—The probable supposition that Coffee was first introduced into Paris by Soliman Aga and his Retinue in the Reign of Louis XIV—and lastly how the said Soliman Aga sought an audience, which was vouchsafed to him by the French Monarch after a delay of *only* six months.

"Whilst Mr. Golland was still in Constantinople there were 2 or 3 Coffee houses at Galata for the accommodation of the Sailors in particular, though there were many more houses in the other Towns of the Turkish Empire, which were for the most part frequented by People of learning and rank.

The Order or Mandate from Constantinople had the effect of bringing about only a more extensive use of Coffee in the other Towns, so much so, that it was taken twice a day by strangers; and besides, the Coffee kettle used to be kept in constant readiness by some in order to be able to offer to visitors a single cup at least. The custom was carried to such an extreme, that the non-presenting of a cup of Coffee, or of its refusal when offered was considered as indicative of a great want of courtesy.

Some spent on Coffee as much money perhaps as would have paid for their Wine in Paris or elsewhere; and what was more extraordinary was, that if a husband did not provide his wife with a *quantum sufficit* of Coffee, this was considered sufficient to entitle her to sue for a divorce.

People of rank and station here, have a special Cup bearer or Kahvehgi, and Overseer over Coffee who is stationed in a certain apartment near the hall where they generally receive company.

In serving out this beverage, it is first presented to strangers, and lastly the owner of the house, excepting when the Grand Vizier entertains Envoys at Coffee. On such occasions he drinks simultaneously with his guests. The non-presenting of Coffee, indicates a want of friendly feeling, and is commonly regarded as one of those things likely to lead to a *breach of the peace.*

Here Coffee is served out upon a varnished or Silver Tray or Salver capable of holding from 12 to 20 Cups which the wealthier classes get partially mounted with silver.

Their Cups are somewhat larger than ours, but they never fill them to overflowing.

They take it very hot without any sugar, but rather strong. At Court a few drops of the essence of Amber are added to each Cup, and sometimes a bit or two of Cloves or Cardamon or some Indian Aniseed which impart a very agreeable odour to the Coffee.

That well known Traveller Mr. Thevenot, was the first who introduced the use of Coffee into Paris on his return homewards from his first trip in 1657, when he entertained some of his particular friends and treated them to a dish of Coffee.

The Armenians also it would appear subsequently imported Coffee into France, as we shall presently see.

It is not possible to say the exact period when Coffee was first introduced from Arabia or Egypt in to Europe, but the most probable conjecture is, that the Venetians and some other Italians were the medium thro' which a knowledge of it was imparted to other European Nations.

Some assert that Petro della Valle was the first who introduced Coffee into Italy, and he himself mentions in the 1st Vol. of his Work page 90, that he brought it with him to Italy in 1615, when Coffee was not even known there. It was Mr. Thevenot, however who first introduced it in France as far perhaps as its *use* was concerned, for it would seem that Mr. Galland's father, who was an Attache to the Legation of Mr. de la Haye in 1644, brought Coffee into France and all it's appurtenances with him from Constantinople.

Coffee was imported to France by the Merchants of Marseilles in 1660; since which time an extensive Coffee trade was carried on by the Druggists of the place, who ordered ont whole bales of it from Egypt (*doende die met geheele Baalen uyt Egypten komen.*)

In 1671 the first Coffee house was established in Marseilles near the *rendezvous* (*vergader plaats der kooplieden*) of the Merchants where smoking and games of all kinds were also permitted. This house was of great service to the Merchants, Mariners, and the Orientals, who were wont to meet there and discuss their Commercial affairs This led to the establishment of many other public Coffee houses there.

Some time after this the Doctors and Physicians came forward with serious objections to the use of the beverage, which they said was very prejudical to health in that dry and sultry Region. These objections were treated at first very much in the same way as those that were raised in Mecca, Cairo, and Constantinople, but with this difference, viz. that *there* the objections were taken on *religious* grounds, and *here* on the *score of health.*

Hereupon there arose public differences, discussions and academical controversy (1679) and Coffee was denounced on account of it's dry and hot properties, and on account of the powerful effects it produces on the brain, causing thereby too profuse an evaporation of the bodily fluids, whilst it at the same time obstructs the pores of the coarser parts (*de grove deelen*) of the body and induces the animal spirits (*dierlyke geesten,*) which bring on sleep, to ascend into and penetrate the brain, by which means the sinewy sap (*de zenuw-zappen*) which is so essential to the restoration of health becomes entirely absorbed and the sinews themselves relax and lameness and other bodily infirmities ensue.

And further that by the sharpness and dryness of the blood, which is entirely burnt up (*door de scherpheid en droogte des bloeds, dat reeds als geheel verbrand is,*) the different members of the body are so completely drained of their essential fluids, that the body itself must necessarily become enfeebled and emaciated; and those especially, of a sanguine or melancholic temperament or who have a hot liver, *like* brains and fine spirits (*en die genen, die een heet lever, sulke herssenen en fyne geesten hebben*) are most liable to suffer from these effects, which are produced by the noxious and unwholesome properties of Coffee.

All this stir and opposition ended at Marseilles much in the same way as the clamour which had been raised by the Priests at Mecca, Cairo, and Constantinople, nor did it in any way check the use of Coffee in that town, or it's neighbourhood; but on the contrary it laid the foundation of a successful trade there and at Lyons, to which places large quantities of Coffee were imported from Egypt and Smyrna.

Prior to the year 1669 they knew nothing of Coffee at Paris; and indeed nothing more was known or heard of it earlier than 1657, beyond Mr. Thevenot's allusion to it, and the casual accounts given of it by some travellers.

The most probable supposition is, that Coffee was first brought into Paris, when Soliman Aga, was sent as an Envoy there by Mohammed the IV. to Louis the XIV., and that large quantities of it found their way into Paris thro' the followers or retinue of Soliman, who made presents of it to the Parisians.

This ambassador arrived in Paris in July 1669, but had audience only on the 5th December, and quitted Paris in May 1670, and it was at this time that the use of Coffee became properly known in Paris and the demand for it became gradually so great, that large quantities of it were obtained from Marseilles for consumption."

PART VI AND LAST.

In 1672, an Armenian comes over to France and opens a Coffee shop, but is obliged to shut it up for want of Customers.—Some years after another Armenian, Maliban, attempts a similar thing, but in spite of the free-pipe offered by him to his Customers he is *also* obliged to *shut up shop* and cut to Holland—Gregor, Makara, and Gantoise meet with a better fate and Vend Coffee more successfully—Of the little cripple Candiot who dragged himself along the streets and sold Coffee sweetened with sugar; and of Stephen of Aleppo and others from the Levant who could not compete with some *sharp* Frenchmen who had established splendid Coffee houses in Paris which in a short time became the resort of the "great and the high born"—The great Coffee controversy in France—The question is put to the vote and there appears in favor of Coffee, Monsieur Andry; against it Messrs. Duncan of Montpellier and Hecquet of Paris—The Noes have it—Coffee finds its way across the Levant to France—Thence to London and thence to Holland and the principal Towns—Meets with a barrier in Holland but overleaps it—Helvetius, a German, writes a little work in favor of Coffee, which *never sees the light,* and a celebrated Physician Bontekoe also writes a very *luminous* treatise on Coffee and dilates upon it's great virtues—Numberless Coffee houses spring up in Holland, and every man, woman and child therein partakes of it freely—Dutch hospitality incomplete without a cup of Coffee being offered and swallowed—Coffee *versus* Beer—If some people choose to take a *grog* after Coffee, by *way of a Diuretick,* it is no fault of *ours*—Brutes will be brutes—The moderate use of Coffee recommended and Domestics and others exhorted not to indulge in what is called "Perpetual sipping"—The Author bids his Readers adieu, slips upon the saddle of his Dromedary and is off to Persia.

"In 1672 an Armenian named Pascal came over to Paris, who sold Coffee openly at the Fair of St. Germain and subsequently established a permanent shop there and served out Coffee at 2 stivers and 6 Derniers the Cup; but as his shop was frequented by only a few strangers, he was soon after obliged to give it up.

After an interval of 3 or 4 years, there came another Armenian to Paris named Maliban who vended his Coffee in a certain street there; indulging his Customers, at the same time, with a pipe, but this also did not last long, as he had to leave the place for Holland.

He left, however a substitute, a youth, named Gregor, whom he had brought with him from Ispahan and who died in an advanced age. Gregor was succeeded by a Persian named Makara, who, after having carried on the business for a time, returned to his native land, leaving one Gantoise, a Liege, in his room.

In former times a little Cripple by the name of Candiot was seen walking the streets who used to sell Coffee sweetened with sugar at 2 stivers each cup. He was assisted in this traffic by a mate.

Eventually there came another called Stephen of Aleppo. These were the first Coffee houses. Afterwards, there came over many others from the Levant, who however, in the very commencement made but very indifferent sales, owing to the paucity of Customers of any respectability who ventured to enter these Coffee houses, especially on account of the smoking and the drinking of Beer which was tolerated therein. But shortly after Frenchmen themselves established similar houses and began to serve out Tea, Chocolate and other beverages with the allowance

of a biscuit and confectionary in fine roomy apartments, which became the usual resort of even people of rank and station.

Some of the Faculty in France have likewise written against coffee, to wit, Mr. Duncan, Physician of Montpellier whose work against Coffee, Chocolate and Tea was printed at Rotterdam in 1705, and Mr. Hecquet Physician at Paris, whose little work entitled "The dispensing with Fasts" was printed at Paris in 1705, and Mr. Andry, who wrote an answer to it entitled "The maintenance or upholding of Fasts" which was in favor of Coffee. In 1710 a similar discussion took place in Latin at Valentia, which was published in the Dauphine.

As Coffee was introduced into France from the Levant. it seems probable. that much about the same time between 1670 and 1680 it became known in England, especially in London, from which place, after some years, it was carried over to Holland, first to Amsterdam, Rotterdam, the Hague and Dordrecht and subsequently to all the other Towns, yea to the very thresholds of the Peasants, with whom Coffee like Tea, has now become so common a beverage.

There were some in this Country too, who at the very beginning, like the Oppositionists in Arabia. Cairo, and Constantinople were vehemently opposed to the use of Coffee, reiterating all the reasons which were advanced by the French Physicians before alluded to.

Helvetius the venerable German Physician of the Hague wrote a little work in opposition to this popular opinion, but it never saw the light. The celebrated Physician Bontekoe also wrote a small work in which he pointed out very clearly the utility and beneficial effects of this beverage upon health. This led to a more extensive use of it, so that there is now scarcely a house of any respectibility where Coffee is not regularly taken in the mornings, not to speak of the great number of Coffee-houses which have since been established in all the streets of Holland and which are frequented not only by Merchants and Foreigners, but, now and then, by even the Rulers of the place who enjoy the beverage in special apartments. These houses are besides, situated so very close to the exchange, that they likewise afford an opportunity to the Merchants to meet and talk to each other, whilst sipping their Coffee, on Commercial affairs.

Indeed the practice of taking Coffee has been carried to such lengths here, that Ladies and Gentlemen even after they had sumptuously entertained their friends at dinner parties, imagine that their hospitality is incomplete if they omit, tho' it be near midnight to offer them a Dish of Coffee, which is always drunk with great relish.

We could scarcely pass the street of the Town without noticing the number of houses where Coffee and Tea are sold; a clear and manifest proof that this trade has, in spite of all former opinions become uncommonly extensive; nor are there Physicians to be found who tho' ever so clever, would not stand up as advocates for the moderate use of the drink.

The only reasonable objection that could be made to the use of Tea and Coffee is the great injury and loss which is experienced by the brewers of Beer.

Again there are many who make use of some strong drink (*die sterken drank drinken*) immediately after their Coffee and Tea to serve as a Diuretick as they call it. This is certainly a very pernicious practice, but this should not therefore prevent a moderate use of Coffee by the more abtemious class of people. One might in the same way easily abuse the most wholesome physic, which would otherwise be beneficial to health if used at proper times and seasons. So it is with Coffee.

But what is still worse is, that many common people whose condition in life can but ill afford it, as well as domestic servants, spend too much of their time in drinking Coffee and Tea; the former to the great prejudice of their calling, and the latter to the detriment and inconvenience of their masters and mistresses.

Thus you'll perceive that I have wished to say of the Coffee Tree, its fruit, and its use in connection with the trade of Mocha, and I shall now close this Chapter of the Company's Transactions, in order to proceed on with the affairs of Persia."

The learned Historian thus closes his interesting chapter on Coffee and proceeds to give an account of Persia. Had we time we would follow him to the land of Ferdousi and Hafiz where the Moon shines as bright as the Sun at noonday, and listen in raptures, to the nightly serenaders who walk the streets of Ispahan. But to "return to our muttons" —It would I think, be a very profitable task if some of your clever Planting friends would take up the subject where Valentyn left it off and bring the History of Coffee down to the present time, when the cultivation of it seems to have attained a high state of perfection.

Valentyn appears to have taken considerable pains to trace out, step by step, the manner in which Coffee was gradually introduced into Europe; and, amongst other curious facts mentioned by him, as already observed, is the preparation of a kind of beverage resembling Beer from the Coffee husk or shell. Perhaps some of your enterprising friends who are versed in the mysteries of Coffee planting and are intimately acquainted with all the uses to which Coffee may be applied, may be disposed, *improving upon this idea*, to try the experiment; and I wish them every success.

The imperfect translation, which you have been good enough to publish, is the production of a few leisure hours; and if it has, in any small degree contributed to the amusement of your readers, any little trouble to which I may have been put, is amply rapid.

If I happen to stumble upon any similarly interesting passages in old Dutch Authors, I may perhaps at some future period, trouble you for a corner of your valuable paper. And now farewell, dear Sir, and believe me,

Your's truly.
P. B.

Colombo, September 12, 1856.

NOTES ON POPULAR SCIENCE.

BY DR. J. E. TAYLOR, F.L.S., F.G.S., &C.,
EDITOR OF "SCIENCE GOSSIP."

An Italian experimenter has found that sunlight exercises a decided influence upon micro-organisms. Stong sunlight is both deleterious and sterilising to their growth and development, and even diffused light has a retarding action upon them. The sterilising action of sunlight was most powerfully experienced when the sun's rays fell perpendicularly upon the surface of the medium in which the micro-organisms were being cultivated.

There is a fashion in scientific research just as there is in bonnets and walking sticks. Just now everything is about *germs*—microbes, micro-organisms, bacteria, bacilli, &c., as nearly all the same things are differently called. One feels surprised they were never discovered before. Now that we have discovered them, we don't know what to do with them, except to grow them artificially as if their natural growth was not sufficient. Dr. Dolan has just published a little book on *Pasteur and Rabies*, in which he practically asserts that Pasteur has created more rabies than he has cured. Professor Koch's "lymph" seems to be very much a modern revival of the medieval *aqua vitæ* notion—so far as preserving consumptives from speedy death goes. The idea is based on the physical changes in the blood environment of microbes.

Strong coffee is now said to be a germicide. A Dr. Luderwitz states he has proved this to be the case. He shows that certain micrococci die in a 10 per cent. solution of coffee. The bacilli of typhoid fever died in two or three days under the same treatment, and the cholera bacillus in three or four hours. The adult germs of splenic fever, or anthrax, endured the solution for only two or three hours, although the spores, or young germs, survived therein for three or four weeks. Where a 30 per cent. solution of coffee was used the typhoid germ perished in one day, and the cholera germ in from half-an-hour to two hours. He found that the cultivation medium of bacterial organisms (gelatine) is

practically sterilised when it contains only from 1 to 3 per cent. of coffee extract. One is glad to hear coffee so well spoken of, and bushmen and travellers in Australia ought to take it instead of tea, inasmuch as coffee requires cooking (ought to be boiled and produced as a *decoction*), but this process really converts tea into a dangerous fluid, for tea should never be drunk except as an *infusion*.

Some valuable botanical experiments in the life-history of green leaves have recently been published by Professor Schimper. They relate to practical experiments made by himself on the part played by mineral salts in the economy of plants. He shows that, immediately on germination, the phosphates begin to leave the seeds. In conjunction with organic substances, their ultimate goal is the growing point and the *mesophyll* (or middle substance of leaves). The mineral acids, he shows, pass through the inter-cellular parts of stems and leaf through which the sugars and *amides* also pass. Potassium passes upwards out of the seeds as potassium phosphate. The leaves of the vine plant more particularly (and this ought to interest Australian viticulturists) contain, in addition to oxalate of lime considerable quantities of tartrate and malate of calcium (or lime). Lime has practically (by a student of oraganic chemistry) to be regarded as a *carrier* of other and perhaps more important and fragile chemical particles to the parts of the growing organism where they are required, and where, as in a market-place, they are immediately picked up. Then the "carrier" (*lime*) returns to the earth as it was, as it does in the case of old bones which dead men and animals cannot walk about with.

One important botanical fact has recently been proved—that plants can be steril sed. This is effected by parasitic fungi attacking pistils and stamens respectively, and, of course, destroying them. There is a tendency among botanists to believe this may have been the inducing cause of the organisation of *monœcious* and *diœcious* plants, which are not confined to any particular botanical order, although they are more abundant in some than others. Monœcious (one household) signifies that pistils and stamens are found of the same plant, and dicecious (two households) on separate plants.

A French wine merchant, M. Girard, has for some time past been undertaking practical experiments to prove the possibility of profitably growing potatoes for the manufacture of potato brandy. He declares it is an industry which cannot fail to be commercially successful. Only ought not the words "potato brandy" to be on the label of each bottle?—*Australasian*.

BURNT EARTH.

As the subject of burnt earth is commanding a good deal of attention from gardeners at the present time, and we think properly so, a few words upon the scientific side of the question may not be out of place.

The improvement of sterile soils by burning is a very old practice, and was known to the Romans. The theory of its operations has occasioned much discussion, both among scientific men, horticulturists, and farmers.

It is quite evident, however, that the action of burning a soil is not a merely mechanical one of opening the texture, but is decidedly chemical.

The burning process does not answer on all clay soils, but it does answer on most of them, especially on the Oxford clay, which crosses England in a wide band; it answers also in Essex, Cambridgeshire, Bedfordshire, and in Worcestershire.

The operation renders the soil less compact, less tenacious, and retentive of moisture; and when properly performed, it converts a substance that was stiff, damp, consequently cold, into one powdery, dry, and warm, and much more suitable as a bed for vegetable life. A plant to grow up strongly and freely, must have not only good and abundant food, but a suitable and healthy abode; it must be well fed and well bedded.

The great objection usually made to burning soils is, that it destroys vegetable and animal matter, or the manure in the soil; but in cases in which the texture of its earthy ingredients is permanently improved, there is more than a compensation for the temporary disadvantage. It must always understood that the ashes of burnt earth are best when they are blackest—that is, when produced by slow combustion.

The burnt substance, when mixed with other soil, makes it work more easily, renders it more friable and less tenacious, and tends to make strong, thin, sterile clay-soils less compact, and more productive. The vegetable matter which was burnt is quickly converted into an enriching ingredient, which in some classes of soil may lie dormant for ages. Whenever there is an excess of inert vegetable matter, the destruction of it by fire is most beneficial; the ashes being mixed with the soil produce vigorous and healthy plants on ground which before was unproductive; burning, therefore, destroys the inert vegetable matter of a soil, and converts it into a valuable manure.

In well and satisfactorily burnt earth, it is estimated that about one-sixth of its weight should be destroyed, the other five-sixths being brought into more vigorous action, and resulting in positive good. On the other hand, coarse sands, or rich garden soil, whose texture is already sufficiently loose, and the organic nitrogen sufficiently soluble, the process of burning must be detrimental.—J. J. WILLIS, Harpenden. —*Gardeners' Chronicle*.

SALT IN AGRICULTURE.—A further communication from "B." in regard to the use of salt in agriculture has been sent us for publication. He gives us some curious information about the use of salt for cattle and the effect it has upon the production of milk, and mentions the custom of placing a block of rock salt in the stable for cattle to lick. This was—and probably is still—a common thing upcountry in cattle-sheds, and perhaps "B." may not be aware of the manufacture of cylinders of salt on a metal sprindle which can be hung up in convenient positions in the sheds or out of doors. As regards the working of the ground in the Mahaoya valley, has "B." ever tried thatching the ground with mana grass or other vegetable litter? We have seen wonderful results from this operation in a dry district upcountry; whilst the rest of the estate was absolutely burnt up and drooping and the surface as hard as a brick, the soil beneath three or four inches of thatch was always moist and friable. The grass itself was fired into tinder and thence rose the danger of fire, which was only avoided by a liberal sprinkling of earth ever the thatch. If "B." will point out to Mr. Dawson how he proposes rendering the salt unfit for human food, it is very probable he would be allowed to make a trial.—Local "Times."

THE TALLOW TREE IN CHINA.—Mr. Hosie, the British Consul at Wênchow, in his last report describes a curious vegetable product which is cultivated in his district. This is the tallow tree (Stillingia sebifera, Roxb.), the fruit of which produces oil as well as tallow. The berries, which resemble coffee-beans in appearance and size, are first steamed and then pounded in an ordinary rice-trough. By pounding the soft mealy mesocarp is partially separated from the kernels. The whole is then placed in a bamboo sieve, the meshes of which are just large enough to allow the mealy matter to be scrubbed through, and small enough to keep back the kernels, which are hard, black, and about the size of peas. From the mealy matter the tallow is expressed in primitive wooden presses. To obtain oil the kernels are dried and passed between two millstones held at such a distance apart by means of a bamboo pivot as to crush the hard shells of the kernels without injuring the white interiors. The whole is then passed through a winnower, which seperates the broken shells from the solid matter. The latter is then placed in a deep iron pan and roasted until it begins to assume a brownish colour, the process being accompanied by continual stirring to prevent burning. The crushed shells make an excellent fuel for the purpose. It is then ground by a huge stone roller in a circular stone well, steamed, made into circular cakes with bamboo and straw casings, and passed through the wooden press. A good lighting oil of a brownish-yellow colour is thus obtained. The allow is called "p'i yu"—that is, skin, or external, oil.—London *Times*.

MR. THOS. CHRISTY, F.L.S.

If flesh still be heir to any ailments for the cure of which no "new drug or remedy" has yet been found, no blame attaches to Mr. Thos. Christy, of Lime Street and Sydenham. He at least has done all that mortal man could do to secure his fellow-creatures such relief as the introduction of some three or four hundred new remedies may be able to afford. On African fish-poison and chilbain-cures, on kola-nuts for the intemperate and strophanthus for the weak of heart on Myocom fly-gum and jamboul, Mr. Thos. Christy is regarded in Mincing Lane as the fount of all wisdom. The recent addition of Christia to the armoury of surgical appliances, and the reflection that the garden of Mr. Christy's residence at Sydenham would look at its best on a genial spring day, caused our town traveller to take a trip to the neighbourhood of the Crystal Palace in search of new information. Mr. Christy was found engaged, as represented on our picture, in the critical examination of a spurious kola-nut, an object which he holds in particular horror. "It is a most extraordinary thing," he said—"the most wonderful thing that has ever come under my notice —how these natives go on shipping spurious kolas, though we have explained to them most carefully that they could not be too particular in sending over only the genuine kolas of the *Sterculia acuminata*. You have no idea of the wonderful action of the true kola as a nerve stimulant and a remedy for dipsomania. Thousands of unhappy patients are pining because we cannot supply the true drug fast enough, while these vile substitutions with which our markets are flooded are bringing the drug into discredit." With that Mr. Christy dismissed the spurious kolas, and took our man for a walk through the hothouses in which he rears thousands of young plants from seeds and cuttings, and whence scores of tropical plantations annually receive a supply of economic plants, natives of other tropical countries, for acclimatisation. The first hothouse contained hundreds of young camphor-plants, all propagated from seedlings which Mr. Christy obtained from China some years ago. He considers the camphor-tree a particularly suitable one for acclimatisation purposes, and has already forwarded consignments from Sydenham to intending cultivators in South Africa and California. From his buyers in the last-named country, who have now had their supply in the ground for about four and a half years, he hears favourable reports. Close to the camphor-trees are numerous specimens of the large green-and gold-leaved *Pothos orié*, a plant much sought after for the purpose of table-decoration; of the upas-tree from Java, which in this hothouse has attained an average height of 3½ feet, but grows to a height of 60 feet in its native country. From a German firm of chemical manufacturers, Mr. Christy told us, he has a standing order for all the sap or milk from the tree which he can supply. The *Strophanthus hispidus*, with its bright green, soft, hairy, lanceolate leaves, is there; and so are the Chinese ginseng and the alvelos. The specimens of the latter however, are almost leafless, and the milk, which has strong caustic properties and is recommended as a specific for cancerous ulcers, is exhausted. In another hothouse we had occasion to admire a large number of vigorous specimens of several varieties of coffee—the large-leaved Blue Mountain coffee from Jamaica, the Marogipe, the Arabian variety of the Liberia coffee, and many others. Mr. Christy, as he explained to us, has established relations with a great many planters and explorers throughout the tropics, who supply to him the seedlings or cuttings of plants which they grow, and obtain from him in return the exotics they desire to introduce for commercial purposes. A side of one of Mr. Christy's hothouses is filled with young patchouly-plants, for which he has had a very considerable demand of late, in spite of the fact that, commercially speaking, the perfume is already produced to excess. The Jambul plant (*Syzygium Jambolanum*) is propagated at Sydenham from fruit. Of the *Strophanthus glabrus* from the Gaboon, Mr. Christy possesses only a single specimen, and that is only about 1 foot high and does not present a particularly flourishing appearance.

In a special hothouse, the temperature of which is kept higher than that of the others, some thousands of vanilla plants are grown. They are beautiful orchids with thick, bright green, smooth, lanceolate, leaves, but they are of very slow growth, the majority, which had been in the hothouse for over six months, being only about 3 inches high. They are kept until they have reached a height of 1½ to 2 feet before they are distributed. Of cubeb pepper there are three varieties at Sydenham, including the large-leaved "Comet" variety, which is a very scarce one. In another portion of the same hothouse about 30,000 kola-nuts are placed in boxes for propagation, but only a very small proportion—less than 15 per cent Mr. Christy thought will germinate.

Two of the hothouses at the time of our visit were set apart for the manufacture—or, rather, the bleaching—of Christia, the new surgical dressing which has recently been placed upon the market, and which Mr. Christy expects to supersede the dressings now in use. The fibrous material from which the Christia paper is manufactured, after being soaked in a solution of bichromate of potassium and treated with glue, is hung up to dry and bleach under glass, as is shown in the above illustration. Mr. Christy expressed himself as highly pleased with the success of this novelty, and told us that, in spite of certain attacks which had been made upon it by rival manufacturers in Germany, the sales of his product in that country and in other parts of the Continent were so large that they were frequently at their wits' ends to keep pace with the orders coming in.—*Chemist and Druggist.*

WYNAAD NOTES.—Crop prospects may be generally regarded as very fairly favourable: and a corresponding cheerfulness would reign amongst us could we all feel that our future was as secure as our next crop. But there is no use in attempting concealment in a matter which is every day becoming more patent to the experienced coffee-planter. The death warrant of Arabica has gone forth, and it must be only a matter of a few years, when its place amongst us will know it no more. The old fields hold on where the borer does not finish them, but the present heavy crop will probably shake many of them beyond recovery. The disheartening fact is that it is the young plantings on which we should naturally rest our hopes, and these are proving a constitution so undermined by leaf disease that it is not probable that even the most promising of them can be lasting. I do not think from what I can gather that the idea of grafting coffee is regarded as feasible in the Wynaad. A very great deal of Liberian is being planted in this district. It has the advantage of course of being longer in reaching maturity, but if we can hold on with our remnants of Arabica until the Liberian comes into bearing, we may hope for better times before us yet. There is much depression felt on account of the shockingly bad price given us for last season's cinchona bark. A great quantity was despatched from this district in the hope of replacing some of the losses incurred by the failure in our coffee crops. But as ill luck will have it the sales have proved generally so unremunerative that it is absolutely hardly worth while harvesting our bark. A good deal of business is being done in timber, and our magnificient Blackwoods are paying the penalty of their lives for our necessities. This is likely to be an improving trade. Very large quantities of "fancy blocks" are in demand for the Continent, and one thinks with regret of the glorious timber which lay rotting in our fields, or became fuel for our coolies in the good old times, when we sacrified the most valuable trees, simply because we wanted the land, and had no roads by which to transport the wood to the coast. Certainly we are better off in this respect, and our roads are, some of them, becoming a pleasure to travel upon. —*Madras Times*, May 15th.

EFFECTS OF THE EARTHQUAKE OF APRIL 7TH ON THE TIDES AT TANGALLA.

The interesting account by Mr. Surveyor Erskine of the violent perturbations of the sea at Tangalla, during the earthquake period early in April, which account we owe to the courtesy of Government, will excite general attention and will be carefully studied by scientific men. As we have heard nothing from the great volcanic centres of the east, we feel justified now in tracing the successive disturbances of earth and sea to some subterranean or submarine volcanic cavity immediately beneath our island,—not a very comforting conclusion to arrive at. But we should like to have the opinions of scientists, such as the Royal Engineer Officer who acts as Surveyor-General, Mr. George Armitage and others on this question. Some day we may have a quake which will do something more than "shake the isle from its propriety."

THE EARTHQUAKE AT TANGALLA.

Surveyor-General's Office, Colombo, May 6.

The Hon. the Colonial Secretary.

Sir,—I have the honor to forward herewith an interesting report by Mr. Erskine, District Surveyor in charge of Tangalla Bay surveys, with reference to a disturbance in the tide at that station on the day of the recent earthquake. No doubt many would be interested in the memorandum who would not see an ordinary official report on the subject, and I would therefore suggest that it might with advantage be sent to the several papers for publication.—I have, etc., (Signed) FRANCIS J. DAY, Major R. E., Acting Surveyor-General.

Tangalla, April 13.

The Chief Surveyor, Southern Province.

I beg to report that owing to the unsettled state of the water combined with the high tide on Wednesday I gave orders for the tide box to be removed; otherwise it may have got seriously damaged and washed away.

There seems to have been some unusual disturbance of tides since Saturday night, the 4th instant. The gauge pencil was not marking the paper as it had hitherto done. On this night the pencil line on paper had the appearance of being slightly shaken, thus marking an irregular pencil line about quarter of an inch broad. Nothing unusual happened till Tuesday, the 7th instant. I registered the tide reading in the morning, and after returning from work at sea about 11 a.m., I noticed it had registered high tide and was falling and had fallen one foot in the short space of three hours. Usually high tide at this period is at 1 or 2 p. m. Curiosity took me down again to the tide gauge at 1-30 p.m. when I was still more astonished to find the tide had risen to three feet on the box in two hours and a half. Fearing something might happen I stood by the box and watched the movements of the indicator. At this stage I took off the pencil as it had gone above the paper. At half past three the indicator went up to the *top of box* and would have gone higher if the indicator could have registered the reading. The highest reading on box is 3·70. The low tide today registered 0·64, and I am certain the high tide would have been 4·50. During this time there was a continuous rise and fall of eighteen inches below the level of top of box at intervals of 10 and 20 minutes; at these intervals the water round about appeared to rise in one volume, receding very quickly but generally falling to the same level.

In case of an accident to the tide box, I took a reading on to a B. M. on rock close by and stayed on till 4-30 p. m. At this hour there was very little abatement of the tide. Mr. Grey was busily engaged with all hands repairing the breaches as soon as possible.

On Wednesday morning I visited the tide gauge but found the tide had been normal at low but 3·43 high during the night. I left Mr. Grey to supervise the repairs to breakwater. After breakfast I sent him down at 11 a. m. to carefully watch and let me know if there was a repetition of the day previous.

The tide during the day was again noticeable from its extraordinary movements. Mr. Grey informed me that the tide registered 2 80 on the box at 1-30 p. m.; at 1-45 p. m. it suddenly rose to 3·30 and receded very soon again to about 2·80; at 2 p. m. while he was watching the movements of the pencil, the indicator suddenly rose again, (this time to *top of box*) with great force and immediately receded. The level of the water was within an inch or two of zero of box. On this occasion high tide may have registered five feet. From this time until 5 p. m. the tide rose on several occasions to *top of box* but not with such force as at 2 p. m.

The tide box was now in danger of being washed away. I gave orders for its immediate removal. The sand bags weighing 240 lb each were swept away in every direction. (Signed) H. ERSKINE.

A NEW ARTIFICIAL QUININE.

When an announcement is made nowadays that some chemist has discovered the way to make a complicated organic compound, which only Nature hitherto has been able to fashion, there are two methods of treating the matter: either with uncompromising scepticism, or unbridled enthusiasm. Should the organic substance be quinine, then there is a chance for buyers thereof to paint in dull colours the future of the cinchona industry, in the hope of buying the alkaloid cheaply meanwhile. Such people might have a very good innings this week, for we hear from Paris that Grimaux and Arnaud, two chemists whose reputation places them above suspicion, have succeeded in producing quinine artificially; that is to say, they have converted commercially worthless cupreine, the peculiar alkaloid of Remijia bark, into the more valuable quinine. Their process seems theoretically correct. Cupreine is an alkaloid differing from quinine to the extent of CH_2, viz.:—

Quinine, $C_{20}H_{24}N_2O_2$. Cupreine, $C_{19}H_{22}N_2O_2$.

Cupreine has the property of combining very readily with alkalies and other bases (upon this depends the B. P. test for its detection in quinine) to form definite crystallisable compounds. Thus the sodium one is $C_{19}H_{21}NaN_2O_2$. Hesse, the German chemist to whom the Hanbury medal is to be awarded on May 26th, was the first investigator to establish this, and he conceived that it might be possible, by introducing a methyl group, CH_3 in the place of the sodium, to produce quinine. He tried this by converting sodium-cupreine into silver-cupreine, and acting on the latter with methyl iodide. The result was the production of methyl-cupreine iodide, $C_{19}H_{22}N_2O_2CH_3I$, and from this, unfortunately, only the iodine atom could be abstracted, and no one of hydrogen along with it, which would have left quinine, or an isomeride thereof. This was an interesting synthesis, and the product, monomethyl-cupreine, was not unlike quinine in some of its properties—as, for instance, in giving the green reaction with chlorine and ammonia. Whether Grimaux and Arnaud have profited by Hesse's experiments or not we are not in a position to say definitely, details being wanting, but it would appear that they have, for their process of converting the cupreine into quinine is in two stages, like Hesse's—viz., (1) production of sodium-cupreine, and (2) acting upon that with methylene chloride, CH_2Cl. By so working, it is stated, "there is obtained a body which is identical with natural quinine, and, by substituting ethylene or higher derivatives for the methylene compound, substances analagous to quinine are produced, which, it is believed, may possess most interesting medical properties."

The reason why methylising failed in Hesse's case was owing to the sodium refusing to join hands with the iodine, preferring union with hydroxyl, or a

hydroxyl equivalent present in the secondary regeants employed. The reaction was, therefore, such a one as:—

$$C_{19}H_{21}NaN_2O_2^{''} + CH_3I + H_2O = {}_{19}H_{22}N_2O_2CH_3I + NaHO.$$

A little juggling on paper makes the product

$$C_{20}H_{24}N_2O_2, HI \text{ (quinine hydriodide),}$$

but this does not happen in practice. The iodine atoms behave as if it were linked with all the rest of the atoms in the molecule as a whole, that is, as if it were $C_{20}H_{25}N_2O_2I$. It will be seen from this wherein lay Grimaux and Arnaud's opportunity. They take a methylene compound, produce $C_{19}H_{22}N_2O_2$, CH_2Cl, or, substantially, $C_{20}H_{24}N_2O_2Cl$, cut away the chlorine from it, and quinine is left.

As a chemical achievement this success is noteworthy, but it comes five years too late to be of much commercial importance. Cuprea bark as a member of the materia medica is almost dead. It does not pay to go into the primeval forests in the centre of South America, fell giant trees, strip the bark and bring it on mules' backs to the coast, thence to be shipped to London to compete with cinchona. The influence of the discovery upon the quinine market may therefore, apart altogether from the cost of production, be set down at present as *nil*. But it is certainly gratifying to know that quinine has been made artificially, and even if Grimaux and Arnaud's article turned out to be the isomeride quinidine, that would be no less interesting. Of course the achievement throws no light on the constitution of quinine, which stands as Skraup has left it—viz., that it is a derivative of paramethoxy-quinoline. Isomerides of quinine have been prepared. The first was about five years ago by Dr. C. A. Kohn, its empirical formula being the same as quinine, but constitutionally it was by hydroxy-hydreethylenequinoline.* There is little in common between this and quinine. Another isomeric substance was made fully a year ago by Wallach and Otto. It is Binolenitrol-*beta*-naphthylamine, and its solutions, as well as solutions of its salts, are highly fluorescent. This substance was referred to at the time as an isomeride of camphor, which obviously is a mistake, seeing that it contains nitrogen and has an empirical formula the same as quinine.—*Chemist and Druggist.*

REVOLUTION IN JEWELLERY.

The discovery of a new "dry digging" in South Africa follows hard on the announcement of M. M. Frémy and Verneuil's success in manufacturing rubies. The civilised world was discussing that event a few weeks ago, and tradesmen interested found it necessary to send reassuring circulars to the press. Their ingenuity will be taxed to furnish comfort under this latter blow, if rumours prove exact. The position of the new field and the circumstances of its identification are not yet clear. But we learn that the Company has bought it for £100,000, that a multitude of diggers have "rushed" the spot, and that the finds, so far, promise another Colesberg Kopje. It is bad news for owners of diamonds, and, in fact, for everybody else except the few who will make money out of their claims. Even the revenue of Cape Colony will not benefit—quite otherwise. The historic housewife who killed the goose with the golden eggs supplies a precedent.

Supposing these reports prove true, as seems likely, and also that M M. Frémy and Verneuil achieve all that they confidently expect, as seems more likely still, a revolution must follow. Well-informed persons who exact value for their money have long been reluctant to buy diamonds. They looked for the news which has now arrived; and if it should turn out false this time, their expectation will rest as firm as ever. That there are dry fields in South Africa—fields, that is, where gems are found *in situ*, where they were crystallized—is as certain as facts undemonstrated can be. If only one of them fall into the hands of independent diggers, the market will be upset; the lively old times will return when a casual fellow-passenger by 'bus may have a pocketful of diamonds consigned to him by a lucky friend or brother at the Fields. Under such conditions already the great merchants have been driven to despair, and the confusion would be vastly worse now. As for the triumph of the French chemists, it is clear that if they can make rubies hard enough to be employed as pivots in watches, and "much larger," the time is near when they will produce stones of any size to order. Thirty years these gentlemen have worked, and their progress has been so slow that it is likely to be sure. Within the last few months only, as they tell us, the secret of making large gems has been traced out. But if rubies can be manufactured, all the great class of crystals to which they belong can be manufactured also. It is simply a question of the colouring material. The same process, with blue substituted, will yield sapphires with orange-yellow the grand Oriental topaz, and so forth. Pearls, emeralds, and opals, in fact, among gems of the first class, will defy M M. Frémy and Verneuil for the present,

It is a very uncomfortable prospect for holders of family jewels, but the *vacuus viator* who is a man of taste does not lack consolation. Flashing diamonds and gleaming rubies are vastly pretty but essentially barbaric. That term is used now for Oriental jewellery, which to a cultured and thoughtful eye is the perfection of art in its style. What is meant by the word "barbaric" used in reference to such matters? Most people would answer, an ostentatious display of costly material unrefined by art. It is properly employed in describing the paraphernalia of an Ashantee chief, whose arms are so loaded with nuggets of pure gold that he has to rest them, outstretched, upon the shoulders of a slave preceding him. It is properly employed in speaking of the old Turkish ornaments —a confused medley of precious stones which one used to find in the Bzenstan at Stamboul but few remain at this day. Not improperly also it may be applied to the massive rings, bracelets, and such articles, which are especial favourites with our countrymen "neat but not gaudy," as they say, massive gold of twenty-two carats, with a great flaming diamond or group of gems solidly set therein, with no "gimcrack" about them; nothing but honest gold worth so much and stones worth s much more. The value is obvious —an expert can calculate it at a glance. Money is not wasted on design or charm of fancy. An idiot who had the use of his hands and had served an apprenticeship to a good craftsman could make the thing as well as the best Paris artist. This represents a step beyond the Ashantee caboceers; but it is the same in principle: a display of mere wealth. But the term "barbaric" could never be used, by a thinking person who has an eye for beauty, towards the jewel work of Cashmere, for instance, or Jeypore. For its value lies in the art alone. The gold may be beaten as thin as tissue-paper, the gems may be mere scales and chips which an English artisan would not pick up. These things are simply vehicles used by the artist to produce his effects of colour. Sir George Birdwood says, speaking of the best Indian goldsmiths, "by their consummate skill and thorough knowledge and appreciation they contrive to give to the least possible weight of metal, and to gems absolutely valueless, the highest possible artistic value, never even in their excessive elaboration of detail, violating the fundamental principles of ornamental design nor ailing to please, even though it be an effect of barbaric richness and superfluity." We may well ask where the "barbarism" comes in if the work be of "the highest possible artistic value"?

Such ideas must needs be eradicated when gems cease to represent a great sum in money. They will then fall to their proper use, that to which the Indian artificer has always put them. He will make jewellery to the Rajah's order as expensive as may be desired set with great stones; but his taste prefers to work up these chips and scales, using them as points of luminous colour in a thoughtful composition. Therefore

* Quite so!—ED, T. A.

he does not wish his precious stones to sparkle—distracting the eye. The Hindoo's notion even in cutting gems, is to make them shine. Our self-sufficiency attributes to ignorance or want of skill an effect which in truth, is the result of a taste more delicate and finished than ours. We think that the Oriental would have brilliants and roses, and the rest, if he could—a grotesque error. Everybody nowadays, or almost everybody, is prepared to laugh at the verdict of the jury delivered after the Great Exhibition of 1851. "To cast a glance at the jewellery of India," said that amusing record, "is enough to convince us that those nations have remained stationery from a very early period of manufacture. Some of them, indeed, develop ideas full of grace and originality, but their productions are always immature and imperfect; and the skill of the workman is called in to make amends for the inadequateness of the manufacturing process." The Philistine never made a more striking declaration of faith. We have left that a long way behind, anyhow. When precious stones generally lose their value it may be hoped that we shall take a greater stride for jewellery than will show not so much the length of the buyers purse as the quality of his taste.—*St. James's Budget.*

THE PERFUME INDUSTRY AT GRASSE.

In an article on "Grasse and its Perfume Industry," published in the *Pictorial World* of April 18th some account of the old town is given, with views of the Grand Hotel, where the Queen has been staying, the cathedral, and some of the scenery in the neighbourhood. The proprietors of the *Pictorial World* have been good enough to lend us one of the engravings, representing an interesting scene in one of the large perfume-factories of the place. The women shown in the picture are all engaged in separating the pistils from the petals of roses previous to using the latter for "rose pomade." The photograph from which the view was taken and the following particulars were supplied to the *Pictorial World* by Mr. J. E. Holdsworth, son of a member of the wellknown firm of Osborne, Bauer & Cheeseman, the perfumers of Golden Square. Mr. Holdsworth, junr., it is stated, has had the opportunity of becoming practically acquainted with the subject, having studied the manufacture of floral products at M. Bruno-Court's factory.

There are processes for extracting perfume from flowers; the hot process, or maceration; the cold process, or *enfleurage*; and distillation by steam.

The hot process consists in throwing the flowers into hot grease directly they are picked; after a given time they are strained off, but as they take up such a quantity of grease, they are wrapped up in cloths and pressed by hydraulic pressure. Every day fresh flowers are put into the same pomade, until it is at full concentration.

In the cold process the flowers are laid on cold pomade, which is spread on pieces of glass, about two feet square, in a wooden frame; the glass is covered with pomade on both sides, and the frames are stacked one upon the other, thus making a kind of box which fits so well that it is almost air-tight. This process is also continued until full concentration is obtained.

The floral season commences in January with the violet, the perfume of which is extracted by the hot process. Next follows the jonquil in March, from which the perfume is extracted by means of the cold process. From the middle of April until the commencement of May comes the reseda, or mignonette. Then in May commences the busy season for Grasse; women and children are employed in all the factories to pick the pistils from the rose-leaves, as the latter are only used for the "floral pomade."

The leaves are thrown into baskets, and are at once treated by the hot process; and this is continued until the middle of June. The orange-flower blooms the same time as the rose, and is treated in the same way.

What surprises the stranger most is the enormous quantity of bloom; it is not spoken of by the pound, but by the ton. The work of picking makes a long day's labour; as it is essential that the flowers should be treated while they are perfectly fresh, it is necessary to commence work as early as four o'clock in the morning, and to continue sometimes until midnight.

From July to September come the jasmine and tuberose, which are treated by the cold process; and the season closes with cassie in December, treated by the hot process.

The third process, distillation, is carried on all the year. There are only two out of all the flowers mentioned that are thus distilled; they are the rose and orange-flower. The rose gives very little otto of roses, but is distilled mainly also for the "rose-water"; the orange-flower gives an oil called "neroli" and orange-flower water. When the abovementioned flowers are not in season patchouli leaves, cloves, geranium, &c., are also treated by distillation.

During the Queen's visit to Grasse she has visited the factories of M. Bruno-Court and of M. Chiris. At the works of M. Chiris the last of the violets and jonquils which will be used this year had just been received, and before the Queen arrived, the floors of the quadrangle and the rooms to be visited had been carpeted with them. The Queen saw in operation the processes of capturing these odours, and as Her Majesty left M. Chirlis presented a basket of perfumes beautifully displayed in a bed of violets and decorated with apple-green ribbons and Maréchal Niel roses.—*Chemist and Druggist.*

SPURIOUS CUBEBS.

We had our attention called some weeks ago to the offer of an Amsterdam firm to supply to English houses "spurious cubebs for duggists' use," says the *Chemist and Druggist.* We have been fortunate in securing a sample of these, and of three kinds for distillation. Of the latter, sample *a* consisted of extremely small and shrivelled barrels of a black color, mixed with stalks, most of which were smooth and some showed the characteristic markings of the piper rachis. The sample contained 100 grains of stalk and 440 grains of berry. The latter was very deficient in aroma, and unlike immature cubebs, did not give the crimson colored reaction with sulphuric acid. The impression left from the examination of this sample was that the berries had already been in the still: were the feeble aroma due to immaturity, we should have expected to get a better cubeb in reaction. Against this supposition it may, however, be stated that last week 60 bags of similar berries were disposed of in Mincing Lane. These were of direct import from Singapore. Samples *b* and *c* were recognised as true cubebs, differing only in proportion of stalk, and *c* showed the presence of a small percentage of the unnamed cubeb substitute which is more globular and larger than the true berry, but is not Piper crassipes. Sample *b* contained 205 grains of stalk, chiefly bold rachis, to 360 grains of berry. The sample was rich in essential oil. Sample *c* contained 130 grains of very bold rachis to 300 grains of berry less abundant in oil than the former. Sample *d*, "spurious for druggists' use," was the fruit of Piper crassipes. Apart from the question of admixture with spurious fruit, the proportion of stalk is a matter which distillers should look into more carefully than they do. Cubebs yield from 12 to 16 per cent. of essential oil, and the stalks only 1 per cent —frequently less. While their presence is not objectionable, the fact that to the eye sample *c* contained less than *b*, while it actually showed about 6 per cent. more, is a sufficient argument for more careful consideration on the part of buyers. The question also naturally arises "Do all these stalky cubebs go into the still, or may some not find their way into the mill?" That can only be determined by microscopic examination of the commercial powder, and comparison with the histological characters of cubeb stalks. It may be mentioned that what we have estimated as the best of the three distillation samples was the lowest priced. We learn regarding

the spurious cubebs that 150 bags of them were imported into Amsterdam last year, and were sold at 3s. per lb., this being the limit fixed by the growers in Java. It is from the East Coast of Java that they are imported.—*Oil, Paint and Drug Reporter.*

IMPORTANT SALE OF FOREST LAND.

Today (May 18th) an important sale of virgin forest and took place in the premises of Messrs. Geo. Armitage & Co. regarding which the following letter will be read with interest:—

Office of the Colonial Secretary,
Colombo, May 18th, 1891.

To Messrs. Geo. Armitage & Co.

Gentlemen,—With reference to my telegram of the 29th ultimo, in which I desired to know, on behalf of the Government, the lowest price at which the forest land in Udapussellawa belonging to the estate of the late Mr. C. H. de Soysa would be sold, and to your reply that the owners insisted on the land being disposed of at auction, I am desired to inform you that the Government, after due consideration, has concurred with you in thinking that the course proposed by you is the fairest way of ascertaining the true market value of the land, and of securing that value for the estate in question.

2. The Government has been urged to acquire the land for public purposes, and some intending purchasers have offered to abstain from bidding if the Government would announce its intention of acquiring the land.

The Government has therefore determined not to announce its intention, or to interfere with the sale till the auction is over.

3. The Government has however determined on the acquisition of the land for public purposes, and a formal notice to that effect will duly appear in the *Government Gazette.*

4. I shall be obliged by your causing this decision to be announced by reading this letter at the conclusion of the public sale, in order that the highest bidders who will receive ten per centum on their respective bids may not be put to any further inconvenience or expense.

I shall be further obliged bp your furnishing me with the names of the highest bidders for each lot, in order that I may place myself in direct communication with them.—I am, Gentlemen, your obedient servant, H. W. GREEN, Asst. Colonial Secretary.

The following is the result of the sale:—

Lot.	Purchaser.	Extent acres.	Price per acre.	Total.
(1)	Hon. J. J. Grinlinton	162 0 0	R154·32	R25,000
(2)	Hon. J. J. Grinlinton	149 3 0	R153·33	R23,000
(3)	T. B. Campbell	142 0 0	R151·40	R21,500
(4)	K. Macandrew	209 0 0	R150·71	R31,500
	Total	662 3 0	R152	R101,000

It was at the close of the sale announced the Government would take up the lots for public purposes; and regarding this a man of business expresses the opinion—"I think the Government have done quite right and that the best way of arriving at the value was a public auction. Government will not be ungenerous to the purchaser. This they have clearly indicated. Had Government said they were going to purchase I don't think they would have obtained the lots for less than R200 per acre."

The following is the advertised description of the property:—"662 acres fine virgin forest in Udapussellawa bounded by St. Leonards, Ragalla, Goatfell, Heathersett, Denmark Hill, Gracelyn and Coneygar estates. These blocks of land adjoin each other and are said to contain very fine timber trees. The land itself is very suitable for the cultivation of tea, and owing to the climate, elevation and extensive views obtained from the properties they would make excellent residential estates. Owing to numerous applications for the above blocks of land, it has been decided to put them up to auction at our sale room, No. 4, Queen's Street, Fort, Colombo, at 3 p. m. on the 18th of May 1891." The property belongs to the estate of the late Mr. C. H. De Soysa.

PLANTING IN PERAK.

The Government of Perak, being desirous of encouraging agriculture in the State, draws attention by circular to the existence of large areas of virgin land available for both hill and low country cultivation, and to the following, among other, advantages which the State holds out to intending planters.

(*a.*) Proximity to Singapore and Penang—two days' steam from the former and six hours from the latter.

(*b.*) The country is traversed by good metalled cart-roads.

(*c.*) Taiping, the capital, is connected with its port, at Port Weld, by a short railway. A railway connecting the Port of Teluk Anson with the inland districts of Batang Padang and Kinta is under construction.

(*d.*) Arrangements have been in force for seven years with the Government of India, admitting of the introduction of indentured Indian labour.

(*e.*) Arabian coffee has given satisfactory results on an estate of about 1,000 acres, opened by Sir Graeme Elphinstone, in the Kuala Kangsa District, while Mr. Heslop Hill's Liberian coffee estate of about 300 acres in the same district is most promising.

(*f.*) Attached is a return showing remarkable crops of Liberian coffee on Messrs. Hill and Rathborne's estates in neighbouring States of the Malay Peninsula.

(*g.*) Tea grown by Government as an experiment, and shipped to England, has been favourably reported on by London brokers.

(*h.*) The Government of the State is carried on under the advice of a British Resident, with a staff of European Officers, and under the supervision of his Excellency the Governor of the Straits Settlements.

The Government is prepared to grant the following special terms to the first ten approved applications who shall apply after this date, that is to say:—Lease or leases in perpetuity for 1,000 acres in one block or in blocks of not less than 500 acres each. No premium; quit-rent 20 cents an acre after two years' free occupation. The Government reserves the right of levying an export duty on produce, which may not exceed 2½ per cent *ad valorem.* If selected with road frontage the depth to be three times the frontage; *bona fide* comencement to open to be made within 12 months from Government approval of selection; cost of demarcation and survey (to be made when required by Government) and registration fees to be borne by lessess. If desired by applications, a premium of $3 an acre and no quit-rent will be accepted.

Minerals are reserved, and, with the above exceptions, the land would be subject to the general land regulations of the State, which will be forwarded on application to the State Commissioner of Lands, Taiping, to whom all communications in connection with this Circular should be addressed.—*Straits Times.*

CEYLON TEA IN RUSSIA—MR. ROGIVUE'S MISSION—COCONUT BUTTER.

LONDON, May 1,

During the week the Secretary of the Ceylon Association in London has received from Mr. Rogivue copy of a letter just addressed by him to your Planters' Association. From the date of that letter, April 25th, it appears almost certain that it cannot reach Ceylon before this letter of mine should do and I shall not, therefore, be "carrying coals to Newcastle" by just mentioning to you the leading particulars of what your Commissioner in Russia has written, although you will no doubt be supplied with the full text of his letter very shortly after its receipt.

Mr. Rogivue has written much of the difficulties he has experienced and of the obstacles placed in his way by the wholesale tea traders of Russia. To overcome such a disposition popular demand must first be established, and of his success hitherto in doing this Mr. Rogivue does not write very glowingly. Not that his letter is at all despondent. On the contrary, he evidently feels ultimate success to be assured; but he certainly recognises that his will not be a case of "*Veni, vidi, vici.*" He has, he tells us, prepared the ground for a great experiment which he is desirous of making, this being the opening of a kiosk specially for the sale of Ceylon tea, both infused and in packet, at a French Exhibition which is to be opened in Moscow today. Mr. Rogivue writes that he was not aware that specialists would be allowed to retail goods at that Exhibition in time to admit of his seeking authority from your local Tea Committee before incurring expenditure in the direction he has undertaken. On his own responsibility therefore, he has agreed to pay £200 rent for the privilege of selling your teas in a private kiosk to be erected in the grounds of the Exhibition, and he will have also to incur the further expense and responsibility of the construction of the necessary building. For this and contingent expenditure he asks from your Tea Committee a grant of £500, and the details as to his proposal—with which my space will not permit of my entering—seem to justify the confidence with which he makes this application. The Exhibition, it appears from the letter under reference, is assured of a very large number of visitants—estimated at a million—consequent upon the expressed desire of the Tsar that the occasion should be made to express the cordial feelings now existing between his own people and those of France.

Mr. Rogivue's letter further informs us that the draft of £150 (I think that was the amount) which you were recently told by me had gone astray has never reached him. It was enclosed in a letter to him from Mr. Leake which has never yet been traced. However, we learn that the bank has paid the amount notwithstanding the loss of the draft. In addition to the ill-disposition shown by the wholesale trades above referred to, Mr. Rogivue writes that he has to encounter a strong prejudice on the part of the people against your tea, and he has to confess that he has not as yet been able to make his agency pay its way, and has, besides, had to expend large sums in advertising. Among the forms adopted for this latter course he had had large coloured copies of his trade mark—a Sinhalese woman working on a tea estate—posted up and distributed, while large placards have been exhibited calling attention to the superior merits of Ceylon tea. Apparently there are several large houses in St. Petersburg and Moscow which are already considerable importers of your produce, but this is for mixing purposes only. Mr. Rogivue think Mr. Popoff's late visit to Ceylon and his proceedings subsequent to that visit will aid greatly in establishing your teas on the Russian market.

He mentions a Mr. Wogall of Mincing Lane, a Russian merchant, as a large purchaser of Ceylon teas in London for shipment to St. Petersburg, and states him to be still buying largely, though only for the purpose abovementioned, that of mixing. Your Commissioner admits that he has still very busy work before him before "crying victory"; but he anticipates marked good result from the six months' course of experience at the forthcoming French Exhibition in Moscow.

We read a good deal in a late issue of the *Kew ulletin* about cocoanut butter, and a good many of us wondered to what uses this new material was likely to be put. Evidently these are not to be confined to alimentary purposes only, for it is stated that it is already extensively employed in the making of soap for cleaning metal work. It may probably be a leading ingredient in the well-known Brooks' soap so largely used for that purpose. The soaps ordinarily employed for this are said to be composed of vaseline, oleic acid, and fat, mixed with a little rouge; but they are stated to soon get rancid and worthless, while those soaps of which the base is cocoanut butter are reported to be wholly free from this liability and can therefore be kept for any length of time. The demand for soap of this character is so enormous, that we can understand now how it was that, according to the *Kew Bulletin*, the factories already established for its manufacture were altogether inadequate for meeting the supply required of cocoanut butter. The knowledge should stimulate your local merchants to some endeavour to enable Ceylon to share in the beneficial results to this demand.—London *Cor.*

GOLDEN TIPS.

The sale of tea from the Havilland estate in Ceylon, mentioned in today's telegram, is the most remarkable yet recorded, the highest price hitherto realised having been over £11. We noticed some time ago in an Indian newspaper an illconditioned Indian-planter grunting out his disapprobation of these high priced sales of Ceylon tea. They were "fancy" prices; there were scores of tea gardens in India which could do the same thing if they chose: only Anglo-Indian managers were far too sensible to spoil a whole flush, plundering its golden tips for the sake of one unique parcel. No doubt £17 per pound is a fancy price, and possibly the value of a portion of one season's yield on the Havilland estate may have been impaired for the sake of this one parcel; but what then? The Ceylon planter, his Indian critic may rest assured, is not an ass; and if he sacrifices something to make a show in Mincing Lane, he does it with the knowledge that the advertisement will pay in the end. His appreciation of the value of a good advertisement, his energy and resource in pushing his wares, have had this result, that Ceylon tea in ten years has become rather better known all over the world than has Indian in forty. There is another sense besides the literal in which the parcel from Havilland might be said to contain "golden tips."—*Pioneer*, May 8th.

TEA CONSUMPTION AND DUTY.—With the completion of the tea returns for the port of London for the past month we able to see what effect the reduction of the duty has had on the trade since it came into operation a twelvemonth ago. The imports show the extensive increase of 13,985,949 lb. as compared with last year's figures, the total quantity imported being 147,863,040 lb., against 133,877,091lb. last year. This increase is almost entirely in Ceylon tea, the production of which is increasing very rapidly in consequence of the favour which the public have shown towards it.—*L. and C. Express.*

THE AMSTERDAM QUININE WORKS.—The annual general meeting of the shareholders in these works took place on April 30th, Dr. J. E. de Vrijin the chair. The directors' report shows that although sufficient profit was made during the year to provide for the amount which, according to the statutes of the company, must be written off annually, yet no dividend could be distributed. The output of the factory in 1890 amounted to about 350,000 oz. (9,952 kilos.) sulphate of quinine, and the sales to about 300,000 oz. (8,628 kilos.)—*Chemist and Druggist.*

PROSPECTS OF CEYLON TEA.

The figures forwarded by Messrs. Gow, Wilson & Stanton are encouraging, as far as deliver is, inBritain are concerned. For the 11 months of season 1890-91 ended 30th April, the deliveries were 38,000,000lb.* out of an import of 42,225,000. The increase over the quantity delivered in the corresponding period of the previous season, (26,927,000 lb.) was no less than 11,000,000 lb. The increase in Indian tea in this season over the past (93,924,000 lb. against 86,675,000) was only 9,249,000; so that comparatively as well as absolutely, the deliveries of Ceylon tea have largely increased, —as yet in proportion, indeed, to rapidly increasing crops. Making all allowance for efforts made by the producers to bring their product into notice, nothing but the real superiority of Ceylon tea could have placed it in such a position. The question is, however, whether over-production is not already casting its dark shadow before, in the sharp and sudden fall in prices reported from London. Our unceasing efforts ought to be directed to the opening up of new markets and also the conquering of old markets where hitherto the teas of China and Japan have reigned supreme. The better, and, considering its quality, the cheaper Ceylon leaf will have to contend in the United States not only with the prejudice of tea drinkers, born of custom and acquired taste, but with a stagnant and even decadent demand for tea, not only as compared with coffee, but also, to our exceeding surprise, considering all we have heard of temperance and even prohibition movements in the United States, with the enormously increasing taste for alcoholic drinks. The figures we quoted from the *American Grocer* in our issue of the 16th, were certainly not reassuring to the friends of temperance and non alcoholic beverages. Thedecrease in the consumption of coffee from 9·45 lb. *per caput*, in 1885, to 7·90 in 1890, is attributed to a rise in the price, due no doubt to deficiency in production in Brazil, owing to emancipation and revolutionary troubles. But no such cause can be adduced for the discouraging position of tea. Not only has the consumption not increased in the decade between 1881 and 1890, but there was an absolute decrease from a miserable 1·54 lb. per head of the population in 1881, to a still more miserable 1·34 in 1890. The retail cost of the tea consumed in the United States in 1890 (all save mere fractions of Indian and Ceylon, the produce of China and Japan) was only $30,000,000 (less than half a dollar per head) against $122,500,000 for coffee (over two dollars per head). But to those who, like ourselves, believed, and rejoiced to believe, that the cause of temperance in the United States had made such progress as to justify the existence not only of a "High License" but of a "Prohibition" party, the disappointment is keen as it is astounding to learn that while the consumption of tea and coffee is stationary or decadent, at a united value of only $152,500,000, the value of alcoholic drinks consumed had increased $200,000,000 in four years (at the rate of $50,000,000 per annum) up to the astounding total for 1890 of $900,000,000! This is at the rate of more than fourteen dollars for every man, woman and child in the States. In view of such facts and of the difficulties which have gathered round the production of coffee, we feel that, apart from questions of self-interest as regards our own Ceylon tea, all friends of temperance and human well-being ought to wish "God speed" to all judicious and legitimate efforts to introduce India and Ceylon tea to the markets and into the homes of the United States. We say advisedly "judicious and legitimate," because we can see no prospect of good but rather of harm to the cause of Ceylon tea in the wild scheme, wrong in principle if even it were practicable, of "cornering," that is monopolizing a market which above all things needs to be opened. Our object ought to be to conciliate instead of irritating dealers in and consumers of tea; and therefore, while we urge more strenuous efforts than ever at opening the markets of the United States for our teas, we regret more than we can express that the leader of the Company formed for this purpose, should advocate the adoption of measures which are calculated only to injure instead of furthering the interests of Ceylon tea and tea planters. Nothing can in the end be successful, which is opposed to the foundation principles of free, open, legitimate competition, the very life of a righteous commerce. To indicate in any way that we are not prepared for a fair field and no favour, save what desert will secure, would be fatal to the claims of our really superior product. That quality will secure its sure, if at first comparatively slow, success, while all attempts at "cornering" explode into vapour.

* At the rate of about 42,000,000 lb. for the 12 months.

A VISIT TO THE COLOMBO IRONWORKS.

"As a descriptive title 'Colombo Ironworks' fails to convey an adequate idea of the nature and extent of the operations conducted by Messrs. Walker Sons & Co., Limited." That is the observation of one who recently paid what he calls "a flying visit" to the works. He does not mean to suggest that there should be any further change in nomenclature, but merely to emphasize the fact that he was surprised to find that the business was so comprehensive. He had heard that the firm did a vast amount of work for planters, and knew that they were the agents for W. & J. Jackson's Patent Tea Machinery, but his knowledge was limited to these facts; and he was therefore much astonished to see that in addition to the manufacture and repair of all the kinds of machines in use in Ceylon, considerable orders were executed in connection with the construction and renovation of buildings and of vessels. The appliances, he says, are of the latest and most approved pattern, some of them being specialities for patents of a very interesting character. Competent and experienced Europeans are in charge of the various departments, and the native subordinates are really excellent workmen.

Another thing which seems to have struck the visitor is the order which prevails in the establishment. Everything, he says, is done according to a clearly defined plan; and the result of this methodical mode of working is that a degree of smoothness is attained in carrying out all the arrangements that must enable the firm to undertake very large contracts and satisfactorily accomplish them in the shortest possible space of time.

The premises may be said to consist of three main buildings, one being the fitting or machinery shop, another the smithy, and the third the foundry. Passing through a yard where a water-wheel, 25 feet in diameter, and some steel barges were in course of construction,—the former for an upcountry tea factory and the latter for the Wharf and Warehouse Company,—the visitor entered the fitting shop on the left, and looking along a series of courts or divisions saw quite an army of native mechanics busily employed at lathes of various sizes turning

shafts, bolts, pulleys, &c., planing, slotting and shearing machines, vertical and circular saws, and other machinery all driven by steam. A large radial drilling machine attracted the visitor's attention. This machine is used largely in connection with the manufacture of Jackson's smaller tea rollers. The piece of machinery to be operated upon being once properly laid on the table there is no necessity for moving it in the slightest (although the casting may require boring at different points) until the work of boring has been accomplished, for the drill has a swinging arm in which there is a slide from which the borer depends so that in the language of the engineer, it is "quite true" in its work. "To the reflective mind," philosophically, adds our correspondent, "there is much food for thought in this characteristic of a simple piece of mechanism, and the moral lesson it teaches cannot be too often enforced." Of the variety of saws he makes special mention of one which he says must very considerably facilitate the work in the carpentering department inasmuch as it has an arrangement of blades by which it can cut up a log of wood into a large number of planks at once. After watching for a short time workmen engaged in the actual fitting up of machines the visitor proceeded to the upper storey of the building, where on one side he found men at work on the famous tea rollers and the patent pulpers of which the firm has turned out thousands and is still executing orders, but principally for Java, there being practically no demand for them now in Ceylon since the failure of coffee. On the other side of the building carpenters were busily preparing wood for structural purposes and fashioning it into doors, window-frames, &c. Amongst the apparatus there considered worthy of some notice was a planing machine which did its work not only expeditiously but with remarkable efficiency, the wood coming out so smooth that it had a polished surface. A band saw was also closely examined, and the fancy work it accomplished evoked admiration. Going downstairs noticing in passing that water buckets were suspended throughout the building so that any outbreak of fire—a remote contingency but still one which requires to be guarded against—should be promptly dealt with, the visitor crossed the intervening yard, where he saw the water-wheel and barges being built, to the blacksmiths' shop fitted up with a number of fires fanned by currents of air passed through pipes from a steam-driven fan in a small engine-room adjoining; two steam hammers which can be regulated so as to come down almost as lightly as corking machines or with tremendous crushing force when required, several large drills and shearing and punching machines. It was an interesting sight to see the native smiths at work. They wielded the hammer with a strength and skill which licked the red hot iron, into shape as if it were of the consistency of putty rather than of metal. Scantily clothed as they were, they fearlessly attacked the glowing iron and seemed perfectly heedless of the flying sparks. The foundry was next inspected. It is situated farther along Prince Street beyond the coal-sheds, and unlike the other buildings has been entirely constructed by the Messrs. Walker. It was in the morning when our correspondent visited the place, and he had not the opportunity therefore of seeing any cast, but he saw all the appliances and had the process clearly explained to him by the superintendent, an intelligent, hard-working Scotchman. He saw a large number of pillars being prepared, and these he was told were intended to be used in the extension of the Grand Oriental Hotel. In addition to the crane outside for lifting the raw material to the cupolas down which it is tilted into the furnace, there are three others inside used for conveying the vessels containing the molten metal to the moulds. Large quantities of old metal are remelted, and the visitor was much interested to observe that amongst the material to be used for this purpose were piles of cannon balls and as many big guns as would suffice for the equipment of a tolerably sized fortification. The ordnance he believes had been in use at Trincomalee, and it will now undergo a process similar to that which is implied in the conversion of "swords into ploughshares," being diverted from destructive to constructive purposes. The guns are broken by means of a heavy ball of iron called "Jumbo" being raised to a height and then suddenly dropped upon them, and the fragments are then put into the cupola as required. Leaving the moulding shop, the marine work being executed by the firm was inspected; and our correspondent says he was quite astonished to find so many vessels whose repair had been undertaken by the firm. He noticed that the hopper barge "Industry" had just left the slip, and was informed that it had been practically replated from stem to stern. On the slip there was a steam launch having a saloon deck; and on enquiry the fact was elicited that the vessel belongs to Mr. Akbar. It is being fitted with new engines, and from the shallowness of its draught appears to be admirably adapted for river navigation. The slip it should be mentioned is 300 feet in length and is capable of taking up a vessel of 100 to 120 tons. Amongst the other vessels noticed by the visitor was a steam launch being built for the British India Co.; and he could not help admiring its graceful lines. Salvage operations also form an important part of the firm's business, and the establishment is thoroughly equipped with all the requisite apparatus for this difficult and often dangerous work—a huge coffer dam, salvage pumps mounted and ready for action, and diving gear. Altogether our correspondent says he was greatly pleased with his visit to the works, and concludes by expressing his best wishes for the success of the firm under its new name.

TEA PLANTING IN NATAL.

(By an ex-Natal Tea Planter.)

SITES FOR PLANTER'S HOUSE—TEA PLANTING A SUCCESS IN NATAL — SOIL — CLIMATE—NURSERIES—PLANTING AND PICKING—MANURING AND DIGGING—SHELTER TREES—LABOUR SUPPLY—PREPARATION OF TEA—INSUFFICIENT TRANSPORT FACILITIES—CEYLON TEA IN NATAL.

The site which the Natal tea planter chooses for his home is one of a somewhat elevated position as the great importance of fresh and pure air has become fully recognized. Extended views of landscape are usually selected, for the front or principal outlook; and as these already exist in Natal, the site of the ball or castle is settled, where natural beauty exhibits itself; no other place is selected.

Tea is admirably adapted to the climate of South Africa. My stay there was for two years and was on an estate of 4,500 to 5,000 acres, three hundred of which were planted with tea. I found that tea likes a damp, warm and genial atmosphere. Heat and moisture seem to be the two things which make the thing a success. It is necessary also to screen the tea from rough and cold winds; and if treated fairly well, it will give good returns and good flushes, and will cause the planter to smile when he puts his hands into his pockets. The soil in Natal is of a rich, yellow loamy nature, inclining to be sandy, it is not hard and lumpy, but loose, and this causes the roots of the tea to run easily, and find their beds. It is a great thing to see that the plants are put in carefully; if

they are huddled and squeezed in anyhow, it often causes a lot of undue and useless shoots to appear, which greatly damage the growth of the tree. Seeds just sprouted are sometimes put into the hole to the number of from three to five, and if all come up, they are easily lifted and planted elsewhere. In one season they will have pushed through their shading to the height of 1 foot to two feet. This shading is generally branches from trees, from grass, or from the wild date palms of Natal (*Phœnix reclinata* or *Phœnix spinosa*). After the trees become large, so that they can stand alone, this covering is removed, and the trees grow sturdy and strong.

The rainy season, or the good season, as it is called, commences in October, and it makes all hands busy, with planting and picking. The preparation of the ground is done in the winter months; the jungle or "bush" as it is called in Africa is taken down, and all weeds and rubbish are burnt, the land is turned over and holed, ready for the time when the rains come. A coolie will make two hundred to three hundred holes per day. The plan adopted in laying out is to get as long lines as it is possible to be had; tea is generally planted four feet by three, but sometimes six feet by five and a half. If we could get our tea out in the early months of the rainy season, it paid us well, and whatever expenses were laid out in labour and attention, in the first or second year, in the third we recovered all expenses. I have seen tea bushes there, ten and twelve feet across, with a heavy flush; a man will bring in from twenty-five to fifty lb. of leaf per day, if there is a good flush. Pruning operations are done in the month of July, always cutting hard into the centre of the tree so as to leave the tree, shallow basin shaped. Manuring and digging are done in the months of August and September, and any spare time is spent in taking down bush and cleaning land. Seeds are gathered in the month of March, which is the dry season and put into nursery beds, and by the end of September or October are quite ready for planting out in lines; these lines are kept free of weeds so as to give the tea every possible chance. Very little draining is done excepting in places where there is standing water or in places where there is likely to be a flood.

A most important thing in the successful growing of the tea in Natal is shelter. I find that with having shelter the trees are stronger and are better able to yield a good flush. Shelter is best afforded by trees of a quick-growing nature and such as are known to succeed well in that locality. Hot and cold winds have to be provided against as sometimes the winds are so hot, that together with the heat of the sun they scorch the leaves; they are particularly hurtful to the young flush. The gum (Eucalyptus) does well in Natal, growing to the height of twenty feet in three years. *Pinus insignus*, *P. pinea*, *Pinus pinaster* and *Grevillea robusta* also do well; in fact any tree of an ornamental character is suitable to break wind, besides acting as a screen against rough blasts they produce a most pleasing effect. Lines of fancy trees and shrubs wherever planted will protect the young and tender shoots of tea by neutralizing the force of the wind and rendering its effects on tender shoots less dangerous. Tea planted within thirty feet of the gum will not grow well. In order to let the tea have fair play, even at this distance, trenches are dug seven or eight feet from the gum, to the depth of two or three feet which cause the roots to seek a lower bed.

All the work is done by Indians from Madras and Calcutta, who come out under a five years' agreement; when that is finished they are free men, they are at liberty to stay or engage elsewhere, for another term. If they stay ten years in Natal, the Government pay their passage back again, if just for one term only, they must pay their own passage. The women get 5s per month, the men from 10s to 15s with the allowance of 1½ lb. of rice per day, together with fish, oil, dal, salt. They are allowed to build their own houses in a stated time, wood and grass being within easy reach. They work from sunrise to sunset. They are called to and from work by means of the estate bell, which is rung at certain times. They are capital workpeople, when well looked after. They are generally intelligent and industrious. The tea is made by means of machinery, the work being done by boys in the factory, who do well. The only thing which is a drawback is lack of means of transport, railways are not numerous as yet; as in other colonies bullock waggons are much used, sixteen or eighteen going to the span. Indian and Ceylon teas are sold in the colony at lower prices than the home-grown tea, and this will probably cause the Natal teas to decrease in price, and will consequently bring a smaller return to the planter, who up to the present has realized very good average prices. None of the tea has yet been exported, and as the total, acreage under cultivation is under five thousand acres, no doubt it will all continue to find a sale in the colony itself.

W. M.

CEYLON TEA IN AMERICA.

From a letter of Mr. Pineo, dated New York, 10th April, we quote as follows:—

"You in Ceylon may think we are not ordering tea very fast, and we are not, although I shall, I think, cable this week for 15,000 lb.; and yet we are working for results in a sure and, hitherto, untried way. We are not having the tea piled, and laid away on grocers' shelves, but we are getting it direct into the households. That is what we are working for now—so that, by-and-by, the grocer will be obliged to come to us and will *sell* and not pigeon-hole and after awhile *return* our tea to us as unsaleable, undesirable stuff.

"Our Chicago agent has induced the proprietor of the 'McCormick' building to change the name and it is now known as the 'Ceylon' building: hence you will understand we are quietly, slowly, surely sowing seed in good ground that we are in the first instance, thoroughly preparing. We look for substantial, permanent, lasting results, and are not working to make an immense showing at first, and then disappearing and vacating the field and thus injuring the cause we are so earnestly working for.

"We have made arrangements with a gentleman here who is believed to have large means to make up the retail selling of our brands of tea for New York City and suburbs. He has taken a splendid store, on West 23rd Street, near the great retail establishments of Stern Bros. and LeBoutillier Bros. where ladies flock daily by the thousand, and he takes the native servants and all the expense of this matter upon himself, as well as investing a fair amount in the Company's stock.

"This relieves the Company of a very large expense and what is still better, gives us a good worker.

"Maillard is the fashionable dealer in cocoa, etc., and is known as such all over the United States."

COAL IN PUSSELAWA.—Some time ago we had a paragraph stating that a mineral resembling coal had been found on Rothschild estate, Pusselawa and that Mr. LeMesurier, A. G. A., hearing of it, had taken the matter up and had induced the Government to send a sample of the find to Mr. Geo. Armitage. This gentleman found the lumps sent him to be real coal, but could not say whether it would pay to carry out prospecting operations in the neighbourhood of the find till a proper survey had been made on the spot. Government sent home Mr. Armitage's report to an expert in England and that is as far as Government has yet gone in the matter, but we hear that Mr. Le Mesurier, when he went to England recently, took home a couple of cigar boxes filled with lumps of Ceylon coal for a further report on their quality and value. Since the first find on Rothschild, it has been discovered that the seam of coal there can be traced again on the opposite side of the valley, and we trust that the matter, which is of great scientific as well as commercial importance, will not be allowed to rest where it is at present.—"Local Times."

CEYLON TEA FOR AMERICA.

A private letter from London conveys to us, what is deemed rather more re-assuring intelligence in reference to Mr. Elwood May's attitude and aspirations. The idea of establishing a vast "corner" or monopoly in Ceylon tea had evidently been dissipated by contact with "City" men doing business in "tea," and instead he was likely to make proposals which were much more practicable and indeed commendable. In the first place Mr. May has made it clear that the great difficulty encountered by the Company of which he is President, in bringintg Ceylon tea into universal use in America, arises from the widespread manipulation and adulteration of inferior teas. There is no law, it is alleged, in the United States, as in England, against adulteration; and the multitude everywhere run after a cheap article unless their attention is specially arrested after a striking fashion—and the more striking and startling the better on the American continent. Now, so far as they have gone, the Ceylon Planters' Company—or rather the New York Directors—have done exceedingly well in securing first-class agents in several of the principal eastern towns and in Canada; and it is clear that through the influence of these a large and growing business is likely to be transacted. But as regards the central and western divisions and the country at large, Mr. May thinks that the Company should have more significant and impressive credentials from the tea planters of this Colony,—a formal "endorsement" is the term he uses—to bring home to the American public mind that the Company is, above all things, the representative and vendor of pure Ceylon tea throughout the Far Western Continent. This, *per se*, is not altogether an unreasonable wish or request, if the main object be to fight the trade in cheap low-class or adulterated stuff. How the "endorsement" can be given effect to by the planters, independently or through their Association, it is not so easy to see; but probably some practical suggestion may arise out of the conference which Mr. Elwood May was to have with the Tea Committee of the London Association. It is intimated that Mr. H. K. Rutherford, in anticipation of that Conference, had prepared a scheme to enable the Ceylon planters to utilize the Company as their special agents at the Chicago Exhibition. That is a very good suggestion indeed, and we trust to see it worked out after a practical fashion. But it scarcely covers the position taken up by Mr. May in reference to the Continent at large. One reason why more explicit representative credentials are required is said to be to satisfy some powerful American capitalists who are inclined to take shares and join the Board. If it is clearly understood from the outset that the Company is only to deal in Ceylon teas,—to sell nothing but *pure Ceylon teas*—to challenge to this end, analysis or examination of any of its packets or chests as sold all over America,—then indeed the Directors deserve very handsome treatment from this Colony, and its planters especially, and scarcely any resolution that could be passed by the Tea Fund Commitee or Planters' Association should be deemed too strong for the occasion. We must remember that a form of words which might be deemed by us in England to be absurdly grandiloquent and out of place is not so "reckoned" among the sixty millions more or less who constitute the mighty Republic across the Atlantic. These are, in substance, the statements which have reached us. Meantime, however, we have to see what the Conference with the Tea Committee in London may bring forth.

THE PLANTING EXPEDITION TO PERU.

Messrs. Sinclair and Ross were to have left Liverpool for New York on 20th May, After a brief stay in the States, they expect to visit some of the West Indian islands—perhaps look in on the Jamaica Exhibition—before going on via Panama. Mr. A. Ross has, we understand, been very busy in preparation for the Expedition; in fact much of the organizing has been left in his hands, and he has besides been qualifying himself after a characteristic fashion, shewing all the buoyant energy of the typical Ceylon planter. Mr. Ross has been taking lessons in navigation, &c., so as to be able to take observations, and he has also qualified as an amateur photographer. His experience as a cacao planter in North Matale will also stand the Expedition in good stead, while the relations between the three Ceylon members —Messrs. Sinclair, Ross and Clark—are certain to be marked by the utmost cordiality and confidence. If the Peruvians give the support faithfully promised by them, the Expedition cannot fail of a large measure of success in making known the character and capabilities of an immense expanse of new country. All three gentlemen have stood the test of a very strict medical examination.

TEA SALES AT HOME AND PROSPECTS.

A Planter writes on 20th May:—This is my news from home by mail of May 1st;—"Ceylon Teas are coming in faster than the market can stand, and prices have been irregular and weak at this week's sale. Indian teas are also less price, although it is estimated that only 50,000 packages remain to be sold for the season. China congou has been pressed for sale at auction and the low prices now current for good quality will check heavy buying in China for England at the commencement of the new season."—It is thus clear that our having begun heavy exporting in the beginning of the season has choked off China. I do not think our heavy exports are all due to favourable weather but coarser plucking, estates that used to give from 100-200 lb. per acre are now yielding 400 to 500."

COCONUTS AND CINNAMON.

KADIRANA, May 15th.—No monsoon as yet here, and the hills are still very distinct every morning and almost throughout the day, showing that there has not been very much rain in their vicinity. Very little rain since the 20th April. On the 12th instant there was a good shower measuring 1·63 inch, and the total to date is only 2·01 inches, which is unusually little for this time of the year. April also was very short, the total being only 3·50 inches. The fall for the first 4 months of the year is 19·43 inches, which is about the average of the four previous years; such a dry April and May however is unusual. It is to be hoped that the latter part of this month will show an improvement. Fever is very prevalent since March: April and May being very bad. Though not so serious as it was in 1887, it is very much more prevalent than usual about this time; and on estates and in the villages there is hardly a house without one or more inmates ill. This is the time when, in addition to treatment at outdoor dispensaries, there should be itinerating medical officers going through the villages. Dispensaries are generally 10 to 12 miles apart, and though those living within 2 miles or so will avail themselves of them, it is hardly to be expected that those farther away will patronize them. It is in these cases that itinerating medical officers could do so much good, by preventing needless suffering, and saving many lives. Fever is the bane of Ceylon, and to it mainly, in my opinion, must be attributed

the small increase in the population of so many districts of the Island during the last decade.

A bud is showing on the cinnamon bushes which may possibly necessitate a stoppage of peeling operations for a time. The effects of last year's drought are now showing in the small size of the nuts being gathered; some are ridiculously small, and all below the average. This state of things will continue I fancy till towards the close of the year.

Surely there must be a large number of barren or male coconut trees in the Windward Islands that makes Mr. Huggins seem so anxious for a remedy? These are so rare in Ceylon (perhaps not one in three or four thousand) that they are not worth considering; the same may be said of trees that produce nuts without kernels. I am not sufficiently acquainted with physiology to be able to explain these freaks of nature. Mr. Huggins wishes to know whether such trees cannot be grafted with fruitful ones. Is it possible to graft on monocotyledonous plants?

Kadirana, May 17th.—Grand rain last night; measured this morning 5·87 inches. The rain fell quietly and steadily all night. No wind, lightning or thunder.

INDIAN AGRICULTURE IN ITS PHYSICAL ASPECTS.

Dr. Voelcker has published the following paper:—

To anyone interested in agriculture a tour in another country than his own cannot fail to be of much profit, and when that embraces a special and definite study of the agriculture of a distant part of the great British Empire, it is surrounded with peculiar interest. Already the growth of an export trade in agricultural produce from India has exercised a considerable bearing upon England itself, and the condition of that vast country with its teeming masses, the greater number by far engaged in the pursuit of agriculture, cannot fail to be a matter of deep concern. Looked at purely from the point of view of an agricultural observer and inquirer, I can hardly imagine any field so fertile in rewarding a careful study as India offers; and when one is privileged, as I have been, to pursue an investigation under auspices so favourable and with advantages so great as were afforded to myself, he can scarcely fail to return deeply impressed with the general excellence of the native agriculture of India, and with the truly wonderful administration of that great and important Empire. * * *

The first and most natural differences that strike the newly-arrived visitor are the prevailing heat and the ever-present sun, features playing a most important part in determining the agriculture of India. As the journey is made from Bombay or other seaport into the open country, the town is rapidly left, and many an hour or even a whole day may be passed in the train before another town of any considerable size is met with, for agriculture is the staple industry and occupation of the people. But in place of the wide and often undulating fields of England, the monotony of crop-growing pleasantly broken here and there by the variation of pasture land with its feeding herds of cattle and sheep, we find in India a level plain stretching for many miles along our route, and split up into almost minute divisions, upon which not one but several crops or patches of crops my be seen growing. No hedges nor even stone walls mark the boundaries either of field or holding, for, in all but a few special districts, hedges, properly so called, will not grow, and in other parts one may traverse a thousand miles without coming across a stone even the size of a pebble.

It is not a land of large, but of very small holdings, the average area belonging to a cultivating tenant being only about five acres. On this small space he and his family, and often his brothers or other relatives with their families as well, exist—living, as it were, under a communal system. No trees surround the fields or break the landscape, unless where a poor and barren stretch will not repay cultivation, and has been left to jungle growth or remains a bare parched spot. Along the coast may be seen dotted here and there the tall cocoanut tree; but its region is soon left behind and an occasional *palmyra*, or toddypalm, takes its place. It is only when the journey, it may be of several days' length, brings one to the mountain or hilly regions that the vast forests are met with and fringe the cultivated area; otherwise, the general appearance of the country is that of a vast, heated, and apart from the agriculture, uninteresting plain.

The workers we see on these small five-acre holdings are not the day labourers, with the farmer walking busily amongst them but the tenant himself and his family, each taking his and her part, and more frequently than not working *on* rather than *above* the ground—a group of scantily clad dusky men and women, here squatting down and busily weeding; here, in a similar position, cutting a crop with hand and sickle, and laying the handfuls side by side until a bundle is gradually formed; there driving along the pair or more of oxen (notho see) that pull the plough which lightly runs through the top surface of the soil but turns no furrow over; there throwing with wicker basket-scoops the water from an adjacent pool or running channel on to the growing crop, or raising it from a well in leathern buckets drawn up by bullocks with a rope and pulley. In place of grazing herds in green fields, there are wandering troops of thin half starved cattle that roam, over the barren tracks, picking up what they can, though hardly a green spot seems to reward their search, or goats that pull down and pluck every green bough or twig that offers itself, or buffaloes cooling their hides in muddy pools, from which if possible they will allow only their heads to emerge.

As we pass on, other changes are noticed: what is now in the cold season a tiny stream, and in the hot season may be dried up altogether, will in the rainy period swell into a vast swift-flowing torrent, and cover the wide bed which now lies exposed. Elsewhere a canal, or its numerous branches, carried off by engineering skill from some great river, brings the all essential water that the crops require, and without which agriculture would in many parts be at a standstill for the greater portion of the year. Yet another feature cannot fail to strike the eye: in some districts are vast plains coated with a snow-like crust and devoid of all vegetation. These are the well-known *reh* or *usar* tracts, the bringing of which into cultivation has baffled nearly every effort, but the reclamation of which would, over many thousand acres, supply food for the wants of an ever-pressing population.

As the days and the weeks go by we have no longer the changes of a fickle English climate with its alternation of rain and sunshine, but a steady continuance of a long series of days one like the other, but always hot; then, as March is reached, it becomes hotter and hotter, until when all the country presents at length a burnt-up appearance, there comes, about the end of June or early in July, a tremendous change. The rains descend in torrents, the rivers become swollen and flood the land, and coat the barren spots, as if by magic, with a green sward.

Such are, very briefly, some of the most prominent features that characterise the external appearance of Indian agriculture. But this, though

a sketch of what may be seen, is not true by any means of all parts generally: for I may as well say at the outset that there is hardly a statement that can be made about Indian agriculture, as deduced from any one district, which cannot be met by a precisely opposite statement taken from the experience of another. It has been well said that there is no such thing as *one* country India, or *one* Indian people. It is a continent fifteen times the extent of the whole British Isles, and made up of many countries and many peoples, all totally diverse. So also is it with regard to the agriculture: and in this consisted the very difficulty I had to meet—the impossibility of suggesting any *general* improvement which might be applicable to many parts alike. Each portion of the country must be taken by itself, and in relation to its particular surroundings and circumstances. What those were, it was my duty to ascertain as now briefly to describe.

With the above caution I would say generally that the agriculture of India is, in my opinion, excellent; and how to improve it is a problem which is, I do not hesitate to say, a harder one than how to improve English agriculture. More than this, I have seen numerous instances of as fine and careful cultivation, combined with fertility of resource on the part of the raiyat, or cultivating tenant, as is to be met with in the best parts of our own country. The determining factor with the Indian cultivator is the facilities to which he has access. The excellence of his cultivation is bounded not by the use he makes of the facilities; indeed, it is wonderful how he does utilise what he has. Nor is it bounded by his want of knowledge, but by the existence or non-existence of the essential requisites to success. I, therefore, unhesitatingly dispose of the ideas which have been erroneously entertained that the raiyat's cultivation is primitive and backward, and say that nearly all the attempts made in the past to teach him have failed, because he understands far better than his would be teachers the particular circumstances under which he has to pursue his calling.

To take first the people, or rather the peoples. Agriculture is, as I have said, the main occupation of the country, and it is estimated that fully 90 per cent. of the rural population is directly engaged in its pursuit. Of the 265 millions that inhabit India, there are about 145 million Hindus, and among these, generally, the best cultivators are found. The 45 million Mahommedans are scattered among the Hindus, preponderating in some districts and being fewer in others. They are a meat-eating race, as distinguished from the Hindus, who, as a rule, are not. Large herds and flocks are therefore in the care of Mahommedans mainly, and they are also the butchers; among the Hindus, however, are several tribes and castes whose associations are with cattle, though for the most part with milking and breeding herds. Along the river sides the Mahommedans predominate, and thither and into the forest the plough and the milking cattle are driven in the height of the hot season. * * *

Along with the rainfall, the soil must be taken as determining also to a large extent the nature of the crops grown. Broadly speaking, India may be considered as divided into three distinct geological series; the first or northern portion, which is one vast alluvial area and comprises the great Indo-Gangetic plain; the second, a central zone spreading over part of Bombay, Central India and the Central Provinces, the soil being known as the black cotton-soil; and, thirdly, a rocky area comprising Madras and Southern India generally. Each division has its minor local distinctions; but while of the northern it may be said that it is a rich alluvium, quickly drying and needing replenishment by rain or irrigation from well or canal, the black cotton-soil is very retentive and holds ample moisture from the annual rainfall, to enable the sowing of winter crops in November, so that artificial irrigation is hardly, if at all, required. In the third or rocky zone the only way to provide water is by storage tanks or by channels led from rivers or streams, irrigation from wells being difficult. Thus, in the north may be seen regularly on the same holding the crops of both seasons, the one growing by the aid of well or canal irrigation, the other by means of the rainfall and the powerful heat. In the Central Provinces, on the contrary, are great stretches of cultivation, of one and the same kind, in some districts the cold season wheat and linseed, in others the rainy season cotton and millets; whilst in Southern India, as explained, the crops go on much the same all the year round, and are distinguished mainly by early and late sowings.

Over individual areas, again, there will be enormous variations in the amount of rainfall, each having its correspondence in the crops grown and the method of cultivation pursued. Thus, crops which depend on heavy rainfall and a damp climate flourish only in certain parts—Assam, for instance, with its rainfall of from 60 to 160 inches and more, produces tea luxuriantly; Behar gives the indigo cultivation; and rice belongs to Burma, Eastern Bengal and the western coasts of Bombay. Other crops, such as wheat, require a drier climate, though water may in some cases have to be given artificially; others again, such as the pulse crops, *gram* (*Cicer arietinum*) or *arhar* (*Cajanus indicus*), can, when once germinated, do without dependence on water, and are suited to a hot, dry climate. The indigo plant, again, is favoured in the development of leaf (the portion used for making the well-known dye) by the damp climate of Behar and Bengal; but the production of the seed goes on much better in the drier climate of the Punjab and the North-West Provinces; and so it is that the two cultivations are carried on in quite distinct parts of the country.

Nor is the influence of varying climate seen alone in the crops, but it is marked in the cattle and even in the people themselves. On the dry plains, of the Punjab especially, and also in the North West Provinces, the bullocks are fine, large and strong; but when we come to the damper regions of Bengal they are found to be diminutive and miserable looking. Buffaloes, however, rejoice in a wet or damp climate, and they flourish in many parts of Bengal and along the Western Ghats, taking frequently the place of bullocks as plough cattle. The Bengali, clever as he is intellectually, is a poor specimen physically, when put by the side of a Sikh from the Punjab, or even a North-West *raiyat*.

The bearing of an uncertain rainfall on the possibility of famine, and the determining of means to prevent it, are most important points. It is neither in the wettest nor, singular as it may appear, in the driest tracts, that there is the greatest danger of famine. In the former, as also on the moisture-holding black cotton-soil, there is always certainty of sufficient water; in the driest tracts, again, the *raiyat* will never venture on growing a crop unless he is certain of having water enough. But the really precarious districts are those in which there is just the chance of enough rain coming to induce the cultivator to venture on sowing a crop; for, should the rain not come or not continue, there will be a total failure of the crop, and scarcity will result. If this be followed by a second failure, what is known as famine will set in. Happily, the Government have wisely foreseen that it is these precarious tracts which most need the extension to them of means of irrigation; and happily, too, the expansion of the railway system enables the quick transmission of stores of grain

What, however, is still to fear, is, first, that a famine may come in any part before even the authorities are aware of it, for they are so few and so widely scattered, while the people themselves will never complain, but bear their misfortunes in silence; secondly, the simultaneous occurrence of famine in different regions, for, there being no stored reserves of grain in the country, it is only possible to imagine how direful in its effects such a calamity must of necessity be.

Next to people and climate, a word more must be said about the soil than has already been included. But little is known about it beyond what the cultivator himself knows practically. The main geological types are few, but the local subdivisions are many, and for each of these the *raiyat* has his particular name, and the knowledge of what it will best produce. There are no peaty soils, nor anything akin to our gravels, colite or chalk soils, nor yet to our heavy clays, but there are the vast plains of alluvium already referred to, the singular black cotton soil, and subsoils composed of a concretionary kind of limestone known as *kankar*. Classification of the soil according to its capabilities is the system on which assessment of the land revenue (for the Government is practically in the position of landlord) is based, and this is modified according to the various local circumstances, the facilities for irrigation, etc. In a country where irrigation plays so important a part, the relation of soil to moisture is necessarily one of the greatest moment. It is true that in some parts the superfluous water has to be led off the land, but this is done by carrying it in channels or by a system of embankments which prevent the rush of water over the surface, and the consequent washing away of the top soil; it is not done by any subsoil drainage system, so familiar to us in this country.

But the main problem in India is not how to remove the water, but how to bring it to the soil, and then how to keep it there. Indian soils are normally dry, English soils wet.

The mention of this naturally leads one to consider whether the native system of shallow-ploughing, or rather *scratching* the ground, is so very wrong as would be improvers have made it out to be.

The action of the native plough resembles that of a pointed stick running just below the surface of the ground, some 2½ to 3 inches deep, and stirring the soil whilst it tears out and brings to the surface any infesting weed. Though there may be instances where deep-ploughing would be effectual, I believe that in the great majority of cases the native system of ploughing is the one best adapted to the conditions, and that, were a furrow-turning plough used, the result would be to lose a great deal of the precious moisture. Again, if the soil be at all stiff, the slice turned up by an English plough would speedily become baked in the hot sun and remain a brick rather than soil. The native ploughing, on the contrary, pulverise the soil, and repeated going over the land, while it costs the cultivator more (for the bullocks and the labour are his own), enables him to get that fine tilth which is essential to him, and thereby he does not lose the moisture. Frequently with a furrow-turning plough it would happen that weeds, instead of being torn out as they would be by the digging action of the native plough, would be buried, and there are many of these in India which would speedily spring up again and form a dense matting.*

* There is surely a medium between turning up stiff subsoil and mere scratching of the surface. Ploughs which, while not turning up the subsoil, would stir it to at least six inches below the surface would surely be beneficial.—ED. *T. A.*

Of the soil constituents it may be said that while phosphoric acid, potash and lime are present in greater abundance in most Indian soils than in English ones, there is a marked deficiency both of vegetable matter and of nitrogen. Black cotton-soil has been referred to as a special feature, and it is popularly supposed to be of inexhaustible fertility. Other tracts there are which every year receive a fresh renewal of silt from rivers and mountain streams, and these in the Punjab constitute the rich wheat-growing areas which need no other manuring than what the silt affords. But there are other not so desirable effects of river and flood, and often much land is cut up with ravines and rendered unculturable. Lastly there is the singular appearance of a saline efflorescence known as *reh*, a mixture of various soda-salts, principally the carbonate and sulphate. In the North-West Provinces alone, between four and five thousand square miles are thus affected and rendered unproductive. Such land is termed *usar*. The singular point is that amid these areas there are patches not only culturable, but on which some of the richest crops are grown. The problem of overcoming *usar* has long engaged the attention of the Agricultural Departments. Canals are charged with bringing it, but it is clear that it is a saline deposit existing below the surface, which, under the combined influence of water and a strong evaporating force like the sun, is first dissolved and then brought to the surface, where salt crystallise out and remain as a white incrustation.

A most interesting question, but one to which at this stage, no definite reply can be given, arises, as to whether the soil of India is, under the system of agriculture pursued, undergoing exhaustion or not. The average yield of wheat, for example, may be set at about 12 bushels per acre over the whole country, as against the 30 bushels of England. A large proportion of this goes for export, and the increasing area under wheat shown in the agricultural returns denotes that this export is one that is likely to continue. The possibility of soil exhaustion going on can only be determined by a careful study of what is removed from the land, and how far this is replaced either by the forces of nature or by the artificial replenishment of manuring. I have mentioned the deficiency of nitrogen which I observed in the case of several Indian soils, but it is worthy of note, too, how very large a proportion of the crops annually grown, also of the trees and shrubs, and even of the weeds, are legumnous in character, and may thus, if recent investigatons be correct, possibly derive their nitrogen direct from the atmosphere. * * *

The next point of striking importance in the external surroundings of agriculture is the supply of wood for timber and fuel, and the provision of grazing by means of those forests which still remain to the country. There can be little doubt that India in the past has suffered great detriment both as regards its climate and its agriculture by the reckless devastation of wood and forests which has until within recent years been allowed to go on unchecked. It is, therefore, a matter of much satisfaction that now, late though it be, the charge of the forests has been put under a responsible Department, and that they are being preserved for the benefit of the State and the welfare of the people. Not that the work is complete, nor that reservation of forest land has been effected without considerable friction from an increasing population which presses its cultivation up to the limits of the forest area in the endeavour to find room for itself. But it is equally certain that the Native, if left to himself, would as speedily exterminate what remains as he has done in the past

whether by wholesale clearance for cultivation, or by excessive grazing with cattle, and, worst of all, by the destructive herds of goats. Then but only when too late, would the discovery be made how important is the relation which the forests bear to agriculture, and how essential to the latter the forests really are.

The spread of cultivation to the limits of the forests has altered in great measure the scope of the Forest Administration, which was at first non-agricultural and confined itself to the production of large timber. Now, however, the position is changed, and the Forest Department is recognising that the areas under its control must be more used in the direct interests of agriculture, and that, as far as possible, not only a timber supply for the great works of the country is needed, but also that the provision of wood for agricultural purposes and for fuel, as also of fodder and pasturage for cattle, forms part of its duties. That this is so is only fully understood when it is remembered what the *raiyat's* difficulties are in the way of providing fodder for his beasts, and when it is explained that, while the only really available source of manure is cattle-dung, this is largely burnt as fuel, and is thus lost to the land, simply because there is no a sufficiency of wood available to take its place. This agricultural loss might to a considerable extent be met by the extension of the wood-supply of the country, and steps in this direction are being taken both by the Forest Department and by the local authorities or towns. The importance of provision of pasturage and shelter for cattle in times of drought is very great, whilst etc. holding up the soil and preventing its denudation by the unbroken flow of water over its surface, the covering of the ground with trees and herbage has an indirect bearing upon the climate of the heated regions. In the course of a journey one frequently passes vast open but perfectly barren spaces over which large herds roam; these are not the *usar* plains referred to previously, but they are the "village wastes," the common property of the villagers, and melancholy examples do they afford of what the cultivators would, by excessive socking and over grazing, do with the rest of the land now under forest, were it left to their unchecked control.

I have briefly touched on the supply of manure to the land. Of this, as stated, the only really available source is the cattle-manure produced on the holdings, and of it a great part is lost owing to its being used as fuel in the absence of wood. In Indian agriculture manure by itself is not sufficient, water is needed along with it; nor is water by itself enough, manure must go with it; the two are in fact interdependent. Could the *raiyat* have both of these where there is need of them, he would be behind none in the results of his cultivating skill and diligence.—*Madras Times.*

[We cannot help feeling, with all due respect to Dr. Voelcker, that his view in regard to culture as conducted by the natives of India is too optimistic. There can be no question that deeper ploughing of grain lands and more attention to pasturage for cattle are reforms urgently needed.—ED. *T A.*]

NOTES ON POPULAR SCIENCE.

BY DR. J. E. TAYLOR, F. L. S., F. G. S., &C.

EDITOR OF "SCIENCE GOSSIP."

Professor Perry, the well-known electrician, has just written a cheap and lucid little book on *Spinning Tops*. It is one of the most suggestive books I have come across for some time, intensely optimistic and almost prophetic. He holds that scientific discovery will increase during the next century in a multiple proportion ratio. One of his concluding passages is as follows:—"Imagine the following question set in a school examination paper of 2090 A. D —'Can you account for the crass ignorance of our forefathers in not being able to see from England what their friends were doing in Australia? Or this—'Messages are being received every minute from our friends on the planet Mars, and are now being answered. How do you account for our ancestors being utterly ignorant that these messages were occasionally sent to them?' Or this—'What metal is as strong compared with steel as steel is compared with lead? and explain why the discovery of it was not made in Sheffield.'"

This is practically an age of metallic alloys. Metallurgists are constantly experimenting upon the relative proportions of the admixture of metals. A new alloy has just been brought out whose electrical resistance diminishes with increase of temperature. It is composed of copper, manganese, and nickel. Another new alloy, brought out by the same experimenter, Mr. Ed. Weston, whose electrical resistance is practically independent of temperature, consists of 70 parts copper combined with 30 parts of ferro-manganese.

A new line-throwing gun has been invented, for the purpose of accurately throwing a line from the shore to ships in distress. It consists of a shoulder-gun, and the line is packed away in the stock. A rod is fastened to the line, and the gun is fired at a high elevation. But, instead of casting lines from the land to a ship, why are not ships provided with means of casting lines to the land? There would not be so many misses then.

A remarkable invention has been patented in Norway—nothing less than a new material called lactite or the "milk ivory," which is prepared from skim-milk. A factory is being built for its manufacture in Iceland. Lactite is said to bear a close resemblance to real ivory, and can be made of any colour. It is intended to adapt this new substance for such purposes as electrical fittings, buttons, door-handles, embossed panels, dados, cornices, &c.—*Australasian.*

"INGENUITY, SAGACITY, AND MORALITY OF PLANTS."

Dr. J. E. Taylor resumed his course of lectures upon the "Ingenuity, Sagacity, and Morality of Plants," at the Lecture Hall, Ipswich.

Although the immediate subject of the lecture was "Plants which catch and devour animals," Dr. Taylor commenced first by drawing attention to the constituents of plant food and the nature of that protoplasm which is the basis of all life, both animal and vegetable. He had already pointed out that the most important part of all plant food—carbon—was obtained solely from the atmosphere by the mouths of leaves. All the other kinds of food, including water, were obtained from the soil by the agency of the roots and the root hairs. During the day the leaves had attracted carbon from the carbonic acid gas in the atmosphere, and at night this was stored away in various ways, either as starch, or to build up the woody stems of trees or shrubs, or it would be carried still further to where starch was required, as in the seeds, or still underground to be stored away in the tubers of potatoes and artichokes, the bulbs of onions and liliaceous plants generally. Vegetable nature was always providing, he said, against a rainy day. Then there was a certain amount of ingenuity with which this store of food was utilised. For instance, they would observe that in herbaceous plants, or plants which had soft stems, those which lived more than one year had either underground stocks like the primrose or cowslip, or the lower part of the stem thickened into what was called a bulb, like the hyacinth, crocus, tulip, onion, etc., so that when the plants died down on the approach of winter through the frost killing the soft stems, there yet remained the vital parts hidden away underground from the keen eyes of animals that in the winter time would prowl in search of them. If they cut an onion in two

vertically they would see packed away in the centre the young plant which was to sprout in the year following. Sometimes this stowing away of vegetable starch underground would be utilized for purposes of propagation. Everybody was acquainted with the fact that the potato had so-called eyes, from every one of which potato plants would sprout, and they could cut up the vegetable with impunity as long as they did not injure this eye. This was the case also with the tubers of the artichokes. Even as regards the leaves, said the lecturer, which were to be brought forth next summer, they were already formed. If we looked upon any lilac bush, or horse-chesnut tree, or, indeed any shrub, we should find them crowded with brown buds. If these were cut in halves the leaves would be found packed away within the protective bracts, which were really modified leaves, which never became leaves, but which sacrificed themselves, for the sake of the tender little leaves which they enclosed. Even the flowers Dr. Taylor said, in some instances, that were to come next year, had been provided for last season, as in the case of the catkins of the hazel which were now shedding their pollen from the hedges by the wayside.

In all these cases the lecturer pointed out that one of the most important elements, Nitrogen, which entered into the composition of plant food, and which article we supplied to crops in nitrate of soda, was taken by the root hair of the plants from the soil. We were surrounded in the atmosphere by a huge reservoir of nitrogen, composing 79 per cent of the constituents of the atmosphere. No order of plants however except the podded plants like beans or peas, had the power of tapping this vast aerial supply. But supposing, said the Curator, that plants were so situated that these roots could not penetrate the soil to obtain any of the nitrogenous materials which the soil contained. The only means by which the soil was refreshed was by the dead bodies of animals, both great and small. Mother Earth had been for millions of years receiving back to her bosom the children to which she had given birth, microscopically small, and gigantically large. Sometimes, of course, the soil was refreshed from the atmosphere, as during thunderstorms, when the lightning flash had the power of combining in its path the nitrogen with the oxygen, and producing thereby fertilising nitrous oxide. The soil contained hosts of bacteria, which were engaged in the work of converting decomposing matter which contained nitrogen, so that it should be soluble for the root hairs of plants; nitrifying the soil, in short. Now, he said, there were groups of plants whose nature had been only studied during the last twenty years, which now went by the name of carnivorous or insectivorous. Most of them lived in marshy spots in various parts of the world. These plants, as a rule, had roots which were simply so many anchoring threads, to prevent the plant being blown away. So the duty of obtaining nitrogen was thrown upon the leaves, and these leaves, in the process of the battle of vegetable life, and the keen strife that had been going on for ages past in the vegetable kingdom, developed special powers of capturing animals—that is to say, insects of all kinds, small fish, and even birds. The lecturer refered to, first, the sundew, of which we have three species in England. This plant was found in both North and South America, the Cape of Good Hope, and other places, but it was most prolific in Australia, where there were no less than forty kinds. All of them possess the power of capturing, strangling, and even digesting insects which visited them. By means of diagrams he pointed out the structure of these curious plants, showing how a rosette of green leaves, which were crowded with tentacles, that were really only portions of leaves extended like the fingers of a glove, secreted dew-like drops, and the greater the sunshine the greater the quantity of this glutinous material. They were exceedingly sensitive to anything touching them of a nitrogenous nature. One eighty-thousandth part of a grain of ammonia affected them. The tentacles would then flex themselves over and show that they were influenced. Microscopic examination showed the protoplasmic stream in agitation under nitrogenous stimulancy. Insects, in proportion to their size, contained more nitrogen than any other kind of creature. Along our hillsides sometimes they would see in the boggy districts a large area of the country crowded with sundews, the most remarkable plant of our British flora, and insects would be attracted by the sparkling dew to have a drink. When they alighted upon the leaf the hapless creature would be entangled among the glutinous, viscid matter, so as to be unable to get away. Then the tentacles would flex themselves over it, the edges of the leaf would curl up, the insect would be strangled and suffocated. Decomposition would set in, and the leaves actually possess the fluid pepsine like the human stomach, by which it could digest the nitrogen and assimilate it. Then the tentacles would turn to their old position, and the empty case of the insect would be blown or washed away. The Doctor then related various experiments which he had made on these carnivorous plants. Another plant growing on our hillsides was the butterwort, so called from its rosette of greasy leaves. There were certain kinds of insects called plant lice, which when they attacked the leaves of this butterwort slipped about its surface like a lanky, bad skater. These plants had also the function for digesting these insects which the leaves had captured. He next described an aquatic carnivorous plant which was to be found in the River Gipping, and they might often have seen its yellow spikes just appearing above the water level. They were regular eel traps as regarded their structure; minute water flies or the larvæ of fish could get in but they could not get out. They were strangled and digested. The Doctor then referred to the great pitcher plants of the Malay Archipelago, so huge that sometimes they held half a gallon of water, in shape they were like a hot-water jug with the cover half lifted. Small birds frequented them to drink, but having partaken, when they strive to get out they are driven back by two large pointed spikes, until at length they are drowned. In the liquid there were actually bacteria present, which helped to decompose the birds, and in this way the nepenthus plant provided itself with nitrogen. In North America there was the side-saddle plant, the sarnacenin and darlingtonia, which also caught flies on their peculiar and suggestive manner, so that the interiors of their trumpet-shaped entrances were frequently crowded with flies, dead and dying. Singularly enough these plants not only had a bright attractive colour at the upper part of the trumpet-shaped tube, but they also secreted honey, and a fly lighting upon it might imagine that it was quite safe to sip. It got sweeter lower down. The interior, however, was covered with hairs, which grew downwards, and when the insect tried to come back it dropped to the bottom, to join its foolish brethren who had come the same way. They were decomposed within, and thus the side-saddle plants of America, through their modified leaves as pitchers and trumpet-like tubes, fed themselves in this remarkable manner.

THE DEFENCES OF PLANTS.

The immediate subjects of the lecture were in touch with those treated on in previous discourses, although of a distinctly individual character. Dr. Taylor brought before his hearers n the first instance the subject of the defence of plants. From what he had said concerning the usefulness of green leaves it would be seen that the loss of a single leaf was decidedly injurious to the plant. He asked them to consider the vast number of enemies which plants had to cope with, for it might be said that the whole animal kingdom depended for its existence upon the vegetable. Not only did mammalia browse upon herbaceous plants, but the larvæ of untold millions of insects did so too. In addition to these were the slugs, snails, &c., which fed entirely upon vegetable structures. Perhaps numerous spare leaves on every tree were provided for the sole purpose of meeting the demands of the animal kingdom. It is no uncom.on thing during a droughty summer, to see the ground and the hedge rows stripped of their leaves entirely through the depredations of

caterpillars. What was to check the tendency of the numerous enemies of the vegetable kingdom from destroying many types of plant life. Years ago it was imagined by some people that the existence of thorns and thistles could be best accounted for by the theory of the original transgression. But botanists knew that this had practically nothing to do with the subject. Thorns and thistles were in the world long before the creation of man; and if people chose to take a too literal view of many things in the Bible, they would find themselves in error instead of in truth. The fact was that both thorns and thistles were natural defences against the enemies of many kinds of flowering plants, belonging to various orders all over the world. These defences were perhaps most strongly developed in tropical countries, where the battle of life was fought more keenly and fiercely than in temperate regions. Look, said the Doctor, upon the enormous number of substances secreted by the leaves, stems, roots, and fruits of plants. Sometimes the plant's defence would be its prickles or thorns to prevent mammalia browsing upon them, and slugs and snails from climbing up their stems—such for instance as the bramble, whose re-curved hooks also serve the purpose of grappling irons to enable the plant to climb by. Thorns were sometimes produced as stiffened hairs, as for instance in the gooseberry; others had stipules converted at the base into the same defensive material, as in the acacias. In the hawthorn the branch itself was aborted into thorns. Reference was made to the thistle, one of the finest armed plants and the most mechanically perfect in the whole world. Then, said the Doctor, the leaves of some plants were sour, like the sorrel and mountain sorrel, which contained oxalate of potash, which was really a poison, and thereby prevented slugs from eating the leaves. Sometimes the leaves were intensely acrid, like the buttercup and lords and ladies (*Arum maculatum*). The buttercup family was intensely poisonous all over the world, and he called to their mind how they would see in the dry summer time, when all the grass was close cropped, clusters of buttercups untouched by the cattle. The order of plants to which the tobacco belonged secreted poisonous materials—indeed, humorously said the lecturer, if the tobacco plant were not so it would not have been worth smoking. [Laughter.] He reminded them that this peculiar order was objectionable to most herb-feeding animals, for instance, the tomato and the berries of the bitter sweet (*Solanum dulcamara.*) The poisonous character of the henbane (*Hyoscyamus*) and the belladonna, etc., The poppy secreted opium and protected itself thereby. Sparrows, he explained, would feed upon the flowers of the crocus, but they would not touch the leaves and rarely the roots. The hawthorn, the flowers of the almond tree, and the meadow sweet contained prussic acid. Many plants, especially the grasses, protected themselves by secreting a vast amount of silica in their skins. Other orders, like the crucifer, had both roots and leaves intensely pungent, as in the case of the radish, mustard and cress, etc. Some were intensely bitter, like the ferns, and these latter were seldom eaten by any animal. The tannin in the bark of trees protected them against the gnawing habits of mammalia, and the bitterness of the strychnine in our gentian family, several of which were used by medical men as tonics, was remarkable. The lecturer then went on to notice that even the perfume and odours of plants, such as the leaves of the sweet briar, mint, wild thyme, sage, &c., were more or less protective agencies not so much against animals as against the sun, for it is a fact that these perfumes kept the atmosphere cool, and they might often see sweet smelling plants flowering in the scorching sunshine, when those plants not so endowed were withered by the fervent heat. The Doctor illustrated these various phenomena by sketches upon the blackboard, as well as by coloured diagrams.

PARASITIC FLOWERING PLANTS.

Dr. Taylor passed on to another part of his subject, and an exceedingly interesting portion, namely, that of the flowering plants, belonging to what he called highly exalted orders which got their living by preying upon, robbing, and even murdering the neighbouring plants. These remarks were illustrated by a series of mounted specimens of the broomrapes, which were found in abundance on every common, and were only too well known to every farmer from their attacks upon his clover field. The collection had been made by Captain Haward, of Little Blakenham, and it showed one species of the broomrape attacking fourteen kinds of different flowering plants. Vegetable parasitism could be found in every stage. Some species only occasionally indulged in it; others, like the broomrape and dodder, could not live in any other way. The dodder belonged to the order of the convolvolus. If a seed were put in the ground, it would develop a couple of small leaves and a long, slender, sensitive stem. They might see it waving about as though it were trying to feel out for something. If it did not find anything, the plant died; if it came into contact with any succulent plant, it climbed it, and develope suckers which fed upon their host in such a manner that the substance of the latter was drawn off into its structure. When the dodder stem had once got a good hold it let go of the earth, and henceforth lived entirely upon the plant which it had embraced. The dodder killed off thousands of acres of crop plants every year. The broomrape sometimes attained a height of 18 inches: it had no roots, except one, which crept out in search of some adjacent plant until it came in contact with it when it fused itself with its victim beneath the soil. What a great vegetable bully it was, sometimes five times as large as the plant upon which it levied blackmail. The broomrape had remnants of its former leaves brown and shrivelled that were not used, so that it even did not get the carbon from the atmosphere. The mistletoe was another parasitic plant. Its home was in Australia, where the huge gum trees there sometimes contain more mistletoe foliage than their own, but the mistletoe did obtain its own carbon. Then there were other vegetable murderers, particularly in the tropics, that twisted their stems so round other trees as to strangle them. It was impossible to go into a tropical forest without being painfully impressed by the reckless selfishness and craftiness of numerous members of the vegetable kingdom. In Brazil, one of these Ilianas, or climbing plants, was called the murderer, because it actually spread out its stem broadly round the tree it climbed by, so as to completely encase it, and the living plant often supported within its embrace its dead and murdered victim. The ivy was also referred to. Space forbids us to enumerate other types of plants in different parts of the world which illustrated the lecturer's theory of the selfishness, craft, and seeming cruelty of those members of the vegetable world which did not get an honest living by their own roots and stems and leaves, but whose existence depended upon the ingenious, sagacious, but immoral practice of these expedients of craft.—*Ipswich paper.*

A NEW MINERAL.—Mr. H. A. Miers in the *Mineralogical Magazine*, describes a new mineral, which has been named "Sanguinite." It was observed on specimens of argentine from Chañarcillo, and is probably a hexagonal sulpharsenite silver, allied to proustite. To the naked eye the mineral appeared to be göthite, but examination with the microscope revealed its different character. It has lustre, like earthy hematite; colour, bronze-red by reflected light, and blood-red by transmitted light: streak, dark, purplish brown. No quantitative examination was made, on account of the small quantity of material; a qualitative analysis, however, showed the presence of silver, arsenic, and sulphur. The physical characters as a whole prevent the mineral from being referred to proustite or xanthoconite, the mineral being nearer like the former in its physical characters. The specific gravity and hardness have not been determined.—*Public Opinion.*

NOTES ON PRODUCE AND FINANCE.

THE GROWING IMPORTANCE OF TEA.—A glance at the reports of the various tea companies issued at this season of the year, and reproduced in these columns, will convey to the reader who has no stake in tea some idea of the importance of the industry. For reasons best known to investors there is less interest taken in the City in these companies and the results of their working for the year than there should be. This is, no doubt, because there is such a limited market for the shares. When this is remedied, and transactions in tea shares are more frequent, the reports of these companies will be read with increasing general interest, and investors will be more on the alert in the matter of share quotations.

TEA AND COFFEE IN FIJI.—With reference to the paragraph in our last week's issue, in which there was some mention of an attempt to resuscitate coffee planting in Fiji, it is pointed out by a correspondent that both the coffee and tea planting experiments are failures up to the present time, owing, no doubt, to the labour difficulty; but although the difficulty should also apply to the cultivation of sugar, that industry seems to be extending rapidly, and the Colonial Sugar Company, which practically holds a monopoly of the industry of the islands, has opened out some splendid new country lately on the La Basa River, on the large islands of Vanua Levu.

COFFEE IN MEXICO.—During the last four years, says a Mexican paper, coffee has become one of the principal products of Mexico. The new transportation facilities offered to traffic by the railways which are girding and forming a network in that flourishing republic have encouraged the coffee raisers to increase their production. In Cordoba, State of Vera Cruz, one of the principal centres of production, the cost of the cultivation of the precious grain is about 7 dols. per 100 lb. and its selling price from 22 dols. to 23 dols. and sometimes higher. This proves what has been said about the immense profits which the coffee raisers can obtain in Mexico. Next to hemp or hennequin, coffee occupies the highest place in the exportation of Mexican products. According to Mexican statistics, from 1881 to 1886 the yearly average exportation of coffee was 1,722,429 dols.; from 1886 to 1887 it ascended to 2,627,377 dols.; from 1888 to 1889 the sum was 3,866,034 dols.; and finally, from 1880 to 1890 it reached 4,841,000 dols. As can be seen, the production of coffee in Mexico has been quadrupled in the last decade.—*H. and C. Mail*, May 1st.

THE GROCER AND PACKET TEAS.—Grocers resent the action of packet tea proprietors in appointing agents outside the trade, and some of them affect a lofty tone in dealing with the question. A correspondent of the *Grocer*, writing on the subject, lays down the law thus:—"The way packers of Ceylon and other teas appoint agents seems to require an understanding amongst grocers of good standing in the retail trade. The pretended 'presents' have done grocers much harm and deluded the public, but another serious mischief is growing. The tea firms who appoint drapers, stationers, confectioners, ironmongers, &c., as agents should be noted and avoided by grocers. Grocers' associations should occasionally have an united conference with representatives from all towns to discuss and inform all about such firms, as to who they are and the tricks and dodges played, so as to make it not worth their while to call on any respectable grocers. Today I had a traveller call to ask me to take any agency for some 'Ceylon' tea. When I reminded him that a stationer in town was agent for the firm, he replied, 'Ceylon has nothing to do with the other tea.' My remarks soon caused his exit. Another question is important: How many firms appoint sole agents and have no respect to even a written appointment, unless that written appointment is stamped! I know there are two sides to the question, but retail grocers need to discuss their own side, and large firms may be left to look after their own interests, although many firms would sell more in ten years through one good grocer in a town than through several grocers selling a proprietary article for only a few years. Sole agents (not to monopolise) are fast becoming a necessity to enable certain packed articles to be supplied in some towns. I know a grocer who received a sole agency in writing and wisely had it stamped. After a time the firm sent a traveller to open accounts anywhere, grocers or otherwise, quite regardless of their written appointment and without notifying their agent of any dissatisfaction whatever; but the biter was bitten, as the shrewd grocer demanded recompense for breach of contract, and obtained what he demanded, as the firm preferred pay to publicity in a court. I have no desire to interfere with legitimate trade, but high-flying professions by tea-packers and others require caution and communications between grocers. I intend stamping all future agencies I accept, as I decline being made a catspaw to introduce to a good family trade this, that, and the other, and then, when a trade is made, let Tom, Dick, and Harry run away with the profit. Introducing goods costs time and energy, and these are not easy to obtain for money."

CHEAP TEA.—Discussing the evils of cheap tea at a public dinner, Mr. Robert Stewart, of Messrs. Semple, McLean, and Reed, tea dealers of Glasgow, said that when he entered the firm twenty-five years ago the total imports of tea from all quarters amounted to 137,000,000 lb. Last year it reached the enormous amount of 228,520,000 lb., or an increase of 91,500,000 lb. thus showing that tea, which at no remote period was considered a luxury, had become a necessary food of the people. That being so, it was much to be regretted that during the past few years there had got into the trade a number of adventurers whose only claim to public notice was their special aptitude for framing advertisements which would have brought the blush of shame to the cheek of Baron Munchausen. These advertisements the public swallowed as eagerly as they swallowed the vile concoctions which they praised. It was high time our medical authorities and the Health Committee of Glasgow Town Council should intervene, for he thought that not a small percentage of the excessive death-rate in the large centres of population could be traced to the immoderate use of low grades of an article called tea.—*Home and Colonial Mail*, May 8th.

TEA INFUSED WITH MILK.—A correspondent who, weakened by illness and unwilling as an abstainer from intoxicants to take ordinary stimulant, writes to us advocating the use of tea infused with boiling milk, instead of water. He tells us that his medical man recommended tea in this form as a most agreeable stimulant, and one which he has found very efficacious. It neutralises the tannin, and renders tea acceptable even to palates not accustomed to it, and to invalids. Certainly tea infused with milk will be found both agreeable and refreshing. —*H. and C. Mail.*

NORTH BORNEO COFFEE.—A sample of Mr. Christian's Liberian coffee grown on the Victoria estate, Kudat, was received by Messrs. W. Jas. & H. Thompson of Mincing Lane who report upon it (on the 31st of January) as being worth 86s to 88s per cwt. A sample of Ceylon-grown Liberian coffee of somewhat inferior size, but better cured and consequently of better color, was valued at 92s. The Borneo bean has been shewn to several gentlemen in the Lane who speak very favourably of its quality, and the general feeling is that African coffee is coming into favor. Messrs. Wilson Smithett & Co. state that the world's consumption of coffee is roundly estimated at 650,000 tons per annum and that supplies have steadily fallen off during the past five years. Those who are acquainted with the East are already aware of the serious deficiency in the exports from India, Ceylon, and Java, and it would appear that the present is a favourable time for planting coffee on a large scale.—*British North Borneo Herald.*

THE CEYLON TEA PLANTATIONS COMPANY.

ADDRESS OF THE CHAIRMAN, MR. D. REID, AT THE RECENT GENERAL MEETING.

GENTLEMEN,—I am very pleased to again meet the shareholders with a satisfactory balance sheet, and to be able to assure you that, in the opinion of the Board, the position of the Company has strengthened with each successive year of its existence. Before referring to my visit to Ceylon and reviewing the Company's present position, I wish to give a few explanations of the accounts. On the debtor side of the Balance Sheet you will find that the Reserve at the end of the year stood at £3,257, while only £3,000 was carried to that fund from last year's profits; the difference—£257—is premium on new shares issued during the year. The addition proposed to be carried from the profits of 1890 to this fund will bring it up to £9,000. On the debtor side of the profit and loss account, you will find an item of £122—Furlough account. As stated in the Directors' report, £1,750 has been provided out of the working expenses of this year for this purpose, and each separate estate has been debited with the sum set apart for the Furlough of the Staff engaged on it. The £122 appearing in the profit and loss account is to provide for the Ceylon Manager's furlough. The sum of £1,750 is abnormally high, as it had to be calculated from the dates our several superintendents and assistants entered the Company's service—it is, in fact, a provision that covers not one, but four years. Now the working expenses of each year will be debited with the liability incurred under this head during that year, which will be about £600 per annum. The sum of £200 reserved for "Tobacco cultivation experiment" is an amount the Directors have set aside to cover a possible loss on an experiment they have made on a small scale in growing tobacco at Lunugala. Until the tobacco is brought to market, we cannot say whether there will be a loss or a profit. I think the accounts otherwise are plain and will be readily understood by the shareholders. Let me now refer to my visit to Ceylon. I visited, in company with Mr. Talbot, your manager in Ceylon, every estate in which the company is interested, and personally discussed with him and the various superintendents of estates the condition and prospects of the Company's property. Coming fresh from such a visit, I presume that what the shareholders will wish to know is the opinion I have formed of the value of the Company's property, the stability of its position and the character of the management. The value of our property as a profit-earning concern can be clearly seen by anyone who has read the four annual reports, which show that the position of the Company has been one of growing stability and improved prospects. I particularly directed my attention while in Ceylon to a study of the prospects of our tea continuing to give us good crops. The conditions of a good tea estate are: 1st, suitable soil and climate; 2nd, good planting with the best jat of plants; and 3rd careful nursing while the tea is young. The actual results obtained and dividends are, I think, good evidence that the first and second conditions have been secured, and I have to state my opinion that, with very trifling exceptions, exceptions so small as not to affect appreciably the character of the whole, the Company's property fulfils the conditions I have named. Let me now say a word about the third condition, that is, careful nursing while the tea is young. If it is attempted to get large profits from tea in its early years by severe plucking, the estate may be greatly damaged and even permanently deteriorated. Amongst other things patience is required to make a good tea estate. I can assure the shareholders that our profits have not been obtained by imperilling the future. Our young tea has been treated with regard mainly to producing strong bushes that can be relied on to give large yields after arriving at maturity. In regard to the condition of the Company's property, it is in the highest state of cultivation, and has throughout a most thriving appearance. All the factories are of the most permanent description, thoroughly well built and well-designed, and adapted for economical and efficient working. No money has been wasted in putting up fancy or show buildings, but no outlay has been grudged to give our superintendents the means of making good tea. I should like now, as has been my practice at previous annual general meetings, to take a general view of the property with which we started business this year. The cost of the properties is shewn by taking the first item on the creditor side of the balance sheet, adding to it the cost of purchase of West Holyrood, Ardallie, and Rathnillokelly estates, and deducting the £4,000 written off for depreciation. Taken in round figures this amounts to £223,000. Against this you have, as shown by the Directors' report, 6,307 acres of tea-planted land, and 2,831 acres of land of which a considerable portion is fit for planting with tea. Revenue has been charged with all renewals and repairs to machinery and buildings and the planting of a considerable area with timber trees. Without taking into account the Reserve fund of £9,000, and allowing £4 per acre for unplanted land, the acreage under cultivation will stand at £33 per acre as against £34 last year. This does not, however, represent all our capital assets. We have a business of manufacturing tea grown by other proprietors which last year amounted to nearly 1¾ million lb., and from which a considerable profit was made. I do not, however, deem it advisable to assume our manufacturing business as representing much capital value, as our customers may at any time build themselves a factory, and so I prefer valuing your property for you solely on the basis of a price per acre for the whole business as a going concern. But, although our manufacturing business is not one we can be certain of retaining permanently, there is this to be observed—that we possess buildings and machinery sufficient to spare to deal with the crop of our own estates, not as they are now, but as they will be when every acre shall be in full bearing. I can best give an idea of the extent and completeness of the Company's equipment, when I tell you that in January, February and March of this year we made at our own factories over one million lb. of tea and three large factories, viz: Mudamana, Rosita and Tangakelly, were not completed, but all three will be at work on or before June 1st of this year. After these factories are finished, we shall be in a position to deal with considerably over four million lb. of tea per annum. Taking these facts in conjunction with the Directors report which shows that during 1890 a profit of over £31,000 was made from a plucking area of less than 4,000 acres, I think I am justified in describing the Company's position as one of growing prosperity and stability. I should like now to say a word about the expansion of the Company by new purchases, and I have to inform you that since issuing our report the Directors have concluded negotiations for the purchase of the Yoxford estate from Messrs. Baring Bros. for £18,000. . . . . I am, after careful inspection and consideration, well satisfied with all the Company's new properties, and I am no less pleased to be able to assure the shareholders that I see no signs of deterioration in our oldest estates. The Company's estates in the Kelani Valley are looking healthy and vigorous and have given very heavy crops during the present year. The situation of the Company's factories is generally most favourable for aiding one another in times of pressure or break down, several of our large factories being at railway stations, and all very accessible by road. Let me now say a word about the management in Ceylon. Any property, however fine, may easily be ruined by mis-management, and I have given anxious attention to the consideration of the efficiency of our staff. I have the fullest confidence in assuring the shareholders that no property in Ceylon is more carefully or skilfully managed than is their property by Mr. Talbot and the able superintendents and assistants who form the Company's staff, and I have to express my great satisfaction with the excellent feeling of mutual respect and trust which I know exists between the Board of

Directors and our Ceylon staff, and which I believe lies at the root of the successful working of any business concern directed by a London Board carrying on an enterprise in a country 5,000 miles distant. I desire also to record the thanks of the Board to our Secretary for the admirable manner in which the duties of his office, embracing, as they do a great deal of laborious work, have been performed. I have now much pleasure in moving the adoption of the report and balance sheet, and that a final dividend of 8 per cent. be declared payable forthwith.

The *Home & Colonial Mail* in a very brief summary of the meeting says:—

In reply to questions by shareholders as to gross figures resulting in the substantial net profit of £30,000 shown at the credit of revenue account, the Chairman stated that the profit on the tea produced on their own estates amounted to, roughly, 4d a lb and the profit (or commission) on the crops purchased to about 1d a lb out of the 11d gross product. One shareholder expressed a desire that a little more broad details might be introduced in future into the accounts, the same as used to be given in previous years; while another gentleman present suggested that the system followed by the Indian Tea Companies of giving total Ceylon expenditure and total produce realisations, or a fully detailed tabular statement such as is presented by the Land Mortgage Bank of India (the largest Indian tea Company) would be an advantage. The Chairman, however, indicated that the feeling of the board was in favor of keeping such information private, but that individual shareholders could, if they desired it, be furnished with information, and that at the meetings the chairman would also be ready to give all reasonable information. The meeting was then made special, and resolutions were passed authorising the board to acquire, at a cost of £27,000, properties with an aggregate area of about 1,000 acres, about half of which was under tea and coffee cultivation. A cordial vote of thanks to the board and staff for their efforts to bring the Company to its present state of success terminated the proceedings.—Local "Times."

CINCHONA IN JAVA.

From Mr. van Romunde's report on the Government cinchona enterprise in Java for the first quarter of 1891 we learn that the weather was somewhat abnormal, heavy rains alternating with drought. This was unfavorable for the young plants, and the Ledgeriana seedlings suffered in consequence. By the end of the quarter the planting up of new grounds intended to round off the plantations on the Malabar hills was as good as finished so far as those intended for ledgerianas were concerned; whilst the succirubra plantations uprooted in 1890 and during the last few months were replanted with ledgeriana. The restoration of the older ledgeriana plantations by close interplanting was vigorously carried on. In order to diminish the cost of upkeep of plantations, the distance between ledgeriana seedlings was diminished. Especially in second planting the distance was reduced to a minimum, after it had been ascertained that on land planted for the second time with cinchona, a vigorous growth commences only when the soil is shaded from the effect of the sun's rays. The crop of 1890 comprised 534,562 half-kilograms bark, of which 142,396 ½-kilos *C. succirubra*, 6,447 ½-kilos *C. Josephiana* (*C. calisaya schuhkraft*), 342,271 ½-kilos *C. ledgeriana*, and 43,448 ½-kilos *C. officinalis*. During the quarter about 100,000 pounds of bark were gathered. At the end of March a commencement had been made with despatch of the back. On 22nd Jan. and 26th Feb. sales of bark of the crop of 1890 were held in Amsterdam. The unit for manufacturer's bark at these sales averaged 7½ and 7 cents. Good prices were paid for ledgeriana barks, whilst for succirubra bark one meter in length up to *f*1·32 and *f*1·40 per ½ kilo was paid. In January and February sales of cinchona seed were held, the amount realized being *f*397. The lots offered consisted almost entirely of succirubra seed. Through the carelessness of a fixed labourer a fire took place in one of the houses at Lembang, whereby the kampong attached to that establishment was reduced to ashes.

THE DUTCH MARKET.

AMSTERDAM, April 29th.

CINCHONA.—The bark sales which will take place here on May 14th 1891, will consist of 3,313 bales 75 cases—total about 289 tons—divided as follows:—*Java bark*: From Government plantations 330 bales, 22 cases, about 29 tons; from private plantations 2,983 bales 53 cases, about 260 tons. *Druggists' bark*: Succirubra quills, 54 cases; broken quills and chips 170 bales; root, 14 bales; C. Anglica quills, 11 cases. *Manufacturing bark*: Ledgeriana broken quill and chips 2,167 bales; root 700 bales; hybrides quills, 10 cases; broken quills and chips, 96 bales; root, 120 bales; officinalis broken quills and chips, 28 bales; root, 18 bales. Total, 3,313 bales 75 cases. The analyses are not yet completed.—*Chemist and Druggist.*

SMALL CULTURE UNDER GLASS:

(Commercially Considered.)

BY ARTHUR SINCLAIR.

These serve for useful ends, when frosts by night,
Or cold, raw winds the tender blossoms bite.
—*Lawrence.*

Aberdeenshire farmers are generally recognised as being, to say the least, quite abreast of their brethren in the most advanced and best cultivated portions of the world. The same, however, cannot be said of our gardeners and small culturists. Our farmers, considering the brief summers in our northern latitude and far from rich soil, contrive to raise crops and cattle which might well, and *does*, excite the envy of agriculturists in more favoured climes. Indeed, I doubt if any of our numerous colonies, *producing only one crop a year*, yields a greater quantity of food per acre than "poor bleak Aberdeenshire." But, while farming has made wonderful progress during the present century, gardening has progressed backwards, the lack of encouragement from the degenerate successors of former patrons and the difficulties to contend with in the shape of an uncertain climate being deemed sufficient to account for this. The time was when the M'Intosh of the north was encouraged to vie with the Paxton of the south; but nowadays, the tastes of my lord and lady find a more congenial if less reputable field in other directions.

But a new patron has arisen for the encouragement of the horticulturist, even the great public itself, with a newly acquired taste for fresh vegetables, native, sub-tropical, and other tender greenery in and —especially—out of season. This ought to be encouraged, and, indeed, being fostered by many shrewd cultivators in Kent, Guernsey, and elsewhere, who have already acquired fortunes by the supply of those delicacies; and it is a desire to see Aberdeen sharing in this good fortune that prompts me to write this paper.

The demand at present seems practically unlimited, and I hope to be able to show that the possibilities of supply from Aberdeenshire are as great as from any country in Great Britain.

The culture of fruit and vegetables under glass has hitherto been looked upon as one of the luxuries of the very rich, and until recently the cost of glass practically prohibited its use on a large scale. It was thought also that our northern winters were too severe, and, moreover, there was no market till the taste

was cultivated. This latter difficulty having been got over, all the others must follow. *Forcing* is not absolutely necessary, assisting nature and watchfulness being all that is necessary; and if this is judiciously attended to, two or even three crops a year may be successfully taken from our soil, and fresh supplies sent to the city marts all the year round.

It has been sufficiently demonstrated that Aberdeenshire, particularly Deeside, is quite as much favoured in the matter of light and sunshine as Kent—the garden of England. It is true our springs are later, our summers shorter and more uncertain, but the almost invariably genial autumn and as a rule milder winter more than make up for this, while the very nature of our undulating land gives us a great advantage over the flat, misty lowlands.

Yet such is the fact that, while hundreds of acres have been covered with grass and little fortunes made by growing early potatoes and tomatoes in the foggy fens of the south, the enterprise can scarcely be said to have been initiated in Scotland. This is far from creditable to Aberdeenshire.

At the present moment, potatoes from the south may be seen selling in Union Street shops at 6d per lb. Is there any earthly reason why these should not be produced locally? or, indeed, looking at the average winter temperature of the respective localities, why a daily supply should not have been sent from here to the south of England during the past two years?

The cost of the necessary glass structures need not be prohibitive, nor the cultivation beyond the capacity of any labourer of ordinary intelligence. The chief source of anxiety, viz., how to protect the crops from sudden frost or blasts of cold east wind, is more easily provided against than generally supposed. A covering of coarse canvas, and when necessary—which is very seldom—a simple heating arrangement. As a rule, there is far too much heat and coddling in our glass houses. A much greater enemy than cold is the indiscriminating use of the watering pan during winter.

The situation is important—a rather more than *gently* sloping brae side, facing the southeast, on such a declivity as radiation will go rapidly onward, and the cold condensing mists roll down to the bottom of the valleys, chilling with frost what many are apt to call "the warm sheltered spots," while the hill above is left quite unscathed.

The sub-soil is the next consideration, and this must be open, free, inclined to gravel, the surface soil being *made* to suit the several crops. The necessary water will suggest itself; so will also proximity to the city or railway station.

The buildings may be erected according to taste and means, but the *lower* or *nearer* the glass is to the surface of the ground so much the better. The cost—according to figures obligingly supplied by friends in the south of England—averages from 9d to 10d per superficial foot—say £1,633 per acre—a formidable sum certainly; but let us look at the average returns:—

The local demand, or Covent Garden Market, must dictate the nature of the crops. At present I shall only instance potatoes, tomatoes, and kidney beans, of which I have before me reliable returns, the wholesale prices received in London being as follows:—

Potatoes	4d to 1s 0d	per lb.
Tomatoes	3d to 1s 3d	,,
Beans	4d to 2s 6d	,,

Now a very moderate estimate would give 5 tons potatoes to the acre—

Say 11,200 lbs. at 6d	£280
Tomatoes, say 10,000 lbs. at 6d	250
	530
Interest on capital, taxes, rent and labour, say	230
Leaving a profit of ..	£300

I have thus shown what might be done by growing two crops a year, but of course rotation of crops will have to be studied. All kinds of salad abundantly supplied, the strawberry will suggest itself, and grapes may be grown without interfering with the *winter* crops of vegetables.

The best potato for the purpose is the good old Ash-leaf variety, though some of the round are more prolific. Yet, as a rule, it is a profitless chase running after new varieties. There is quackery in other things than drugs.

The main planting ought to be done early in October, so as to be ready for the market by the 1st February. These being cleared out by 1st March, the ground is forthwith filled with nice, sturdy tomato plants, which will have to be in readiness for planting. These will give an abundant supply from June to September.

"*But the ground requires rest and wintering,*" say some—a very convenient theory, no doubt; but, nevertheless, an utter fallacy, the lazy fallow system having been long ago exploded by the practical husbandmen in the East.

We are, after all, but comparative novices in the art; 150 years ago our great-grand-fathers knew about as much of agriculture as the Esquimaux, and, marvellous as the progress has since been, we ought not as yet to be above learning of nations who have practised the art for thousands of years. In India may be seen fields which from time immemorial have been growing two or three crops a year. In China, I believe, the same. Born and bred to the business for ages, the Chinaman is, without any exception, the best gardener in the world; he may not know all the mysterious minutiæ and ponderous names with which my lord's great gardener delights to mystify the budding amateur, but—

He knows to give each plant the soil it needs,
To drill the ground and cover close the seeds;
And could with ease compel the wanton rill
To turn and wind obedient to his will.

Depend upon it, the day must come when a very great deal more will be taken out of the soil here than ever yet has been, and those who most directly contribute to this end will be deemed the best of benefactors.—*Aberdeen Free Press*

TEA AT HIGH ELEVATION.—The P. & O. mail steamer on Thursday (May 28th) takes away, among others, Mr. Chas. E. Strachan, after one of his periodical visits to the Colony. He is highly pleased with the growth of tea, especially in the higher districts, in the Agras and Bogawantalawa, and thinks even in production they will beat the lowcountry. One place belonging to Mr. Strachan estimated on the planting to give 300 lb. an acre of tea, is giving 500 lb. and may go on to 600 lb. and more, and of fine tea too. We mentioned on Saturday that Gallaha Factory belonging to Mr. Strachan's firm was likely to put through 500,000 lb. this year: a figure fifty per cent higher would be nearer the mark. We learn from upcountry that nearly 100,000 lb. was put through in April alone. Tea leaf is carted 8 miles to this factory without any harm being sustained.

MILDEW.—A circular has been prepared by Professor B. T. Galloway, and issued by the Department of Agriculture, on the treatment of nursery stock for leaf-blight and powdery mildew. The Bordeaux mixture and the ammoniacal solution, both of which preparations have been often described in this paper are alone commended for use. The circular gives directions for applying these remedies to the various kinds of trees for the different diseases and gives illustrations of the most effective pumps and nozzles which have been devised for spraying. Apple-seedlings, it is stated, can be treated with the ammonia solution five times at a cost of eight cents a thousand, while the Plum, Pear, Cherry and Quince can be treated six times the first season with the Bordeaux mixture for fifty-five cents a thousand. These are certainly inexpensive remedies, and they are reported to be very effective. This little circular of eight pages will be forwarded by the Department to any nurseryman or fruit-grower on application.—*Garden and Forest.*

"COFFEE" AND THE DECREASE OF POPULATION IN THE CENTRAL AND UVA PROVINCES.

THE HOST OF LOWCOUNTRY DEPENDENTS ON "COFFEE" WHO MUST HAVE DISAPPEARED WHEN COFFEE WENT.

A well-informed correspondent thus indicates how native population in the coffee districts of the hillcountry must have melted away with the disappearance of their means of subsistence, direct or indirect, in coffee. Not simply did the Kandyan villagers suffer, and to some extent, being sold out, migrate; but a much larger host of lowcountry boutiquekeepers, artificers, servants, carters, *et hoc genus omne* had to move and return to the maritime districts. We quote as follows:—

"It is clear that the damage suffered by the loss of coffee, *i.e.* the actual loss of income to villagers, was far larger than the Government has ever fully realized. This bears very strongly on the latest folly of 'the philanthropist,' that the reduction in numbers in the Central Province shown by the past census is due to sales for grain tax. It is of course due to the loss of coffee which has produced the removal from the Central Province and above all from the lines of the great highways, to other parts all that large alien population which lived by coffee, either by its growth or by its transport.

"And one proof is this. In Kandy District proper there are three Ratemahatmayas' divisions, the collection of the tax in which has been always made without distraint; in fact where the tax is borne with ease,—Hari-pattu, Pata Dumbara, and Pata Hewaheta. There are three where there has always been difficulty and some, but, except in the second, not many, sales,—Tumpane, Uda Dumbara, and Uda Palata. It should follow, if the philanthropist is correct, that the population of the first three should have increased or at the worst remained stationary—and that the population of the last three should have diminished. As a fact they have all (except I think Tumpane which has increased) diminished in much the same proportion.

"You have yourself hit the blot in pointing at Matale District, where the tax has always been collected without difficulty, but which has lost 13 per cent. Matale has lost more than Walapane!"

Yes, Matale lost the lowcountry boutiquekeepers, servants, artificers, &c., &c., who were supported by the coffee enterprise. But of course, the diminished population will continue to be traced in certain quarters to the "oppressive" rent of rice lands.

RAINFALL AT LABUGAMA.

For five years on Labugama estate:—

	Rainfall
From 1st January to 31st December 1886	148·57.
The highest fall during this year was on May 18th ...	5·53
From 1st January to 31st December 1887	161·22
The highest fall during this year was on April 27th ...	6·40
From 1st January to 31st December 1888	144·82
The highest fall during this year was on May 26 h ...	6·04
From 1st January to 31st December 1889	171·36
The highest fall during this year was on April 29th ...	6·12
From 1st January to 31st Decembe 1890	148·09
The highest fall during this year was on May 28th ...	6·00
From 1st January to 22nd May 1891	62·84
The highest fall during this period was on April 7th ...	7·30

[So that the highest daily fall is credited to 1891.—ED. *T. A.*]

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, April 30th.

ANNATTO.—A parcel of 12 packages bright Ceylon seed is held for 2½d per lb., an offer at 2¼d being declined; another lot of damp seed sold at 1½d per lb.

CINCHONA.—The large supply of 233 bales Guayaquil bark was nearly all disposed of with fair competition, 209 bales selling at somewhat irregular, but on the whole steady, prices: good silvery and mossy quill 8¾d to 9¾d; medium to bold brown ditto 5d to 7d; mossy chips 5d to 5¾d; brown ditto 3d to 4¼d; split in thin chips 3d down to 1d per lb. Of flat Calisaya 5 serons damaged sold at 9¼ to 1s 2d; 74 packages flat damaged Carthagena bought in at 8d per lb., only one lot, very badly damaged, selling at 4d to 5d per lb. The following figures refer to the exports of cinchona bark from Java during the eight months between July 1st and February 28th:—

	1890-91 lb.	1889-90 lb.	1888-89 lb.	1887-88 lb.	1886-87 lb.
Private plantations Amst.	4,838,965	3,012,630	2,244,870	2,001,171	1,125,310
Govt. plantations, Amst.	434,645	394,780	529,110	490,653	480,777
Total	5,273,610	3,407,410	2,773,980	2,491,824	1,606,087

THE SALE OF FINE TEA.

We are pleased to find that our recent articles on this subject have been largely reproduced by the grocery press in America, and have elicited general expressions of approval. The same advice that we have given to English grocers—viz, to sell as fine a quality of goods all round as they possibly can—is also given by our contemporaries to the grocers of America, and almost exactly the same line of argument is used. Thus the *Canadian Grocer*, after republishing an article from this journal, wherein our readers are advised to avoid lowpriced rubbish and push higher class teas, says:—

The above will answer quite as well for American grocers. Last year the imports of tea were large, but the declared value of the 89,249,443 lb. imported was little over 15 cents per pound! This does not indicate a very high grade of tea, and reveals one reason why our people prefer coffee or beer, for the two latter have become national beverages, we using about sixteen gallons per capita of coffee, and twelve gallons per capita of beer per annum, to about six gallons of tea. There are both profit and satisfaction in handling fine tea. It makes trade. Customers as soon as their attention is directed to the matter, will discover that there are pronounced differences in flavour and come to appreciate the delicate fragrance of a fine leaf instead of as now, being satisfied with any sort of an infusion so long as it is warm. People will soon learn that a high-priced tea is very little more expensive than a cheap tea. The Ceylon factors impress upon their customers that their "money can go as far in $ 1.25 tea as in a 50.-cent tea, that is, good tea can be cheap." .... This country should use 240,000,000lb. annually instead of 80,000,000lb. but that day will not come until the average value per pound of the imports of tea is raised from 15 to 30 to 40 cents per pound. Fine tea becomes a subject of tea-table gossip, and sets tongues a wagging the same today as in Ben Jonson's time. Hence to build up a paying tea trade the dealer should abandon the sale of poor, inferior, or low-grade tea."

This is sound common-sense, and may be studied with advantage not only by the grocers of America but also by those in this country. The public, after all, do not like low-priced, inferior goods, and are generally induced to purchase them only by the absence of anything better. If they are offered the chance of buying really fine tea and other goods of a similar character, they do not, as a rule, stand out for the sake of a few pence per pound, but prefer the superior commodity. Grocers should most carefully study their taste in this respect, and strive to supply only one class of goods, *viz.* the best.—*Grocer.*

MICROPHONES.

EVERY ONE HIS OWN MICROPHONE MAKER.

Mr. J. J. Smith, discoursing to the members of the Chemists' Assistants' Association, pointed out that it is easy for those who are disposed to amuse themselves in this way to make an instrument which would render audible the footsteps of a fly. The little apparatus consists of a box with a sheet of straw paper stretched on its upper part. Two carbons, separated by a morse of wood, and connected with the two circuit wires, are fastened to it, and a carbon pencil, placed crosswise between the two, is kept in this position by a groove made in the latter. A very weak battery is then, we are assured, sufficient to set the instrument at work, and when the fly walks over the sheet of paper it produces vibrations strong enough to react energetically on an ordinary telephone. No doubt the young generation will be disposed to try its hand.—London *Daily News*, April 24th. [There is nothing to hinder those who have electric lights, telephones, &c., to make one of these small microphones and turn them to practical account.—*Cor.*]

CEYLON, INDIA AND CHINA TEA.

(From the *Financial Times.*)

There is now so small a quantity of China tea left for displacement that a still larger home consumption of dry tea in the future is regarded as inevitable. At the same time, the rate of exchange tends to check supplies from China, as we have previously explained, and the Indian crop is about ten millions of pounds below the original estimate. These causes, combined, have produced the higher prices recently recorded. Other diagrams in Messrs. Gow, Wilson and Stanton's circular show the consumption of tea in various lands in the periods 1880-4 and 1885-9. From these it is seen that Great Britain is far ahead of all other countries as a tea drinker, the United States coming next, then Russia, then the Australasian Colonies, and then Canada. Of the countries of the European Continent, Holland is the largest tea consumer, the quantity it disposed of being about three hundred thousand more pounds in the latter five years than in the five preceding. In the other Continental countries the taste for this beverage makes little headway. The enterprising brokers, from whose circulars this information is derived, seem to glow with a patriotic zeal for the popularity of the India and Ceylon teas as British products, and what they show as to the superiority of the article, both in strength and in quantity of supply, would almost suggest "Britannia rules the tea market" as a future national anthem.

The circulars with coloured diagrams which Messrs. Gow, Wilson and Stanton issue every now and then may be said to form the pictorial literature of the tea-trade. The charts are ingeniously contrived, and show at a glance the nature of all important movements. In one just issued we are able to see, from the arrangement of blocks of varied hues, how the quantities of India, Ceylon, and China tea consumed respectively in Great Britain have varied, not only as regards the weight of dry tea from those countries, but also, roughly speaking, as to the numbers of gallons of liquid tea drunk. A report of the Board of Customs has shown that Indian tea goes half as far again as Chinese tea, so far as depth of colour and fulness (not delicacy) of flavour are concerned. Thus, while one pound of Chinese produces five gallons of tea, a pound of Indian will produce seven and a-half gallons. Basing their calculations on this estimate, Messrs. Gow, Wilson and Stanton show that in proportion as Indian has supplanted Ceylon tea in the market the consumption of the beverage has increased, and the extent to which it is demonstrated to have done so is necessarily enormous, on the principle of reasoning adopted. While in 1890 we got less tea from China, and more from India than in 1889, the displacement was not nearly so great as in the preceding years. Thus the increasing demand of the population for the "cup that cheers without inebriating" could not be met, as it had been, by mere substitution of a strong tea for a weaker one, and the result was a larger aggregate use of the dry leaf.

INDIA AND CHINA TEA.

To the Editor of the *Financial Times.*

SIR,—In your interesting article which appeared to lay upon the growth of the trade in Indian and Ceylon teas a printer's error has crept in which might cause injury to one of those industries.

Our report from which you quote is said to show that "in proportion as Indian has supplanted *Ceylon* tea in the market the consumption of the beverage has increased," etc., the word Ceylon being inadvertently used instead of China. China tea has during many years past been largely displaced by the stronger teas from India and Ceylon.

We feel sure that, in justice to the Ceylon tea industry, you will kindly insert this letter in your valuable journal.—We are, &c.,

GOW, WILSON AND STANTON.

13, Rood-lane, London, E.C.,
10th April 1891.

CEYLON TEA IN AMERICA: MR. ELWOOD MAY AND THE LONDON CEYLON ASSOCIATION: FAVOURABLE RECEPTION —MR. RUTHERFORD'S SCHEME— CEYLON AND INDIAN TEA COMPANIES.

LONDON, May 8th.

Mr. Elwood May has had the opportunity during the present week of conferring with many members of the Ceylon Association in London on the subject of those proposals of his which have been so widely debated and so strongly criticized. On Monday last Mr. May met at the Association rooms the following gentlemen, and it is a matter of much regret to me that it is impossible for me to include my own name in the list. There were present on the occasion mentioned:—Messrs. J. Hamilton, W. J. Thompson junior, T. Stretch, J. L. Shand, W. Haslam, W. Bentham, W. W. Mitchell, A. G. Stanton, A. L. Hutcheson, T. Gray, W. C. Rodhe, H. K. Rutherford, J. F. Churchill, J. Capper, C. J. Scott, J. Anderson, S. J. Wilson (of Messrs. Wilson, Smithett & Co.), and R. A. Cameron. It is not in my power to give you a detail of all that was said at the interview had by Mr. May with these gentlemen, whom you will acknowledge to have constituted a very efficient representative of the tea industry of Ceylon. The nett result, however, of the discussions which took place I am fully competent to afford you knowledge of.

It may at the outset be stated that Mr. May came to this meeting with views very materially modified as compared with those he submitted in his letter to the Ceylon Association to which a previous letter of mine made reference. He acknowledged to the meeting that his experience gained since his arrival in London had made him recognise the fact that it must prove futile to endeavour to carry out that section of his propositions to which in my previous notices of this subject the term "cornering" has been applied. This had been foreseen by all of us as what must be the conviction to be ultimately forced upon Mr. May; though at the time of my last writing he

had refused to recognise the fact. But he seems to have made out a very good case for several of the other proposals which were embodied in his letter above referred to, and his request that he should be given by the London Association a sort of official *locus standi* appears to have met with considerable approval.

Mr. May urged that were that standing secured to him—in some way or other, were the company he represents in America able to point to recognition by your representative bodies in London and Ceylon, his hands would be very greatly strengthened. He did not ask for monetary support, only the adoption of such resolutions by the Association as by their quotation would induce reliance by the American public upon the good faith of his protestation that his Company would sell none but pure Ceylon tea, and that it was in a full position to obtain it. The general sense of the meeting was that this demand might justifiably be met, and that resolutions which should assure to Mr. May the recognition he asks for might well be passed. Several such resolutions drafted by Mr. May were submitted by him, but the time at the disposal of the meeting did not admit of these being fully discussed, and a second meeting is to be called in order that they may have due consideration. As regards the *principle* of affording the amount of support asked for there does not seem to have been any dissentience, it being the generally adopted opinion that something should be done to back up the enterprise in America, and that the adoption of Mr. May's present proposals, involving, as they do, no expenditure, might well be that something.

Mr. Rutherford has suggested a more extended support being given to Mr. May. He proposes that the Company of which that gentleman is the President should be constituted the recognised agency for the due representation of Ceylon tea at the forthcoming World's Fair at Chicago. With this interest Mr. Rutherford has suggested that the Ceylon Tea Fund should devote the whole of one year's income—estimated, we hear, at somewhere about 50,000 rupees—to the support of such representation, on the condition that each subscriber to the Fund of 50 rupees should become entitled to a fully paid up 2 dollar share in the American Tea Company now established. Mr. May, we understand, would have no objection to subscribe to such a condition, which would, however, necessarily have to be ratified by those associated with him in the Company. This suggestion by Mr. Rutherford will receive consideration when the Committee meets to deal with the resolutions proposed by Mr. May for adoption, and it will then have to be decided whether the Association shall recommend the management of your Tea Fund to agree to the arrangement suggested.

The two announcements given below appeared in the *Times* of Tuesday last. I have given them to you as they were printed in that paper, because it struck me that their following the one upon the other, must certainly direct public attention to the great contrast between the results achieved by Tea Companies working in Ceylon and that which has its enterprise in India. You recently wrote as to the relative dividends declared by the Indian tea companies and those of Ceylon, and we think you will acknowledge that few stronger cases of contrast could be adduced than these two announcements afford. You will receive a copy of the report of the Scottish Ceylon Tea Company of which the following is a brief abstract, and will be ready, we know, to congratulate the directors and shareholders upon the highly satisfactory results to the year's working that it discloses.

The report of the directors of the Scottish Ceylon Tea Company (Limited) for year ending December 31st 1890, shows a profit of £7,368, making, with the balance of £169 from 1889, a total of £7,537 available for distribution. Out of this sum a dividend at the rate of 4 per cent. (free of income-tax) has already been paid and the directors now propose a further dividend of 11 per cent (free of income-tax), making 15 per cent in all for the year. Of the balance it is proposed to place £1,000 to a reserve fund, carrying forward £387 to next account.

The report of the directors of the Darjeeling Company (Limited) made up to December 31st, 1880, shows that the quantity of tea manufactured in the season of 1890 amounted to 606,950 lb., being a considerable increase of 57,172 lb. over the crop of 1889, but the tea brokers have informed the directors that the usual high standard of quality was not maintained, and, consequently, the average price realized for the crop is only 1s 0·66d per lb., against 1s 2·10d per lb. for the crop of 1889, showing a decrease of 1·44d per lb., which, on the whole quantity disposed of, represents a deficiency of £3,573. The proportion of teas of fine quality was unusually small during the past season, and high prices were realized for them. Out of the profit on the season's operations the following claims have to be provided for:—To commissions to staff, £843; to income-tax, £222; leaving a net profit of £6,266, which is equivalent to £4 12s 6d per cent on the paid-up capital of the company; and it is therefore proposed to transfer from the undivided profits the sum of £1,859 in order to provide a sufficient amount to enable the members to declare a dividend at the rate of 6 per cent for the past year. So far the prospects for the season 1891 show an improvement over last up to the middle of April, but the quantity of tea manufactured up to that early period of the season has always fluctuated considerably.

We suppose the telegraph will have informed you of the fact that the record has again have beaten, and in a most crushing degree, as regards the sale of the Ceylon gold tip teas. When Gartmore astonished the world there were few who thought the price its production obtained could be beaten, but when writing you relative to that sale my opinion was expressed that as the higher the price paid the greater the advertisement, there would probably be a great increase in the amounts obtained for these artificial teas until some ridiculously high limit was attained. Therefore it is that although a parcel of Ceylon tea from the Oriental Bank Estates Company's Havilland Estate sold on Tuesday last at the auction in Mincing Lane for £17 per lb or over one guinea an ounce, I feel no surprise, and shall go on quietly awaiting the time where some other and less costly form of advertising occupies the minds of speculative traders in the tea business. The *Globe* thinks that the tea men must have *delirium teamens*!

Sir Walter Sendall took a prominent part in the discussion upon Mr. Morris's paper on the subject of the Leeward Islands at the Colonial Institute the other night. He declared that Mr. Morris's recommendations while in those islands as to the utilization of fibre plants had an immediate effect, and caused orders for machinery to be at once sent home. This may have been so; but it is within my own knowlege that some time prior to Mr. Morris's visiting the Leeward Islands, an article in the *Engineer* on the subject produced immediate inquiries by the authorities of one of the islands included in that group. Capital is what is wanted to stimulate these new enterprises, and it is certain a great number of suggestions which promise fairly fall through for want of such support.

Some remarks have been made above with reference to Ceylon tea having been sold during the present week at £17 the pound, and they included a conjecture that we had not even as yet

seen the limit at which advertisement of that kind may be profitably made. Having thus far written my letter, my eye caught a paragraph in the *Times* of this morning which informs us that at the sale room yesterday Messrs. Gow, Wilson & Stanton sold a small lot of golden tip Ceylon tea from the Gartmore estate to the Mazawattee Ceylon Tea Company at £25 10s the pound! Well may the *Times* remark as to this that it is "a price which has never yet been approached." It will be unsafe to hazard even a conjecture if at this rate we have reached the economic limit and whether the advertisement market will prove now to be glutted with these abnormal preparations of tea. It is certainly singular that no tea of this kind has been sent from India. Ceylon as yet stands alone in the supply of it, and the fact of course gives exceptional prominence to your produce in all conversations arising out of these extraordinary sales.—London *Cor.*

TEA AT £17 AND £25 10s. PER POUND.

The recent sales of Ceylon tea at £17 and £25 10s. per pound have attracted a good deal of attention from the English newspapers. The *London and China Express* says that there appears to be "no limit to the price which tea dealers are willing to pay for the fancy parcels of Ceylon tea which have of late been put upon the market. It will soon equal in value gold dust itself." A description is given of the sale of the Haviland parcel on the 5th inst. at £17 per lb., the bidding beginning at ten guineas and rising by half crowns and crowns to the sum for which it was ultimately knocked down and which is equal to a guinea an ounce; and with regard to the sale two-days later when £25 10s per lb. was paid by the Mazawattee Ceylon Tea Company for "golden tips" from Gartmore it is stated that the price beginning at 10 guineas was run up within a minute to £20 when it proceeded by crowns and half sovereigns till the £25 10s was reached. During the sale the room was packed to suffocation. The *Financial Times* has a prominent article on the sale headed "Worth Nearly Half of its Weight in Gold," and the *Daily News* and *Daily Chronicle* have also sketches of the exciting scene in the auction room. Announcements regarding the purchase by the Mazawattee Co. also appear in the advertisement columns, and altogether there is perhaps at the present moment no article of commerce which is kept more prominently before the mind of the British public, than Ceylon tea. From the *Globe* of May 8th we quote the following paragraph—"*Apropos* of the high price paid for tea yesterday—the record at present stands at £25 10s a pound—a correspondent writes to suggest that Mr. Goschen should consider the advisability of employing tea leaves as one pound notes. We offer this Golden Tip to the Chancellor of the Exchequer for what it is worth."

WYNAAD PLANTING NOTES.

COFFEE CROP PROSPECTS—LIBERIAN COFFEE.

As the subject which is most prominently forcing itself upon our notice, I must commence this letter with the weather. This has been most unusual, and in some respects satisfactory, as our very early showers fell just sufficiently, and then had the grace to hold off long enough to allow the blossom to set. This arrangement occurred on four distinct occasions, so that most of us have had four separate blossoms on our trees. All last month thunderstorms and rain were so continuous that the climate has become more like that of the monsoon, than what we might expect in an ordinary "hot weather" season. The nights, early mornings and evenings are pleasantly cool, but there is a steamy heat in the middle of the day which brings our men folk in from the field panting for any sort of cooling beverage. The country is as green and lush in growth, as if it were September instead of May. The coffee looks splendid. I have never seen the berries such a size, so early in the season, but we are rather quaking at the thought that all this extra moisture is not unlikely to bring on again our dreaded foe, leaf disease. At present, it is simply marvellous how the estates have recovered themselves, which some months ago seemed almost positively doomed.

Crop prospects, therefore, may be generally regarded as very fairly favourable; and a corresponding cheerfulness would reign amongst us could we all feel that our future was as secure as our next crop. But there is no use in attempting concealment in a matter which is every day becoming more patent to the experienced coffee-planter. The death warrant of Arabica has gone forth, and it must be only a matter of a few years, when its place amongst us will know it no more. The old fields hold on where the borer does not finish them, but the present heavy crop will probably shake many of them beyond recovery. The disheartening fact is that it is the young plantings on which we should naturally rest our hopes, and these are proving a constitution so undermined by leaf disease that it is not probable that even the most promising of them can be lasting. I do not think from what I can gather that the idea of grafting coffee is regarded as feasible in the Wynaad. The general opinion is that it could not be successful, and would only be a throwing away of money, which alas! is none too plentiful amongst us now-a-days. Liberian coffee is now decidedly, first, favourite. There can be little or no doubt that in vigour and general hardiness it very far excels Arabica. The thickness of its leaves apparently defy the fungus; and it is as hearty as an evergreen all the year round. In fact, it is evergreen. The masses of crop do not seem in the very least to affect its lusty growth, and the fact that the blossom sets in one day, is greatly in its favour. No one but a planter knows the heart-sick feeling caused by the drenching downfall on open blossom, which is so often to be witnessed in the case of the Arabica flower.

A very great deal of Liberian is being planted in this district. It has the disadvantage of course of being longer in reaching maturity, but if we can hold on with our remnants of Arabica until the Liberian comes into bearing, we may hope for better times before us yet There is much depression felt on account of the shockingly bad price given us for last season's cinchona bark. A great quantity was despatched from the district in the hope of replacing some of the losses incurred by the failure in our coffee crops. But as ill-luck will have it the sales have proved generally so unremunerative that it is absolutely hardly worth while harvesting our bark. This of course is very rough on us. But we should be used to such disappointments. Unfortunately not being constituted like eels, we find each disappointment comes down upon us more like an unpleasant surprise than an habitual occurrence. A good deal of business is being done in timber, and our magnificent Blackwoods are paying the penalty of their lives for our necessities. This is likely to be an improving trade. Very large quantities of "fancy blocks" are in demand for the Continent, and one thinks with regret of the glorious timber which lay rotting in our fields, or became fuel for our coolies in the good old times, when we sacrificed the most valuable trees, simply because we wanted the land, and had no roads by which to transport the wood to the coast. Certainly we are better off in this respect, and our roads are, some of them, becoming a pleasure to travel upon. Well, we will not despair, as long as Liberian, pepper and tea are left us, though the latter does not as yet make much progress. Everyone seems afraid to begin. Or possibly the cost of the "plant," for such a new

enterprise, may daunt them. Pepper is growing well, and a good deal of it is also being planted and we hope to get a better crop on that as well as on our coffee.

I am afraid this is rather a Peter Grievous sort of letter, but I can cheerfully assure you that we shall all of us get *some* crop this season, and this, after last year's experiences, is no small cause of gratitude for all of us. —*Madras Times*, May 15th.

SOME EVILS OF ACCLIMATISATION.

The evils that have resulted from the injudicious and thoughtless introduction of new animals into various parts of the world can hardly be over-stated. The million of acres desolated by the rabbit in Australia, the infinite amount of damage effected by the sparrow in America (where the bird was introduced as a means of checking the numbers of caterpillars which existed in the trees of the larger cities), and the extirpation of edible birds by letting pigs run wild in the islands of the South Seas, might be regarded as sufficient to prove the evils of ill-considered acclimatisation; but apparently these examples have no effect. An evil is seen in the existence of some noxious animal, and thoughtless persons, without considering the ultimate result of what they are doing, introduce some other animal to check its career—not reflecting for a moment that the remedy they propose may be a hundred times worse than the disease which they attempt to cure. The employment of stoats, weasels, ferrets, &c., for the purpose of checking the progress of the rabbit pest in Australia, is evidently one of these short-sighted proceedings. What will be the ultimate result of that action, provided it is successful, may be inferred from the consequences which have followed the introduction of the mongoose into Jamaica, for the purpose of destroying the rats that fed on the sugarcanes and other agricultural produce. The tropical climate of this island, the nature of the country, the variety of food which it is able to obtain have been favourable to the reproduction of the mongoose, which now exists in Jamaica in large numbers. Much may even be said in favour of this animal. It has cleared the island of snakes (harmless as well as poisonous), and it has extirpated the rats from the sugar estates. Nevertheless, the mongoose has come to be regarded as an intolerable curse, not only to the settlers and planters, but to the people of Jamaica as a whole. Jamaica used to be celebrated for certain table delicacies that existed in a wild state. Guinea-fowl were introduced from Africa some two centuries ago, and for 150 years have been regarded as *feræ naturæ*. They laid their abundant eggs on the ground, and consequently have been exterminated by the mongoose. The large pigeons which held a foremost place amongst the native delicacies of the island are gone. The edible land crabs that were found in legions at a certain season of the year are now as rare in Jamaica as they were at one time plentiful. These are some of the results of the importation of the mongoose into Jamaica; but worse still remains to be recorded. The whole of the fauna of the country is being affected by this noxious animal, which was introduced with the idea that it would act beneficially.

The manner in which the existence of one animal acts on another was curiously evidenced when Darwin proved the connection between the existence of the humble-bee and that of old maids. The nests of the humble bees are apt to be destroyed by field mice, which in their turn are preyed upon by cats, and cats are encouraged by ladies who are not occupied with the cares of maternity! in this way the chain of protection, which extends from old maids to bees, is traced—the latter being more frequent near human habitations than in districts where field mice are unchecked by the presence of cats. A similar untoward result has occurred in Jamaica, which at the present time is said to be suffering from an intense plague of ticks and grass lice, that abound in hundreds of thousands, and are found on every blade of grass, leaf, and twig in the rural districts of the island, entailing an immense amount of suffering on man and beast throughout the colony. This plague is due to the introduction of the mongoose, which, having destroyed the ground lizards and well-nigh extirpated the insectivorous birds that used to prey upon, the ticks, has given rise to the increase of this terrible annoyance. So great has been the damage done by the introduction of the mongoose that during the last session of the Legislative Council a commission was appointed to devise means for its extirpation. They examined witnesses from all parts of the island; They presented a report to the Governor, which was placed before the Legislative Council, and they suggested that a bill should be passed for the protection of the country from the ravages of the mongoose, which, as it was introduced by the Government with a view to the destruction of the rats in the sugar plantations, should, it is contended, be extirpated by the same authority now that it has become an intolerable nuisance and pest. The committee suggested that three half-pence should be offered for the skin of every male, and three-pence for every female mongoose—a reward regarded as sufficiently high to induce the negro peasantry to purchase traps, and to encourage their ardour in the work of exterminating this savage animal throughout the whole colony. A feeling of intense irritation and dissatisfaction is said to be imminent, unless the Government adopts some measures for destroying an animal, the introduction of which has produced such an infinite amount of harm to the colony. The enormous amount of evil that has been effected by the thoughtless introduction of animals, usually with the most beneficial intentions, into countries where they did not previously exist, should cause all would-be acclimatisers to consider well what may be the ultimate, as well as the immediate, effect of introducing new species into countries where they were previously unknown.—*Field.*

CINCHONA CULTIVATION.

TO THE EDITOR OF THE "MADRAS TIMES."

SIR,—Baron J. Von Rosenberg in his interesting letter appears, by his remarks, to miss the economy of the question. It is all very well to say that bad prices necessitate close planting and inattention to soil, but the question is which method is more lasting? There is no sound argument in saying (assuming Baron Rosenberg so intends) that his methods give quickest returns, unless he can prove they also insure reasonable permanency. From observation, elsewhere, I doubt it. From nature's laws it seems practically impossible. How can any soil, even with manure, maintain to best advantage 2,000 trees to the acre? A strong Cinchona tree is surely a more permanent investment than an attenuated stripling? Plantations 4 by 4 when ten years old are little else than the latter, they do not thicken in stem satisfactorily after six years; thorough thinning might aid, but still the soil has had a great deal to sustain, and to honestly reduce the number by one half is a practice that the hard-up planter intensely dislikes. If liable to ailments, the strong grown tree is at least more likely to recover, if not to avoid them. It is no advice to a young planter to hear what the best soils for cinchona can achieve for 3 or 4 years. If North Travancore men can continue to strip 2,000 trees to the acre for 8 or 10 years, then they are in a happy position, for the value of bark is tolerably sure of advance, nor is there any doubt now as to the quality those forests produce. It is the best perhaps in the world. The forests run from 5,500 feet down to 2,000. Suited admirably for cinchona, tea and coffee, it is a mystery why that Goschen has been so little touched.

A beginner must judge for himself between the champions of various methods. May he however, avoid the fatal error of starting an estate too large for his capital, and always bear in mind that more than half the failures in India and Ceylon are due to the fanciful theory that soil can maintain products without the thorough attention required and admitted in every other country.

SCORCHED.

THE CEYLON TEA ENTERPRISE IN RUSSIA.

It is evident from the tenour of the letter addressed by Mr. Rogivue to the Secretary of our Planters' Association that the task to which he has addressed himself—that of introducing our teas into Russia—is to be no light one, nor can his object be obtained apparently without a further outlay of a considerable amount.

But both these facts were doubtless foreseen to a very great extent, when he was commissioned to undertake the work. We feel every confidence that, onerous as his appeals may be, our Tea Committee will not be discouraged by what he writes, or remove their hands from the plough in consequence. He had, however, hoped that the marked falling-off in the character of the China teas imported into Russia would have more readily disposed, than appears to be the case, the numerous tea-drinkers of the latter country to welcome the alternative now offered to them. But it could not but be an uphill task to change the tastes formed during the long period which must have passed since the caravans from the north of China first carried the teas of that Empire across the steppes of Siberia to the great Russian market of Nijni Novgorod. Since that trade commenced the Russians have ever been known as *the* tea-drinking people *par excellence* of Europe. Coffee has never had such a footing among its peasantry as it has acquired in France and other Continental countries. Tea is the national drink, and hitherto that of China has had undisputed sway over the popular taste. We can therefore feel no surprise that Mr. Rogivue has difficulties greater even than were anticipated to contend with, or that the progress that he is as yet able to report is but meagre. That gentleman appears to hope great things from the opening of the kiosk of which his letter makes mention at the forthcoming French Exhibition to be held in Moscow. Of the intention of holding this Exhibition we had not previously heard; but from what Mr. Rogivue has written it promises to prove a great success, not fewer than one million visitors to it being anticipated. In this respect, therefore, the antagonism between Germany and France promises to bear fruit for this Colony. It is to the *rapprochement* between Russia and France that the success expected for this new Show is due, the Tsar apparently being desirous that the large amount of support to be given to it should proclaim the existing *entente cordiale* between himself, as the representative of all the Russias, and the French Republic.

The amount asked for by the Ceylon Commissioner for his venture at Moscow and in connexion with this Exhibition is a large one, no less than £500! But we should, perhaps, look upon the application made for this amount more in the light of the desire for a guarantee than as being the amount which it is foreseen will be really required. The rent to be paid for the kiosk for the sale exclusively of Ceylon tea during the whole term that the Exhibition is to remain open is but £200. Doubtless, we should say, to that initial expense will have to be added the cost of erecting an ornate building, and probably an effort will be made to increase its attraction by the presence of a staff of Sinhalese attendants such as added so greatly to the appearance of the Ceylon Courts at South Kensington, at the great Paris Exhibition, and at other places. We know the charge incurred for this particular feature on those occasions was necessarily large; but we believe it to have been wisely incurred; and to have yielded a compensatory return, if not in direct at least in indirect results, by making the produce of our tea estates more fully known and consequently more fully appreciated.

Mr. Rogivue complains of the apathy, if not of the direct antagonism, shown by the wholesale dealers in Russia. This may, we think, always be looked for on the occasion of any attempt to divert the channels of wholesale trade. If successful, such an attempt must always have the effect of disturbing existing arrangements, alteration as to which cannot but involve a large amount both of trouble and cost. Should, however, popular taste in Russia declare for Ceylon tea, opposition in such quarters must soon be overcome, and we notice that our Commissioner writes of the useful aid afforded towards such an end by the late visit of M. Popoff to Ceylon and by the exertions he has subsequently made in London and St. Petersburg. We shall not presume to dictate to our local Tea Committee what answer should be given to Mr. Rogivue's present application; but it seems to us that, at any rate, a certain amount of further outlay may be made productive of good results.

Just as we are closing these remarks, we find in the *American Grocer* an account of "Tea and Tea Drinking in Russia" in connection with the "Fair at Nijni-Novgorad" from which we quote as follows:—

The Chinese quarter has a queer look, its houses being all built with projecting roofs, with bells at the corners, and covered with yellow paint and gilded characters. Here are to be found the offices of the great tea merchants with their samples, the warehouses filled with vast stores being on the Siberian quay. Tea is the great staple of the fair. Iron and silks and cotton and Caucasian goods have a large place in the Market, but in spite of the supply by water of Canton tea, the Kiakhta which comes six thousand versts overland, and takes eighteen months in transit still rules at Nijni. We visited a tea merchant and sampled his tea. It is packed in a case of lead, which is protected by a papered wooden chest, which is again packed in a strong cowhide covering with the hair on. Our shopkeeper had the cowhide covering unfastened, and then with a long steel auger in which there were an oblong groove and a very sharp point, he bored into the centre of the chest. When pulled out the groove of the auger was full of tea. A professional buyer tests the tea by rolling the leaves in his fingers and then smelling them; sometimes also he chews a few leaves. We preferred to take our little package to the hotel, and we found it a deliciously flavored black tea. The cost was less than half a dollar a pound.

Tea drinking is the universal habit in Russia. My guide in the Adirondacks could never build his fire in the morning till he had taken a "chaw of terbacker;" and Sulieman upon the desert was good for nothing before his coffee and pipe, so my Russian servant, like all his countrymen, swallowed hot tea as soon as he awoke, and repeated the act a dozen times a day. Tea houses are as common in St. Petersburg and Moscow as "saloons" are in New York and Chicago. The "samovar" is the household god, and no peasant is so poor as to be without one, though he may be destitute of shoes and have no clothes besides those which are upon his body. There are forty makers of samovars in Toula alone, and six thousand dozens are sold in Nijni every year. The samovar is a large urn made of brass or copper, with a tube running through the centre, in which charcoal is placed and lighted. This burning charcoal, like the sacred fire in the Jewish temple, is never allowed to go out, and hence the water around the tube is always hot. The teapot stands upon the top of the samo-

var. A scoop of tea is put in the teapot, the boiling water from the samovar is turned upon it; the infusion is instantly poured into a glass tumbler, and a slice of lemon or a lump of sugar is used as a flavoring by those who like it. The majority of Russians use neither. At all the railway stations, in all the streets of the towns, at every hour of the day and night, "tchai" was to be had, even though bread or beer might be wanting. The man in our party who thought tea was only fit for old women and would not drink it, learned, after paying three rubles for a bottle of ginger ale and making himself ill with poor coffee and bad water and worse wine, to swallow the national beverage without a grimace, and almost to like "the cup which cheers but not inebriates," before he left the dominions of the Tsar. On the Siberian wharf, where the sturdy Tartars were unloading the myriads of barges which brought goods to the fair, there were, besides thousands and thousands of chests of tea, bales of cotton by the mile, heaps of hides and skins, carboys of acid, casks of dried fruit, and mountains of iron from the Ural. Wool is a great article of commerce at Nijni—we saw enormous heaps of the fleeces of sheep, and in the Bazaar some of the famous Ukraine wool. They have timber too, and stone, and bronze, and carts and all their separate parts, and in fine, all things which men can use, or wear, or eat, or drink. Among these last articles were literal hills of watermelons. Every man, woman and child in some parts of the town seemed to be eating watermelons. Could a Southern negro have dropped into Nijni during the fair, he would have thought himself in paradise, for the luscious fruit was everywhere, in heaps on the wharfs, at the markets, in wagons, and apparently in the hands and the mouths of most of the two hundred thousand strangers who are said to flock hither in August.—*Editorial Correspondence of the New York Observer.*

CEYLON PRODUCE ESTIMATES AND PROBABLE CROPS FOR 1891.

TEA.

Early in the year we endeavoured to collect such estimates from the several planting districts in reference to staple products as might enable us to judge more accurately of the total outturns. But from certain—especially the larger—districts, the returns were so imperfect as to make a compilation of them not worth the labour required. In other cases, we were greatly obliged to friends who put themselves to a good deal of trouble to afford the required information. Although therefore the figures are of no use for enabling us to indicate a more correct estimate of the total outturn for the island, yet the gentlemen concerned, and other district residents, may be interested in seeing the returns made up for certain districts some five to six months ago as a means of comparison with the position and prospects at the present time. For instance we had careful estimates compiled for the North-eastern group of districts and the total crop of tea for 1891 from Kelebokka, Knuckles, Rangala, Nitre Cave and Medamahanuwara was given at 3 325,000 lb. (Kelebokka 1,175,000; Knuckles 950,000; Rangala and the rest 1,200,000 lb.) We suspect if the estimates were to be made up at present that the total would be nearer 4 than 3 million lb. Matale East (with Laggala), North and West were put down for 2,100 000 lb.; but we were without full returns for Elkaduwa, Hunasgiriya and the far-famed Valley included in Wattegama. It is the opinion of one who may almost be called an old "Ceylon tea planter" that the long "strath" or succession of "straths" (valleys) from Matale to Peradeniya and thence up via Gampola to Nawalapitiya will prove to be the richest yielding portion of the country in tea. The district of Dolosbage which always stood well in the palmy days of coffee, has also been one of the earliest to take up with tea which luxuriates in its climate and soil, so that the estimate for this district alone at the beginning of the year (3,100 000 lb.) was nearly equal to the outturn from the whole of the North-eastern group of districts specified. We suppose 4 millions lb. would be about the estimate for Dolosbage, Kadugannawa and Alagala, but this is doubtless below the mark now. Farther up, while we got 1,600,000 lb. for Kotmale and 2 200,000 lb. for Lower Dikoya, we were left to conjecture Ambagamuwa at about 1,200,000 and for Yakdessa some 600,000 more, making for this group, a total of about 5,600,000 lb. If we now go to the Far East, we get the crop for Hewaheta Upper estimated so closely as 814,000 lb. and Hewaheta Lower 613,000 lb., while for Hantane our return is imperfect but, we suppose the total will be about a million lb., while Nilambe is placed at 900 000. Gallaha Factory serving several estates in this quarter cannot be putting through this year less than half-a-million lb. We thus have 3,300,000 lb. for the Eastern group. For Pussellawa, Ramboda and Pundaluoya our returns in estimates were very imperfect, so that our reckoning of an outturn of about 2 million lb. of tea can only be considered approximate. We omitted while in the North, to credit 120,000 lb. to Kurunegala, and if we add 1½ million for Hunasgiriya and "straths" not otherwise counted, the grand total for country between Matale and Ramboda and Hewaheta, and Yakdessa, becomes very nearly 22,000,000 lb. or probably above one-third of the total export from the island for the year.

Above we give estimates for all the Northern and what may be called the Midland districts, and we made the total outturn this year as nearly as possible 22 million lb. for all the country extending from Matale to Ramboda and from Hewaheta to Yakdessa. Now if we turn to the three extensive higher districts—Dimbula, Dikoya, and Maskeliya—we find, curiously enough, that our reckoning of the aggregate crops of all three divisions, comes singularly near the above result for the older districts. In July 1888, these three, districts were returned as having 57,000 acres of tea planted, and between that date and July 1890, the addition to the planted area was 18,000 acres. Altogether, then, we cannot put the tea crops of the three districts for 1891 at less than 19,500,000 lb, while they may amount to 22 million lb.—We have next the Nuwara Eliya division which may be said to include Maturata, Udapussellawa, Kandapola, New Galway and Nuwara Eliya itself. For Maturata our estimate is a crop of from 900,000 to the round million lb.; for Udapussellawa we get about 1,300,000; for New Galway about 100,000 lb.; Nuwara Eliya and Kandapola say 730,000 lb., making a total of very nearly 3 million lb. If we now go to Uva proper, but shorn of its outlying divisions of Udapussellawa and New Galway, our estimates—furnished very kindly by competent local residents who took a good deal of trouble to complete them, run:—

Haputale ..	1,385,000 lb. Tea.
Madulsima & Hewa Eliya ..	566,000
Monaragala ..	17,000

To these we have to add for Haputale West, say 250,000 lb., and for Badulla which we are inclined to put down, in correspondence with the above, at a little over one million lb., but suspect that all these estimates will prove well on the safe side and that the aggregate from Uva this year cannot be less than 3½ million lb.

We now turn to the Kelani Valley and the lowcountry generally. A return sent round the premier lowcountry district was only imperfectly filled up; but adding in for the estates left blank as well as our means of information will permit, we get a total outturn of 5,527,300 lb. and we fancy that the six million lb. will be sent away. Again for the Kalutara district, the estimate furnished to us is for 1,750 000 lb. which will also no doubt prove below the mark. For Balapitiya and Ambalangoda we got an estimate of 155,000 lb.; for Udugama and the rest of the lowcountry, we suppose we may add a million lb. giving a grand total for the lowcountry *par excellence* of about 9 million lb. We have still the Balangoda, Kuruwita, Rakwana, Kukulu and Morawak Korale tea estates to take into account. The estimates furnished to us, were as follows:—

Balangoda	...	345,000 lb.
Rakwana	...	900,000 ,,
Kuruwita	...	80,0 0 ,,
Kukulu Korale	...	300,000 ,,
Morawak ,,	...	700,000 ,,
Total	...	2,325,000 lb.

We find one omission in not allowing for some 700 acres of tea in Kegalla and Polgahawela which may bring the above up to 2½ million lb.

We may now attempt a summing-up of our divisional figures as follows:—

	lb.
Northern and Midland districts ..	22 millions.
Dimbula, Dikoya and Maskeliya (say)	21 ,,
Nuwara Eliya Division	3 ,,
Uva ,, ...	3½ ,,
Kelani Valley, Kalutara and lowcountry generally	9 ,,
Rakwana Group	2½ ,,
Grand Total	61 ,,

It is interesting now to contrast these figures with the estimates offered at the beginning of the year for the whole island:—

	lb.
Mr. H. K. Rutherford's	52,750,000
Mr. A. E. Scovell	54,000,000
Mr. R. Porter (max. 57, min. 53) ..	55,000,000
Mr. W. Mackenzie .. 54 to	56,000,000
Ceylon Observer	56,000,000
Mr. C. Armstrong—over.. ..	56,000,000
Mr. W. F. Laurie (max. 60, min. 56)	58,000,000

To this we may add the fact of shipments up to 18th May reaching to nearly 26 millions, pointing to a total for the year of not less than 63 to 65 million lb. Of course long-continued unfavourable weather during the present and next monsoons may make a difference and cause a considerable falling-off in shipments; but judging by the experiences of the past four years, we most fully expect to see today's detailed estimate of 61 millions exceeded by the total shipments of tea for 1891.

As regards the future, we can only at present lay the following extract from the letter of an experienced planter before our readers, and we believe there is enough in it to cause serious thought to all interested in "Ceylon Tea":—

"Were I able to spot one block of land similar to Mariawatte's original 100 acres, I would have bought it any time within the last seven years, for I have been all that time looking out for it! Mariawatte had never grown coffee as all such land at average elevation had done, which was not often chenaed. In Dimbula and Dikoya, I believe there are 20,000 to 30,000 acres, which, if planted originally in tea, would have given 800 to 1,000 lb. per acre. In the older districts, there is a similar area which under the same circumstances would have given 1,000 to 1,200 lb. per acre. Some virgin land in the highest part of Kelabokka or East Matale is now giving over 900 lb. per acre. Ukuwala neighbourhood can be worked up to this yield. Tea is not yet in full bearing in these coffee districts; but already we hear of fields, nay whole estates, giving 480, 500 and 550 lb. per acre, and of one, from which 600 lb. are expected. With cultivation and manuring even to a small extent, I believe 40,000 to 50,000 acres in the coffee districts, would average 600 lb.—the best 10,000 acres giving 800 lb."

This means that 50,000 acres of our best tealand are to yield 32 million lb.! What then are we to put down for the other 200,000 acres? Certainly not less than 75 millions, so here we are face to face in a very short time, with a possible export from the island exceeding 100 million lb. Who would plant more tea in Ceylon after this?

COFFEE—COCOA—CARDAMOMS—CINCHONA BARK.

In our notice of the Estimates and probable Crops of other Products—apart from Tea—our remarks may be very brief at this time. Tea has become of such overwhelming importance in the planting enterprise, and the acreage under other products is so comparatively limited, that there is not room for much discussion or speculation about district returns. First of all, we may give the estimates of two experienced Visiting Agents in respect of the Export of COFFEE during 1891:—

	Maximum. Cwt.	Minimum. Cwt.	Probable figures. Cwt.
Estimated ...	60,000 ...	50,000 ...	55,000
Do. ...	100,000 ...	80,000 ...	90,000

Here there is a wide discrepancy; but judging by a certain number of carefully compiled district returns we think it will be safe to take 75,000 cwt. as the probable outturn. This would include some 22,000 cwt. from Haputale, and perhaps 20,000 cwt. from the rest of Uva. Of more immediate interest is the return of shipments to date as contrasted with the rest of the year, thus:—

COFFEE EXPORTS.

	Up to 25th May.	Rest of year.	Total.
1891 ..	cwts. 35,471 (say)	40,000 (say)	75,471
1890 ..	,, 48,945	37,000	86,009
1889 ..	,, 32,276	56,000	88,082
1888 ..	,, 72,781	67,000	139,663

At present there are heavy pickings of crop in Haputale and it will be disappointing, if our moderate estimate is not realized.

As regards COCOA or CACAO, two estimates for the island before us come a good deal closer than in the case of the estimates for coffee, namely,—

EXPORTS OF COCOA IN 1891.

	Maximum.	Minimum.	Probable.
Cwt.	18,000	16,000	17,000
,,	17,000	14,000	15,000

A detailed estimate for a large proportion of the districts adds up to 12,230 cwt. (including 7,000 cwt. for Dumbara, 2,500 for Kurunegala, 1,000 cwt. for Matale North and 780 cwt. for Monaragala) but about one-fourth of the acreage is unrepresented and that would lead us to place the estimate at about 16,000 cwt. Here again, however, is the comparison between shipments to date and the total for four years, pointing to a probable export for 1891 up to, if not in excess of, the highest estimate! How is this accounted for?

EXPORTS OF COCOA:

	Up to 25th May.	Rest of Year.	Total.
1891 ..	lb. 11,388 (say)	6,000 (say)	17,388
1890 ..	,, 8,588	7,400	15 981
1889 ..	,, 7,535	11,500	19.054
1888 ..	,, 7,641	5,500	13,159

We now turn to CARDAMOMS and the Visiting Agents here again differ greatly :—

EXPORTS OF CARDAMOMS FOR 1891.

Maximum.	Minimum.	Probable
lb. 360,000	320,000	340,000
lb. 270,000	230,000	250,000

But here we find certain district returns aggregating no less than 451,950 lb.—the district of Rangala (including Medamahanuwara and Nitre Cave) alone being put down for 300,000 lb. (?) Matale East 75,000 lb., Hewaheta Lower 37,000 lb., Dolosbage 10,000, Haputale 6,000 lb., Kurunegala 9,500 lb, Kelebokka 5,500 lb. An extent equal to one-fourth of the whole area planted, is not estimated for, so that would bring the estimate up to 560,000 lb. an outrageous figure. Looking at the shipments, we think far too much was put down for the Rangala group of districts, and we do not think the total export for the year is likely to exceed 340,000 lb., thus :—

	Upto 25th May.	Rest of Year.	Total.
1891 ...	lb. 139,896 (say)	200,000 (say)	339,896
1890 ...	lb. 163,719	224,000	387,940
1889 ...	lb. 142,910	219,000	361,224
1888 ...	lb. 146,904	141,000	287,729

Lastly, we have CINCHONA BARK estimated by two planters, with the same result, curiously enough, as follows :—

Maximum	Minimum	Probable.
lb. 8,000,000	5,000,000	6,500,000
lb. 7,000,000	6,000,000	6,500,000

One of the estimators appended the following note to his estimate :—

"Cinchona will, of course, be influenced by the market. A strong market would, naturally, throw a lot into the market; a weak price will keep it out."

Our district returns, strangely enough, only make up 1,835,000 lb, of which 80,000 lb. (mostly fine Ledger bark) were to be from Nilambe, 450,000 lb. from Haputale, 250,000 lb. from Madulsima and Hewa Eliya, 22,000 lb. from Monaragala, 60,000 lb. Matale East, 80,000 lb. Kotmale, 65,000 lb. Kelebokka, 34,000 lb. from the Hewaheta, 40,000 from Dolosbage, 32,000 lb. from Alagala, 10 000 lb. from Balangoda; but we had no estimates from Badulla, Udapussellawa, Dimbula, Dikoya or Maskeliya. It is specially interesting under these circumstances to see how shipments and totals compare :—

	Up to 25th May.	Rest of year.	Total.
1891 ...	lb. 2,051,542 ...	(say) 3,000,000...	5,000,000
1890 ...	lb. 3,490,574 ...	5,250,000...	8,728,836
1889 ...	lb. 4,108,943 ...	5,180,000...	8,283,729
1888 ...	lb. 4,647,379 ...	8,000,000...	12,697,146

Of course "if the market improves," our probable 5 millions may expand into 6 or 7 million lb. —It is of interest, to see in connection with the careful detailed estimates kindly sent us for the Madulsima and Hewa Eliya district, that "rubber" 7,000 lb.), "tobacco" (200 cwt.) and "pepper" (re among the minor products likely to be exported tahence.

COFFEE IN JAVA, CEYLON AND MYSORE.

Mr. R. H. Elliot, the well-known Mysore estate proprietor, and author of the "Experiences of a Mysore planter," writes to us enquiringly as follows :—

"Could you tell me if Dr. Trimen found that coffee in Java is suffering much from leaf disease? I infer that it is from the introduction there of Liberian. I ask because I am preparing for a new edition of my "Experiences of a Planter," which was published 20 years ago. I shall have much to add *in re* coffee, gold, etc. I hear bad accounts of leaf-disease from planters on and near the hills, and also from Coorg. I really believe that Mysore is the only coffee country that will hold out, and it will do so because coffee can be treated there as (or what it is in nature) a shade plant, and because the dryness of the climate in our long rainless season is unfavourable to the disease, which by the way we have always had, in all probability for nearly 100 years. Then Mysore is in the same latitude as Abyssinia, the original home of the plant, and I am told that it is generally found that plants do best if not taken out of their native latitude. Ceylon is out of the coffee latitude."

Dr. Trimen did not travel much in the coffee districts of Java; but undoubtedly *Hemileia vastatrix* some years ago did nearly as much mischief to ordinary coffee in Java as it did to it in Ceylon and the greater part of Southern India, and that is one reason why Java and Straits planters have taken to Liberian coffee. As regards Mr. Elliot's remarks on Mysore and Ceylon and his reason for the continued successful cultivation of coffee in the former, we cannot help thinking his idea is rather fanciful. Mysore has good soil and a climate which permits culture under shade. That is the reason, we suspect, why coffee suffers less (for it certainly does suffer) from leaf-disease, than in other parts of Southern India and Ceylon. We notice, however, in the statistical returns just published by the Indian Government that Mysore has still 123,250 acres under coffee (Hassan division 49,000 acres and Kadur over 74,000) against 62,465 acres in Coorg; 55,618 in Madras Presidency; and less than 50,000 acres in Ceylon. In 1886, Mysore was officially reported to have 134,149 acres under coffee; Coorg 71,994; and Madras Presidency 93,873 acres. Java and Sumatra are still credited with a large area under coffee, perhaps 300,000 acres, but how much of this may be 'Liberian' it is hard to say. The export of coffee from Java alone after reaching its lowest point in 1887 (263,000 cwt.) has begun to increase again, the half-million cwt. being nearly reached in 1889.

LABOUR SUPPLY AND COAST AGENCIES FOR COOLIES.

We have not the slightest faith in the success of an agency on the Coast for the supply of coolies for Ceylon plantations. All experience in the past has shewn the utter futility of any such attempt to meet the varied, the multiplied and conflicting requirements of planters. Even if all the proprietors of the island joined to support a special fund for the establishment of such an Agency, we should anticipate nothing but disruption, failure and a winding-up within a twelvemonth. It is when the details of working out such a scheme come to be considered that the difficulty begins; and in conjuring up a Coast agent with 50, or 100 or 500 orders for coolies from planters eager to get full value for their money, and jealous of priority, while in urgent need of reinforcement, we can readily realize how the trouble would arise. As well try to work all the plantations in Ceylon from one joint "Upkeep Fund," as get coolies supplied through a Labour Fund and Cooly Agency, in our opinion. On the other hand, we have no objection to giving some extracts from the letter of a planter who is a strong believer in a Cooly Agency as follows :—

The idea of a cooly agency is nothing new. I believe: one was tried before, and proved a failure, but that is no reason why it should be a failure if thoroughly considered and carried out. In a few days P. A. meetings will be held all over the planting districts, and the opportunity should not be lost to bring this important matter up for discussion. There is nothing of more importance to estate managers than

a good and sufficient labor supply. With an insufficient labor force on an estate, weeding contractors get careless and fall behind with their work; coolies refuse to, or declare their inability to, do a fair day's work, and the daily out-turn of a small labor force is less in proportion to the number of coolies on the estate than when the force is sufficient. A manager so feels his position at stake, and the serious consequences arising from an insufficient labor force, that it becomes very hard to do to others as you would others do to you in the matter of coolies. It requires no argument to prove that an insufficient labor supply is frequently the cause of loss of crop, coarse plucking and neglect of cultivation, and experience has taught many that unless estates are in the immediate neighbourhood of Sinhalese villages it is quite a delusion to hope for aid from the Sinhalese.

"I believe several thousand more coolies could be procured for service in Ceylon if all the advances sent to the Coast were used for that object. At present probably not one half our money so sent is given to the coolies. Under the Labour Fund Committee scheme, we would know exactly how many coolies to expect for the money issued, and only managers or agents of estates who contributed to the Labor Supply Fund would be entitled to indent through the Secretary for coolies for their estates."

Of course, all are agreed as to the importance of a sufficient labour supply; the point is as to the best mode in which it can be procured.

TEA :—FOOCHOW NOTES.

(*Foochow Echo*, 9th May.)

The opening prices in Hankow are we understand from fifty to hundred per cent dearer than last season! Ningchow Tls. 85 and Oanfa Tls. 63.

It is reported that the price of tea in Pakling is double that of former years; and it is doubtful whether it will benefit the tea growers or the tea hongs, and Foreign buyers will do well to judge the quality which is reported to be of good flavour.

By the end of next week, we understand, a considerable amount of new tea will be down. A lot would have been placed on the market this week had it not been for the bad weather we have had for some time.

TEA FOR THE TEUTON.

The subjects of the Emperor William II. must stand ready. Germany is about to be invaded,—but by a friend. The **Indian tea planter** has fixed his speculative eye upon the Fatherland, and an organised advance into the country of the beer-king Gambrinus is contemplated. So, at least, we gather from the following extract from an English contemporary :—

The tea, which consists of three specially-selected blends is put up in attractive little packets of ¼lb, ½lb. and 1lb. (German weight), the labels of which set forth in two languages the virtues of the contents, and bear, moreover, clearly printed on each, careful instructions for tea-making, together with net weights and retailing prices. The latter we believe, have been fixed at 4, 5 and 6 marks per ½ kilo, which, in Germany, where 6 marks is quite a common price for quite a common tea, should prove an attraction in itself. The services of a Hamburg firm have been secured as a sort of general agency or distributing centre for the German Empire, and we understand that a contract has been entered into for a term of years, which includes several valuable provisions. Among these is one by which the agent agrees to purchase a fixed minimum——and yet not a very small—quantity of the tea in each year; and by another, to establish at least one depot for the sale of the new article in every town of over 20,000 inhabitants, and not less than twenty such depots within the first year.

To Englishmen, who, certainly since the days of Dr, Johnson, have been distinguished as a tea drinking nation, there is something rather funny in appealing to the aesthetic tastes of nearly fifty millions of people by coaxing them with "attractive little packets," while the "clearly printed, careful instructions for tea making" almost constitute a reflection on the land of metaphysics and Universities. The Germans will be delighted to hear that they are "an eminently teachable people," for this, according to the article in question, is one of their attributes. There is, however, no doubt that the Indian planters are right. The quantity of tea consumed in Germany is annually about 0·09lb per head of the population. When one thinks of this from a tea planter's point of view the enormity of the offence is at once apparent.—*Madras Mail*.

HIGH-PRICED CEYLON TEA.

WORTH NEARLY HALF ITS WEIGHT IN GOLD —£25 10 PER LB.

The Indian tea sale-room in Mincing-lane was crowded yesterday afternoon by an eager company. Rarely is so much excitement exhibited there. Not only was every seat filled, but business men were jammed together like sardines, right down the gangways as far as the doors. It was like the pit entrance to a theatre on Boxing night. But the entertainment the crowd had come to witness was to be brief, and not particularly amusing. Nine boxes of "Golden Tip" tea, from the Gartmore Estate, Ceylon, were to be sold by auction, in one lot, at per lb., by Messrs. Gow, Wilson and Stanton. The interest in the proceeding was based on the expectation that the price given would be a high one. A few weeks ago tea sold in Mincing-lane at a little over £10 per lb; last Tuesday a package fetched £17 per lb. There was an impression that even this high figure would be surpassed, and that anticipation was amply realised.

Mr. Wilson officiated, and immediately he mounted the rostrum someone facetiously cried out, "Sevenpence-halfpenny." There was at once a *bona fide* bid of "ten guineas," followed by a whistling expression of amazement at the magnitude of the start. It was arranged to raise the bidding at least 2s 6d at a time, and forthwith there was a cry of £10 12s 6d. With great rapidity the price was raised £13, £13 10s, £14, £14 10s, £15, sixteen guineas, seventeen guineas, £18, £19, and twenty guineas, after which one gentleman, amid the loud laughter of the company, immediately cried, "Twenty-one pounds," and evidently did not perceive till some seconds afterwards, that he had made an offer equivalent to the proverbial Irishman's rise of wages. Up to this point, the chief bidders had been Messrs. Cranston, of Glasgow (who bought on Tuesday at £17 per lb), Messrs. Eales, Lapworth and Tyers, Messrs. Jobbins and Co. (all brokers), and the auctioneer himself. The latter was asked the name of his client, but refused to disclose it till the transaction had been completed. The remainder of the bidding resolved itself into a duel between Mr. Wilson and the representative of Messrs. Cranston. Still without any hesitation on either side, bids were recorded at £21 5s, £21 10s, £22, £22 10s and £23. Then amid cheers, the representative of the Glasgow firm cried "£25." Mr. Wilson at once said "£25 10s," and the other side for the first time hanging fire, he demanded, "Any advance on £25 10s?" There was no response, and the hammer fell. It was then announced that the purchaser was the Mazawattee Tea Company, and after raising another cheer nearly the whole of the company dispersed, the remainder of the business exciting comparatively little interest.

In the general sales, competition was even less here than it had been of late, and buyers were indisposed to bid quite up to recent rates, either for Indian or Ceylon growths. Teas over 11d were most depressed, and showed in some instances a decline of nearly a penny per lb. Many readers will marvel why, in face of this position of the market, a particular lot fetched the enormous and unprecedented price of £25 10s per lb. A representative of *The Financial Times* made some inquiries on this point after the sale, and learned that the tea, while of a decidedly superior quality, was procured rather as a curiosity than as an article of consumption. It is valuable because rare. It consists entirely of the tips of the new shoots of the plant, procuring which involves an enormous amount of labour

and the collection of but a comparatively small quantity of which absorbs the shoots of plants throughout a very large area of ground. Our representative was shown a sample of the stuff sold, which looked rather like a tobacco mixture than tea, there being nothing in the nature of the ordinary leaf, but the whole having the appearance of a short-chopped fibre, some of the ingredients being golden, and others of a darker hue. The golden was explained to be the superior article, and a comparison with a sample of what was previously sold at the next highest price justified the advance in the figures, the gold being in far larger proportion in yesterday's supply. We learn that when tea of similar character fetched over £10 per lb. a few weeks ago, the Sultan of Turkey desired to purchase an ounce, which was sold to him for a sovereign, and that to sundry others who take an interest in curiosities of the kind, small quantities were sold at high rates. It is anticipated that in the present case there will be a similar demand in certain quarters, and it is thought probable that the greater part of the lot will find its way to the Chicago Exhibition. We fear that persons who may purchase the Mazawattee Company's tea will not be able to detect in it any infusion of the £25 10s per lb. supply. It will be found on calculation that that price represents nearly half the weight of the tea in gold.

The recent weakness of the tea market is attributed to the heavy supplies coming from Ceylon, the knowledge of which has depressed Indian teas generally, in addition to which the failure of Messrs. Adams and Bell, an old firm of China tea merchants in the City, with liabilities estimated at £200,000, has had a disturbing effect on the market.—*Financial Times*, May 8th.

THE CEYLON AND INDIAN TEA ENTERPRISE.

The Hon. W. W. Mitchell writing to us under date 7th May, says:—"The tea market has given "way a little, buyers being frightened apparently "at the large shipments of Ceylon tea, the result "of the heavy flushes consequent upon the abnor- "mal rains you have had. Estimates of the shipments "during April have been anything from 5½ to 7 "million lb. and it is a pity that accurate returns "are not issued more promptly. I know the diffi- "culty there is in getting steamers' manifests "completed, but the Chamber of Commerce might "devise means of procuring more expeditiously than "at present, information that a good deal of im- "portance is attached to on this side. Mr. S. "Elwood May, the President of the Ceylon Planters' "Tea Co. in America is here on a visit, and has "met the Tea Committee of the Association and "impressed them very favourably. The support "given by the Planters as a body, has so far "been very meagre, as witness the resolution passed "by the Association in January last, and he would "like more of an 'endorsement' by them. Ceylon "should make a good demonstration at Chicago, "and it goes without saying that no better channel "could be found for doing it than through the "Ceylon Planters' Tea Co. I hope the Tea Fund "Committee will be liberal when the occasion comes, "seeing that they have never given a cent towards "the introduction of tea into America."

We give prominence to this information in addition to that in our London Letter, because undoubtedly the great practical question of the day before Ceylon is (1) how to facilitate the sale of her teas in Mincing Lane, and (2) how to extend the demand in new countries and in America more especially. We may therefore feel certain that the Tea Fund Committee and our tea planters generally will view favourably any proposals coming to them with the approval of the businessmen on the Committee of the London Association, while the Committee of the Chamber of Commerce will no doubt see what can be done to meet the requirements pointed out by Mr. Mitchell As regards our Tea industry generally it is evident that many people in the old country are beginning to think that it is not only destined to shut up China, but to beat India handsomely in the race of competition. Our London correspondent brings forward two Companies which he finds reported together in the London *Times* and he makes out that they may be taken as typical and that they show Ceylon is by far the better adapted for a tea growing country and that our credit ought to rise accordingly. There is something in this and more might be made if our largest Company—and the biggest Tea Company in the world, the Ceylon Plantations Tea Co. with its 15 per cent were quoted in comparison with the largest and best of Indian Companies. We do not say, of course, that so striking a contrast could be maintained in the case of all Companies working respectively in Ceylon and India. Still, we should have no difficulty in citing striking juxtapositions many times over were we called upon to do so. No doubt the coincidence of the quotation by the London *Times* will arrest the attention of many of the enormous number of the readers of the leading journal, and it may fairly be concluded that deductions highly favourable to Ceylon credit will be made upon the facts disclosed. At the same time that public attention has thus been drawn to the superior position occupied by Ceylon as a country wherein to invest in tea cultivation, the succeeding issue of the *Times* contained the announcement of the fact that our teas had been sold in Mincing Lane for a price somewhat exceeding a guinea an ounce! We, out here in Colombo, can discount the weight of this last announcement. We know very well that it relates to a mere *tour de force*, that the circumstance is altogether outside of practical commercial results. The British public, however, will not be so readily able to recognise this, although the trade must be fully aware of it. Two succeeding issues of the world-read metropolitan journal—along with practically the whole English press—have therefore contained an advertisement of our planting enterprise which must be productive of satisfactory effect. For the generality of people will not stay to consider the conditions under which this and former abnormal prices have been obtained. We have seen how ignorant have been the conductors of home journals as to these conditions, and we may be quite sure that the conclusion of the great majority of those who have read the two announcements referred to will be that, not only does Ceylon grow tea of a value such as has never been heard of, but that the results of a financial kind are close upon three times as good in Ceylon as they are in India!

It is anticipated, at home, that benefit to Ceylon must follow upon this. Home capitalists, have of late been exceedingly cautious in their investments, and they have required strong inducement and very complete assurance to lend money on colonial enterprises. But the sufficient inducement and assurance, it is now thought many moneyed men at home will find in the case of the Ceylon tea enterprise. It remains to be seen whether the further transfer of estates from proprietors working—in some cases at least—with borrowed money, to individual or Company purchasers commanding capital, is likely to follow. There is no doubt still room for amalgamation and the thorough equipment of central factories serving a large acreage. But meantime, anything to strengthen the credit of the staple industry of Ceylon is an advantage and as such we welcome the wide and favourable advertising of our teas and tea culture, this mail presents.

CEYLON UPCOUNTRY PLANTING REPORT.

WEATHER AND LABOUR – TAMIL LETTERS AND POSTAL AUTHORITIES—SCOTTISH IMPERIAL INSURANCE COMPANY AND TEMPERANCE—A LITTLE GIRL'S SIMPLICITY.

May 25th.

At present one has little else to think of than the weather. It is in evidence everywhere, outside and inside, and its effects are visible in leaf that won't wither, short musters in the morning, roofs that will let rain through, clothes that don't dry, boots that will grow fungus, and general discomfort and unpleasantness. Work falls back and back, for when an estate has barely enough of coolies to get on with in normal times, to have the added horror of the wind and the rain fighting against you is a serious handicap. Still, with it all, it is wonderful how things are kept straight.

We are all in hopes too of reinforcements to our labour force, for you hear of the coming of the new gang long before they put in an appearance: and some of us would even willingly see a slacking off of flush—high treason though the thought may be—just to get our feet cleared and wipe off arrears of work, and then begin again.

How is it that Tamil letters get so often miscarried? So long, of course, as the letter reaches, Rama Sami cares not, as a rule, whether a week or a month has been lost in the transit, and if the letter disappears altogether and he hears that one has been written, he would be the last to blame the postal authorities. He would treat the story of the writing rather as a romance. It is a wonder to me however what little care these coast letters get. One comes up in your tappal box, every now and again, which should never have been sent, as it is intended for another estate altogether. It makes the round of the estates' kanganies, and goes back after some delay to the Post Office as a derelict, to wander away, after that goodness knows where. Very likely shoved into the first handy tappal box to try its luck there, and as likely as not a blind shot again. Of course the Tamil address is often a thing of voluminous vagueness and it would need an inspired genius always to hit on the letter's destination. Still so many Tamil letters intended for some estates find their way into the wrong tappal box, that one is impressed with the idea that a little more care and attention would result in better delivery. The knowing ones who go to the coast carry away with them properly addressed envelopes, as I suppose they find that the English characters have more respect paid to them than is usually awarded to the Tamil ones, and are sure.

I have received a copy of the prospectus of the Scottish Imperial Insurance Company of which Mr. W. D. Gibbon is agent. This Insurance Company has a provision, which I am not aware that any of the other Companies represented in the island has; that is a separate section open for abstainers. The prospectus says that "The profits earned from the premiums of such assurers are ascertained separately, so that abstainers have the full benefit to be derived from such a classification." The prospectus gives no hint as to what this advantage amounts to; being a comparative young office, it may not yet feel justified in tabulating its already ascertained results; but other offices do. Perhaps the oldest company that has subdivided its lives in this way is the United Kingdom Temperance and General Provident Institution; and over a seventeen years period, the deaths in the general section were but slightly below the expectancy, whereas in the Temperance section a little over seventy per cent were all that died. This of course means a very considerable bonus to the abstainer and those who go in for insurance and who are abstainers should see that the advantages of the longevity of the class to which they belong are wholly secured to themselves.

The "Scottish Imperial" still sticks however to an extra ten shillings per annum for every £100 assured as a Ceylon risk. No doubt Assurance companies are slow to move in matters of this kind, but that there should be an extra risk for Ceylon, shows either a grasping disposition, or an inacquaintance with the conditions of Ceylon life. When we have Companies at home open to proposals without a medical examination at all; and others which allow residence abroad at the home rates, the Companies that trade with Ceylon ought not to be behind the foremost. That life has more risks here than it has in the old country is very much open to doubt: indeed it is all the other way if anything like ordinary care is observed. In due time this will come to be recognised, and it is for local men like the agent of the "Scottish Imperial" to press this fact on his Company's directors, so that extra premiums which cover fanciful risks, may disappear, and the Ceylon insurer may have his business done on the best terms.

A little five year old girl was having a story read to her the other day, when the sentence occurred, "And his eye fell upon the page." "Did it *really* tumble out?" was the question she immediately asked.

I began my letter with the weather, and am constrained to end it with the same theme. There is a good deal of monotony in it, and the constant rain gets very tiring. We will all be pleased to see a change which would suit planter and cooly alike, and give something brighter to write about.

PEPPERCORN.

THE SCOTTISH CEYLON TEA COMPANY.

Mr. H. L. Forbes report on his recent trip to Ceylon to his Company's Board is mainly as follows:—

The Board called upon me to make no special report on any particular estate or possession of our Company. If, however, I had considered such necessary, I should have done so, but I have pleasure in stating that I could furnish no more elaborate or truthful reports on the Company's interests in Ceylon, than those supplied us by our Ceylon Manager, so, therefore, merely take the Estates generally. In company with Mr. Kerr, and the respective Superintendents, I have inspected each and all of the Company's properties in the island, and can corroborate Mr. Kerr's reports furnished to us from time to time thereon, in every detail. From my intimate knowledge of all the estates I was in a position to notice progression or otherwise. In everything I saw I could mark much improvement in growth, and nature has been assisted by the most careful husbandry. The Company's properties, during the two years which the Company has held them, have immensely improved in value, not only from their natural increase in age (being young when purchased), but from the judicious care bestowed upon them, the capital put into them, and the generally improved prospects of ceylon as a Tea producing country, and I think it is universally acknowledged, by those who ought to know, that the yield of up-country estates, such as ours, will be considerably greater than was ever anticipated.

As this date, I have every reason for stating that I consider the Company's properties have increased in value to the extent of 30 per cent on the price at which they were acquired by the Company two years ago. Ten per cent was put into them in hard cash by the shareholders themselves at our general meeting of 1890, and quite 20 per cent has been added to them during the two years of possession, by circumstances over which *we had* and *had not* control.

Estimates of 1891.—I have gone into these with Mr. Kerr, and on the aggregate see no reason to alter total estimated profits, but much depends on the prices respectively of tea and silver. I think we may be a little too sanguine on the prospects of the little coffee we have remaining on Invery Estate, but this I consider will be made up, by what to me appears to be moderate estimates of our aggregate returns from Tea.

The Quality of our Teas for some months to come, excepting perhaps Invery, I do not anticipate to be so rich as I hope it will prove towards the end of our present year, and this must be attributed to the large amount of leaf, which for a time will come in from what may be called "First Flushes." We have a large area pruned down on all our Estates at present, which has decreased our yield, and will tell on the quality for a few months to come, but will be all in our favour a little later on.

Manuring.—So far as can be judged, our experiments in this line have been a success, and in some instances a great success, for one, a manured field on Strathdon estate has averaged for the last three months considerably over 100 lb of made tea per acre per month. So long as tea keeps about present prices, exchange about 1s 6d to 1s 6½d, and *labour* as plentiful as at this date, I should recommend the judicious application of manure to most of the Company's estates, especially Abergeldie and portions of Strathdon.

Furlough Circulars, as issued by several Companies in the Island, I do not propose to issue, but would wish that all servants of our Company be always liberally treated with, and on their merits.

Cart Roads to those Estates which do not adjoin such.—I have added my strong desire to Mr. Kerr's approval, that every effort should be made to thus increase the value of our properties. I trust before long we may be able to say all our estates are "on" Cart Roads, all are perfectly feasible, and the outlay, in comparison with the advantages, is as nothing.

Government Reserve Forest adjoining Mincing Lane Estate.—This, though only a very small acreage, will, I hope, through the relaxation of Government rules, shortly be added, under certain conditions, to the Estate, and will be of much value.

The Books and Accounts of the Company in Ceylon appear to be kept in a proper and business-like form.

The Relationship between Mr. Kerr and his various Superintendents.—This, a *most* important feature in the successful working of any group of Estates, seems to be on a very satisfactory footing. All pull well together.

Labour Force appears sufficient for present requirements on all the Estates.

Adelaide Estate.—This property, consisting of some 230 acres, of which 108 are Tea in full bearing, 50 partial, about 47 forest, and about 25 chena, adjoins the Company's property of Benachie, and is about to be added to the capital of the Company, under the name of "Lonach," and at the price of only R30,000. The property was inspected and valued by Mr. Kerr, Mr. Blacklaw, and myself, and we were all of one opinion, that the price was extremely low, that there was much development, that it was of great value, as adjoining one of not the least of our holdings, probably supplied a want to Benachie, viz., water power, gave us an outlet to Watawala Station, and so on. I determined to possess it for the Company, and I have every reason to believe the investment will prove a very remunerative one to the Company. The Estate gave about 27,000 lb. of made Tea last year, and is estimated at 30,000 this. The 50-acre field has not yet been plucked, which is greatly in its favour.

Timber Trees.—Mr. Kerr and I are both quite agreed that such should be extensively planted—chiefly along road sides—not only on our Company's lands, but generally throughout the length and breadth of Ceylon's Tea districts, not only for the purpose of supplying a want, already too keenly felt (though happily not by us), viz., fuel, but for the breaking up of extensive areas of one product, and so in a great measure scattering disease, the usual result of over-production of one product.

The Scottish Ceylon Tea Company, Limited, are to be congratulated on holding about 10 per cent. of standing forest to their acreage in tea, and over and above, possess large supplies of sound fuel, and a fair quantity of "sawable" timber on the ground. This, with water power on all our Estates, cannot be too highly appreciated.

I consider a cordial vote of thanks to Mr. Kerr and his Superintendents will again be due by the General Meeting in May.

CINCHONA PROSPECTS.—A planter of "Ledger" weary of waiting for a market for his bark, writes from upcountry as follows:—

"It's a weary business this Ledger, if we had put it all in tea at first we would have been earning 21 per cent before this. When will the Ledger do that? Not, I fancy, until half the world's inhabitants is down with influenza, and it would be a dear dividend at that price. Still we will see. The ups and downs in Ceylon are such that no honest industry should ever say die. We are still in the horrors of the wet season."

AGRICULTURAL PRODUCE.—Under the auspices of the Board of Agriculture, has been issued a statistical report showing the estimated total produce and average yield per acre of the principal crops of Great Britain for the year 1890. A general increase as compared with the preceding year is noted for all grain crops, but a deficiency is recorded in all root crops, Potatos being as much as 14 per cent below the mean of 1889. The average yield of Wheat seems to be between 27 and 28 bushels per acre. Hay was also deficient, and Hops likewise. As there was not already sufficient confusion in our system of weights and measures, it now appears that there are "acres" and "Hop acres"—a circumstance which has led to some slight error, now corrected.—*Gardeners' Chronicle.*

A NARCOTIC GRASS.—Stipa viridula of Trinius, var. robusta, is a variety common in New Mexico, and which has a most injurious effect upon horses and sheep who are so unfortunate as to feed upon it. Cattle who have once tasted it, never again do so; but upon strange animals who do not avoid it, it acts as a strong narcotic or sedative. It is as poison to them, especially in the spring, when the blades first appear, causing a "profound sleep or stupor, lasting twenty-four to forty-eight hours, when the animals rally and give no evidence of bad effect." It is widely known, and avoided, by the natives as "Sleepy Grass." We read (also in *Garden and Forest*) that the species Stipa viridula is much esteemed as a pasture or hay-grass, and that it possesses none of the injurious qualities of the variety robusta.—*Ibid.*

THE PERRIAR PROJECT.—Sir Mountstuart Grant Duff presided yesterday at a meeting of the Indian section of the Society of Arts, when Colonel Hasted, R. E., of the Local Government Board, and formerly Public Works Secretary to the Government of Madras, read an interesting paper on what is known in India as the Perriar project. By the construction of a dam 155 feet high across the valley of the Perriar a lake will be formed, from which water will be taken by means of a tunnel 6,650 feet long through the mountain top and dropped down the eastern face of the Ghauts into the Vyravanaur. The latter falls into a tributary of the Vigay, and these rivers will carry the water about sixty miles to a point west of Madura, when it will be distributed by artificial channels over the country. Colonel Hasted claimed that the situation and circumstances of the locality make the operations more serious than would be the construction of a large reservoir in the Welsh mountains. The work was commenced in 1887, and it is expected that it will be completed within eight years. The total estimated cost, taking the rupee as equivalent to a florin, is 618,500*l.* A discussion followed the reading of the paper, and the value of the scheme was fully recognised.—*O. Mail*, May 1st.

JAMAICA: THE EXHIBITION, &c.

(*Extract from a letter of Mr. W. Sabonadière's dated 21st April* 1891.)

The Exhibition has in itself been a great success, but the attendance only about pays the current expenses, and the guarantors will have to pay up every penny for which they are liable. I wrote a letter in the *Gleaner* suggesting the loss on the Exhibition should be made good out of the surplus revenue, brought about by the Exhibition, but the Governor will not hear of it, and wants Jamaicans to be patriotic for the good of their country; declares himself ready with his £200, and believes he has had full value for it, and so he thinks should every other guarantor. When the time comes I guess he will find he has reckoned beyond his post, and that this guarantee business will turn out a sad fiasco. The Legislature is still "en séance," and immigration has been renewed. 500 coolies arrived lately, and as many more shortly expected. The Public Works Department has received some very hard and very justifiable knocks from our member Mr. Espeut, who introduced the now hated mongoose, and whose wife is a daughter of Major Armit, R. E., formerly stationed at Kandy. Our crops are very backward this year, our heaviest picking will not be on till May and June. We have had a dry spring which should be favorable for good crops in 1891-92. I see Ceylon peaberry has sold in London for 141/6. This beats Blue Mountain hollow even at Liverpool. Our sizers unfortunately do not throw out peaberry and they don't seem to care for it at Liverpool.

Dr. Calder is interested in rice growing at the western end of the island where there is plenty of marshy and swampy land; and he wants to get as much information as possible on the subject: hence partly his present order for your *Tropical Agriculturist.*

NEWS FROM "THE CITY."

(*From a correspondent.*)

The following news by mail of 8th May may interest you:—

"Adamson, Bell & Co., a firm largely interested in China tea, shipping &c., have come to grief. The unsecured creditors will have rather a bad time of it, the heaviest being the Yokohama Specie Bank (Japanese). Other Eastern banks supposed to be well secured.

"The Ceylon tea export frightens importers as well as buyers; for if India and China send to England more than last seasson the market will be glutted in August and September. Very high prices have been paid for the new Hankow teas by Russian buyers, and it is feared that the Chinese may be encouraged to prepare a large third crop, most of which would come to England.

"Ceylon Plantation Coffee steady for fair colory parcels. Ceylon Cocoa 113s-123s for brighter pale lots.

"Cinchona has advanced to 1⅛-¼d per unit Quinine has also recovered to 10¾ to 11d for German.

A CINNAMON EETATE LEASE CASE was tried before the District Court, Kalutara, on the 28th May in which Mr. Jardine of Goluapokuna had to give evidence. The plaintiff was Mr. S. R. Fonseka, his case being against the lessee of one of his properties who had cut his cinnamon about after a very unplanterlike and injurious fashion. Mr. Jardine had no hesitation in testifying against the lessee. Judgment was reserved.

TOBACCO CULTIVATION IN SUMATRA AND IN CEYLON.

From the Singapore papers we learn that the tobacco industry in Deli is in a very critical condition. For some time past matters have been going from bad to worse, until now the planters have to face a serious problem. The causes of this state of things are three,—competition by Borneo, low prices, and exhaustion of the soil. As is well known, the tobacco plant is one that draws from the soil in a very short space of time all its nutritive constituents, and leaves it impoverished and unfitted for the cultivation of any product. Even guano, it is said, is unable to restore to the soil the phosphates needed to produce the plant at the desired level of quality; and the only thing to be done is to let the land lie fallow until nature has restored it to its pristine condition of fertility. But what are the unfortunate planters to do meanwhile? The remedy is said to be in the planting of tobacco in other parts of Sumatra, such as Indragiri and Palembang, where suitable land can be had on easy terms. It is possible therefore that there may erelong be a wholesale exodus of planters from Deli to the abovementioned districts. But then the question arises, will it pay? As we have said, prices in Europe are very low except for the finest qualities, and stocks are ample; so that, altogether, the lot of the tobacco planter is not a happy one. The recent experiments with tobacco by Europeans in Ceylon have also—with few exceptions—not been encouraging; and we think that there can be no doubt that, in this island at least, tobacco is more suited for native garden cultivation than to be grown on a large scale by Europeans. At any rate, the experience of the Deli planters is not one to inspire confidence in the enterprise.

WANTED, A "WITHERING MACHINE"—MR. JACKSON?

A "proprietor" who has no connection with any Engineering business, writes from the Central Province:—"I have a letter from the manager of an estate who sends his leaf to a neighbouring factory to be manufactured: 'I have had to stop plucking; not from the lack of leaf but because the factory is chokeful of wet leaf which will not wither or cannot be withered fast enough in this weather.

"I wish Mr. Jackson would bring out his new withering machine which will pay him better than spending money on those land sharks of lawyers in Colombo. I hear his new drying machine, the Britannia' is a great success."

CULTIVATION OF CHINA GRASS.—An attempt to cultivate China grass is to be made on a large island, "La Isla Menor," on the shores of the River Guadalquivir. If is intended to plant 5,000 acres with the grass, and to erect a mill for the production of goods from the fibre. The scheme is to be carried out with English capital, and 100 acres are to be planted at first. A capital of £6,000 has been subscribed in order to make experiments, one-half of which has been furnished by the proprietor of the land, and the other half, by an English capitalist, who represents a syndicate. The scheme excites much interest in Seville, as that city would be greatly benefited by the accomplishment of the projects.—*Public Opinion.*

ELEPHANT LEATHER.

"The tanning of elephant hides," says the Boston *Journal of Commerce*, "is comparatively a new industry. The method employed is practically the same as in the tanning of cow hide, except that a stronger combination of the tannic ingredients is required, and greater length of time, about six months, is necessary to perform the work. When the hide is taken out of the vat it is 1½ inches thick. Articles made of elephant hides are expensive luxuries. A small pocket-book of elephant's leather, without any silver or gold ornamentation, costs about $40. A small satchel made of the same leather costs from $300 to $400. Cigar cases, card cases and similar articles vary from $25 to $100. Floor rugs are also made out of the leather. In finishing the hide no attempt is made to glaze or polish it. Everything is done to preserve its natural color and appearance. It is a very enduring leather, several year's wear having but little effect on it."—*Bradstreet's* April 25th.

THE BATTALGALLA ESTATE COMPANY.

CAPITAL £15,000, IN 1,500 SHARES OF £10 EACH.

REPORT TO THE SHAREHOLDERS OF THE BATTALGALLA ESTATE COMPANY LTD.

LADIES AND GENTLEMEN,—1. In presenting this our first report to the shareholders, the Directors have much pleasure in expressing their belief that the expectations entertained at the formation of the Company are likely to be fully realized. The Company took possession of the Battalgalla estate on the 1st of January, 1890, and during June acquired the adjoining estate of Hadley (228 acres) at a cost of £4,552 10s 0d, the purchase money being provided by a further issue of shares to the extent of £4,000.

2. The produce sold in London during the working year amounted to 120,854 lb. of tea, realizing nett £4,749 1s 7d, or an average of 10·70d (say 10¾d) per lb. on London weights, and 11,251 lb. cinchona bark, realizing nett £106. 3s. 5d. A certain quantity of green leaf from Hadley has also been sold in Ceylon and the proceeds have gone towards the upkeep of the estate.

3. Some quantity of coffee, say about 90 to 80 cwts, now afloat, from both estates will go into the new year's working accounts.

4. The factory, now completed and fitted with the latest improved machinery, is fully capable of dealing with the proudce of both estates, and the Company will also manufacture a certain quantity of tea for neghbouring estates on terms leaving a fair profit; some contracts have already been entered into.

5. The total cost of the factory, which is one of the finest in Ceylon, will be about R28,000, exclusive of about £525 for machinery. Of these amounts only £1,752 8s 0d appear as yet in the accounts. The balance still due to the contractors is now being gradually liquidated. This delay in payment is a considerable saving to the Company on account of the lower exchange now ruling.

6. With this factory the heavy outlay for having the Company's tea manufactured outside, which amounted during 1890 to no less than R13,349·76, is avoided for the future.

7. A considerable increase in the outturn of tea may be expected in the current year, as both estates have now been put into excellent order by supplying vacancies where necessary, draining and manuring. The expense of this, it may be noted, has been borne by revenue, and less will be required for this purpose during the current year.

8. The Directors are pleased to express their full appreciation of the valuable services rendered them by the Manager in Ceylon, Mr. E. G. Harding, to whose zeal and ability as an experienced planter the success of the Company is mainly due.

9. After transferring to the credit of profit and loss accounts the profit shown in the estate working account of £1,205, providing for interest on debentures, and for the entire preliminary expenses connected with the formation of the Company, there remains at credit a sum of £916. The Directors propose to pay a dividend at the rate of 5 per cent per annum, free of income tax, absorbing £575, and to carry forward £341.

E. H. Hancock, C. A. Reiss, A. Zimmern, *Directors*,
A. B. Tomkins, *Secretary*.
51, Lime Street, London, E. C., 13th April, 1891.

THE CEYLON TEA PLANTATION COMPANY.

ANNUAL GENERAL MEETING.

(Concluded from page 34.)

Mr. SHAND said he should like a little more information about the affairs of the company than that contained in the report. The report of the Ceylon Plantations Company was looked for, not only by the shareholders but by all interested in tea-planting in Ceylon, with almost the same amount of interest as the Budget was by the British taxpayer. (Laughter.) It was, therefore, of very great importance that it should contain as much information as possible. The report of two years ago contained abstracts of what each estate was doing, and when he saw that statement he felt a very keen longing to be a shareholder of the company. Now they were in ignorance of what the expenditure in Ceylon amounted to. The company had spent a great deal of money in purchasing estates recently, but he thought the main point of the board should be, not only to extend the company's property, but to improve the position of the original shareholders. He took it that the directors were very satisfied with the purchases they had made, and he thought it would be an advantage if the particulars of those purchases were conveyed to the shareholders.

Mr. SEATON thought it would give greater confidence to the shareholders to be supplied with fuller details of their estates as asked for by Mr. Shand. He certainly considered that the directors should give them a list of their estates and the cost at which tea could be made on those estates per pound down to a decimal fraction, which was done by other tea companies.

The CHAIRMAN, in reply, said that the position of the company, now and when they first started, was very different. When the company started it was perfectly true that, in order to enlighten the public and advance the credit of Ceylon they had given fuller details in their report, but a great deal had been done in four years. The Ceylon tea industry was now in a different position, and was an established undertaking. He believed a profit of something like £500,000 was made out of tea by the growers. Even assuming that the influence of the company was so great as represented by Mr. Shand, he did not think they were called upon to give all the details now that they did in the early history of the company. They, however, had nothing to conceal, and he believed an examination of their accounts would confirm even more strongly than the report showed on the face of it their sound financial position. He did not think it was desirable to weary them with a mass of details, but to give them the basis on which their profit rested. That he thought, was better than giving them elaborate details of the cultivation and cost of the estates.

Mr. D. REID (a director) pointed out that it seemed to him very unusual to give a full detailed account of their business to the shareholders at a public meeting, but if any shareholder called at the office he would be able to obtain all the information he required.

Mr. PAINE doubted whether he would be in the interest of the company to publish the details asked for.

The CHAIRMAN promised to consider the question when drawing up the next report.

The motion was then put and carried unanimously.

The CHAIRMAN proposed the re-election of Mr. David Reid as a director of the company, which was seconded by Mr. Rutherford and carried.

On the motion of Mr. Paine it was resolved that the remuneration of the directors for the current year should be at the rate of £600 per annum.

After the re-election of Mr. R. H. Miller, of Messrs. Harper Brothers, as Auditor of the company, an extraordinary general meeting was held for the purpose of considering and if deemed expedient, passing the following resolution :—"That the directors be authorised to purchase, or acquire from the owners thereof, the following estates in Ceylon, viz. :—"West Holyrood", containing 537 acres or thereabouts, "Ardallie", containing 211 acres or thereabouts, "Rathnillokelly", containing 239 acres, or thereabouts, or any of them, or any part thereof respectively, with the buildings, machinery, implements, live and dead stock, crops, produce, stores, effects, and other property belonging to said estates or any of them, or any part thereof respectively, and the business, assets, and liabilities, of the respective owners or vendors of the said estates in respect thereof, or any of them, or any part of such business, assets, and liabilities at price or prices not exceeding in the whole £27,000, payable in cash or in fully or partly paid up shares of the company, or partly in cash and partly in such shares, and upon such terms and conditions in all respects as the directors shall think fit."

The CHAIRMAN formally moved the resolution, which was seconded by Mr. PAINE, and carried.

On the motion of Mr Seaton, a vote of thanks was then given to the CHAIRMAN and directors, which concluded the proceedings.—Cor., local "Times."

CEYLON TEA IN AMERICA.

MR. RUTHERFORD'S SCHEME.

The following is the purport of the proposal formulated by Mr. Rutherford and read by him at the meeting in reference to the representation of Ceylon at the Chicago Exhibition :—"Mr. Elwood May, President of the Ceylon Planters' American Tea Company, has represented to me that in order to give thorough confidence to his American friends, and to prove to them that his company has the full support of the tea planters of Ceylon, it is of the most vital importance to its success, that if possible, all Ceylon tea estate proprietors should be shareholders in however small a degree. I have pointed out to Mr. May that it must be hopeless at this stage of the company's career to enlist more shareholders amongst the planting community. It is, I believe, admitted on all hands that the American continent is the country above all others in which Ceylon tea ought to be pushed. Mr. May has shown me many proofs that his company is pushing our teas in the large American cities, that the teas are becoming widely known, and that the sales are increasing. An enterprise like this cannot be worked on niggard lines, and to succeed must have unlimited capital to work with. Mr. May states that the capital will be forthcoming if he is placed in a position where he can show his friends that it really is what it professes to be a Ceylon Planters' Company. He says he feels as if he were sailing under false colors in calling it a Planters' Company under the auspices of the Planters' Association when it has received such poor support from those whose interests it was created to benefit. It has suggested itself to me that the object Mr. May has in view might be attained through the means of the 'Tea Fund.' I think it is beyond question that our representatives at Exhibitions in various countries have stimulated the demand for Ceylon tea. At the 'World's Fair' at Chicago the Ceylon planters should be prepared to make such a show as to command success. My proposal is that the whole amount collected for the 'Tea Fund' for the current year should be handed over to the Ceylon Planters' American Tea Company on the following terms:—That the Ceylon Planters' American Tea Company shall represent the tea industry of Ceylon, on behalf of the Ceylon Planters' Association, on conditions to be hereafter arranged and submitted for the approval of the Ceylon Association. That the Estate proprietors whose names are on the 'Tea Fund' list and have subscribed not less than R50 during the current year to the fund shall receive one fully paid 20-dollars share in the Ceylon Planters' American Company. Those who have subscribed less than fifty rupees on paying the difference will be also entitled to receive one-fully-paid share. By this scheme it appears to me that the Ceylon planters would be employing the proper agency to represent them at the Chicago Exhibition, as the American Tea Company would have the strongest possible motive—that of self-interest—to make the representation a success. As to the issue of scrip to all subscribers to the Tea Fund alike, with the proviso as regards those who have subscribed less than R50, I do not think subscribers to the Tea Fund would expect to get an allotment in proportion to their subscription. The sole object of this part of the scheme is to ensure what Mr. May so much desires, the bringing in as shareholders, as far as it is possible, of every tea proprietor in Ceylon. With practically the whole tea proprietorship of Ceylon as shareholders in this company, there can be no doubt it will show those friends of Mr. May who are prepared to take up the balance of capital that the planters are in earnest in their endeavours to push their tea in America.

Mr. Rutherford's proposal was well received by those present at the meeting, who were of opinion that, if proper arrangements were made for ensuring an adequate representation of Ceylon industries generally, as well as Tea, as was done at South Kensington in 1886, by a well-equipped Ceylon Court under an official commission, the affair should be a success in every way.

A meeting of the Tea Committee to consider the above proposal is convened for the 11th instant.—*Ibid.*

TEA FROM THE STRAITS SETTLEMENTS.—An invoice of forty-seven packages in seventeen breaks from Perak realised an average of 8¾d per lb. The tea was in very small lots, and found less favour with buyers in consequence.—*H. and C. Mail*, May 15.

A "TEA CROPS" CYCLE.—A planter writing from an old coffee district propounds the cycle theory for tea crops, thus :—

Tea, I fancy, will follow the fashion of coffee in having a cycle of three years; good, bad and indifferent. Last year most planters complained of being short of their estimate (bad); this year most estimates will be exceeded (good); so we must look for an indifferent year next year (from 1st July).

CEYLON TEA AT CHICAGO.—Mr Elwood May has requested the attendance of all interested in the Ceylon Tea Industry at the rooms of the Association on Monday at 3 p. m. to hear his views as to the sale of Ceylon Tea in the United States and elsewhere. Mr. H. K. Rutherford has had another interview with him, and the result is that the former has designed a scheme which will accomplish all that Mr. May proposes, now that he has dropped his dream of a tea "corner", and this he will submit to the meeting on Monday. Briefly it amounts to this. Mr. May says that in order to make their Tea Company the success it will certainly be it is necessary to assure the American public that the Company really represents the entire planting interest in Ceylon, which at present it is not in a position to do. Now Mr. Rutherford says that, inasmuch as the subscribers to the Ceylon Tea Fund are about to invest a considerable sum in running Ceylon tea at the Chicago Exhibition, he will propose that every subscriber of R50 to the fund shall have a share presented to him, the amount of the money so voted for the Exhibition to be handed over to the Company for the purpose of pushing your teas within the building. That being so, the planting body and the London Tea Committee will be directly represented by the Company, which Mr. May says will ensure its success, as any amount of capital would be found under those circumstances, whilst Ceylon planters will be doing no more than they have already resolved on doing, that is, work the Exhibition for their tea, whilst they will have all the advantage of the local experience of the Company's working staff.—*London Cor.* Local "Times."

CEYLON TEA IN AMERICA:

SPEECH BY MR. ELWOOD MAY.

We have received the following from Mr. A. Philip, Secretary to the Planters' Association of Ceylon:—

4. Mincing Lane, London, May 8th.

A. Philip Esq., Kandy, Ceylon.

DEAR SIR,—Mr. S. Elwood May addressed a meeting of gentlemen interested in Ceylon Tea here on Monday last, and I enclose for the information of your Association a report of his remarks on the occasion.

At the close of Mr. May's address Mr. Rutherford suggested a scheme by which the estate owners of Ceylon would become, all, to a small extent shareholders in the Ceylon Planters' Tea Company of America. He suggested that, that Company should represent the Planters' Association at Chicago and that the receipts of the Tea Fund for a year should be voted to defray expenses at the "World's Fair" on condition that the American Company should allot to each subscriber of Rs. 50/ to the Tea Fund a fully paid 2 Rs. dollar share in the Company.

Our Tea Committee meets here on Monday next to discuss the resolutions of which I enclose a copy, and by next mail I will write you further on the subject.

By S.S. "Rewa" I am sending you the Tea service for Mr. Taylor and also some 30 packets of Tea about which I will also write to you fully by next mail. The Committee is rather at a loss how to act as to further prosecutions and wishes the position to be made quite clear to the Standing Committee of the Tea Fund before incurring further expense.—I am, yours faithfully, (Signed) WM. MARTIN LEAKE.

Resolutions SUGGESTED BY MR. S. ELWOOD MAY.

No. 1.—*Resolved*:—"That owing to the adulteration of Ceylon tea after it leaves the hands of the Planters, the Ceylon Association in London, in view of the fact that such adulteration has rendered it necessary for the Association to prosecute many vendors of packet teas, deems it desirable after hearing the explanations set forth by Mr. S. Elwood May, President of the Ceylon Planters' Tea Company in America, that the Planters' Association of Ceylon do give an assurance that this Company was formed under their auspices for the sale of Ceylon tea absolutely pure and unadulterated in America, and that they have received and accepted a satisfactory written guarantee from the Company to this effect."

No. 2.—*Resolved*:—"That the Association, impressed with the great benefit the extended market in America for Ceylon teas must be to the Island of Ceylon and to all those interested in it, and considering that the efforts of the American Company should be heartily encouraged, do strongly recommend that Mr. H. K. Rutherford's proposal be approved by the Planters' Association of Ceylon,"

Mr. S. Elwood May said that they would have to bear with him as he had not addressed a meeting before. His idea in coming over from America in connexion with the Ceylon Planters' Tea Company was to see gentlemen interested in the Ceylon tea industry and ask them to join him in forming a sort of trust in the American sense of the term. Such a scheme would take him hours and perhaps weeks to explain. Briefly the idea was to form such a combination as would keep out, not *all* competition, but competition when it was of the kind that had been experienced in England to such an enormous extent—he referred to the form of competition that consisted in advertising and selling tea under the name of Ceylon with very little Ceylon tea in it and much of everything else. While in England there were laws dealing with this matter, there was at the present time nothing in America to prevent anybody from selling any mixture with a pinch of Ceylon in it and calling it Ceylon tea. Now, it was his firm belief that fifty or sixty million pounds of Ceylon tea could be sold to the world *pure*. The Company had sold in America 100,000 pounds in pound packets in three months, absolutely pure as it left the planters. The identity of Ceylon tea was unimpeachable; nothing could be got like it. Some of the leaders in London to whom he had explained his scheme said that it could not be done. They in America believed that *anything* could be done that was right. Some people did things there that were wrong; there was no doubt about that. He believed he had been looked upon a little with the eyes of suspicion—and he could well understand it—as having some idea of making a great combination by which the London market should be shut out. But that was absurd, for if that had been his intention he should have gone to Ceylon direct. The price obtained for tea in America was so good that profits would be from 50 to 300 per cent. Of the 100,000 pounds sold by the Company no part realized less than 50 per-cent profit, and some yielded as much as 200 per cent. To show what large profits were made by combinations like the one of which he had been speaking, he might mention the Standard Oil Company of America, which in eight years had paid 100,000 000 dollars in dividends. He and other members of the Ceylon Planters' Tea Company had been spending their time in educating the consumers of America. The Company did not believe that the dealer, or the broker, or anybody else in America was of the same vital importance as the consumer. The idea was to get the consumers to demand the Company's brands, and that would force everthing. The Company sold a tea called "Bud"—really the tips of the Ceylon leaf, as he understood it. They charged five shillings per pound for it retail. It cost the Company only 40 cents, it was sold to the grocer at 80 cents, and he made a profit of 45 cents out of his customers. Referring again to the combination which he (Mr. May) had hoped to form he might say at once that at the request of several gentlemen whom he had met in England he had dropped that part of his scheme, although he had heard no argument that had changed his mind at all as to the advisability of taking such a step. He had studied the question for four years and had not sprung the proposal upon them. It had received his most careful thought and consideration, and had been passed by many of the best heads in America. If such a combination should ever be floated in the future, the London contingent, even to the smallest broker, would be represented. The old Company had made a failure. Americans called a concern a failure when it showed no result. The books were not of such a character as to bring in new investors. Well, he was brought in and made President of the Company, and he had devoted all his time and energies to finding out what could be done with Ceylon Tea in America. He found that America did not like the teas from Japan and China. The Consul of Amoy had said to the American Secretary of State that the tea sent to the United States was the worst stuff that it was possible to get in the world. He and his friends also discovered that the Ceylon tea they had sold was used to carry off the rubbish from other countries. He was now in this position. The Company could get investors, but could they get people who had faith in the movement, and, perhaps, in himself? Everybody who came into the office said, it was a good thing, but they asked if there were really any Ceylon planters in it. They wanted to know if it was expected that the American people would put money into a concern to be worked for the sake of the Ceylon planters, who would yet take none of the risk. He did not see his way, either, to bring in only American people to make a market that anybody outside might come into and spoil. He wanted to educate the people of America to appreciate Ceylon tea, pure. But in came such people as Kearley & Tonge with their "Ceylinds" and other brands; mixtures with very little Ceylon tea in them. This was teaching the people to *detest* Ceylon tea. The American never went half way in anything, and if he got the notion that the tea he took was Ceylon and was not good, he would have no more of it. He (Mr. May) wanted the planters to aid him in letting the American Tea Company show what a splendidly large market there was in America for pure Ceylon tea. In order to give some idea of the kind of assistance he wished for

he would read the resolutions he had drafted. (Attached Resolutions read.) Mr. May added that the Company had given a guarantee to the Association in Ceylon that they would not blend—that they would sell only *pure* Ceylon. (Correspondence read between the Planters' Association and the Ceylon Planters' Tea Company.) In the course of conversation Mr. May remarked that he had been paying all his own expenses in connexion with the Company. He knew that Ceylon tea could be made a tremendous success in America—not on the English plan, nor on the French plan, but on a plan that would meet the peculiar characteristics of the American people. A great deal was done in America because it was fashionable. The Company could sell a large quantity of tea at a sovereign a pound, and still more at 12s and 8s. These prices were for teas that would in England fetch only 5s, 3s 6d and 2s 6d respectively. Asked why the original Company had not been successful, he said that they took a shop at R4,500, having really no plan or system at all. He did not wish to make any reflections upon them, but to his mind they went to work in the wrong way. They tried to get the tea into the hands of the merchants, and this was a mistake. They should have gone to the consumers direct.

WATERSPOUTS OFF THE COAST OF CEYLON.

Anent your recent remarks about waterspouts in connection with the remarkable escape of the S. S. "America," a well-informed friend reminds me that in November 1863 or 1864, the schooner "Adee Letchimy" was caught in a waterspout between Paumben and Mannar with a party of immigrants on board. Her sister ships on the same voyage were the "Sarah Armitage" and the "Geraldina Alexandrina Roche," both wellknown crafts in Colombo, the latter owned by Roche Victoria—but they happily escaped the fate of the "Adee Letchimy." It appears that the tindal, though warned by some of the passengers, was apparently ignorant of the danger impending and neglected to take the necessary precautions for the safety of the vessel in his charge. The result was most calamitous. The schooner according to the testimony of the survivors was actually lifted out of the water, coming down again with such fearful violence, that she became a total wreck. Upwards of 20 of the crew and immigrants perished. Portions of the wreck were picked up near Kalpitiya.—*Cor.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, May 7th.

CINCHONA.—The supply of bark offered at Tuesday's auctions was a moderate one, consisting of:—

	Packages		Packages	
Ceylon cinchona ...	478	of which	452	were sold
East Indian cinchona	1,188	do	1,188	do
Java cinchona	203	do	203	do
South American cinchona	196	do	29	do
Total ...	2,065	do	1,872	do

It will be seen from these figures that nearly 91 per cent of the bark offered was disposed of, a proportion much in excess of the usual percentage. The assortment of bark was not a very superior one, the bulk of the parcels consisting of Succirubras, and there were scarcely and good Ledger barks. Competition throughout the sales was well maintained, and prices advanced from 10 to 15 per cent on the previous auction rates, the unit ranging from 1½d to 1½d per lb., the latter price being paid for some of the richer lots of bark.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Mannheim and Amsterdam works	94,739
" Brunswick works ...	92,202
" Frankfort o/M. and Stuttgart works	70,312
" Auerbach works	52,167
Messrs. Howard & Sons	40,570
Agents for the American and Italian works ...	39,525
" French works	33,065
Sundry druggists	16,847
Total quantity sold	439,427
Bought in or withdrawn	34,050
Total quantity offered	473,477

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it, firms who buy a small quantity of bark by weight frequently take the richest lots and *vice versa*.

QUININE.—The market is again decidedly stronger, and shows an advance of about ¼d per oz. since our last report. On Tuesday there were buyers of German in bulk at 10½d per oz. This morning a sale of 5,000 oz. B & S quinine (second-hand), May delivery, was reported at 10¾d per oz.; and later on in the day one of 5,000 oz. at 11d per oz.

SPICES.—Cinnamon: A parcel of 51 bales Ceylon, imported in 1889, was offered without reserve this week, and sold at 7½d to 8d for first, and 7¼d for second quality.

CLEARING THE UNIVERSE: RARE PLANTS.

In one issue of a newspaper the other day we remarked three paragraphs. The first announced that "the most prized of our orchids are reported to be rapidly disappearing from their native places"; the second, that "the only hope of preserving the fur-seal from extermination is said to be to stay their slaughter for six or seven years"; the third, that "nearly all the principal animals indigenous to the United States are either substantially extinct, or in immediate danger of becoming so." These are the words of Professor Langley, head of the National Zoological Park at Washington. Three such statements, published side by side, as it were, upon authority, give food for thought. Incontrovertible in themselves, their significance might be strengthened by endless illustrations. As regards orchids, Messrs. Steves announced last month, at a public sale, that the Government of Ceylon has forbidden the gathering of a certain species—*Dendrobium McCarthyæ*—for an indefinite time, to preserve it from extinction. Another, the loveliest of all, as some think, *Lælia elegans*, would have vanished from this lower sphere had not some few specimens found a lodgment on cliffs absolutely inaccessible, where the Indians eye them with vain longing. Of the grand variety of *Lælia purpurata*, which enthusiasts call the "true," not a plant remains in its native seat. The commonest of fine orchids half a century ago were *Cattleya's Mossiæ* and *Trianæ*, as we perceive by the great quantity still surviving in our greenhouses. At this time, they are classed among the rarest in Caraccas. The best variety *Odontoglossum crispum* was found along the Pacho River in such profusion that early collectors pronounced the supply inexhaustible; the *Journal des Orchidées* states that "only a few plants are now left." Not to prolong the list, it may be declared that every species, in every part of the world, for which there is a great demand, begins to fail. They cannot be replaced unless Government interfere—and vigorously too, for the profits of smuggling, while they last, would be enormous. Orchids will become a royal fashion, indeed, when they cease to be weeds in their native home. Among the hundreds of skilful horticulturists who have tried again and again in the last half century, but one has been successful in raising any member of the great *Odontoglossum* family from seed; this happy individual is M. Leroy, gardener to M. Edmond de Rothschild, and his plants have not yet flowered. Other genera less intractable demand five to sixteen years of most careful cultivation before they produce a bloom. Which means, in brief, that the grower would ask their weight in gold for his nurselings.

But orchids are commonly regarded, even now, as luxuries in which the general public has no interest. That is a grievous mistake, but we may

let it pass. The public feels an interest, however, in fish, and that product also is threatened. Year by year the trawlers seek new ground, and still the price rises. They have cleared our coasts so far that fishermen themselves, the least nervous of mortals, and not the most intelligent, demand protection, to save their industry from collapse. It is not worth while to speak of oysters. All the world knows that our famous "natives" have vanished, and miscellaneous foreign species occupy their beds. For the daily supply of lobsters we depend on Scandinavia eked out by America; how long these will last is a matter for calculation. Such inland waters as are open to the public have been cleared of big fish long ago, and the continual replenishments scarcely keep pace with the multiplication of anglers. So desperate we grow that perilous designs of acclimatization are welcomed. The black bass of America, the silurus of Southern Europe, will be turned down shortly in our narrow streams and tiny lakes, where assuredly, if they themselves give sport they will kill off all the natives. A pastime which some of us remember with especial delight "tickling," or "grappling," is forbidden by law with reason enough under the circumstances. Like its rival in the memory of veterans, birds'-nesting, it had to be suppresed for the "preservation of the species." Country lads find more blameless sports now, perhaps. So we must hope, But the pursuit of Lepidoptera is not for all, and there are still myriads of boys who can rarely enjoy a game at cricket in the holidays. They suffer by the clearing out of wild creatures which have amused every generation of English youth. And the farmers suffer also. Eagles, kites, buzzards, and bustards have gone. Owls and hawks are following. While we write, Parliament is debating whether or no it is worth while to arrest the extermination of hares.

The romance of the universe will be eclipsed when wild beasts disappear; and the time draws on. Professor Langley, whom we have quoted, makes a strong appeal for the preservation of such as still survive in North America. May it be successful; but we fear. Close seasons may be appointed, and hunting parties may be forbidden. But the area of cultivation will spread, and settlers will still be armed with weapons more and more and more deadly. The same process is going on everywhere. Startling it is to learn, for those who knew South Africa but twenty years ago, how far a man must travel beyond the Orange River to find even springbok—an antelope which he remembers covering the veldt in thousand as he drove northwards from the Karoo. The zebra alone appears to be actually lost; but all other species which were prized in Cape Colony are represented by a few specimens here and there. Government is roused, and some landowners preserve strictly. But as men multiply they will have land, and they cannot be prevented from shooting game to eat. Already there is an agitation to do away with the Reserve at Uitenage, where the last survivors of the elephant is South Africa find a narrow home. It may succeed presently; but before those pachyderm vanish they may also have outlived their kindred beyond the frontier. As peace is established in Central Africa population will grow, and in defence of their crops the natives must wage war upon the most destructive of all animals—putting ivory and "sport" aside. The hippopotamus the rhinoceros, which do not seek the shelter of dense forests, will even predecease the elephant. Buffalo will last longer, no doubt; but the antelopes, all of which haunt pasture-land, and are all food, will not hold their own so long. And the great felines must go with them.

It is the same in Asia. Elephants have been preserved for a good many years now in the Indian and Cingalese jungles, where they still exist. But these jungles narrow continually. The Census returns published a few days ago show an increase of twenty-two million souls, the vast majority of whom belong to the agricultural class. They encroach on the forests and the waste lands year by year. It is cultivation, not slaughter, which thins wild beasts. There is a pathetic passage in Sir Samuel Barker's recent work. He tells of a visit paid—in 1878, if we remember rightly—to the hunting grounds of his youth in Ceylon. Not a head of game could he find in districts which teemed with deer and buffalo thirty years before. Thirty years hence, so far as we can see, big game will be extinct in Ceylon.

It is all for the best, no doubt. Wild beasts have become a sort of anachronism all over a world full of beasts that are not ostensibly wild. But something of interest will vanish from human life when they are lost. Increase and multiply and replenish the earth is a divine command, but in fulfilling our destiny faster and faster, we seem to be exterminating the beautiful. Nor is it by any means assured that Nature will not exact compensation. But a month ago one would have declared with absolute confidence that the extinction of alligators would be a blessing unmixed. Not a redeeming virtue of any kind do those brutes possess, we thought, and all who know them had been rejoicing to hear that the demand for alligator leather threatened their existence. But now we learn that the waning of their numbers is spreading panic in Florida. The musk rat increases so fast that riverside plantations have been ruined. And the danger grows more serious month by month. An act has been hurried through the Legislature, imposing a fine of one hundred dollars on the man who wilfully kills an alligator, under any circumstances, during the next three years. No stronger instance could be found of the peril that attends human interference with the system of Nature.—*Saturday Review.*

ELEPHANT-CATCHING OPERATIONS IN MADRAS.

The success that has attended its elephant-catching operations has induced the Madras Forest Department to extend them. The operations were inaugurated in North Malabar in 1884, since when the capture of elephants has been confined to North and South Malabar and South Coimbatore. Thirty-one elephants have been captured, of which 17 are now working; one escaped; one was sold, and the remainder died. Of the last the death of four are attributed to the gross ill-treatment and neglect of the Forest subordinates, who have been brought to task and dismissed the service, 16 of the elephants were caught in North Malabar. 12 in South Malabar, and 3 in South Coimbatore. More elephants would have been taken in South Coimbator, where operations only began last year, but for the exceptional dryness of the season, owing to the failure of the South-West and North-East monsoons. The operations have been carried out under the supervision of the Forest Officers, Messrs. Morgan, Hadfield and Porter, and great credit is due to them. The pit system is the one employed for the capture of elephants, for it is considered by these officers superior to the khedda system, there being little or no risk of injury if sufficient precautions are taken and reliable men are told off for the work. The estimated cost of the capture of an elephant is

about R250, viz., actual cost of capturing R50; mahout for 5 months, while under training, R60; cavady R35; fodder and rations, R75; supervision and sundries R30. The value of the elephants at present possessed by the Department is estimated at R10,500. After capture and removal from the pit unnecessary severity is avoided, and the animals are trained, being kindly treated and receiving as rewards jaggery, sugar-cane or other delicacies. In about five months the training is complete and the elephants put to work with others in dragging timber etc. As there is a certain amount of personal risk incurred in the work of capture, rewards not exceeding R100 are proposed to be granted to the subordinates employed for each elephant captured and properly trained and which is in good condition at the end of six months.

In this connection it will not be uninteresting to summarise what a correspondent, who signs himself "Kurumber," writes to the *Asian*. He prefaces his remarks by referring to the report that Admiral Fremantle, while at Trincomalie, went on a shooting expedition to Vellar plain, 15 miles from Mutur and there bagged two elephants, "a dame and her baby." Can, he asks, this horrible tale be true? If it be so, all he can say is that "some people have curious ideas of what constitutes sport. The wanton butchery of harmless animals that are perfectly useless to the man who shoots them, and very often to every one else, is simple cruelty, and all true sportsmen, who are humane and do not needlessly inflict pain on dumb beasts, can only shudder at such doings." "Kurumber" should not have commented on the Admiral's sport without having made himself acquainted with all the facts of the case. Admiral Fremantle, we may mention, had shot the female when its baby, which had at first bolted, turned round and charged the Admiral and his party, and in self-defence the former shot the innocent suckling. That is all. "Kurumber" then refers to the reprehensible conduct of the Ceylon Government in allowing every big-wig and globe trotter who visits Ceylon to murder the elephants without restriction. This is not, we believe, a fact, for the Government is just as anxious to preserve these mammoths of the forest as "Kurumber." The Madras Government then comes in for a share of this angry correspondent's attack. We will quote what he says, merely remarking that if the Mysore Government wishes to exterminate the elephants in the wholesale manner attributed to it by "Kurumber" it has every right to do so, as far as we can see.—

"Here, in Southern India, the Madras Government looks placidly on whilst a feudatory State (Mysore) carries on the extermination in a more wholesale manner. For years the wild elephants have been most carefully protected by Government, apparently in order that the Mysore Government should reap the entire profit by catching and selling the animals which the Madras Government has bred for them, and this with the assistance of a trained officer lent by the Supreme Government! It is just the same thing as if you possessed a large and well stocked game preserve, and then assisted your neighbour, with your game-keeper to shoot down in his part of your the game that you bred and preserved all holding fit! The folly of the Madras Government in this on whilst lakhs of rupees worth of its looking are being captured wholesale by the Mysore with the help of the Government of people beyond ordinary comprehension. When the Mysore Government has caught all the elephants it can to Madras perhaps the Supreme Government will wake up to the fact that they have no more elephants to preserve! Then I presume they will purchase elephants and turn them loose to restock the forest! Our present Governor, Lord Wenlock, is however a very different man to his predecessors, and he has only to discover the terrible damage that is being done to counteract it as soon as possible."—*M. Mail.*

"HISTORY OF COFFEE:" MR. PETER BROHIER'S TRANSLATION.

Kandy, 18th May 1891.

To the Editor of the "Tropical Agriculturist."

DEAR SIR.—I was glad to see in the *Tropical Agriculturist* (see pages 874, Vol. X. and 5 and 12) the translation of the "History of Coffee" from the Dutch of Valentyn. This translation was made, about 35 years ago, by Mr. Peter Brohier (the father of the present assistant Auditor-General), who was then a retired public servant and had been chief clerk of the revenue branch of the Audit Office. Mr. Brohier, (who was the son of the late Captain John Brohier Provincial Judge of Puttalam)* was a good Dutch scholar and an accomplished musician. After his retirement from the Government service, he spent much of his time in translating Dutch works. The translation in question was originally a contribution to one of your contemporaries. The planters of the day and others were much pleased with the work, and a leading European gentleman wrote to the translator, that apart from the merits of the translation, he was quite delighted with the humorous summaries which headed each chapter; and that above all, he was charmed with the little Turkish poem which was rendered so felicitously into English. This contribution afterwards appeared in a Pamphlet form, and at the suggestion of Mr. Hew Stewart, the facetious editor of the "Times" a copy of it was forwarded to Mr. Alexander Brown, the Secretary of the Planters' Association, whose attention was called to the fact that a preparation very much like "Pale Ale" might be prepared from the coffee husk or shell. And the worthy Scotch Secretary, whilst thanking the learned translator for the copy sent to the Association, informed him, that he did not believe the planters were just then prepared to try the experiment suggested, as the coffee berry "pure and simple" was paying them hand over fist.

—Yours faithfully, SIGMA.

INDIAN ART APPLIED TO THE ILLUSTRATION OF INDIAN EPICS.

As attention has recently been drawn to the industries of Jeypore in connection with the munificent gift of £20,000 to the Imperial Institute by His Highness the Maharaja, it may not be inappropriate to notice the really artistic work done by native artificers in that city. The Ramayana shield alone would be sufficient to prove the marvellous skill of the workman who holds the premier place in Jeypore. The general idea was taken from the Milton and Bunyan shields of Morel Ladeuil, and the story of the Ramayana is told in a series of plaques, nearly all of which are faithful reproductions in relief, in silver-plated brass, of paintings by the most celebrated artists who flourished in Akbar's time. Ganga Baksh Khati, is the workman who carried out the idea which Dr. Hendley conceived, and visitors to Jeypore, when they see this shield, can realise that the art of working in metals still survives in India. The figures of men and animals are perfectly reproduced from the old paintings, and nothing is wanting in those details which the native artist only too often neglects. Dr. Hendley has now arranged for the production of two more large shields. One of these will be a companion to the Ramayana shield, the story of the Mahabarata being

* Captain Brohier, the Provincial Judge of Puttalam, wrote the "Historical Account of Ceylon" which appeared in the *Ceylon Literary Register* of last year.

taken as the second great epic poem of the Hindus. Here again the paintings of Akbar's time will be copied. The other shield will be known as the Ashwameda, and will contain seven plaques. In olden days, says Dr. Hendley, a curious custom obtained of the expiatory sacrifice of a horse. The animal, selected by a ruling Chief, was allowed to wander at large for a year. Those who disputed the supremacy of its owner, took possession of it and fought to retain it against all comers. "If the horse came safely through his trials he was sacrificed with elaborate ceremonies, and the victorious monarch was then acknowledged as paramount sovereign." The sacrifice which Yudishthira performed, has been chosen as a fitting subject for idustration on the shield. The drawings have been taken from Akbar's own copy of the Razmnamah or Persian version of the Mahabarata. The adventures depicted are extremely curious. The horse goes through several transformations, and visits very strange countries. In one of these the trees produced as fruit men, women and animals, who lived but a day. The inhabitants were monsters with blanket ears, in which they wrapped themselves at night. In Manipura the people were all virtuous: there were no liars, the men were all brave and the women submissive to their husbands. The exact position of this wonderful land is unfortunately not made known. The wonderful horse worked miracles when he appeared, and eventually he was sacrificed with due pomp, ascending to the heaven of Brahma and becoming a constellation. The subject should test to the full the skill of Ganga Baksh Khati, to whose hands the shield will be entrusted. Many months of patient labour will be required before the Mahabarata and Ashwameda shields can be placed alongside the Ramayana; but Jeypore will in the end possess three specimens of metal work in relief unrivalled throughout India. Dr. Hendley may well be congratulated on his successful efforts to foster indigenous talent, which in these days, if left to itself, would probably never have risen to any very high level.—*Pioneer.*

MASKELIYA (Theberton) 28th May.—Fearful rainfall so far since burst of monsoon which was on the night of 20th, as no wind on the 19th till a. m. 20th.

	Rainfall.			Rainfall	
19th ...	...	3·19 in.	26th...	...	2·58 in.
20th ...	...	5·00 „	27th...	...	2·74 „
21st ...	...	5·42 „			
22nd...	...	5·11 „	9 days	...	40·19 „
23rd..	...	4·84 „			
24th ...	...	4·77 „	Average for 9 days		4·465 „
25th ...	...	5·54 „			

Still raining heavily, not quite so bad as before. We have had violent squalls of wind with this rain since 1 a.m. of 20th. Total so far for May, viz., to 27th 57·52 in.—Not bad!

THE REPORT OF THE DIRECTORS OF THE DARJEELING COMPANY made up to Dec. 31st, 1890, shows that the quantity of tea manufactured in the season of 1890 amounted to 606,950 lb., being a considerable increase of 57,172 lb. over the crop of 1889, but the tea brokers have informed the directors that the usual high standard of quality was not maintained, and, consequently, the average price realised for the crop is only 1s 0·66d per lb., against 1s 2·10d per lb. for the crop of 1889, showing a decrease of 1·44d per lb., which, on the whole quantity disposed of, represents a deficiency of 3,573*l*. The proportion of teas of fine quality was unusually small during the past season, and high prices were realised for them. Out of the profit on the season's operations the following claims have to be provided for:—To commissions to staff, 843*l*; to income-tax, 222*l*; leaving a net profit of 6,266*l*, which is equivalent to 4*l* 12s 6d per cent. on the paid-up capitial of the company; and it is therefore proposed to transfer from the undivided profits the sum of 1,859*l* in order to provide a sufficient amount to enable the members to declare a dividend at the rate of 6 per cent. for the past year. So far the prospects for the season 1891 show an improvement over last up to the middle of April, but the quantity of tea manufactured up to that early period of the season has always fluctuated considerably.—*O. Mail.*

RESERVE FORESTS.—The grand reserves of forest still held by the Government between the upper reaches of the Bentota river and Sabaragamuwa or extending into that province, are not generally realised. In one block, about 8 to 10 miles from the river, there are 8,000 acres very fine reserve forest, with big timber trees. A great part of the Sinha Raja forest has suffered from chenaing in the days of old; but there are still 10,000 acres perhaps of fine heavy jungle, while the chenaed portions are many of them of a considerable age now.

BAMBOO CHARCOAL.—It is generally thought that bamboo being so light and small makes a bad fuel wood, and no one would think it of any value as fuel for forges; yet it is considered the best material for making charcoal for blacksmith work, and is in large demand all over Mysore. It is said to give off more heat than the best coke and to require less blast. A maund of bamboo charcoal fetches twice as much in the village-markets as the best charcoal. The method of charring bamboo is different to that used for harder woods—the stacks or kilns being carefully covered with green leaves and then plastered with wet clay. While the burning is going on care is taken to exclude air as much as possible without extinguishing the fire.—*Bangalore Spectator.*

WEST INDIAN CONCENTRATED LIME-JUICE.—Among the industries which might probably be established, or, rather, developed, within the limits of the empire, with a prospect of yielding a profitable return, the preparation of concentrated lime juice for the manufacture of citric acid deserves to be mentioned. England is still the country where citric-acid making is carried on most largely, and at present almost the whole of our supply of the raw material for its manufacture is obtained from Sicily. The concentrated-juice market in Messina is usually dominated by a gang of speculators, and it is to be feared that the actual producers of the article receive but scanty return for their labour. Indeed, it is asserted that when the price of juice falls below a figure not much lower than that at which it stands at present the juice-makers cannot get a living at their occupation. But these conditions, even if correctly stated, by no means preclude the possibility of successful cultivation elsewhere. The lime is as plentiful in the West India island as the lemon is in Sicily, and in the conditions of land-tenure, taxation, and labour, our colonies may possibly compare favourably with the Italian island. As a matter of fact, concentrated West Indian limes—the produce of Dominica—has for a good many years been placed on the markets in small lots and at irregular periods, so that it is questionable whether the possibility of providing a regular supply at a remunerative price has ever been figured out with any approach to precision, though it might very possibly be quite as deserving of consideration as many other suggested means of industrial advancement in the West Indies. It is doubtful whether the total amount of concentrated West Indian lime-juice received here amounts to as much as 100 pipes a year—not much more than the average Italian supply for one week. Moreover, the West Indian puncheon pipes are of 108 gallons capacity, whereas the Messinian pipes only contain about 50 gallons. The West Indian juice is very much stronger than the Italian, as the evaporation is carried so far that in fact, its high test is not altogether an advantage, as the juice not unfrequently becomes burnt. The usual strength of Italian juice is 64 oz. of citric acid per gallon, and the contracts under which it is sold do or exceeds 66 oz. The West Indian juice below contains 90 and occasionally even 100 oz. of citric acid per gallon. Hitherto the West Indian juice has been sold at a relative price generally running about 5 per cent below that paid for the Italian article; but it seems not at all improbable that with a more careful method of manufacture, it might not realise as much as or more than the latter.—*Chemist and Druggist* May 16th.

Correspondence.

To the Editor.

FOR CEYLON TEA PLANTERS.

London, E.C., May 1st.

DEAR SIR.—The enclo ed figures have only just been issued—too late for our circular. We therefore send them to you that you may publish them if you think fit.

MARKET drooped on Thursday. What a pity it is that planters cannot be induced to make larger breaks? This is a most important matter, and affects the market far more than can be understood. Many a buyer will purchase 500 chests of tea if in *seven* or *eight* lots and think nothing of it. Put the same quantity into *twenty* lots and he fancies he has bought an *awful* lot of tea; he has a long list instead of a short one and a crowd of samples instead of only a few—in addition to which the work entailed in selling the twenty lots is three or four times as great as in selling only six or seven. Cannot you use your powerful influence to help the Ceylon tea trade in this important matter?

QUALITY.—We are *very* sorry to note, in valuing teas for next Thursday's sale, a further falling-off.—We are, dear sir, yours faithfully,

GOW, WILSON & STANTON.

MONTHLY STATISTICS, APRIL 1891.

1st May 191.

Movements (in lb.) of Indian and Ceylon Tea during

	April 1891.		April 1890.	
	Indian	Ceylon	Indian	Ceylon
mports	2,381,283	5,941,264	4,214,772	3,403,832
Delivery	8,061,642	3,942,242	5,155,941	1,334,678
Stock	33,181,317	13,778,742	41,527,833	10,543,190

Movements (in lb.) of Indian and Ceylon Tea from

	1st June to 30th April 1891.		1st June 1889 to 30th April 1890.	
	Indian	Ceylon	Indian	Ceylon
Imports	99,6 6,182	42,225,800	100,598,280	30,179,152
Deliveries	93,924,654	38,037,432	86,675,840	26,927,080

KOLA AND ITS PREPARATIONS.

London E. C. May 1st.

SIR,—If the reports of the experiments made at Aldershot by Horace Manders, F R. C. S., have not already been published I think many of your readers would find them interesting.

This gentleman initiated the experiments for the Indian Government and after carefully examining all the different forms of kola in my warehouse selected a certain quantity of each form for trial, amongst others a certain quantity of the pure kola powder. As we cannot at present give you a full report of the experiments, suffice it to say that the kola powder surpassed all other forms in sustaining properties.

On Wednesday morning the experiment commenced and continued till the following Saturday night.

Each morning a teaspoonful of kola powder was taken in hot water and 1½ ounce dry rusk during the day. Mr. Manders found that he suffered no inconvenience whatever from hunger or thirst and he strongly recommends the use of kola on all expeditions, etc.

Owing to this series of experiments we have been enabled to decide that a teaspoonful of dry kola equal to ½ oz. is quito sufficient to take during 12 or even 24 hours. At the advice of Mr. Manders we prepared a kola wine and bitters: these he pronounced entirely satisfactory. We were fortunate enough to obtain the hearty co-operation of one of the largest wine merchants in London for the wine, and one of the largest distillers for the bitters; and further it was decided that it was best to supply the bitters so that they are ready for consumption without any mixing whatever. Having in this country every appliance for obtaining the fluid and solid extracts of kola we were enabled to make the very best preparation of biscuits in different form, but none of these gave very good results.

What is considered of very great importance is that if anyone is on an expedition they could put a pinch of this kola powder into the rice from a tin box, and as it has no appreciable flavor it would not be noticed, but would nevertheless impart its enormous sustaining power even perhaps to a greater extent than if partaken of as a watery infusion. I think this will show you that I have been on the right track in recommending the planting and introduction of kola wherever it is possible in our colonies.

Already we have had reports from Burma from some of the merchants and others who have been using it and who are more than satisfied with the results. Especially has this been the case in the hot weather as they have been enabled with kola to support the great heat in a way which has perfectly astonished them. No foreign Government or representative has ever had in Europe the success which has attended the experiments made by Mr. Manders. As we know that there have been experiments carried on in India we hope that you will be enabled to obtain possession of the particulars so as to put them side by side with the abbreviated report sent you.—Yours truly,

THOS. CHRISTY, F.L.S.

[We have to call attention to Mr. Christy's advertisement of kola preparations in another column.—ED. *T. A.*]

"SOAPSTONE" OR RATHER "RENSSELAERITE" IN CEYLON.

May 9th.

DEAR SIR,—I send you a small piece of "soapstone" found by a native correspondent in the lowcountry. It is the first time I have found any. Kindly let me have your opinion of its value (if any) and relative merits.—Yours truly,

EXPLORER.

Dear Sir,—Herewith I send you a piece of metal which is named by the natives of this place "nil garunda" and used for medicinal purposes as belly-ache, snake bites, &c.; but I considered it to be a metal which belongs to the marble kind found in Ceylon. If you think that you could possibly make any benefit out of it I shall thank you to let me know. It is found only in one place of this district in one of the Crown lands.—I am, sir, your obedient servant,

E. H.

[We referred the lump of yellow-looking stone to Mr. Geo. Armitage, who has just completed his examination and pronounces it to be a variety of talc called "Rensselaerite," much harder than the soapstone of commerce. The latter is used for a variety of purposes including gas burners, the lining of stoves, &c. The specimen s nt to us has a specific gravity of 2·63 and Mr. Armitage does not think it will be of commercial alue.—ED. *T. A.*]

MALE AND FEMALE COCONUT TREES.

SIR,—I have never seen any mention of the fact that some coconut trees appear to be capable only of producing male flowers and are consequently barren. These trees bear the ordinary small male flowers in quantities but the bracts are void of female florets. Another variety of coconut tree produces both male and what appear to be female flower, but these latter are defective and incapable of fertilization, and though they produce fruit, yet these last when opened are found to consist of only the outer husk or coir.

The above are facts which have come under my own observation, and I would be glad if I could get any explanation of them, or be informed by any of your numerous readers if there are any means whereby such a disastrous state of things could be obviated or avoided, and whether trees which have already been established could be grafted or otherwise made to produce fruit.—I am, &c.,

P. FOSTER HUGGINS,
Golden Vale, S. Vincent, West Indies.

[On this very interesting subject, Dr. Trimen, as well as such coconut planters as Messrs. Jardine Lamont, Beven and others may have something interesting to say.—ED. *T. A.*]

CEYLON TEA IN SWITZERLAND AND AUSTRIA.

Winterthur, May 13th.

DEAR SIR,—I am much obliged to you for the insertion of my name in the list of the supporters of the Ceylon Tea Industry. The sale of Ceylon tea in this country is increasing slowly, but steadily. There are now also other sellers of this tea, who probably buy it in London; but who very likely would never have touched it, if I had not made the beginning. In this way the Ceylon tea industry is benefitted also indirectly. I beg leave to ask you to add to the list of supporters of the Ceylon Tea Industry the name of my friend, Mr. W. Weiner, 7 Bezirk, 5, Mentergasse, Vienna, the capital of the Austro-Hungarian Monarchy, whose efforts made on behalf of Ceylon tea were acknowledged by the meeting of the Tea Fund Committee on April 10th last, to the minutes of which (under the heading Ceylon Tea in Switzerland) please refer.—I, am dear sir, yours truly.

CHARLES OSSWALD.

MALE AND FEMALE COCONUT TREES.

Veyangoda, May 15th.

DEAR SIR,—I am afraid I have nothing interesting to say in reply to Mr. Foster Huggins's enquiries. I have never come across a coconut tree producing male flowers exclusively. In very rare instances a tree is met with unable to mature its fruit. I believe the fact of the flowers producing fruit, even although they may never reach maturity, proves that the flowers cannot be male. Such trees I have always regarded as the result of defective seed. I am confirmed in this belief by Simmonds, who in his "Tropical Agriculture" says, "those nuts which may be taken from trees of immaturage will, if any plants are successfully reared from them, grow very rapidly, but the fruit will drop before the kernel acquires consistency."

I do not think it quite accurate to regard as a "variety" those trees that produce nuts consisting only of the outer husk. I have heard these nuts described by a genius, who was translating into English a nterial agreement from the vernacular, as still-born nuts! These trees too, I consider as a result of defective seed. If the tree that produces these undesirable nuts—if what is without nuts can be rightly called *coconuts*—have a strong, vigorous trunk and a good head of leaf, and in other words are worth preserving: a heavy dose of manure consisting mainly of bone dust will cure them of their bad habit. I have a very vigorous looking tree which produced nothing but husks. The appearance of the fruit betokened their emptiness. The same bunch had on it nuts of various sizes and apparently of various ages, and would, if seen by him, have confirmed the contention of a member of the Metropolitan Bar that nuts of various ages are invariably to be found on the same stalk! I came to the conclusion that the tree was wanting in stamina and gave it a very heavy dose of cattle manure, with bones and ashes: that was about a couple of years ago. I now find that the nuts the tree is producing seem to be filling out, and I have hopes that they will prove to be good ones. If it will interest you, I shall send you a stalk with nuts of seemingly various ages.

There are some trees that bear very heavily and the nuts are large and well filled out apparently, but which are minus the kernel, or in some instances have it of a dirty brown colour and covering only a portion of the shell. Water is absent from such nuts. Whether it was present during the earlier stages of growth, I had never an opportunity of finding out; but I suppose it was present in small quantity. These trees, too, can, I believe, be brought round by manuring with phosphatic manure. I have made a trial.

The cure I would recommend for a barren tree is to improve it off the face of the earth. Surely Mr. Huggins cannot be serious when he enquires "whether trees (coconut) that have already been established could be grafted?" Science will have to advance a good deal I think before such an operation becomes possible; the idea is quite Yankee.

During the seasons of the year that coconut trees bear heavy crops, empty or "still-born" nuts increase in number proportionately. This proves I think that they are the result of impaired vigor in the tree, for at such seasons the resources of the tree are taxed to the utmost to mature the large number of nuts they are carrying. Liberal cultivation lessens the number of empty nuts materially.

Perhaps the Superintendent of the School of Agriculture and his Assistants, some of whom claim to have been bred under the shade of the coconut tree, can contribute something interesting on the subject.

When a coconut tree commences bearing, the first few flower spathes thrown out contain abortive blossoms, these are called in Sinhalese *Boru mal* or false flowers. The length of time a tree continues to throw out these *Boru mal* is dependent on its vigor and affords a sure index of its bearing capabilities through life. Weakly trees continue to bear abortive blossoms for years running, and when they do bear it is only a few nuts per annum. It is best both for the appearance and value of a young property to courageousiv root these cumberers out and to replace them with 3 or 4 year plants; a supply of these is a necessity, they are better able to maintain the struggle for existence in a property where the roots of the trees cover the ground than a nursery plant. To attempt to get the bad trees to bear is an expensive and disheartening job: at the best they only repay what is spent on them.

B.

KUSH-KUSH YAMS.

DEAR SIR,—I am in a position to say kush-kush is an imported plant and I believe comes from the West Indies. Messrs. Whyte & Co. of Kandy deserve the thanks of the public for its introduction into this island. A friend of mine bought about 20 tubers originally from the above firm and first cultivated it on a leased land at Veyangoda, gradually extending its cultivation till he sold the yams delivered in Colombo to a good many of his acquaintances and public at R10 per cwt., at which rate it paid him. I was the means of getting this introduced into the Bentota district through the late Mr. Lewis Mendis, who got his tubers from Veyangoda. The proprietor of "Comilla" also obtained tubers from the same source and cultivated it a few years back extensively, and I am under the impression had Messrs. Auwardt & Co. as his agents selling it in Colombo.

Your correspondent "W. B. L." secured his tubers from "Comilla" a few years back, since which he has kept up its cultivation which as he says is rather expensive wanting a good prepared soil with plenty of manure. I also got another gentleman, an official, to cultivate it on his property at Hewagam Korale, but I am afraid this gentleman has given it up and has confined his attention only to coconuts and pepper, the latter of which he firmly believes in as paying handsomely. I remember sending a few specimens of the yam to your office and the then editor was pleased to say after trial that it was equal to or even superior to the best Jaffna. I say so as well unhesitatingly, and would strongly advise you to procure some specimens from your worthy correspondent "W. B. L." when you will endorse my opinion.

HORTICULTURIST.

OVER-PRODUCTION OF TEA.

SIR,—Referring to what H. E. the Governor said at the Dimbula breakfast, respecting over production being the chief danger tea planters need fear, would it not be well, before the danger comes too near, for *all* tea planters to combine and push their teas in countries where they are now little known, notably on the continent of Europe and in Australia?

It would greatly strengthen the hands of the "Ceylon Tea Fund" if *all* planters would join and give *37 cents* per 1,000 lb. of green leaf, which I am willing to do for as long as may be necessary if my brother planters will do the same.

Please give my name and address to any enquiring persons.—Yours truly,

PROPRIETOR.

OUR COCONUT SOILS.

DEAR SIR,—Not being a learned scientist myself, I am obliged to take such scraps of science as I need at second hand, but I am somewhat nice about the authorities I consult—applying only to such as have made a name and position in their own branch of investigation. When B. assumed that silica was deficient in certain coconut fields I applied to Professor Geikie, who gave me the following information :—More than one half of the earth's crust consists of silicate; it is an essential element in all igneous rocks, from which all sedimentary rocks and soils are ultimately derived; it is therefore not only abundant but everywhere present. In regard to the agricultural value of silica, the following sentence from a recently published article by Professor Johnstone disposes of that question :—

"Now silica and silicates are decidedly injurious to all vegetables doubtless, but in particular to agricultural plants, I say injurious; the time has gone past for considering silica an essential, a useful or even an innoxious accessory."

OLD PLANTER.

[We suppose it is our correspondent who quotes Professor Johnstone's dictum which certainly surprises us. One-half the crust of the earth composed of a substance which is noxious and only noxious to agricultural plants! "Cinnamon sand" is about 98 per cent silica, and yet the finest cinnamon in the world grows in such sand.—ED. *T. A.*]

CACKLING OF JUNGLE HENS.

Adampan, May 19th.

SIR,—*Re* cackling of jungle hens, I am afraid I am rather late, but yet, should you deem the following of any interest, they are at your disposal.

I have had the opportunity of observing or rather I made it a point of studying the manners and ways of wild animals in general, and the question now at issue has been one of them. I could say from my own knowledge that the jungle hens do not cackle after lying. They have four peculiar notes :—one when they fly alarmed, one when they feed with the cock in reply to call, one when calling the chickens, one warning the chicks: the latter three similar to the domestic hen but in a softer key. The jungle hens lay more than four eggs; I have taken as many as nine and I have seen a brood of eight chicks. I have never heard a jungle hen cackle and the cock replying in a similar key, as among the domestic fowls. The cock when singing out his "George Joyce" flaps his wings nearly like to his domestic cousin.—Yours truly,

K. DE HOEDT.

THE CHEMISTRY OF SOILS.

Veyangoda, May 19th.

DEAR SIR,—I cannot say with "Old Planter" that I am a "learned scientist," for I lay no pretensions to being a scientist at all, whether learned or unlearned. Like him the information I get on scientific subjects is from books; but I do not enjoy the same privileges as he in the choice of my authorities. My authorities are the ordinary text books that can be purchased at the book-store at the *Observer* Office. A very unpretentious book by Alfred Gibson gives precisely the same information on silica as Professor Geikie does. "Silica is the predominating constituent of most soils, rocks and minerals; it is the most abundant solid material of the earth." My old friend has put himself to the unnecessary trouble of consulting such authorities "as have made a name and position in their own branch of investigation," to refute a statement or allegation I did not make. It is the old game of fighting a man of straw and, of one's own creation. The statement which it is alleged I made occurs in the first of my letters on salt, where I say that I have heard the reason why coconut trees grown on sand cannot support their fruit bunches "may be owing to a deficiency of silica." A little thought would have satisfied "Old Planter" that I could not possibly refer to a deficiency of silica in the soil but in the composition of the tree, for I stated over and over again that one of the properties of salt is its ability *to render soluble* the silica in the soil, not to *supply* it to the soil. I hold to the belief that silica serves to toughen and stiffen vegetable tissues. Owing to the straw of wheat containing considerably over 50 per cent of silica, it was for long considered that that mineral was absolutely necessary in the soil for its growth and that it gave stiffness to the straw. Recent experiments at growing wheat on a soil devoid of silica have disproved this belief. Dr. Emil Wolf too conducted some experiments in the same direction, and his verdict was that though silica was not indispensable for plant growth, yet the absorption of silica greatly assisted the assimilation of other plant food, and that plants to which silica was supplied showed better development than those without it. Now I contend that I have high authority for the belief I hold. All engaged in agricultural pursuits have daily experience of the difference between the possibility of making a produce grow and growing it into a healthy and well developed specimen. The difference is that between the growing of a product at a loss and at a profit. Besides this to my thinking the experiments only went to prove that silica was not essential to the growth of wheat; they went no further.

And now I come to the second part of the letter of "Old Planter" where he quotes with approval the dictum of Professor Johnstone. I may remark *en passant* that I take it for granted that "Alexander Johnstone" is a Professor solely on "Old Planter's" authority, for though it may display my ignorance of the names of the shining lights of the scientific world, yet

I honestly say that of my own personal knowledge I do not know that he is a Professor. Not only must he be a Professor, but one who "has made a name and position in his own branch of investigation," or according to his own showing "Old Planter" would not have thought fit to parade his opinion. In the March number of the *Tropical Agriculturist* there appeared an article on "The Action of Lime on Clay Soils" signed "Alexander Johnstone," Edinburgh University, and extracted from *Nature*. In it I read with a great degree of astonishment the statement quoted by "Old Planter," and I mentally classed it with the startling and revolutionary theory of Mr. J. A. Reeves, that as it was against the laws of gravitation for water to ascend and it could rise only some thirty feet by capillary attraction, therefore it was impossible for sap to rise. He attributed to the roots the functions usually ascribed to leaves and *vice versa*. I regarded it as a bold bid for fame, more especially as he states in the opening sentences of his article that to the best of his belief "the scientific reason for the beneficial action arising from the application of quinine has not been at any time satisfactorily explained"! This in the face of all the "scientific reasons" given by learned chemists down to very recent times. To supply this omission, he offers "an explanation, or rather theory, which, to my, doubtless, somewhat partial mind, seems to go a considerable way towards the elucidation of the problem." It will be observed that what he advances is only a "theory," which *seems* to go a considerable way to his *partial* mind towards &c. And yet this is what "Old Planter" triumphantly puts forward. Professor Johnstone goes very much further than those whose experiments only went to prove that silica was not essential to plant growth. He avers that it is "decidedly injurious," particularly to agricultural plants. And yet it abounds in the earth, from which I suppose people yet believe, in spite of Mr. Reeves, that plants mainly draw their sustenance, to the extent of more than a half of its composition. I suppose it will be conceded without demur that the earth was mainly created for the growth and support of vegetation. Can we reconcile with our belief of an all-wise Creator the composition of the earth with a substance which is its predominating constituent and which is yet "decidedly injurious" to all vegetation? If it were an injurious plant food, plants would avoid it, but what do we actually find? "The wheat plant is always found to contain a large proportion of silica, although it may have been raised on a lime soil." Is it not against the laws of nature to find a plant deliberately choosing what is "decidedly injurious" to it?

What to my lay mind is a weak argument that Professor Johnstone adduces in support of his theory, is the fact that silica is to be found generally in the external tissues of plants: this he regards as the attempts of vegetation "to get rid of it as speedily as possible—that is to get it out of the way of its general circulation." To my mind these external incrustations of silica both on grain and in the outside tissues of plants and trees prove that they are intended by nature to serve a very useful purpose. They act as a shield to them against injury and insect attacks. In the case of paddy we know that till the outside covering of the grain is hardened they are liable to be punctured or sucked dry by bugs. In the case of coconut trees, the hard outer-covering of the stem is that which protects them from the attacks of red beetle. So with other trees.

Believing as I do, what Dr. Wolff's experiments prove that silica helps in the assimilation of other plant food, and that its presence in a soil helps to the better development of vegetation, I must be pardoned for holding tenaciously to the belief that salt by helping towards the solution of plant food in the soil, including silica, will help coconut trees in time to overcome the bad habit of not being able to support unaided their fruit bunches.

It may be superfluous to add that I have discussed this question entirely from the point of view of a layman. B.

[Iron has long been undervalued as a mineral possessed of fertilizing properties. It is so undervalued no longer, at any rate by tea planters in Ceylon. Soils largely ferruginous suit this plant admirably, while the virtues of iron slag as a manure are now loudly proclaimed. Silica, too may have virtues not dreamed of in our philosophy. In any case we cannot bring ourselves to believe that the most prevalent of all minerals is injurious to agricultural plants.—ED. *T. A.*]

TEA STATISTICS AND PROSPECTS.

Colombo, May 20th.

SIR,—In 1868 the export of tea

from China by sea was	164,000,000 lb.
do by land	14,000,000 ,,
The export from Japan, India &c, say	12,000,000 ,,
	190,000,000 lb.
Gow, Wilson & Stanton's "Tea Consumption" make the World's annual average consumption of tea for the 5 years 1885 to 1889	393,000,000 ,,
Increase	203,000,000 lb.

Taking the average of 1885 to 1889 to be equal to the consumption of 1887, the increase in 19 years, as we may suppose the export for 1868 to equal the consumption of that year, is at the rate of 10 684,210 lb.

The export from Ceylon for the present year to 18th May (5½ months) is 9,694,025 lb. in excess of the export to same date last year, so we seem to be going ahead too fast. The falling-off in exports from China may be balanced by increase from India and Java.—Yours truly, NEMO.

PLANTING STATISTICS.

C. P., May 21st.

SIR,—Up to what date were the figures for cultivation on estates given in your last Directory? Am I not right in saying they are now about a year old and that the area under tea must be a good deal larger now?—Yours truly,

TEA PLANTER.

[Our Planting Statistics in last "Handbook and Directory" were made up as to 30th June 1890. No doubt there has been a considerable increase in planted area since and, notwithstanding the risk of over-production, we suppose a good many clearings are to be planted during the present monsoon season. We are arranging for a fresh compilation in a smaller volume, of which more anon.—ED. *T. A.*]

AN ENEMY OF THE COCOUNT.

May 26th.

SIR,—Under separate cover I try to send you two beetles, the larvæ of which are called by the Sinhalese *kanda panuwa* and which are responsible for an immense amount of damage in young coconut plantations. Will you kindly give their scientific name, for which I have searched through your publication "All About Coconuts," but without success. COCONUT PLANTER.

[We cannot find the scientific name of this very common weevil: perhaps some reader can supply it.—ED. *T. A.*]

LABOUR SUPPLY FUND.

Gammadua, May 28th.

DEAR SIR,—The present time is not precisely similar to the past, inasmuch as in the past (the old coffee days) the labour supply was required

at a certain period of the year, for crop chiefly, and when pruning was finished, only a few coolies were required to keep the estates in order during the rest of the year.

Now it is necessary to have a good force of labour all the year, as the system of tea cultivation, now generally adopted, is to divide the work as much as possible over the whole year. Instead of pruning the whole of the tea on an estate in one or two months, a pruning force is kept employed quarterly, thus the larger portion of the estate is always in bearing, and the coolies fully employed at all seasons.

With a Labour Fund Committee and its Secretary in Kandy, an estate manager in want of labour would forward his cheque to the Secretary to cover the advances required to procure and forward to him a certian number of coolies by a given date, say within a month. The Secretary acknowledges the cheque and wires to the Agent of the Committee in India by code the requirement, and follows up the message by letter. The agent draws on the Secretary for the amount required to procure the coolies and through his sub-agencies arranges to despatch the coolies on a certain date, which he communicates by wire to the Secretary, who advises the applicant for the labor, to send a trustworthy person to meet the coolies. Now, in 1891, we have far more facilities for successfully carrying on such an agency than had our predecessors. The difficulties of the past need not deter the planters of the present from making an Agency a great success. I crave permission to further remark, that experience has told most of us, that advances actually sent to the coast are frequently misapplied, the labor we expected and should have got could not be brought for want of the further sum the kanganies wrote for and master did not send.

Coolies may be plentiful and willing to come, but for some reason or other they don't come, and year after year the cry is for labor, and whole fields of fine tea have frequently been allowed to run to wood for want of the necessary labor to pluck them. It is our duty to seriously consider, whether an active Agency or an Intelligence Committee is most required to meet the urgency of the increasing labor requirements.

I believe that under a Labor Supply Fund Committee it will be possible to keep an adequate force for all requirements at less expense to proprietors, and without friction which so frequently arises amongst managers about their labor supply.—Yours faithfully, JAMES WESTLAND.

[Mr. Westland will be disappointed with our remarks of yesterday; but they contain our honest opinion. Mr. Westland seems to think that coolies would flock to a Coast Agency and its sub-branches in such numbers that there would never be any difficulty in meeting any planter's order. But suppose there were six (indeed, according to the picture of planters' needs, there might be sixty) telegrams in, ordering 300 coolies and only 100 available, or willing to move, how is the agent to act? Mr. Westland is nearer the mark in our opinion when he speaks of an "Intelligence Sub-Committee" to open up correspondence with Indian officials, or to send one of their number over to interview Collectors and Sub-Collectors of the cooly districts and to see how the labour needs of Ceylon can best be made known and supplied.—But if it be true that from want of labour, many fields of tea in Ceylon are not now plucked properly or fully, where is overproduction and export of tea to end? In place of 60 million lb. this year, perhaps Mr. Westland would say we might ship 65 or even 70 million lb. with more labour? —ED. *T. A.*]

THE SILICA DISCUSSION.

SIR,—When I penned a note (whichby the way, has not yet appeared in print) for an agricultural publication a day or two ago, on the reply which Professor Geikie sent to a scientific enquirer after truth in Ceylon, I was not aware, as is evidenced by the letter of a correspondent to last Saturday's (May 23rd) issue of your paper, that the Professor Johnstone referred to by Professor Geikie was Alexander Johnstone, late of the Edinburgh University I presume that the Professor Geikie to whom reference was made on the Silica question is James Geikie, Professor of Geology and Mineralogy at the Edinburgh University, and not Archibald Geikie, the predecessor of his brother, and for that reason still sometimes spoken of as Professor, though he vacated the University chair for a high appointment in connection with Her Majesty's Geological Survey. If this be so, then both Professor Geikie and Professor Johnstone are both "old friends" of mine. I sat at the feet of the former only some three years ago, and in the course of many a pleasant geological excursion found in him a kind teacher as well as a most entertaining companion. At this time Alexander Johnstone was class assistant to Professor Geikie, a "night coach" in botany, and a fellow-student of mine in agriculture. I knew him well both in and out of the University; and as I had the highest regard for him then, I have the kindest recollections of him now. I am under an impression, which I sincerely hope is incorrect, that it was in the columns of your own paper—or one of your supplements—that I read of his death a short while ago. Alexander Johnstone was well up in his geologyand a splendid coach in botany; but while would accept any opinion of his on these subjects, I am hardly prepared to stand by his original ideas on agriculture. Johnstone's intention was to go up for the agricultural degree at the University. Whether he did so, and whether he has started as a teacher or professor of agriculture and the allied sciences in Edinburgh or elsewhere; or whether he has got a chair of botany or geology in some University or College, I never heard. My observations on the statement attributed to him have, as I have before mentioned, been noted elsewhere, and I will not therefore repeat myself in your columns.

It seems quite natural that Professor Geikie, who does not venture on an opinion as to the agricultural value of silica, should think of quoting his quondam class assistant's opinion before that of any other.

Without intending the slightest disrespect for my "old friends" (including "Old Planter"), I cannot help thinking that neither the choice of a professor of geology as a referee on the question at issue, nor that of the opinion of his late class-assistant —in preference to those of the shining lights in the agricultural world—by the Professor himself, has been a happy one.

It is very important that those who take sides in a scientific discussion, though they be only "laymen," should confine themselves strictly to scientific reasoning. Now when a correspondent, writing on the subject of the value of silica in agriculture, attempts to adduce arguments as to the importance of this common constituent of soils by making such statements as the following, he (however conscientious he may be) becomes both unscientific and illogical. Your correspondent "B." in Saturday's (May 23rd) issue says:— "I supposeit will be conceded without demur that the earth was mainly created for the growth and support of vegetation. Can we reconcile with our belief of an all-wise Creator the composition of the earth

with a substance which is its predominating constituent and which is yet 'decidedly injurious' to all vegetation?" I am afraid there will be a good many ready to demur that the earth was *mainly created* for the growth and support of *vegetation.* This is indeed as revolutionary a theory as that of Mr. Reeves! The appeal in the second sentence is modelled after the hackneyed atheistic argument, against the existence of a God, who, if He be the possessor of every attribute of goodness, cannot, it is said, consistently allow evil (and other things "decidedly injurious") to exist in the world. The use of the argument (absurd in itself) to prove the value of silica is as novel as it is ridiculous!

We are asked, "Is it not against the laws of nature to find a plant *deliberately* choosing what is 'decidedly injurious' to it?" Very possibly against the "laws of nature," still those that can *deliberate* a good deal more than plants do choose what is "decidedly injurious" to them. The fact is that plants may and often do take in substances present in the soil, but utterly useless in the plant economy, but the demand for these useless substances is limited as the result of the action of the law of diffusion of liquids—the socalled "selective power" of plants. The excretion of silica (or other substance) on the outer tissues of the plants is generally considered to be a means of "getting rid," as Professor Johnstone puts it, of it *from the growing parts of the plant,* where, though it may have at one time performed useful functions, it is no longer required, since it does not enter into the constitution of plant tissue. I admit that Professor Johnstone's statement of this fact is rather crudely put.

I may say in passing that the value of "iron" as a commercial ingredient of agricultural soils depends altogether on the particular compound of iron that is present,* while the virtues of iron slag are mainly if not solely referable to the compounds of phosphorus present in it.—I am, &c,

D.

SALT FOR COCONUTS.

DEAR SIR,—In his enthusiastic advocacy of salt "B." has credited it with so many virtues, that if we accept his authority (and he names no other) mankind have been, through all the ages, neglecting the most valuable and important of all agricultural agents; that which dissolves minerals, and sets free plant food previously shut up in insoluble compounds; that mechanically ameliorates the soil to the extent of rendering tillage superfluous; that absorbs water and holds it available for the use of plants when all around is dry; and that destroys coarse and useless vegetation while highly beneficial to delicate and useful plants.

It has been proved beyond question, that, with whatever substance salt may be mixed, it can be eliminated without loss, and without chemical change on the other ingredients of the blend: it may therefore be fairly inferred, that salt has no chemical effect on soils whatever. Rain water effects a temporary mechanical change in soil, and there is no reason to believe, that salt water will have a different or more peramnent effect. Salt absorbs moisture from either earth or air, but it again surrenders its moisture to dry air or hot sun in common with the other ingredients of the soil and to the depth to which sun and air penetrate. For complete liquefaction, salt absorbs three times its own weight of water, when it follows the law, by which liquids sink by their own gravity through a porous medium. If an inch deep of salt be laid on a given surface, and let the soil under it be kept saturated with water for a month, the probability is, that not a trace of salt will remain within some feet of the surface. It has been known from time immemorial, that salt is destructive to most kinds of terrestrial vegetation, but it has probably never before been credited with the quality of discrimination between the noxious and the useful.

That an excess of salt beyond its organic requirements is essential to the vigor and fruitfulness of the coconut has been so often asserted, and "B." has laboured so hard to prove it, that it is generally accepted as an established fact, but that is still open to question. The coconut trees on sea sand do little honour to their unfailing supply of salt, by the crops they yield; indeed, in this respect, they do not excel those that grow on hard gravel, and steep inclines far inland. The strength and fruitfulness of the trees growing in the Cinnamon Garden compounds may be readily accounted for, on other grounds than their exposure to salt bearing breezes. Besides, those are not the champion trees of the Island, which must be sought on alluvial fleets on the banks of occasionally overflowing rivers, where some of the trees yield up to 400 nuts per annum, and there are other inland spots, where the trees will hold their own, in comparison with the Cinnamon Gardens.

It is true that much of the inland undulating uplands are not all that could be desired for coconu cultivation, but there are ways of improving them without having recourse to salt; salt cannot give moisture to the soil in a three months' drought; salt cannot pulverize a compact soil; and salt is no substitute for nitrates, phosphates and organic matter.—Yours truly, COCONUT PLANTER.

* This, of course: for iron in a certain condition is undoubtedly a cause of sterility in the Ceylon patanas.—ED. *T. A.*

FLOUR FROM JAK SEEDS?

Colombo, May 30th.

SIR,—Has it struck anyone to utilize the seed of the jak fruit for the preparation of flour? The only question to decide is whether it would be a wholesome diet. There is no reason why it should not form a nutritious food: it will certainly be a cheap one, considering the large quantity of seed that is allowed to run to waste. The seeds are of course eaten roasted to some extent by the natives, and even ground to a flour for immediate use in the preparation of a sort of cake, after mixing with jaggery. If it prove to be a wholesome food and capable of being made into a flour that will keep, why shouldn't a new industry be started? The seeds might at least be exported.

I should like to know whether the idea has struck anyone before, and whether anyone has tried the experiment of flour-making?—I am, yours, &c., A.

[The first question to settle is,—"Are the seeds ever separated in any appreciable quantity from the other portions of the fruits?" What we see in the markets are sections of the complete fruits, with the farinaceous seeds embedded in the mucilaginous and saccharine substance in which they are formed, and we are not aware that in cooking the fruits in curries, or otherwise, the seeds are ever rejected? We should, indeed, be greatly surprised to hear that they are. But if our observation has been at fault and a supply of seeds for grinding into flour is really available, the experiment suggested ought certainly to be tried.—ED. *T. A.*]

HOW TO RECRUIT COOLIES.

Kalutara, May 30th.

DEAR SIR,—Why not go in for the Assam system? A kangani is sent to his country with only enough money to take him there. On his getting coolies together, he is empowered to apply to an agent (a worthy native merchant) and they give him *not money* but rail or boat tickets to their destination for the coolies *produced.*

Therefore there is no opportunity for the kangani to use the money for any other purpose than bringing coolies.—Yours truly, A. A.

SIROCCOS AS WITHERING MACHINES IMPORTANT.

June 1st.

DEAR SIR,—If "Proprietor (who has no connexion with any engineering business)" will read the following directions and adhere to them he need never have more than two days' leaf in store in any weather :—

A Sirocco is almost a perfect withering machine. Pass any leaf that has no water actually on it through the trays in the usual manner at a temperature of 170° to 180°—not more—loading the trays as full as they will go in, and as rapidly as a man can fill them. Throw the contents of each tray as it comes out into an ordinary carrying basket, pressing the leaf down well with the hand. After the basket is full, which will take about 7 minutes, let it stand about 10 minutes to 15 minutes according to the condition of the leaf. Then take the leaf to the roller, beginning of course with the first basket—and roll without any pressure for half-an-hour. At the end of that time take the leaf out of the roller and return it to the baskets, pressing it down as before with the hand. Let it stand half-an-hour, (whilst a second roll of leaf similarly prepared is being rolled after which place it again in the roller and give it another 40 minutes, using pressure towards the end. Then lift and fire immediately, the fine leaf of course first. The "roll" will be found quite sufficiently fermented and as soft as silk, and will give a bright infusion and a slightly pale but pungent and flavoury liquor.

The sirocco I use for withering is one of the old 8. trays. In two rows in siroccos with four rows of trays. Only the two lower rows should be used and the leaf passed through and back again so as not to be too long exposed to the heat. I put 315 lb. of leaf, weighed before heating, into a 32" "Rapid" and 105 lb into a "Kinmond."

I may add that I have been withering from 4,000 to 5,000 lb. of leaf a day for the last ten days in the above manner, and the annexed copy of the London brokers' report on a shipment of Tea similarly treated last year will show that the quality of the tea so made is satisfactory.—Yours faithfully, M. H. T.

Sold 23rd September 1890:—	s.	d.
21 Chests Pek. Sou. Ra: coarse mixed sold at		10
21 „ Pek. Bold in: ra: mixed	1	0
10 Hf. Chests Or. Pek. Bold wiry with tip ...	1	2
12 Chests Bro. Pek. good style with tip ...	1	5½

Good infused leaf ra: strong liquor with fair flavour

THE "BRITANNIA" DRIER.

Labookellie, June 3rd.

DEAR SIR,—It will doubtless be of interest to many of your readers who may be unable to make a personal inspection of this machine which has been at work here since 21st ultimo, if I supply a few details as to its capabilities. With this object in view I do not think I can do better than quote the results of a trial I made of the machine yesterday, when, at a temperature of 205 to 210 degrees, and passing the leaf through twice, the drier gave 302 lb. dry tea in the hour. The day was a fairly fine one, and such satisfactory returns could not be obtained in very wet weather, but there is no doubt that the drying capacity of the "Britannia" at low temperature, is far in advance of any machine we have yet had to deal with. The quantity of leaf dried by the "Britannia" is due mainly to the fact that the fan is a very powerful one, drawing a large quantity of air from an improved form of stove through the leaf, and that the trays are carried on *one* endless chain, as against the several separate endless chains in the "Victoria" thus presenting a greatly increased surface of leaf to the action of the air. In the "Victoria," half the chains are always carrying empty trays; in the "Britannia" the trays containing the leaf go right through the machine without tipping until they come to the discharge hopper. As regards fuel the "Britannia" is more economical than the "Victoria" and is more easily worked by the coolies, while less liable to get out of order.—Your faithfully, A. F. CORRIE.

DIGGING AND MANURING COCONUTS.

June 6th.

DEAR SIR,—The communication on the wonderful effect on coconut plants of digging the soil is very interesting. May I ask your correspondent to give us some information as to the situation of the land that was dug, the composition of the soil, whether the land was dug in connection with garden cultivation or independent of it, and whether a satisfactory results follow digging the soil higher up a slope as at its bottom where all the wash and ashes have been deposited by rains?

A strange fatality seems to follow my agricultural operations. My ill-success with paddy I recorded lately. In 1889-90 I forked the soil round the plants of 120 acres of young plantations, with 12 pruning forks, and gave each plant a bushel of ashes besides, but the results were nothing like what your correspondent records.—Truly yours, B.

JAK SEED FLOUR.

SIR,—Whilst I was amusing myself in reading your valuable journal of the 3rd instant, my attention was very much drawn towards an article heading "Flour from Jak Seed." Having read throughout, I am glad to take this opportunity of giving the little experience I have had of the above question, for the information of your earnest and prospective correspondent. If I remember rightly my first trial of making jak seed flour was about five years ago, since then I took no interest whatever. The method is simple enough, similar to that of arrowroot flour making. The only additional work is to put the seed (not dried) after peeling into well boiled water, and leave it for a short time, and proceed according to the manner in which arrowroot is prepared, which I needn't repeat to your worthy correspondent. When the seed is being pounded, it gives a jarring smell enough to make one feel quite disgusted to get on with the work. I managed to make about a half-a-pound of flour, out of which some biscuits were prepared, with an admixture of sugar, eggs, and milk and a little table-salt to avoid any indigestion taking places, the biscuits were palatable and nice, they were very soft, and broken easily, perhaps owing to some defects in the preparation. With regards its nutritious qualities I am not in a position to atone for, but so far I had nothing to complain of after my eating it. Anyhow it will not be advisable for any one, who has any sort of windy complaints, to eat this stuff, which is so welknown to be windy.—I am, yours, JAKSEED.

MATTERS AGRICULTURAL.

Veyangoda, June 6th.

DEAR SIR,—Little surprise will be felt when I say that I was *hors de combat* ever since I saw your impression of the 29th ult. in which two adverse letters and an overgrown footnote were levelled at me. I shall, with your permission, notice both the letters in one communication, as they are both the outcome of my letter on Salt. But for a blunder of "Old Planter" or your own proof-reader in omitting two inverted commas, the reading public would have been deprived of a very interesting bit of autobiography from the pen of "D." I should have thought that so subtle an intellect as "D.'s" would have detected the omission, and that he would have seen that it was "Old Planter" and not Professor Geikie who was quoting Professor Johnstone. I made this very evident in my communication and indicated where Pro-

fessor Johnstone's paper was to be found. "D." demurs to what I anticipated few will demur, that the earth was mainly created for the support of vegetation. He does not tell us what his belief is. I thought it a superfluity to "add, for the use of man and beast," as that is within our daily experience; will that also be demurred too? People are *so* hypercritical! My idea was not original but borrowed from Holy Writ. In the account of the creation we read that immediately after the earth was created it was ordered that it be clothed with vegetation (Gen. 1 chap. 11 verse.) and in the 29th and 30th verses that after the creation of man and beast, that God gave them the produce of the earth for their sustenance. But "D." may be one of those learned scientists who cannot reconcile the account of the creation with the "Ologies" in which they are so deeply versed. If "D." had shown less alacrity to jump at unwarrantable conclusions and had been less lavish in the use of epithets, it would not have detracted from his reputation nor have drawn on his own head the epithets levelled at mine. It is both "absurd" and "ridiculous," but not "novel," for "D." to say that to prove the value of silica, I said I could not reconcile with my belief in an all-wise Creator the composition of the earth with a mineral "decidedly injurious" to vegetation. I said so to refute the theory of his own Professor. I think that even "D." and "Old Planter" will admit that Mr. John Hughes, the chemist, though not a shining light perhaps, is not unknown to the scientific world. He is likely to be abreast of scientific experiments and would not have been ignorant of those conducted to test whether silica were indispensable for the growth of grass; yet this is what he wrote in November 1887, on rice soils:—"The most essential thing in the soil itself is that it should be in a state of minute subdivision so as to supply an abundant source of soluble silica which is so necessary in the formation and successful growth of the straw, and without which it would be quite useless to expect to obtain a good crop. * * * The best crops of wheat are produced on soils which contain plenty of available silica." The foregoing to show that I have authority for my belief that silica is useful and not "decidedly injurious" to vegetation.

"Coconut Planter's" letter is noteworthy for containing misrepresentations from beginning to end, and for an amusing display of ignorance of the subject of his criticism. He is too honorable a man for me to believe that his misrepresentations are wilful. The alternative is that they are due to a lamentable carelessness to inform himself correctly of the views of him whom he criticizes.

Not being a chemist and not being able to conduct experiments personally, in enumerating the virtues of salt I gave not my own opinion but those of persons competent to express an opinion. If "Coconut Planter" had but taken the trouble to wade through his volumes of the *Tropical Agriculturist* and consult any other book on agriculture in his possession, he would not have said that I sing the virtues of salt on my sole authority If he carefully reads his copy of the *Agriculturist*, he would have found in the February No. that mankind have *not* "through all the ages been neglecting the most valuable and important of all agricultural agents."

In enumerating the virtues of salt,—the first para of his letter, he professes to quote me, but in reality misquotes me. Salt does *not* render tillage superfluous, it does *not* destroy coarse vegetation while at the same time being beneficial to delicate and useful plants. If applied in large quantities it destroys vegetation whether coarse or delicate. Coarse vegetation generally indicates a sour soil; salt is said to sweeten it and help towards the growth of good, sweet herbage.

To say that because salt can be purified though mixed with any substance, therefore it can exert no chemical influence on the soil, is to go counter to the opinion of those who are higher authorities on questions of agricultural Chemistry than "Coconut Planter." There is nothing singular in the fact that the moisture salt absorbs is surrendered to hot sun or dry air. No one to my knowledge credited salt with the quality of discrimination between noxious and useful vegetation. Coconut trees on the sea-shore were *not* instanced as being very fruitful owing to receiving an unfailing supply of salt. The fruitfulness of the coconut trees in the cinnamon gardens was *not* attributed solely to salt breezes. They were *not* instanced as champion trees. I too am acquainted with spots inland where for fruitfulness coconut trees will compare favorably with those in the Cinnamon Gardens; but I will hardly call the spot "Coconut Planter" resides on "inland." It was *not* asserted that the only way to improve coconut properties inland was by the application of salt, nor that it can supply moisture to them during a 'three months' drought, nor finally that it is a substitute for nitrates, phosphates and organic matter. My friend—I call him also friend in spite of "D."—could not have been in his usual mood when he penned the letter, which does so little credit to his character for preciseness. Can it be that he was temporarily under the influence of the "divine afflatus" and became consequently highly imaginative? B.

DRIERS AS WITHERERS.

Central Province, June 8th.

DEAR SIR,—As regards the use of a sirocco as a witherer, I see not the slightest objection to using any of the drying or firing machines as witherers, if it can be satisfactorily proved that the made tea loses nothing in value. I long ago suggested in the *Observer* the use of the desiccator or any other drying machine as witherers. At that time, I had not an opportunity of carrying out my own suggestion. Since then, and more than two years ago, I proved to my own satisfaction that the leaf passed quickly through the desiccator came out to all appearance well withered, but I was unwilling to risk any quantity as I am not much of an expert in tea tasting and I was afraid I might spoil a break. Were I pressed for space I would have no hesitation now in passing half withered leaf through the desiccator.—Yours truly, P. P.

A TEA ROLLER CASE.—Yesterday (1st) Messrs. Julius and Creasy on behalf of Mr. Wm. Jackson of Aberdeen, who is at present in Ceylon, tendered a libel in the District Court of Colombo against Mr. Alfred Brown and the Colombo Commercial Company, praying for an inquestration to restrain the defendants from importing manufacturing or selling Tea Rollers which the plaintiff claims infringe his patent.—Local "Independent."

GOLDEN TIPS.—We stated recently that the prices obtained for special parcels of Ceylon tea in London had led to a sort of "golden tips" competition upcountry, and we are assured that some parcels of tea are going home now that will make the Gartmore prices sink into insignificance. The new Ceylon product threatens to be turned out in such quantities that every grocer in the United Kingdom will be able to have a sample of Ceylon golden tips in his window, purchased for a fabulous price, for advertising purposes. Our Indian friends meanwhile are getting rather restive at this method of booming Ceylon tea. We quoted recently the ill-conditioned snarl of a correspondent to the *Madras Times*, and now we see that the *Calcutta Englishman* pooh-poohs the whole thing in the following disparaging terms:—"The nominal or friendly sale of a single pound of tea at £17 or £25, or even £200, is not a matter of any practical importance. We doubt very much whether in will do any good even as an advertisement. But Indian growers may content themselves with the reflection that they also will share whatever advantage may come of these so-called sales, for Ceylon is thus advertising her own and Indian tea at the same time. India has decidedly the best of it, being under no necessity of sacrificing a crop for the sake of a fancy quotation." This is certainly consoling for Indian planters.—Local "Times."

HINTS FOR A YOUNG NEWLY ARRIVED PLANTING ASSISTANT.

(*By an old planter.*)

IN COLOMBO.

My dear Blank,—Welcome to Ceylon. May your career here be most successful and all you hope for realized!

As much depends on the start you make in life, we may adjourn to the verandah and have a chat in a long arm chair.

What will you have to drink? You will find Colombo a very thirsty place.

I'll have a lemonade, thank you?

What, nothing stronger?

No thanks, I have thoroughly enjoyed the voyage and have tasted nothing stronger and mean to try and see how I can get on without stimulants.

Boy, bring two lemonades, don't spoil them by putting ice in the tumblers.—Have you been calling on anyone yet? No, but I have several letters of introduction, one to Mr. John Ferguson: he is the Editor of the *Observer*.

I am glad to hear you have a letter to him, he is just the person to give you hints as to how to get upcountry and all about everything that concerns Ceylon, You can call on him after you finish your drink. His office is only a short distance from the G. O. H.

TRAVELLING.

I hear you are bound for the hill country. Lucky fellow! but take care that the cooly sent to meet you to show you the way and carry your box containing a change of clothing keeps within sight: not that he will steal your box, but by your keeping together until your destination is reached, you have a change of clothing at hand which you may stand greatly in need of, as the weather is, at certain seasons, very treacherous. It may look clear and charming for a 10 or 15 miles' ride or walk when you leave the station; but before you have gone far it may pour as you have never seen it do in the old country. Even if it does not rain a change of clothing after your bath and you feel like a new man.

ON THE PLANTATION.

You will find everything very strange at first: the estate won't be like what you have pictured to yourself, unless you have seen a photograph of it; for all estates are not alike and even a photo does not give one an idea of the grandeur of the rocks and mountains, and the charming effect of the pretty little bungalows and the large factories on the tea estates. Everything will be new, the very air you breathe is different, new faces, language, work, whole sorroundings all different from what you expected. If you mean to work, and get on here, you will have to get up early, say about 5-30, have tea or coffee, and make as good a meal as you can, as you have the heaviest part of the day's work to do before you get breakfast. The first duty after early tea is to take "muster," which may be either near or a little way off from the bungalow; but is generally taken in the most convenient situation for the coolies being sent to work.

The usual way of taking what is called muster, is to have all the coolies standing in a sort of semi-circle, double file, according to their gangs. The assistant with pocket checkroll or muster book in hand proceeds to the first gang on his left hand, and glancing along the line of coolies of that gang puts down the number in the gang to that kangani in his muster roll. On to the next lot, and enters them, and so on, till the total number of the gangs have been entered. This done the coolies are again arranged in double file, the able-bodied men taking one place, the best plucking women in another, the best half-grown boys by themselves, children and old women with infants fill up the balance. From these you select the material to carry on the various field works of the day. A little experience will teach you whom to select for the particular works. When muster is finished, and all gone off to work give the coolies five (5) minutes start of you before you follow.

The first morning after your arrival be ready to accompany your P. D. (as the manager is called) should he be able to escort you to the different works going on, and listen carefully to what he tells you. If you cannot trust your memory, make notes after breakfast in your own room of the conversation so far as you can remember. You will find them useful to you in after life.

When left to yourself amongst the coolies, go quietly from one to the other, watching each one how the work is done. In a very short time you will be able to distinguish the good working coolies and learn by watching them, how the work should be done. Certain works such as plucking and pruning you will, with a little practice and under the guidance of your P. D., soon acquire a practical knowledge of, and be able to teach the careless and ignorant amongst them. To do so, you will feel your own ignorance of the language and be anxious to speak it forthwith. It is wonderful how one can get along with a little Tamil, but to be able to get on well with coolies you must get over the bashful feeling of making mistakes in using Tamil when looking after work. Watch when the kangani or overseer gives an order to a cooly, and note down the words in a small note-book and ask your P. D. or the conductor (if there is one on the estate who knows English) the equivalent in English. Every day note down a few Tamil words and their meaning alongside. Commit to memory the Tamil numbers and the days of the week, and invest in a small book called "Inge Va" to be had at the *Observer* Office. A very useful little work for assisting beginners. If you find a cooly very obstinate or stupid at doing as you want him, don't strike him, but show him as you would a child how to do what you want. Remember that you really don't know his language and you may fail in teaching, being unable to express yourself properly. If he is beyond your power of teaching hand him over to a kangani: he may be more successful, but your own efforts at teaching are frequently attended with more success then the kangani's. Try your best to get the work out of your coolies without having to punish them by giving half name or marking them "sick," as "no name" is called.*

An assistant who looks after his coolies well, very rarely has to mark them sick or even half name, unless under very exceptional circumstances.

ESTATE BOOKS.

Work quietly, allow no loud talking amongst your field workers, the only loud tone of voice heard is that of the kangani or conductor, reminding the coolies to do something they are apt to forget, or not to do something he may have just discovered has been done amiss. Your duty will be to keep what is called a Pocket Check-roll for enrolling the names of those at work and from it daily enter all the names into what is called the large or office check-roll. It is an easy task balancing the labor journal and check-roll immediately after work, but becomes a very difficult one if left for a day or two, and there are other objections to postponing making up the check-roll till "the morrow."

In addition to your labour journal which shows the labour distribution of the day, you ought to keep for your own edification, if not asked for by your P. D., a Field Journal. The book should be ruled, but you make cross columns for the various fields as they are known by their acreage, and a column for the day's total. Opposite each day and under the respect

* In the British Parliament the Speaker's mysterious threat of "naming names" strikes terror to the soul of members. On estates the great punishment is just the reverse: to deprive a cooly of his name in the day's check-roll. No name means no pay.—ED. *T. A.*

tive headings, enter the number of pounds of tea leaf plucked (or boxes of coffee cherry gathered) off that field. You will find this very useful information as you go along; and it will fully compensate you for the very little trouble it has caused you. Have also a column for number of coolies employed Plucking and see that it agrees with your journal, and one to record the total average number of lbs. gathered per cooly per diem.

In the same field book a few pages further on have a page ruled almost similarly, for the purpose of recording the month and number of coolies employed Pruning each field during that time. You will find this useful for reference as well as to afford you at a glance information as to what your pruning has cost, and be of some assistance to you in estimating the cost of pruning tea in the future.

WEEDING.

It will also be your duty to see that the weeding contractors do their work properly, and let me tell you there is no work on an estate more liable to be scamped than weeding, and generally it is the most expensive. The estate you are going to, we will suppose is weeded once a month, still it is not clean and the contractors are making very little if any profit off their contracts, so that much of the assistant's time is spent having frequently to visit the different weeding contract gangs. I am quite aware this is often the case, but think the contractors should pay for their own overseer.

Thus if your estate is 300 acres, and weeded by contract at so much per acre per mensem, it is an easy matter getting the contractors to agree to a reduction of three or four cents per acre, and you appoint one of themselves on the sum obtained by the reduction, to be overseer of all the contracts. His duty will be to visit every contract, daily examine the previous day's work, and make them do it over again if badly done. See that the coolies have the regulation weeding tool, whatever that may be, that each of them have a cooty sack to put the weeds into, and that one or more large sacks are being used for receiving and carrying the weeds from the cooty sacks to the weed depôt, that none are missed, or allowed to lie amongst the tea or in heaps on the roads. The weeds ought to be transferred from the cooty sacks to the large sack and not thrown on the road in a heap, to be gathered afterwards. At 4 p.m. the weeding overseer reports to you in the presence of the kanganies, and on the work generally the number employed on the various contracts, which statement you enter in your check-roll.

If you find that with monthly weeding with the close supervision of an overseer, and your own periodical visits that the estate is still far from clean, then insist on the contractors weeding the same ground three times in two months for the same money as allowed for weeding twice in two months. It is only a matter of a few extra coolies the first month or two; afterwards the work becomes lighter and contractors will reap a profit where formerly they had a loss.

Factory work. I'll leave your P. D. to give you the necessary hints: it is so much easier doing so on the spot.

But if I haven't tired you out, I would strongly advise you to carry an umbrella and use it as a protection from the rain; it is more wanted than a waterproof coat is for protecting you from rain. Never go out without a sun hat, while the sun is up, no matter whether it is shining or not, even during a cloudy or wet day you are liable to get headache, fever or sunstroke.

Confine your drinking to the bungalow, and unless you are on one of the most highly favoured estates as regards climate, have the water you drink boiled as well as filtered before using. Don't mix anything strong with your water. It will be quite time enough to do so when the doctor orders you; meantime the squeeze of a lime in water with a little sugar is quite enough when you get in tired and must have something before breakfast. Now, as a rule, is the time for your bath, and a very great luxury the bath in Ceylon is to a new arrival. The big plunge or the spout of cold water, the very thought of it makes me wish I were young again. But be careful not to stay in too long; one can have too much of a good thing even. Enjoy your bath and get into dry clothes as quickly as you can, for by this time I am sure you will be ready for breakfast. Two hours are usually allowed for breakfast, but if you have been unable to spare the time for a bath before breakfast, don't neglect to change your flannels: they are bound to be damp, and to sit damp in Ceylon in most bungalows, means catching a chill, and a chill is frequently the first stage of nearly all the ailments planters are heir to.

After 4 p.m. you should have a cup of tea or coffee (if you can get it) and if very peckish a little bread and butter but nothing stronger.

Water is also the safest and best beverage to dinner in youth, and should be persisted in unless otherwise ordered by a doctor whose medical advice on all other points you would equally value and act up to.

If cards happen to be introduced after dinner and you are invited to join in the same to make up the set, if money are the stakes, don't be afraid to decline to play for money. Stand firmly by your home training and you will never regret it.

Make your little bungalow as neat and comfortable as your means will permit, having a few pictures to enliven the walls, but only of such a nature as your sister or mother might look on and admire.

Do not forget the friends at home, they are always anxious to hear from you. To write a letter home does not take many minutes after it is commenced and the postage is now within the means of all, so there ought to be no excuse for omitting to write at least twice a month to those who have cared for you, probably from infancy. If you have not brought a few books with you, consult some of the Colombo price lists, you have Cave & Co., the Colombo Apothecaries' Co., or for practical instruction, the *Observer* Office list containing all sorts of books useful to planters or your P. D. will be glad to lend you if you are careful of, and return them. Make it a rule not to keep a book long and return it when read.

However small your income may be, live within it. Pay as you go, or at latest during the following month.

Do not order anything unless you are certain you will be able to pay for it the following month. Credit has been the curse of many a young man in Ceylon. My parting advice to you is "don't get into debt."—Well, good-bye, I must be off—shall be glad to hear from you, how you get on. You know my *address*.

[We shall be glad to receive suggestions, or additions to above, and to put all in our "Planting Directory" so as to be easy of reference in a permanent form.—ED. *T. A.*]

COCONUT CULTIVATION.

(*By an Old Planter.*)

DIGGITIVENESS: A REVOLUTION IN CULTIVATION.

The coconut planter, who turns over the whole surface of his field, to a depth of, from six to eight inches, or one mamottie, may fairly expect the following effects:—

1st. That the withering and aeration of the newly exposed surface will aid in rendering soluble any inert organic matter it contains.

2nd. That breaking up and loosening the soil enables the roots of the cultivated plant to extend more freely, and consequently more quickly.

3rd. That one digging is more efficient, in cleaning foul land, than ten surface weedings.

4th. That the natural herbaceous cover of the soil, when turned in, acts as manure, in the course of its decomposition.

5th. That in the course of the season, a richer, cleaner and closer pasture is produced, than that destroyed by the digging.

6th. That the cultivated plants will develope more in the subsequent twelve months, than in any previous twenty-four.

Number one has been accepted as theoretically probable; all the others have been established experimentally, with results, far beyond original expectation. Plants with a head of from ten to twelve leaves, and that had not begun to show stem, began to flower in from twelve to fifteen months, and at the end of two years carried crops of from forty to over one hundred nuts. Plants whose longest leaves did not exceed six feet, and that had made no visible progress for two previous years, two years after the digging had heads up to sixteen leaves, the last fully developed eighteen feet, and beginning to show stem. Cases where simple digging has been complicated with the application of manure will not count in this argument though they prove that manuring and digging combined yield results almost marvellous. On young trees that were just getting their stems clear of the ground, an expenditure of 27 cents was incurred, many of them flowered within a year, most of them within a year and half of the application; they are carrying crops seldom seen except on old trees standing on the choicest spots of soil.

It is a fair inference from such results, that if, instead of beginning in the seventh year as in this case, digging were inaugurated in the first year, and the circles widened as the roots extended, several years would be gained in the time of bearing especially if the diggings were supplemented with two cents worth of nitrogenous manure. About thirty-six cubic inches of cattle-shed manure has been found very useful in bringing forward supplies. There are five conditions that either singly or in various combinations prevent coconuts from bearing before the end of the seventh year:—

The 1st of these retarding conditions is a feeble slow-growing plant. The remedy is to take it out, and replace it with a healthy one.

2nd. A stiff compact soil, through which the main roots make only slow way, and branchlets carrying the feeding points still slower. The remedy is to break up such soil, by digging, as often as may be required.

3rd. A very poor soil, that is deficient in the necessary elements for the development of the plant. This may be remedied by the application of suitable manure, but a better plan is to avoid planting such land.

4th. A periodical deficiency of moisture. For this there is no generally applicable remedy, but a pulverized soil resists drought better than an unbroken one, and so far the evil may be modified.*

5th. The neglect that permits other plants, as jungle and lantana, to interfere with the development of the plant, both above and below ground. The remedy for this is the complete extermination of every plant that has no right in the ground allotted to the coconut by bearing no economic value to balance the ill it does.

If the land be opened on the goyiya system it will be a direct saving of expense to the land owner, of nearly R30 per acre, and his share of the crops may be worth from R10 to R20. The goyiya system being a merely depleting one it is very doubtful whether its adoption is any gain in the end. The goyiya's labour is paid for out of the fertility of the land, and it seems probable, that the retention of the elements so removed would benefit the permanent crop more, than the immediate gain would compensate, especially as the goyiya leaves much work to be done, that could be more beneficially performed at an earlier period, and at less cost, than it requires ultimately.

Coconut cultivation would be a much more desirable investment could it be combined with some other cultivation, that would pay independently, for the early breaking up of the soil and for such manure as it needed on its own account. It seems, however, hopeless, to discover even one product that will meet those conditions. Everything produced by native labour, for native consumption, is out of court, to one who pays for labour at the current rate of wages. There then remain only the markets of the world for such products as they absorb. The prospect here is not encouraging: the essential oils are clearly overdone; tobacco is objectionable for its exhausting powers, and few coconut lands wil grow it at all. Cassava and arrowroot are in the same case as essential oils, and could only pay on a large scale, with a costly manufacturing plant, which with the prices now ruling it would be madness to set up. Curiously enough, in Ceylon, where the arrowroot plant grows freely and yields largely, the lowest price is four times as much as the wholesale price in London, and in the druggists' shops twelve times as much. The local demand, however, is too small to encourage anything being done with it on coconut estates, as 20 acres of cultivation would probably bring down the prices to a non-paying point in the local market, even were well-to-do colonists not so preposterous as to prefer paying five or six hundred per cent more for stuff that has been through the polluting hands of an English tradesman, than for a pure locally produced article. Ginger selling from 6d to 8d per pound is encouraging, but it requires a special soil, and costly culture, and is a precarious crop; it will not, therefore, meet the conditions of the coconut planter. It is just possible that chillies might be grown, and placed in the London market, for the price they command there, 20s to 25s per cwt., but on their own merit the cultivation is not promising. The coconut planter will naturally decline a secondary culture, risking direct loss on the labour and manure used, and promising only remote and indirect gain in benefit to the permanent plants. There is one other minor product which could be cultivated on young coconut estates, with great advantage to the coconuts; but its merits are little known to the local public, and it is the local public on which the grower must chiefly depend. The cush-cush yam requires a tolerably good soil, pulverized to the depth of a foot, heavy manuring, and a forest of long poles to run on. The cultivation is therefore a most costly one, and has hitherto only been tried on experimental patches; but if it were found to sell readily at a paying price it would no doubt be gone into largely. Those who are acquainted with it admit it to be not inferior to the best potatoes, and some people even prefer it to that universally approved tuber. This plant was only introduced to the Western Province a few years ago, and the only fact fully ascertained is its refusal to respond to anything short of a high and costly cultivation.*

* For two reasons; a free open soil is not only saturated by rain, when it falls, and permeable by dew, but is fitted by capillary attraction to draw on the reserve stores of moisture in the subsoil, when the surface fails to be visited by rain or dew.—ED. *T. A.*

* Where did it come from and what is the origin of the queer name "cush-cush"? Is it just the West Indian yam? or a local variety? The Jaffna purple yam is a magnificent root, very tasty, especially when butter is added, and we should say it must be very nutritious.—ED. *T. A.*

TEA SUBSTITUTES AT THE CAPE.

In reference to the articles on Tea and Coffee substitutes, now appearing in the *Gardeners' Chronicle*, the following notes concerning this colony may be of interest:—

Cyclopia genistoides, Vent., is the commonest Bergthee of the western province. It is used partly as a mere substitute for ordinary Tea, and partly with an idea that it is good for coughs and difficulty of breathing. Its infusion is sickly, sweetish, and has a somewhat astringent after-taste; it is not unlike a sweet solution of liquorice. The liquorice flavour is, however, much more evident in the several Helichrysa used under the names of Hottentot, Bosjesman, and Kaffir Tea. H. nudifolium, Less., H. serpyllifolium, Less., H. Leiopolium, DC., are all employed without much discrimination, and the vernacular names change about among these species. I have seen Geranium incarnatum, L., gathered as a Berg-thee on Boschberg, behind Somerset-East. Mouronia ovata, Cav., biflora, DC., and Burkiana, Pl., are only used medicinally in cases of diarrhoea, but are less prized than the allied Pelargonium reniforme, *Bot. Mag.* The report of Cassia mimosoides, L., being used at the Cape as a substitute for China Tea is surely a mistake. The only Cassia I know of as in use here is C. tomentosa, Lam., a naturalised plant, common in farm gardens and about villages; it is a capital substitute fo Senna, with or without the accompaniment of Engelsche Zout, or Epsom salts, among the coloured servants. I should doubt if any Cassia is a Tea in any other sense than "Senna Tea."

The Malays of Cape Town are great on native Teas; they drink lots of infusion of "Als," Artemisia afra, Jacq., under the idea it is good for the "peus,"—Anglice, paunch—but, I believe, partly for the peculiar buzziness of brains which it causes, something like the effect of strong tobacco on a smoker accustomed only to golden leaf. I have often been told that it makes you feel "mooi,"—that is, nice—a sufficiently suggestive term for those who are forbidden to indulge in the mooi-ness that comes of Cape brandy. Leyssera gnaphaloides, Less., is brought down from the Lion's Mount every day in the season to make "Geel-blommetjes-thee." It is credited with demulcent properties in cough and catarrh, but is used often merely as a herb drink.

My worthy friend, the Rev. A. G. Hettasch, of the Moravian Mission at Genadendaal, sent a collection of thirty-three plants used medically or as herbal drinks by the Hottentots and off-colour people on his station, to the Colonial Exhibition in 1886. Whether they ever got there, or, like so many other contributions, were dropped somewhere, I cannot say. But they were submitted to me for identification, and I published the list with Mr. Hettasch's notes on their uses, in the *Volksblad*, December 29, 1885. A translation could no doubt be made for anyone interested in Cape herbalism.—P. MACOWAN.—*Gardeners' Chronicle.*

PEARL FISHERY AND WATER TELESCOPES.

SIR,—I know the instrument "Water telescopes" of old. A long tin funnel 2ft.—3ft. long; with a piece of plate glass at the lower end about 8 inches wide, the upper end being about ½ the size. We used to use it to look for fresh water mussel in the Tay; one would row the boat over where the mussel beds were supposed to be; and another would lean over the stern with the telescope, the glass end was put into the water about 10 in. just clear of the ripple and you could see the bottom of the river plainly, in spite of the dark peaty colour of the water. When we saw the mussels we used to fish them up with a long stick with a couple of pieces of iron fixed at the end. The mussels contained small pearls, so you see the water telescope has been used at a pearl fishery before now.—I am, yours faithfully, J. MAUDSLAY.

June 9th, 1891.

—Local "Independent"

COCOA IN THE LONDON MARKET.

A late Ceylon Planter writing from Home says: The very high quotations for cocoa which you had at the beginning of April, were not really obtainable. They were merely based on a single sale, at which two buyers were bidding recklessly against each other. No further sale took place at the same rate.

The brokers, however, think that the present rates, about 122/ for every good samples, are likely to be maintained for a time. They informed me, that the bright red outside colouring is the most important thing. The Spanish buyers, for instance, value cocoa solely by its outside colour. I was not aware that cocoa beans were eaten as dessert. It appears that they are so used in Russia, and they are exported from London, to be eaten in Mexico.—Local "Independent."

THE DISEASES OF THE COCONUT TREE.—The paper by Mr. M. C. Potter on this subject, which was announced for reading at the meeting of the Linnean Society on May 7th, was not reached in consequence of the length of the communications which preceded it. It stands over therefore until June 4th.

THE PROPOSAL for forming a Ceylon Syndicate for working tin in Perak is taking definite shape, and that the arrangements are now only awaiting the arrival in this country of Mr. Campbell, who will finally have the determining of one or two points. The result will certainly be the appointment of Mr. F. D. Mitchell as manager of the concern, the leading men in it being Messrs. D. Reid, H. K. Rutherford, and Sir G. H. D. Elphinstone. I understand that Sir Cecil Smith takes a deep interest in the enterprise, which will have all the aid and encouragement in his power to give.—*London Cor.* Local "Times."

COFFEE AND TEA LANDS IN TRAVANCORE.—A Royal Proclamation has been issued giving notice that in consequence of large areas of land taken up for coffee cultivation having been abandoned by the proprietors, a tax of two annas per acre will be levied on all lands acquired for coffee or tea cultivation whether such lands be under cultivation or not and that it is open to proprietors to renounce and resign to Government the whole or any portion of such lands in which case the tax upon the relinquished portions will be remitted.—Cochin *Western Star*, June 6.

AN ARTIFICIAL SUBSTITUTE FOR QUININE.—As if to add the very last straw to the cinchona planter's back, the chemists have at length successfully accomplished the work so long set before them of manufacturing artificial quinine, or a sufficient substitute for the same. For the details we refer to an article in our *Tropical Agriculturist*; but the *Chemist and Druggist* may well add the remark, that the discovery comes too late to be of any commercial value, since it does not even pay now to cut down the Cuprea bark in the South American forests. Still here is one more reason why we need never expect to see cinchona bark again rule high in price.

FALL IN TOBACCO SHARES.—We learn from our Amsterdam correspondent that an extraordinary decline has taken place during the week in the shares of the Dutch Tobacco Companies. For instance, the Deli Company's shares receded 80 per cent., while the Deli Batavia Company shares are 113 per cent. lower. The shares of the Senembah Company are quoted 250 per cent., against 296 per cent. last week, or a drop of nearly 50 points. The reason of this fall, notwithstanding the high dividends declared, is ascribed to the fictitiously high rate to which these securities have been driven up, and further to the unsatisfactory quality of the arrivals of the present year's crop, for which lower prices have had to be accepted. —*L. and C. Express*, May 15th.

GREAT RETICENCE is observed in reference to the United Planters' Company of Ceylon by those interested in it. The same may be said of another embryo company forming for the purpose of acquiring tea property in your island. I saw the skeleton prospectus the other day; but, as it was orginally devised for the acqusition of a large property since acquired by the Ceylon Tea Plantations Company—Yoxford—it cannot be mentioned as actually in existence, though other properties are mentioned as likely to be acquired. The initiation of the project is due to Mr. Grigson, of Messrs. Geo. Steuart & Co., and the prospectus only awaits certain additions and amplifications in order to place it before the British investing public.—Local "Times."

TRADE OF THE SOUTH AMERICAN REPUBLICS.—At a meeting of the London Chamber of Commerce, yesterday, Admiral H. D. Grant read a paper on the "State of Trade in the South American Republics," and in the course of his remarks expressed his surprise at the almost entire absence of English firms from Monte Video, and the decrease of the number in Buenos Ayres. The disappearance of old established houses he attributed to the growth of direct trade with England. Admiral Grant considers the trade prospects gloomy, basing his estimate on recent steps taken in taxation and currency matters, more especially in the Argentine Republic and Uruguay. —*Chemist and Druggist.*

NIGER GUM ARABIC.—In a paper on a trip along the Niger and Benue rivers read before the Royal Geographical Society on Monday, reference was made to the town of Yola, on the Benue river, as the most important trading centre in that region—tin, gum, baraic, and gum copal being the local products brought three by the natives in exchange for Manchester goods. The gum arabic referred to is the Niger gum, which has during the last two years arrived on the Liverpool and London market in such large quantities. The gum is probably obtained from the Muri range of Mountains, north of native villages of Lau, Dalti, and Djen, on the Benue river. With the establishment of more regular trading communications with Niger Basin, Niger gum is, perhaps, under certain circumstances destined to become as important an article on our produce markets as the East Indian gums are at the present moment. Yola, the shipping port, is near the extreme eastern edge of the Niger Company's present sphere of influence.—*Chemist and Druggist,* May 16th.

DEHIOWITA DIVISION, KELANI VALLEY, May 18—Very monsoonish weather here. There was a terrific thunderstorm here on Friday evening accompanied by torrents of rain. Saturday forenoon was fine, but rain came on again in the evening and continued steadily to pour all night, and all yesterday (Sunday). Today the rain came on again at 2 p.m. obliging me to knock off the coolies. I have hardly known such a *persistently* rainy monsoon. The electrical phenomena too have been remarkably severe. I append rainfall record since 1st of this month as follows:—

	inches.		inches
May 1	·17	May 9	·30
„ 2	·13	„ 10	—
„ 3	.40	„ 11	·10
„ 4	·60	„ 12	2·65
„ 5	—	„ 13	1·83
„ 6	·13	„ 14	·11
„ 7	1·75	„ 15	1·98
„ 8	1·53	„ 16	1·34
		17	1·58
Rainfall for 17 days May...		...	14·60
Do January 1891...		...	6·93
Do February „ ...		...	5·84
Do March „ ...		...	14·20
Do April „ ...		...	20·80
Rainfall this year to date ..		...	62·47

A COCOA STORE BURNT DOWN.—We learn that one evening last week the large store at Sudaganga estate, Matale was destroyed by fire. It is estimatsd that several thousand rupees damage was done on the occasion, and while the origin of the fire is unknown we are sure no blame can attach to Mr. Leslie Falkiner the energetic manager of the estate.—Local "Independent."

A CEYLON PEARL OYSTER IN LONDON.—The London *Queen* to hand by the mail contains an account of rather a novel shop-window exhibition which it says is at present exciting a great deal of curiousity in Bond Street. The exhibition, so it is said, consits of a perfect Ceylon pearl-oyster, in which are no tever than seven pearls in a cluster. The pearls are detached and are of excellent appearance, one being valued at £40 sterling. The oyster has been preserved in spirits. We do not know how it got there; but we presume the oyster is one of those fished at the last Fishery. Still, no clue is given as to who sent it, and we should hardly think any of the native traders would have recogonised what a curiosity it would be to the folks at home. However, the pearl oyster is there, affording yet another advertisement for our island, and the little osters it is said draws people by the hundred.—Local "Times."

TEA IN TRAVANCORE.—Mr. Forbes Laurie, who returned from Travancore about three days ago, as greatly impressed, we believe, with the excellent prospects before Travancore tea planters, and in a small way there is no doubt that Travancore will be one of the future rivals of Ceylon, though the acreage under tea will never enable it to be a formidable one. The soil is good, and the tea though most of it is young, has done excellently so far, young tea 3 years old giving 400 lb. an acre, while labour is plentiful and cheap, the wages average being 25 cents, and there being no difficulty in recruiting. The coast advance system ha not proved the bane to Travancore planters that it has to Ceylon ones, and from all accounts Travancore is a sort of tea growers' paradise. Roads are not so numerous or good as they are in Ceylon, but transport to the coast is cheap and plentiful while the estates are easily worked. They are for the most part at a height of from 2,000 to 3,000 feet above the sea, though a given elevation is said to be slightly warmer than the same elevation in Ceylon at least on the western side of Nuwara Eliya. There are one or two Ceylon planters already in Travancore and other Ceylon men have interests in the district. The only thing against social life there is that the estates are at some distance from each other, and communication is not so good as it is in most of the upcountry districts of Ceylon; but from an investor's point of view Travancore leaves, it would seem little to be desired.—*Ibid.*

A NEW PLANTING COMPANY.—I hear on good authority that a company has been formed to open up the blocks of forest land in Bamberabatuwa belonging to Mr. J. Dent Young and others. These blocks, Hapugastenne and Walawedowe, aggregate over 2,500 acres, and will form a very fine property as they are situated at a fair elevation and in a fine climate for tea cultivation. They were originally purchased for the purpose of cultivating coffee in the forties, and a small portion was opened, but they were abandoned in the crisis of 1848. Mr. J. Dent Young originally selected the land, I believe, and opened it. He is still to the front, although one of the original pioneers of coffee planting. The Government are also advertising for sale on the 9th June a number of lots of land suitable for tea, cacao, etc., and these lots include some of the finest land remaining in Government hands in the hills. This district is as yet little known though only 2 or 3 miles south of Maskeliya and about the same distance north of the Pelmadulla-Ratnapura road. The district will now, no doubt, be rapidly opened up, as the new company and the purchasers of the Government blocks will open up the roads cut over 40 years ago and which require comparatively little done to them to put them in good order. There are over 6,000 acres of land in private hands, well suited for tea, being properties purchased over 40 years ago, and with roads to help, these will be opened up. The outlet for the Bamberabatuwa district will be Ratnapura.—*Cor.* Local "Times."

SOILS AND THEIR PROPERTIES.

From a recent report of numerous investigations of soil from the Californian vineyards and orchards by Professor E. W. Hilgard, the following summary of the general conclusions should prove of value and practical use to all gardeners and horticulturists.

First, in no case has any natural virgin soil showing high plant-food percentages been found otherwise than highly productive, under favourable physical conditions. But, on the other hand, the reverse is not always true, for the simple fact that heavy clay soils, rich in plant-food may advantageously be diluted with arid sand several times over, thereby increasing instead of diminishing their productiveness, because of improved physical conditions. This fact is abundantly exemplified in the daily experience and practice of gardeners.

Of course there must be a limit to the favourable effect of such dilution, even if effected by means of sand, which renders the soil more readily penetrable by roots.

In the case of dilution of heavy clay soil by sand, not only is there a necessary limit beyond which plants cannot make up by greater spread of root for the diminished amount of available plant-food existing within a given space, but it is obvious and abundantly exemplified in Nature that this limit is materially influenced by the habit of the plant root-system, and especially by its ability to develop abundant root-hairs. The better provided it is in this latter regard, the greater will be its ability to utilise plant-food spread through an extended space in a diluted form.

The presence of one substance in the soil often exerts a material effect upon one or several others. Among these, the presence of an abundant supply of lime seems to be the most common and potent; for the evidence that, in presence of much lime, smaller proportions of potash and phosphoric acid are adequate for profitable culture, than when lime is scarce, is overwhelming. Most potent of all appears to be the co-existence of large supplies of lime and of humus. On the other hand, investigation distinctly shows that the presence of much clay necessitates a large supply of the active plant-food ingredients than is necessary in light or sandy soils, simply, perhaps, for the reason that roots cannot penetrate clay as minutely and abundantly as sandy ones.

These facts lead us to affirm that, in calcareous soils, minimum precentages of mineral plant-food will suffice for the purposes of maximum crops, even under the most exhaustive culture.—J. J. WILLIS, Harpenden.—*Gardeners' Chronicle.*

QUININE OBTAINED SYNTHETICALLY.—News come from Paris that quinine has been obtained synthetically by M. M. Grimaux and Arnaud, the former professor at the Ecole Polytechnique, and the latter the successor to Chevreul. The base cuprein contained in the *Remijia pedunculata* is treated with sodium, and after further processes, quinine "absolutely identical" with that obtained from Cinchona is produced. As the Remijias are closely allied to Cinchona and the bark is used as a substitute for that of Cinchona in Brazil, there may not be any great value in the discovery, except that it may lead to the production of other bodies.—*English Mechanic.*

SUPERIORITY OF CEYLON CARADAMOMS.—The *Chemist and Druggist* of 23rd May contains a report of a lecture delivered in Berlin by Mr. H. Helbing of London, on "London Drugs: their Varieties and their Substitutes." We shall give this in full in the *Tropical Agriculturist*, but quote here what Mr. Helbing said about Ceylon cardamoms:—

Mr. Helbing showed seventeen different samples of cardamoms, and observed that those from Ceylon, like nearly all other drugs exported by that island, were carefully bleached and packed. The finest of his specimens was grown from seed originally obtained from Mysore, in India, and represented about ten times the value of the most common unbleached Tellicherry fruit.

TIMBER SPECIMENS FOR THE CHICAGO EXHIBITION: A HINT FOR CEYLON?—According to *L' Art dans les Deux Mondes*, "a splendid collection of wood specimens" will be sent to the World's Fair at Chicago from Jamaica and the other West Indian islands. "These specimens . . . will have the appearance of bound books, one cover of which will be polished, while the other will show the natural aspect of the wood, and the back will retain the bark and will bear a tablet giving, in gold letters, the name of the species. This 'botanical library' will be accompanied by notices explaining the localities where the tree is found, and the qualities and uses of its wood."

PRESERVING FRUIT.—A Californian paper says:—"The liquid in which the State Board of Trade has so successfully preserved fruit for exhibition purposes is prepared as follows:—Thirty gallons of filtered water are placed in a barrel, and on the water is placed a tin pan containing 25 cents' worth of sulphur. The sulphur is set on fire and the top of the barrel is covered with a piece of oilskin, so as to retain the fumes. When the sulphur ceases to burn the covering is removed, allowing the supply of oxygen in the barrel to be renewed, and after stirring the water the sulphur is again set on fire and the top of the barrel is again covered. This operation is repeated until the sulphur will no longer burn, when the water is ready for use. Not only are fresh fruits preserved in this water, but where decay has set in it is completely checked, and withered fruits have their plumpness and colour restored. All of the fruit in 'California on wheels' has been treated in this manner, and there are jars of fruit in the rooms of the Board that were prepared over a year ago, the fruit still appearing as if but plucked from the trees."—*Adelaide Observer.*

MUSK PLANT FIBRE.—At the meeting of the Central Louisiana Agricultural Association last Wednesday evening, Mr. J. L. Bernard exhibited a specimen of fibre which was secured from the musk plant that compares favourably with any we have seen for the manufacture of bagging or rope. The seed of this plant was secured by Mr. Bernard from South Carolina. He says it resembles very much the *okra* and cotton, and is cultivated in the same manner. The seed are for flavoring purposes and command a good price. The fibre product was discovered by Mr. Bernard while having cotton stalks thrashed off his land. When the stalks of the musk plant were hit with the flying pole the bark peeled off, leaving the fibre clear. After remaining in the field all winter, exposed to the bad weather, the fibre was found to be very strong. Mr. Bernard says it will grow from the ratoon, the same as sugar cane.—*Indian Agriculturist*, May 30th.

COFFEE FROM BENDEKAI (*Hibiscus esculentus*)!—Captain Henry Willett, the pioneer *ramie* grower of Louisiana, who for many years has grown various fibrous plants at his place just below Algiers, recently exhibited a very aromatic ground coffee, which he said "was obtained wholly from roasted *okra* seed." This substance had, during the last American war, been frequently used as a substitute for coffee. It not only has the same flavor to smell and taste as coffee, but it is thought the same tonic effect. Whether so or nor it makes a cheap and agreeable substitute for coffee, and as such it should be utilized. It will *pay* to raise *okra*, because every particle of the plant can be utilized—the young pods for food, making the most delicious pickles;* the ripe pods producing a coffee bean; the bark a valuable fibre, while the woody portion makes excellent paper stock. This common and little (hitherto) prized Southern plant may yet exceed cotton as a wealth producer.—*Indian Agriculturist*, May 30th.

* The *bendekai* is an excellent vegetable, but we have never seen it pickled in Ceylon?—ED, *T. A.*

Correspondence.

To the Editor.

THE WEIGHING OF TEAS IN LONDON :— CUSTOMS REGULATIONS TO BLAME.

12, Great Tower St., E.C. London, May 22nd.

DEAR SIR,—Your *Overland* issue of 28th April containing letters and observations about the taring of Ceylon teas in London and loss in weight seems to call for some comment on this side. I strongly sympathize with estate owners who like myself are victims not of a gang of thieves and swindlers as some of your correspondents suppose, but to an iniquitous system of weighing teas imposed on us by the Customs Regulations. But how can they be altered ? Quite recently the Indian and Ceylon Associations took the matter up as regards weighing tea to the ½lb, and the Customs expressed their willingness to carry this out and agreed to it. A strongly supported meeting of the tea dealers dead against an innovation which would have been so important to the shippers managed however to obtain the suspension of the new decree, and no reform in this direction at present seems possible. The matter of the tare is even more disadvantageous to us ; and owing probably to the greenness of the wood used for tea packages which causes them to dry and shrink in transit, I fear under the present system we shall all have to put up with periodical severe losses in weight.

Your short leader, sir, on page 489 Vol, X. fully explains to your readers that no outsiders have any responsibility in the matter, and I would further point out that no broker in London would allow his client's tea if sent in boxes of under 28 lb gross to be taxed 1 lb extra for draft. In the case referred to, it stands to reason that the 1 lb 1 ss per package was either from the tare being slightly above the even number of lb, or from the tea weighing below the even number of lb, or most probably the loss was caused part by short t as part by extra tare. It is a mere coincidence that the loss on 81 packages should be 81 lb, and the 1 lb draft has not been taken from each package as evidently supposed by your correspondent.

The loss in tare on a box, although it would show a much heavier percentage, would be just as likely to occur as on a chest, and to the same extent if the tare was just over an even number of lb. For instance a chest of 80 lb with a tare of 24 lb 1½ oz. would be called 25 lb tare=loss 15½ oz.—a box of 28 lb with a tare of 9 lb 1½ oz. would be called 10 lb tare=loss 15½ oz.

The actual system of weighing and the security we have against any unfairness have so frequently been referred to in your columns it is needless to refer to them again, but the clearest letter on the matter that I can lay my hands on just now is that in your *Overland* issue of 15th Feb. 1889, signed "Bonded Warehousekeeper." Certainly to my mind the most important guarantee in the interests of shippers is that tea being an article of consumption subject to duty, we may be quite sure the Customs authorities take good care that the weight shall be in noway minimized. One of your correspondents asks who gets the tea that is lost to the shipper. The answer to that is the grocer or retail shopkeeper, who breaks up the package that he has bought from the wholesale dealer, always calculates on extra weight beyond his 1 lb draft, and by the system under discussion may be tolerably certain of getting it.

As regards sweepings. Any spillage that is made in drawing samples or otherwise has to be made good by the dock or warehousekeeper not for the benefit of the importer whose weights have already been defined by the clerks of the Customs and warehouse before samples are drawn, but for the benefit of the buyer who takes care to see he gets what he is entitled to. As for imagining any collusion between those authorized to see the tea weighed and the dock or warehouse clerk it would be quite impossible ; and if it were possible it would mean a conspiracy so vast and ramified that nothing in modern times has ever approached it, not even the Tammany Ring.

Subjoined is a comparison of four shipments from two estates in Dikoya comparing loss in weight of factory-bulked teas with those bulked in London, and from which may be inferred that factory bulking owing to the system of taking an average tare causes a greater loss in weight. With Indian teas I am told the loss in weight in the higher grades is always far heavier than in the lower grades and it seems it is the same with Ceylon teas. On this point at present I can offer no opinion.

Apologizing for trespassing so much on your space, and hoping that the importance of the subject will plead for me, I remain, dear sir, yours faithfully, JOHN HAMILTON.

NEWTON, DIKOYA. FACTORY BULKED.

VESSEL—"GAEKWAR."

Grades.	Invoice weight.	Pkgs.	Nett weight.	Draft.	Loss.
B. P. ...	2,300	46	2,252	46	2 lb.
Pek. ...	1,512	36	1,428	36	48 ,,
Pek. sou. ...	420	10	404	10	6 ,,
Sou. ...	40	1	38	1	1 ,,
					57 lb.

Loss nearly ⅝ of a lb. per package.

VESSEL—"REWA."

B. P. ...	2,950	59	2,837	59	54 lb.
Pek. ...	2,244	51	2,164	51	29 ,,
Pek. sou. ...	630	15	610	15	5 ,,
Dust ...	210	3	201	3	6 ,,
					94 lb.

Loss about ⅝ of a lb. per package.

VESSEL—"MYRMIDON."

B. P. ...	2,145	39	2,060	39	46 lb.
Pek. ...	2,295	51	2,184	51	60 ,,
Pek. sou. ...	798	19	745	19	34 ,,
B. md. ...	65	1	63	1	1 ,,
					141 lb.

Loss over 1¼ lb. per package.

VESSEL—"OANFA."

B. P. ...	4,134	78	3,958	78	98 lb.
Pek. ...	3,825	85	3,651	85	89 ,,
Pek. sou. ...	1,134	27	1,076	27	31 ,,
B. md. ...	300	4	292	4	4 ,,
					222 lb.

Loss over 1¾ lb. per package.

"LYNSTED." BOGAWANTALAWA—BULKED IN LONDON.

VESSEL—"GAEKWAR."

Grades.	Invoice weight.	Pkgs.	Nett weight.	Draft.	Loss.
B. P.... ...	1,960	35	1,898	35	27 lb.
Pek.	1,700	34	1,649	34	17
Pek. sou....	1,400	28	1,369	28	3
B. md. ...	45	1	43	1	1 ,,
Dust ...	78	1	76	1	1 ,,
					Total ..49 lb.

Extra loss nearly ½ lb. per package.

VESSEL—"REWA."

B. P.... ...	2 900	58	2,814	58	28 lb.
Pek.	2,397	51	2,322	51	24 ,,
Pek. sou....	1,750	35	1,697	35	18 ,,
					Total 70...lb

Extra loss nearly ½ lb. a package

VESSEL—"MYRMIDON."

B. P.... ...	3,306	58	3,229	58 19 lb.
Pek.	2,491	53	2,442	53 gain of 4 „
Pek. sou. ...	1,610	35	1,578	35 „ 3 „
B. md. ...	50	1	48	1 loss 1 „
Dust. ...	150	2	147	1 — 1 „

Total loss...14 lb.
Extra loss 1½ oz. per package.

VESSEL—"OANFA."

B. P.... ...	4,144	74	4,028	74 42 lb.
Pek....	3,150	63	3,063	63 24 „
Pek. sou. ...	2,162	47	2,088	47 27
B. md. ...	100	2	97	2 1 „
Dust. ...	132	2	126	2 2 „

Total...96 lb.
Extra loss about ½ lb. a package.

No. II.

23, Crutched Friars, London, E.C., May 21st.

DEAR SIR,—Your paper of the 30th ult. contains numerous letters from tea planters, charging London brokers and others with wholesale robbery of tea intrusted to their charge. I think it is disgraceful on the part of the writers of the letters to make such a charge after the repeated information they have received from London showing how the discrepancy arises.

In the first place packages are weighed and tared by the Customs to the pound, viz. if a package weighs 70 lb. 15 oz. it is called 70 lb., the loss to the planters being 15 oz. If the tare of the package is 20 lb. 1 oz. it is called 21 lb., also a loss of 15 oz. I was called upon by a client to give an explanation with regard to the difference between Ceylon and London weights, and to make the matter plain, I weighed and tared a shipment of tea as under.

(Copies of which I enclose for your inspection or for insertion in your paper if you think necessary.*)

In the first instance, they were weighed and tared by the Customs, and afterwards weighed and tared to the oz. By weighing and taring to the oz, you will see that the weights exceed the Ceylon weights, which shows that the weight of tea given is correct; but under the Customs regulations it is not possible to agree the weights without they pay attention to the making up of the packages to meet the Customs regulations, viz. gross weight 2 or 3 oz *over* the even lb., and the tare 2 or 3 oz. *under* the even lb.

	lb.	oz.	
say	19	13	Tare
	50	5	Tea
	70	2	the Customs calling that

70 lb. Gross
20 „ Tare
50 „ Nett

If the proprietor of the 81 boxes wishes to send packages, 17 lb. nett, he should have them made up as under:—

	lb.	oz.
Tare of box	10	14
Tea	17	4
	28	2

	lb.	
The Customs calling that	28	Gross
	11	Tare
	17	Nett

and no draft of 1 lb. allowed.—I remain, yours truly, ROBERT JONES.

* Far too long to insert: can be seen at our office by anyone interested.—ED. *T. A.*

DESICCATED COCONUT.—The manufacture of this article was only commenced a year ago, but it has now evidently attained large proportions as the quantity shipped is nearly 100 per cent more than it was originally. The original spot where it was manufactured was at Veyangoda, and its manufacture was followed by Messrs. Vavasseur & Co. at Maradana. It now appears that Messrs. Lee, Hedges & Co. have everything ready as regards machinery and fittings at their mills at Colpetty to commence preparing desiccated coconut as well, while Messrs. Akbar Brothers have about 8 dessicators now being constructed for erection at their large coconut estate in the Negombo district, followed by another native, who wants to start "an opposition shop" at Veyangoda. It looks like good times for all coconut proprietors and planters.—*Cor.* Local "Independent."

CEYLON TEA PLANTATIONS CO.—By the present mail you will receive a report of the proceedings at the Annual Meeting of the Ceylon Tea Plantations Company held on Wednesday last, the Directors' Report having gone forward by the previous mail. The address of the Chairman will be read with interest, not only by Ceylon shareholders and planters generally, but by Indian planters, as conveying information on a variety of points in which all are concerned more or less. You will observe that Mr. Reid is thoroughly satisfied with the Company's recent additions to its long roll of the estates, the latest of which was completed not more than a week ago. The furlough account which has just been opened in the interest of the Company's working staff is a highly commendable institution, and though the annual amount anticipated as being the cost of this concession is £600, it must be remembered that this has to cover the provision for leave to Europe for the superintendents of twenty estates. The Chairman's opinion of the condition of those properties, and of the stability of their factories, is undoubted: the latter are declared to be of the most permanent description, well built, well designed, and adapted for economical and efficient working. Whilst no money has been expended in putting up fancy or show buildings, no outlay has been grudged to give the superintendents the means of making good tea. It was pointed out by the Chairman that they were enabled by their buildings and machinery not only to produce increasing quantities of tea from their own estates, but during the year to make nearly two millions of pounds of tea from other plantations, and when their latest factories are completed the Company will be in a position to turn out considerably more than four million pounds of tea annually from their own estates. During 1890 a profit of £31,000 was made from a plucking area of less than 4,000 acres. Of the company's latest purchases, the Chairman said, "Yoxford, with the adjoining estates of East and West Holyrood and Rathnillokelly, form a compact block of over 1,700 acres. The total cost to the Company will be £54,000. In a few years this ought to be a very fine property, as it has great advantages in climate, soil, class of plant, proximity to railway communication, and water power. The old tea on Yoxford and East Holyrood shows what we may expect the whole area to be like when it comes to the same age." Opinions will no doubt differ as to the soundness of Mr. J. L. Shand's criticisms of the Company's accounts as placed before the shareholders. For my own part I am inclined to agree with the Chairman when he replied that their report and statement of accounts were prepared for the information of their shareholders and not for that of the general public, and that any fuller details required by the former could always be obtained from the Secretary. It may be true, as urged by Mr. Shand and another gentleman present, that one provision of the Joint Stock Company's Act has not been complied with, inasmuch as the total expenditure of the year did not appear in the balance sheet, but this will probably be remedied in the next annual account rendering, and otherwise the statement submitted met with the approval of all present.—Local "Times."

A MONOGRAPH OF THE COCONUT PALM (COCOS NUCIFERA).

ILLUSTRATED BY JOHN SHORTT, M.D., F.L.S., &c., &c.

Dr. Shortt's monograph of the coconut palm is like himself short, and tolerably innocent. A review of it, therefore, should be short, and innocent like itself. We will accept the author's statement of facts as correct, and merely point out where local experiences, opinions and practice differ from his reports.

Our author tells us, that the coconut tree grow to the usual height and fruits freely at a height of 3,000 feet in India. In Ceylon we have no thriving coconuts at an elevation of 3,000 feet, and the limit of profitable cultivation is 1,000 feet lower. Mere elevation is not, however, our rule in choosing our locality: temperature and rainfall are our measures of suitable climate. There is no temperature in Ceylon too high, and our lowest limit is an annual average temperature of 75°; our lowest limit of rainfall for successful cultivation is 70 inches more or less falling every month of the year, and our highest limit is 100 inches, for though the coconut rejoices in moisture, it detests saturation.

Alluvial flats are our richest soils undoubtedly, but the true coconut soil is 70 per cent of fine sand, 30 per cent light loam and organic matter; but the cabook soils of our undulating uplands are not to be despised, especially, as we have comparatively little other kinds to draw on. We have still people who plant clay* and swamps, to their own ultimate loss. 80 trees is the number our author allots to an acre; but whether he or the printer's devil is responsible for the error, the book says that 80 trees in an acre will stand 60 feet apart. At 60 feet apart, an acre will contain 12·15 trees to the acre, and 80 trees per acre will stand 23½ feet apart on the square. The most common distance in Ceylon estates is 25 feet on the square, or 70 trees per acre. This we find, a sound practical distance apart, for most of our soils. We know one large estate planted at 30 by 30, but it is a speciality in soil and lay of land. It is a rather loose way of treating this subject, to say, "In a well ordered plantation, the trees should be from 30 to 40 feet apart." 23½ by 23½ feet gives 80 trees per acre, and on good soils this is too close, 25 by 25 feet gives 70 (69·53), 30 by 30 feet gives 48·4 and 40 by 40 feet gives 27·47. Thus very nearly three times as many plants go into an acre 23½ by 23½ as at 40 by 40. There is no part of the coconut region of Ceylon in which the planter benefits himself by putting more than 70 or less than 50 plants in an acre.

The author's directions for selecting seed nuts are, to gather from trees 15 to 20 years old fully ripe; gathered between February and May, the largest procurable well formed, the husks dried before plucking to be lowered from the tree in a basket and to be kept for six weeks, before being laid out in the nursery.

This is a subject that has hitherto met with little attention in Ceylon. The all but universal practice has been, to select seed from a heap gathered in the usual course. It is however a very important matter, and one that deserves the most careful study. It is from carelessness here that we see such inequality in our fields, inequalities not due to difference of soil, or treatment, but chiefly to jât. This author tells us, that in India (Travancore) there are thirty named varieties. In Ceylon there are a vast number of nameless varieties, very difficult to describe, but very clear to one who lives among them, and sees them daily. One tree begins to flower in its fifth year, on four feet of stem; its nearest neighbour equally vigorous, runs up to fifteen or even twenty feet, and only begins to flower in the ninth or tenth year; one will have fertile germs on its first flower; and its neighbour will produce only barren flowers for twelve months; one will, within a year of opening its first flower, fall into a regular yield of 100 nuts per annum, of medium size; while another close by carries from 30 to 40, very large ones, and the next in the same line, carries above 200 very small ones. Then in the size, colour, and form, of the fruit, there are hardly two trees so alike, as not to be distinguished from each other. Some of the directions given are good, some useless, and some bad. The first conditon, is that the nut selected for seed should be sound and ripe, it should be taken from a strong, early, and heavy bearing tree, without reference to its age, it should be of medium size, of oval shape, with thin husk, and the green colour is generally best. The shorter the leaf stalk the better and there is no objection to lower it in a basket, but it should not be left to dry on the tree, and may be planted as soon as gathered. The best soil for a nursery bed is light loamy sand. It is not necessary to place the nuts so wide apart as one foot, or to make raised beds, but the beds should be shaded and watered occasionally in dry weather for six months. After the plant has opened its first two leaves all shade is injurious.

If in south-west Ceylon the conditions were such as to require that the plants should be shaded and watered after being planted out in the fields, we would never have had the 20,000,000 of trees we are credited with.* Shading we do not find, either necessary or useful; and to water our undulating uplands is simply impracticable. If the planting is done in the little monsoon from eighty to ninety per cent survive the first succeeding dry season. Holes can hardly be made too deep or too wide, but to bring one to two cubic feet of sand to put into each, is utterly impracticable, at a paying cost. Neither salt nor ashes are bars to white ants, and to throw a quantity of vegetable rubbish into the holes by way of keeping in the moisture is to create the nucleus of an ant-hill round the plant. The best practical plan here is to dig a hole say three feet cube, fill it in to the depth of 18 inches with surface soil, place the plant so that the crown of the root, shall be one foot below the surface; then at intervals of three or four months fill in two or three inches, by breaking down the sides of the holes.

There is no doubt that by keeping the soil in a good mechanical condition, applying small quantities of manure, from time to time, and frequent watering in dry weather, the trees may be brought into flower in five years, but this is a costly style of cultivation, better suited to the village owner of an acre or two, who performs all the operations by the labour of his own family, than to a large concern, where every stroke of work, has to be paid for in hard cash, and the cost of watering is prohibitive. Among all our large coconut proprietors, there is only one, who combined the command of a perennial river, and sufficient capital, with pluck and intelligence enough, to carry out an irrigation work, that supplies unfailing moisture to 700 acres of land. But after all, water is only one requisite of high cultivation, and will only yield its best results, in combination with the other necessary works and appliance.

On light deep soil, with proper cultivation, an average of 100 nuts per tree is by no means an outside estimate. There are alluvial flats that yield twice that amount, and large extents of level loamy sands, that seldom average less; and even on less favoured spots, high cultivation will bring the average, well on towards that number. If we cannot estimate the yield of all the mature trees in Ceylon at a higher average than 20 nuts per annum the result is due to the want of cultivation.† There are means open to scientific industry, by which *any tree* that bears 20 nuts may be made to bear 100. These means are stated by our author thus:—"A well kept plantation should be manured once a year, * * * The soil should be freely ploughed up, and kept loose and broken." To these two heroic

* In 1881 when we visited Mr. Chasseriau's great manioc plantation in Singapore, he was cutting down coconut trees which, at twelve years old gave no promise of fruit. It struck us at the time that the cause was the clayey nature of the soil.—ED. *T. A.*

* Our inclination is to believe in a number more nearly aproaching 30 to 40 millions of trees in all stages.—ED. *T. A.*

† And over-crowding in native gardens.—ED. *T. A.*

operations, he adds irrigation once or twice a week, which being impracticable on most of our Ceylon fields, don't suit us.

Many minor errors may be forgiven to an author who takes such high ground, on the most important operations to the coconut planter. "Keep your soil well broken, and *keep* putting manure into it," has been for years the oft-repeated advice of one Ceylon planter; perhaps a voice from afar may have more power for furthering the improved method.

We have only two species of beetle that attacks the coconut tree in Ceylon. The *kuruminiya*, a large black one (not figured in this book), breeds in dung-heaps and in accumulations of decaying vegetable matter. It cuts into the cabbage and feeds on the tender undeveloped leaves, the effects of which are cut and ragged leaves in after life. It does not breed in the tree but merely dines and departs. Few trees in a plantation entirely escape, and some that are much to their taste, are kept in a chronic state of disreputable ruggedness. The other is the red beetle, *kandapanuwa* (eating worm) of the Sinhalese. The dangerous time with this foe, is from the time, the stem shows above ground, till it begins to flower. It has a strong frontal horn, with which it can enlarge to its purpose any crack or wound on the stem, but it cannot penetrate the ripe rind. The rapid expansion of the stem in a quick-growing tree often splits the base of a leaf; and in the crack so produced the young grub lives on the substance of the leaf till strong enough to gnaw its way into the stem. Split leaves should therefore be carefully removed as soon as noticed; but all whole ones should be allowed to remain on the stem till they rot, the danger of removing them being breaking the surface of the stem or exposing it before it is sufficently hardened. When the grub is detected in a tree, the safest way of dealing with it is to root it out, cut it into chips and collect and destroy the insects in all their stages. Fortunately the whole colony stick to one tree, as long as it stands, and the whole family, sometimes amounting to 150, can be disposed of at once. The grand precaution is never to trim the leaves within three feet of the stem: nine-tenths of the trees destroyed by this insect, on Ceylon plantations, have been due to wounds inflicted on the stems in trimming off dead leaves.

NOTES.—18 feet is the length of the leaf of a mature thriving tree.

The manurial elements most needed, in coconut, as in most other cultivations, are nitrates and phosphates in few cases need any others be specially provided, as they are in combination in all manures.

I think a basket of dung more scientific treatment for a coconut tree than a pounding with a paddy pestle.

In Ceylon the coconuts are gathered six times in the, year; the Jan.-Feb. crop being the smallest, and June-July the largest

Two plants from one nut is not an uncommon event, and three are sometimes to be seen, but a single nut here has thrown out no less than five. About 20 years ago a nursery plant was shown at an Agri-Horticultural exhibition in Colombo, with flower on it.

In parts of our lowcountry, where more than 100 inches of rain falls, in the year, the trees carry fine full heads of leaves, but bear comparatively small crops, so that too much moisture is rather worse than too much drought. I suppose, that in a saturated soil, the soluble plant food is too much diluted for fruit forming.

THE MODERN PLANTER.

In an article under this head a writer in the *Globe* says:—"The word still calls to the mind's eye a very sun-burned gentleman in a white jean suit, with a Panama hat on his head, a whip in his hand, strong language on his lip, and a combative assortment of cold drinks and fiery seasoning under his waistcoat; a man who is Tory to the backbone in his upholding of old notions and manners and customs, violent in his prejudices, prodigal in his expenditure and lavish in his hospitality and the limit of whose ideas is defined by the boundaries of his own island. But this accepted portrait is no more true to life than are the stage sailor, or the stage countryman; or the mother-in-law in fiction, or the hero of the penny dreadful, for, although many an East or West Indian planter leads as solitary a life as did his predecessors in the pre-steam age, he has moved with the times in every respect. But for his sunhat and his easy costume he might be anything or anywhere but what or where he is. He is not even bronzed by the sun—not half so bronzed as his globe-trotting visitor, or as many a young Englishman after a cricket season or a summer on the river, for the very sufficient reason that when he does go out into the sun, which is only at certain times of the day, he protects himself with broad hat, dark spectacles, and umbrella. He is usually temperate and as often as not an abstainer, although, for his own good in such a climate, rarely a teetotaller, and would as soon think of laying his whip across the back of a negro as of sitting down to a steady consumption of heavy viands washed down by draughts of heady, fiery liquids at the end of a day's work according to the traditional "good old" custom although he follows tradition in asking his visitor what he will take to drink. Solitary his life often is, be it amidst the tea lands of Assam or the cane pieces and cocoa plantations of the West Indies. He may have to ride twenty-five miles for a doctor and to depend upon the transport on the heads of negroes for the necessaries and luxuries of life. His society is simply that of neighbouring planters which may mean that from week's end to week's end he never sees a white face. But he is by no means a solitary man, for not only does he surround himself with as many refinements as possible, not only does every mail keep him in constant touch with the Old Country, but as often as not he simply lives on his estate during the 'crop months,' and spends the remainder of the year at home, and is therefore a very distinct and different being from the planter of Tom Cringle's era, who made his estate his world, and regarded a return to the land of his birth as the remotest of contingencies."

The writer might have added that those planters who "spend the remainder of the year at home" are few and far between, and may be regarded as the favourites of fortune. The proprietor of a very prosperous tea or sugar estate may indulge in this form of luxury, but on the majority of tea gardens and sugar estates the resident manager is a hard working man, very much on the spot, and his holidays are not by any means at brief intervals.

Old times are indeed gone. The pay is not what it was, the nature of the work is changed, the responsibility is greater, and, if the planter is not also proprietor, he has to keep a sharp look out on his estimates and his year's working, or he will be speedily called to account. The romance of a planter's life—if there ever were much—is now reduced to a matter-of-fact existence, tempered by tennis, the latest and most economic machinery, and the Mincing Lane markets.—*H. and C. Mail.*

THE MACARONI OF COMMERCE.

Macaroni and the kindred preparations have come to rank among the important food products. This article consisted originally of bits of paste and cheese pressed or squeezed into balls. The name is now applied to a paste which is manufactured from the "semoule" of wheat or wheat meal. It covers many of the Italian pastes which are used for food in one shape or another, but to Americans the form best known and most commonly found on the table is that of wheaten pipes varying from a quarter of an inch to an inch diameter. Spaghetti and vermicelli are classed under the same general head, as are also the infinite variety of tiny fanciful forms which have become such an adjunct in the preparation of soups.

Italy produces the bulk of the macaroni of commerce. Constituting as it does a staple article of diet in that country, its manufacture, indeed is said to be as much a part of the household duties of many Italians as is bread-making in our own country. Naturally the domestic product is made by hand, but in many of the large factories the work is done almost wholly by steam power, though in others hand power alone is employed. The production of macaroni in the household does not require many or complicated appliances. They consist smply of a smooth board, a piece of marble for kneading and a common rollingpin. A mixture is first formed of wheat meal or flour and eggs, the proportion being one pound of the former to four or five of the latter. This is dampened with hot water, then kneaded for several minutes, and at last is rolled into very thin sheets with the pin. These sheets are left some fifteen or twenty minutes on the board to dry, and as soon as it is found that the surface of the sheets is no longer adhesive they are rolled up as tight as possible. Slices are next cut off the ends, and as they separate they form strings of macaroni and are in shape to be used. This is the primitive method. In the ordinary commercial process the meal is merely mixed with hot water, and the dough is forced through molds or dies which give it its familiar form.

The small factories found in nearly every part of Italy, which are operated entirely by hands number in the thousands. In many instances the factory consists of a single room (this does not include the drying-rooms), which serves for a salesroom as well. The labor is performed by the owner of the establishment, with the assistance of one or two men, his wife acting in the capacity of saleswoman. If the expense entailed in running such a factory were considerable the proprietor could not compete successfully with larger and more perfectly equipped concerns. As it is, the price of this machinery is light, the cost for labor small, varying from 30c. to 60c. per diem, while the expense of drying is a mere nothing. In most cases artificial heat is rarely used, but in instances where it is employed the macaroni manufacturer is also a baker, and is able to utilize the waste heat by improvising drying-rooms over the ovens. It is stated, on good authority, that in the majority of these hand-power factories "extreme neatness is observed in every part of the operation where a good quality of macaroni is made." It is estimated that the average production per day per man is from 175 to 200 pounds, and the cost of labor per pound does not exceed one third of a cent, and is often less than one-quarter of a cent.

The latest and largest macaroni manufactories are studiously fitted up with the most modern and perfect machinery obtainable, and run by steam. The largest one in Rome, and presumably in all Italy, boasts a large American engine. This establishment manufactures not only the meal for macaroni, but flour likewise, and it is that ability to so fully provide not only for his own use, but the general market as well, that makes it possible for the steam manufacturer to cope with the hand manufacturer, whose plant has cost him almost nothing, and whose outlay in labor, cost of material, etc., is the merest bagatelle.

In the preparation of macaroni the wheat most generally employed, and considered on the whole the most desirable for the purpose, is either the Italian, which is preferred, the Russian or Indian. Each of these contains both hard and soft varieties, the former being necessary in the manufacture of 'semoule,' of which four grades are made, and the latter in the production of flour. One authority says that of the wheat mentioned the Italian species "grown in Apulia is the hardest and strongest, and therefore the best for macaroni. Foreign wheat is never bought for this purpose if Italian can be had. The Indian wheat, though displaying a fair color, is apt to be weak. Good macaroni cannot be made from soft or tender wheat." In a recent series of consular reports on the subject there is but one mention of the use of American wheat." That is in a postscript appended to the report of James Fletcher, consul at Genoa, which states specifically: "R. Ravano, of Quinto, a village about five miles from Genoa, has just informed me that he uses American wheat extensively in the manufacture of macaroni for home consumption." This suggests scope for further foreign trade engagements. It is pleasing to note in the same connection that more or less machinery used in the largest and most successful macaroni factories in Italy bears the imprint of American makers.

The transformation of meal into macaroni in the steam-working establishments is simply an elaboration of the hand process, doing away with much of its laboriousness and admitting many amplifications and improvements. In some districts it is steadily maintained, however, that the quality of the hand-made article has yet to be won by the machine product.

It has not been possible to ascertain the exact amount of macaroni exported, or, in fact, the quantity consumed at home. The reason assigned for this is that, in the first case, captains of vessels leaving for the United States and other countries take on board considerable quantities of macaroni ostensibly and declaredly for their own use, but shipped really to help supply the foreign market. In the case of home consumption, again, the article is so largely provided in the family, especially of the middle and peasant classes, that accurate estimates cannot well be obtained. In 1890 the recorded exports from Italy to the United States and Canada amounted to 137.6 tons out of a total exportation of 673 tons. Of the product of France probably one fourth is exported, and one-third of this amount is sent to the United States. More or less macaroni is manufactured here, but the amount is trivial in comparison with that imported. —*Bradstreet's.*

AGRICULTURAL ENGINEERING.

A correspondent, an expert in agricultural engineering, writes as follows:—"Dr. Voelcker, though one of our most eminent agricultural chemists, has not resided long enough in India to be an infallible authority on practical agriculture. One of his objections to deep ploughing is that the English form of plough would compress the furrow, and the hot sun would bake it to the hardness of bricks. So it would, if the cultivator used it when the land was wet and sodden, with no immediate prospect of more rain, and so would the native plough; but in no part of India would cultivators be found so inexperienced as to do that. Moreover the mould-board plough of the present day does not compress the land into a compact furrow, like the English mould-boards of twenty years ago; they are now made short so as to break the furrow as it is rolled over; anyone who has used the American 'Hindostani' plough will bear me out in what I say. There can be no question of the superiority of deep ploughing over shallow in India;* it is borne out by both theory and practice, and all intelligent native cultivators are aware of this; but the trouble with most of them is, that they cannot afford to pay for large plough bullocks suitable for deeper cultivation.—*Pioneer*, June 2nd.

* Meaning by "deep ploughing" 6 inches, or 8 at the utmost, instead of about 4.—ED. *T. A.*

PROFESSOR MIDDLETON ON ANCIENT GEMS.*

"Gems," in common speech, means a precious stone, especially when engraved for an ornament or other purpose. This, putting aside its primary meaning of a "bud," is pretty nearly its significance in classical Latin, though in both languages it might be loosely extended to comprise a pearl. As used by Professor Middleton in this admirable manual, it has of necessity a somewhat wider significance, taking in certain materials other than the many varieties of precious stones. It includes for instance, Egyptian scarabs, which are often made out of clay or steatite (a variety of talc), Hittite "gems," for which limestone and marble, among other materials, were used, Phœnician scarabs, and the metal signets found in the Mycenæ tombs. These are curious and interesting, and some exhibit delicate workmanship and, occasionally, great artistic skill. Still, the most attractive part of Professor Middleton's subject is that which is concerned with the gem proper, and that as it was handled by Greek or Roman artists. Precious stones have always been the most fascinating of human possessions. Their intrinsic beauty goes for something; their durability for more. The imagination is fired when we know that the article one touches is exactly the same as it presented itself to human eyes and hands thousands of years ago; and the feeling is intensified when art has added to the precious material, in the design, the name of the owner, or it may be of the engraver, a distinct human interest.

When we talk of precious stones, however, it must be remembered that the minerals of which the vast majority of the finest antique engraved gems are made are by no means rare or costly. The diamond, for instance, though it occurs in ancient art, occurs only in its natural crystal, the art of working it not having been discovered till comparatively recent times. (The "diamond" of the High Priest's breast-plate was possibly a white sapphire. The minerals used belong in the main to a single species known as quartz, and consisting of silica, the oxide of a non-metallic element called silicon. Of these silicious stones there are numberless varieties, differing from one another in texture and colour, and through the presence in small quantities of accessory or intruding materials. Colourless rock-crystal is the fundamental type of the species. Amethyst differs from it only in its colour, which is generally violet, but sometimes citrine, and its curious parquetted structure. Among the translucent varieties of quartz are the sard, of which Professor Middleton remarks that "it is the most beautiful material commonly used for ancient engraved gems," a stone amber-coloured, red, or reddish-brown; the less translucent cornelian (Professor Middleton always calls it carnelian, erroneously, we cannot but think), chalcedony, which is milky or bluish, the apple-green chrysoprase, and the leaf-green plasma. Jasper, of which there are many varieties, and which is of very common occurrence, is almost opaque. Another very common stone is the onyx, which is made up of two or more bands of strata, varying in translucency and hue; when one of these strata consists of sard, it is called a sardonyx. That sardonyx is peculiarly interesting from its frequent mention in classical writers. Plato speaks of it, though, as Professor Middleton tells us, it does not often occur in Greek gems. The Romans used it largely, following the fashion set by the elder Scipio Africanus. Among non silicious stones are the chrysoberyl, the topaz, the emerald, the almandine and other garnets, the peridot, the turquoise, the opal, and the lapis lazuli (the *sappirus* of Pliny the elder),—and these, from the peridot onwards, are softer than quartz, or even than ancient paste or glass. It must be remembered that, for artistic purposes, the most transparent substances, whatever their intrinsic charms, are not necessarily the most beautiful. It is the *translucent* stones, such as sard and chalcedony, that are more suitable. Through these, light, but not the forms of objects, can be discerned, and so they reveal the charms of fine and noble workmanship more than do the perfectly clear beryl and rock-crystal. In the former, the light passes less regularly—that is, with more scattering of the rays—than is the case with transparent stones, and thus the design seems to be illuminated from within. On the other hand, the opaque substances are less suitable for the purpose. Even such stones as the heliotrope and the turquoise, which are capable, when in thin splinters, of transmitting a little light, produce an effect other and more pleasing than do the perfectly opaque materials. Some of the incident light plunges a little way below the surface of the gem, and lights up its superficial layer.

Precious stones, like all other things of value, have been imitated. So we find that many "gems," as it will be still convenient to call them, have been wrought or reproduced in paste and glass. Paste was a hard glass coloured by various metallic oxides, such as those of manganese, iron, copper, and cobalt. Sometimes a piece of paste was treated by the gem-engraver just as if it were a natural stone, and sculptured by the aid of the same tools; but more generally the glass was melted and pressed into a mould. Such a mould had been taken from an engraved gem by a pellet of clay which was afterwards hardened by fire. Paste-gems are often of great beauty in colour and design, though the material lacks some thing of the optical properties which distinguish not a few of the true natural stones.

The tools and processes employed in ancient times in engraving gems are virtually the same as those in use today. The tools were five in number. The drill worked by a bow was the chief. It varied in size, was made of bronze, and acted in virtue of the emery or corundum-powder (mixed with oil) with which its point was smeared. The drill was occasionally tubular; in that case its crown was sometimes set with small crystals of corundum. The second tool was a wire-saw, made effective with the same abrading material. The wheel, or disc of bronze, was similarly employed. A file was also used, not of metal, but of a mixture of emery and resin, heated together, and then allowed to solidify by cooling. The fifth tool was a graver, made by mounting in an iron or bronze handle a crystal or crystalline fragment of diamond or of sapphire, or sometimes a piece of rock-crystal. As a rule, in engraving antique gems, and also those of the cinque-cento time, the tool used was worked by the hand, the stone to be engraved being fixed. In more recent days, the reverse arrangement is followed, and in consequence the touch is less free and the style more mechanical. The engraved work and the field of gems were polished by rubbing them with fine powders, hæmatite, or red oxide of iron, having been generally employed for this purpose.

Paste was often legitimately used, but it naturally suggests the subject of fraud. The ancients were not inexpert in this branch of art, if it may be so called. One might say that the pair of green glass pillars in the temple of the Tyrian Hercules

**The Engraved Gems of Classical Times.* By J. H. ms Middleton. Cambridge: The University Press-1891.

which the priests declared to Herodotus to be emerald, were a gigantic imposture; but it is not unlikely that the historian deceived himself. Of jewellers' frauds, the chief was the making of a "doublet," a paste backed with a real stone of greater hardness, but poor colour. The two materials were joined by an invisible cement, the line of junction at the girdle of the gem being concealed by the mounting. The alteration and accentuation of the colour of natural stones, particularly of the onyx, by means of various chemicals, is a comparatively recent invention; but the ancients were adepts in the art of changing the original hue by means of strong heat.

Professor Middleton devotes much space to another class of fraud, the modern imitations of ancient gems, imitations sometimes so clever that they puzzle even the expert. Again and again we find mention of specimens which it is necessary to leave doubtful. One curious sub-variety of this subject relates to the fraudulent signatures. It is obvious that a signed gem has a special interest. Hence many gems really ancient have had false signatures added to them. Here, again, experts are sometimes at a loss. The famous Carlisle "Mercury" is quoted as a case in point. It bears the name of Dioskourides, and, whether ancient or modern, it is a fine work of art. Unhappily, it once belonged to Baron Stosch, who was in the matter of gems much the same as the notorious Simonides was in the matter of manuscripts.

Professor Middleton completes a singularly interesting book by a descriptive catalogue of the engraved gems in the Fitzwilliam Museum, illustrated by two plates giving autotype reproductions of some of the principal Roman gems.—*Spectator.*

THE SPREAD OF COTTON CULTIVATION IN INDIA, EGYPT, CEYLON, AFRICA, &c.

It is a very significant fact that, in spite of the gloomy prognostications shadowed forth in cotton circulars and the pessimistic views enunciated by spinners all over the world, the spread of cotton cultivation continues. The enormous American crop this year, which is expected to touch close upon 9 million bales, is held accountable for the stagnation in prices; but a theory has been advanced that the large outturn will have so exhausted the soil that the crop next year will be a very small one. How far this idea will prove true time alone can show, though most people, we suspect, will not put much faith in it. It is not so very many years ago that an American crop of one million bales was considered abnormal, whereas now it has increased seven, eight and nine fold. The same rapid advance in outturn is apparent in Egyptian and East Indian cotton, and yet the supply is yearly taken up, and the cry for more continues. Quality has certainly fallen off, to some extent, to make up for quantity, and this may be regarded much more as the true reason of the decline in prices than excessive production.* This hypothesis seems to be borne out by the efforts made to discover fresh fields for cotton cultivation and by the attempts to improve the outturn on existing cotton land. The development of the Egyptian cotton trade is progressing apace and in spite of the opposition offered by the French the opening up of the country by railways is proceeding rapidly. An arrangement has been entered into between the Suez Canal Company and the Egyptian Government for the construction of a light narrow gauge railway from Ismailia to Port Said to be worked exclusively by the former; and the question of settling the construction of a line between Port Said and the Damietta branch of the Nile is under discussion, and will no doubt be rapidly pushed through. As such a line would tap one of the principal cotton centres it is only reasonable to suppose that a stimulus will be given to the trade and that this will result in an increased area being cultivated

More ground is being planted with cotton in India year by year; and that the business should continue to flourish in spite of the serious charges of adulteration proved against the sellers, is sufficient evidence that, thus far at least, it has not been overdone. Ceylon has of late years been endeavouring to grow cotton, but until Captain Gwatkin, a planter, took to its cultivation and preparation in a careful manner the experiment did not meet with much success. His original idea in planting cotton bushes was that they should act as a shelter for cocoa plants, but it is expected that he will, in common with other planters, now go in for the cultivation more for its own sake. Most of his cotton was grown from New Orleans seed, and about 200 acres were sown with it. It was sown in September last, and picked in February. The yield was not very large, being only about 85 lb. of seed cotton per acre, or say about 30 lb. of cleaned cotton; but as a second picking, and even possibly a third is expected the outturn will compare very favourably with the average yield in India, The cotton was cleaned by steam, in Macarthy gins, which Captain Gwatkin obtained for the purpose and personally supervised. The seed is readily bought in the District at Rs. 3 per cwt, and the whole of the cotton was taken eagerly by the Colombo Spinning Mills. It is said to be beautifully white and free from stain, with a long and silky staple. As it grows rapidly and gives a quick return, a ready market being always obtainable, the industry of cotton growing in Ceylon, especially as it can be grown as a subsidiary and "shade" crop, is likely to make rapid progress. But the extension the cotton cultivation is by no means confined to India, Egypt and Ceylon. One of the principal sources of revenue that the British East Africa Company counts upon is cotton. The country is said in parts to be eminently adapted to its cultivation, and an indigenous wild variety already exists in considerable quantities. It is estimated that by the introduction of imported seed, for which the conditions are favourable, a valuable and superior kind of cotton can be produced. Land and labour are cheap and plentiful and the difficulty in the matter of transport will speedily be rectified. Turkey and Greece are also both extending their cotton cultivation, and half the cotton used by the local mills in the latter country is locally produced. The glowing reports lately published as to the suitability of the soil in Central Asia are also bearing fruit, and Russia is determined to make the most of her occupation of that country. M. Gougon, a Russian of high official position, went to America last year and, with the approval of the Czar, bought a cotton plantation in Louisiana, in order to make a practical study of cotton growing. Having mastered the business in all its details he has now gone to Central Asia to inaugurate the cultivation of cotton there on the most approved principles. He asserts that the choicest qualities can be grown at prices which will drive American cotton out of the markets of Europe! How far he has permitted his enthusiasm to outweigh his experience a few years will show. There is, however, no doubt that if equally good cotton can be grown in Central Asia a very severe

* The adulteration of Indian cotton with dirt and by the mixture of inferior with superior kinds has greatly discredited the product.—ED. *T. A.*

blow will be dealt to the industry now held almost as a monopoly by the United States.*

There are several descriptions of cotton in every cotton growing country known as "grades," which is an accurate term since the cotton is botanically the same, only produced on different soils and under different conditions. There are supposed to be five distinct botanical species, but for practical purposes cotton may be divided into two great divisions, viz, cotton of the East, and cotton of the West, or cotton of the Old and New Worlds. The former is distinctly inferior to the latter, and in addition to its indigenous superiority has had the advantage of scientific cultivation. The finest description of cotton grown is a superior grade of Egyptian, and next to it comes the famous Sea Island. This is supposed to be a native of Honduras, whence it spread to the West Indies and was thence transferred, about 100 years ago, to the United States. It requires a mild, soft, maritime climate, and before the present century the principal supply was obtained from the West Indies, and the finest probably ever grown was raised on the Island of Tobago. It was for a long time supposed that Sea Island cotton, hence the name, could not be grown on the mainland; and it was not till Florida was ceded to the United States that it was discovered that it could be grown there to perfection. It is, however, a curious fact that "in-breeding," or using the seed from the same locality time after time, has a most deteriorating effect on the quality. It is now believed that the finest descriptions of cotton, including Sea Island, can be grown in the Argentine Republic and on the banks of the River Plate, and experimental cultivation is shortly to be attempted. If the supposition prove correct, a large increase will be added to the already enormous crop of American descriptions, which is also likely to be augmented by certain improved methods of cultivation and selection of seed in existing cotton States.

We thus see that Egypt, America, and India are all yearly endeavouring to increase their output, whilst East Aferica, Central Asia, and Ceylon are all in a fair way to assist in the production of cotton. So long as the demand for cotton continues, and new spinning mills continue to find work, so long may we expect to find a corresponding stimulus given to cotton cultivation, and it is idle, in the face of such facts as we have given, to attribute the falling off in trade to over production. As soon as it ceases to pay to produce cotton its production will receive a check; but even at the present low range of prices there is, so far, no evidence of the industry having been found a losing speculation. It will be well, however, for producers to bear in mind that with so many markets for buyers to choose from it is of the first importance that the greatest attention be paid to quality. Hitherto the supply and demand have scarcely been balanced, and any kind of cotton has in consequence been accepted, and worked up in the best manner possible. Quite the reverse, however, will be the case when buyers begin to pick and choose.—*Madras Mail*, May 26th.

CAOUTCHOUC can be dissolved more readily (according to *Pharm. Centralh.*) by adding from 5 to 15 per cent. of oil eucalyptus to the benzol or carbon bisulphide used; in the latter proportions, the mixture of carbon bisulphide will dissolve nearly 20 per cent. of caoutchouc.—*Indiarubber Journal.*

* In Central A ia the real question will be that of plentiful, steady and cheap labour, in which the Northern American States are so exceptionally favoured.—ED. *T. A.*

FORESTS AND RAINFALL.

The following letter from a well-known hand appears in the *Madras Mail*:—

SIR,—Since last addressing you on this important subject my attention has been called to a work which should be carefully perused by all Civilians and Native statesmen—"Man and Nature," by George Marsh, (Messrs. Sampson Low & Co., London, 1864)—and I trust you will allow me to quote the following passage which so decisively confirms what I have previously pointed out on the effects of woods in causing rain to fall in moderate showers distributed over a considerable number of days; whereas, in the absence of woods, the tendency of rain is to fall in destructive torrents which afford to agriculture a comparatively small amount of benefit accompanied with a large amount of damage. Mr. Marsh, I may observe, is an extremely cautious writer, for after giving many instances to prove that in tropical countries especially, forests increase rainfall, he thus sums up at p. 196:—

"The effects of forests on precipitation is not entirely free from doubt, and we cannot positively affirm that the total quantity of rain is diminished or increased by the destruction of the woods, though the theoretical considerations and the balance of testimony strongly favour the opinion that more rain falls in wooded than in open countries. The important conclusion, at least, upon the meteorological influence of forests is certain and undisputed: the proposition, namely, that within their own limits, and near their own borders, they maintain a more uniform humidity in the atmosphere than is observed in cleared grounds. Scarcely less can it be questioned that they promote the frequency of showers, and that, if they do not augment the amount of precipitation, they equalise its distribution through the different seasons." Woods also, he tells us, influence the dewfall, another most important point, and on this Mr. Marsh quotes Schacht (*Les Arbres* p. 412) who remarks on the effect of forest in increasing the deposition of dew in the neighbouring fields. He also says that it attracts rain from the clouds, and observes that "forests, in a word, exert in the interior of continents, an influence like that of the sea on the climate of islands and of coasts; both water the soil, and thereby insure its fertility." With reference to what Schacht writes as to woods attracting rain from the clouds, I may mention that Mr. Jamieson (Superintendent of Cinchona Gardens) informs me that he has often found the trees in the sholas dripping where the land outside of them was quite dry.

At page 201 Mr. Marsh remarks on the great importance of forests in economising the water in rivers, and this effect here is most marked, and many clear proofs are given in corroboration. In fact, the effect of forests is like the effect of undrained moorlands at the sources of streams. The forests and the undrained moors part with their moisture slowly, and afford an even and moderate supply of water for a long period. But cut down one and drain the other, and you have the same quantity of water perhaps, but rapidly running away in destructive floods. In such floods in the tropics how much valuable water must run to waste, and, almost worse still, silt up tanks and other irrigation works. I have pointed out that forests increase the humidity of the air, and it may be well to quote Marsh (p. 177) who says that "trees increase the humidity of the air by pouring out into the atmosphere in a vaporous form the water they draw up through their roots, and the last operation at the same time lowers the temperature of the air in contact with or proximity to the wood, by the same law as in other cases of the conversion of water into vapour." In short a wood is an irrigation work for moistening the atmosphere and increasing the dewfall, and whether it increases the total rainfall or not, it practically increases it for the agriculturist by causing the rain to fall in a better way, and to be distributed over a great number of days and lastly, but by no means leastly, woods economise the rain after it has fallen. It is clear then that woods can enormously increase the available water supply in India, and as they can also greatly increase the available manure by doing away with the necessity

for using cattle dung for fuel, it is evident that of all measures for the benefit of the people the planting of woods in the dry interior regions of the continent is a work of the most urgent importance.

ROBERT H. ELLIOT.

Ootacamund, May 31st.

We have written frequently and copiously on the subject discussed in Mr. Robert Elliot's letter, given above, and we see no reason to alter or modify our long-formed opinions. The present season has afforded additional proof that denudation of forest and its replacement by cultivated plants in the mountain and rainy region of Ceylon (in the track of the monsoons) have not lessened the average rainfall over such region the thousandth part of an inch. The culture of the ground, too, enabling it to absorb much of the moisture which falls, has largely prevented floods, which, however, occurred at intervals in a very formidable fashion, when the forest stood unviolated by the woodman's axe. The forest existed in luxuriance on the mountains and plains of the south-west portion of Ceylon, because the region was rainy. In the dry and arid parts of the country forest was and is either absent, or stunted and peculiar, according to quality of soil and contiguity to rivers, streams, canals or tanks. We doubt if the afforestation of such dry and arid regions, however desirable it may be,—and most desirable *it is*,—will increase the actual rainfall by a decimal of an inch. But apart from their value, otherwise, forests conserve such moisture as may be deposited or may exist, and so they modify temperature and the conditions of climate generally. Let forests be judiciously conserved and judiciously extended, by all means, therefore; but let there be no extravagant expectation that the great dynamical laws of nature can be revolutionized by man's puny efforts. Forest is plentiful because rain is plentiful, but the converse of the proposition is not true. Plentiful rain will not follow abundant forest. Over a large portion of Ceylon and much larger portions of India, natural forest is scarce or absent, because of the paucity of rain. To produce forest artificially in such regions is difficult but not impossible. Success will secure many beneficial consequences: amongst the rest economy of moisture by reducing floods and evaporation. But we are utterly sceptical as to any appreciable increase of the deposit of rain from the atmosphere, by any process of afforestation which can be carried out.

INDIAN TEA IN PARIS.—Mr. Thomas Lough* tells me, says the correspondent of a contemporary, that the experiment of opening a tea pavilion in Paris has succeeded beyond all his anticipations. Two more establishments are about to be started by the same enterprising company, one in the Champs Elysées, midway between the Palais de l' Industrie and the Arc de Triomphe, and the other on the Boulevard Bonnes-Nouvelles, the centre of the theatre quarter. It is gratifying to find that the fastidious Parisians are taking so kindly to Indian tea. Did I ever tell you about a curious remark made to me by a Frenchman in Paris a few months ago? We were talking about the growth of tea drinking in the gay capital. My friend observed, "Oh yes, I drink tea and like it, but I am not like you English, *I don't drink it with my dinner!*" This gentleman was the leading official in a wellknown banking house, near the Place de l'Opera, and prided himself on his knowledge of our ways.—*Madras Times.*

* Whose proceeding do not find favour in Ceylon.—ED. *T. A.*

THE GOVERNMENT COFFEE CROP this year for Java is estimated at pikols 351,268.—*Singapore Free Press.*

TANNIN WRITING INK.—Dissolve 15 drams tannin in 17 ozs. water (*Ch. & Dr.*), add a mixture of 1 oz. 10 per cent. solution of perchloride of iron, 12 drops sulphuric acid, and 12¼ ozs. water, dissolve in this mixture 5 drams of deep black dye.—E.—*Pharmaceutical Era.*

TREATMENT OF INGROWN NAIL.—DR. Purckhauer (*Therapeutic Gazette, Am. Jour. Med. Science*) moistens the surface of the diseased nail with a luke-warm 40 per cent. solution of caustic potash and then scrapes off the softened upper layer with a sharp-edged piece of glass. After a second application the scraping is continued until the nail is as thin as a sheet of paper. It is then lifted up from the soft parts with forceps and the diseased parts are excised. —*Pharmaceutical Era.*

TEA AT £30 PER POUND.—Of course there is no reason why there should be any limit to the price offered for golden-tip tea if the buyers think that by spending their money that way they get more fun from an advertisement point of view. As mentioned last week by our Commissioner in the Lane, a little box of tea weighing 5 lb. net, and containing silver-leaf flowery Pekoe, from the Kellie Estate in Ceylon, was sold on Thursday at £30 per lb., or equal to about 37s per ounce. The lot was knocked down to Messrs. Hawes & Co., tea brokers, who bought it for Mr. Owen Edwards, dealer, of King William Street.—*H. and C Mail.*

CEYLON EXPORTS AND DISTRIBUTION, 1891.

COUNTRIES.		Coffee cwt.			Cinchona	Tea.	Cocoa	C'moms.	Cinnamon.		Coconut Oil.		Plago.
		Plantation	N'tive	Total.	1891 B'nch & Trunk lb.	1891 lb.	cwt.	lb	Bales lb.	Chips lb.	1891 cwt.	1890 cwt.	1891 cwt.
To United Kingdom	...	25776	...	25776	2238795	30608723	10184	61936	442093	38361	60237	2004	73214
,, Austria	...	4188	16	4204	...	3864	...	500	2100	3370	7845	2702	...
,, Belgium	...	18	...	18	77748	85	...	...	10000	...	1303	...	3094
,, France	...	...	33	33	3362	9091	39	...	61900	...	2300	...	...
,, Germany	...	300	2	302	...	40381	77	1141	130475	65520	10121	907	12786
,, Holland	...	...	...	...	21438	...	...	...	...	...	...	10	...
,, Italy	...	...	53	53	...	504	...	...	53800	42000	1602	696	...
,, Russia	...	...	...	...	...	...	...	...	...	...	1001	99	...
,, Spain	...	...	...	...	...	4400	...	...	36000	...	...	...	...
,, Sweden	...	...	...	...	...	300	...	...	...	...	...	...	...
,, Turkey	...	...	...	...	...	...	...	...	...	...	...	...	...
,, India	...	1188	2592	3710	...	106194	...	87220	20912	...	47948	27628	35
,, Australia	...	3888	570	4408	...	1369737	...	40	2700	8908	252	1029	192
,, America	...	154	...	154	176927	71318	1354	4640	22000	...	46670	15028	104612
,, Africa	...	35	...	35	...	21348	...	...	...	...	...	...	...
,, China	...	21	...	21	...	31912	...	...	30368	...	1061	26059	...
,, Singapore	...	15	...	15	...	4000	84	...	...	...	58	...	...
,, Mauritius	...	...	...	...	...	22720	...	...	...	...	...	...	...
Total Exports from 1st Jan. to 2nd June	1891	35288	3441	38729	2513270	32292577	11738	155477	812846	153159	181507		199383
Do	1890	51769	1864	53633	4085856	21922523	9143	177380	687958	230380	78162		170504
Do	1889	31612	3723	35335	4705784	16869510	8067	150706	1102039	330151	135541		200081
Do	1888	77522	3224	80846	5819371	9966693	8777	158196	570993	355455	183771		92642

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current London, May 21st, 1891.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry	£3 a £6 10s
Zanzibar & Hepatic	Common and good	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d a 1s
	Medium to fine Quill	4d a 9d
	Spoke shavings	2d a 4d
	Branch	1½ a 3½
Red	Renewed	2d a 1s
	Medium to good Quill	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8 10s
Yellow	,, ,,	£6 a £7
Mauritius & Madagascar	Fair to good	£6 10s a £7
CARDAMOMS—		
Allepee	Fair to fine clipped	1s a 2s 2d
Mangalore	Bold, bright, fair to fine	1s 6d a 3s
Malabar	Good to fine plump, cliped	2s a 2s 6d
Ceylon, Malabar sort	Fair to good bold bleached	2s 6d a 3s 6d
	,, ,, medium ,,	1s 6d a 2s
	,, ,, small	1s a 1s 6d
	Small to bold brown	1s a 1s 6d
Alleppee and Mysore sort	Fair to fine bold	2s 6d a 4s 4d
	,, ,, medium	1s 6d a 1s 10d
	,, ,, small	1s a 1s 4d
Long wild Ceylon	Common to good	6d a 2s 2d
CASTOR OIL, 1sts	White	4½d a 4⅝d
2nds	Fair and good pale	3d a 3½d
3rds	Brown and brownish	2½ a 3d
CHILLIES, Zanzibar	Fair to fine bright	65s a 70s
	Ord'y. and middling	55s a 62s 6d
CINNAMON, 1sts	Ord'y. to fine pale quill	7½d a 1s 2d
2nds	,, ,, ,, ,,	7d a 1s
3rds	,, ,, ,, ,,	6½d a 10d
4ths	,, ,, ,, ,,	5½d a 7d
Chips	Fair to fine plant	2d a 6½d
CLOVES, Zanzibar	Fair to fine bright	3⅛-16d a 4d
and Pemba.	Common dull and mixe	3½d a 3⅝d
,, STEMS	Common to good	7/8 a 1d
COCULUS INDICUS	Fair sifted	12s a 13s
COLOMBO ROOT	Good to fine bright sound	22s 6d a 28s 6d
	Ordinary & middling	16s a 20s
CROTON SEEDS, sifted	Fair to fine fresh	10s a 15s
CUTCH	Fair to fine dry	24s a 32s 6d
DRAGONS BLOOD, Zanzibar	Ordinary to good drop	50s a 90s
GALLS, Bussorah & Turkey	Fair to find dark blue	52s 6d a 57s 6d
	Good white and green	40s a 50s
GINGER, Cochin, Cut	Good to fine bold	65s a 75s
,, Rough	Small and medium	40s a 52s
	Fair to fine bold	33s a 40s
,, Bengal, Rough	Small and medium	23s a 28s
GUM AMMONIACUM	Fair to good	9s
ANIMI, washed	Blocky to fine clean	50s a 90s
	Picked fine pale in sorts	£11 a £13
	Part yellow & mixed do	£10 a £11
	Bean & Pea size ditto	£5 a £7 10s
	Amber and red bold	£10 a £12
	Medium & bold sorts	£6 10s a £11
scraped	Good to fine pale frosted sifted	60s a 80s
ARABIC E.I. & Aden	Sorts, dull red to fair	35s a 55s
	Good to fine pale selected	45s a 55s
Ghatti	Sorts middling to good	23s a 33s
	Good and fine pale	65s a 107s 6d
Amrad cha	Reddish to pale brown	25s a 50s
	Dark to fine pale	15s a 50s
Madras	Fair to fine pinky block and drop	35s a 80s
ASSAFŒTIDA	Ordinary stony to midling	20s a 28s
	Fair to fine bright	45s a 50s
KINO	Fair to fine pale	£4 a £7
MYRRH, picked	Middling to good	70s a 80s
Aden sorts	Fair to fine white	35s a 60s
OLIBANUM, 1rop	Reddish to middling	22s 6d a 32s 6d
,, pickings	Middling to good pale	12s a 18s
,, siftings	Slightly foul to fine	10s a 15s
INDIARUBBER	Red hard clean ball	2s 1d a 2s 5d
East African Ports, Zanzibar and Mozambique Coast	White softish ditto	1s 8d a 2s 1d
	Unripe root	1s 3d a 1s 11d
	Liver	1s 6d a 2s 2d
Assam,	Sausage, fair to fine	2s a 2s 2d
	Good to fine	2s a 2s 6d
	Common foul & middling	1s a 1s 10d
Rangoon	Fair to good clean	2s a 2s 3d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	2s 3d a 2s 7d
	Fair to good black	1s 9d a 2s 1d
ISINGLASS or FISH MAWS Tongue	good to fine pale	3s a 3s 10d
	dark to fair	1s a 2s 6d
Bladder Pipe	Clean thin to fine bold	1s 6d a 3s 7d
Purse	Dark mixed to fine pale	6½d a 1s 6d
Kurrachee Leaf	Common to good pale	1s 9d a 3s 10d

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal	Middling to fine violet	1s 6d a 5s 10d
	Ordinary to middling	3s 6d a 4s 3d
Kurpah	Fair to good reddish violt	3s 3d a 3s 8d
	Ordinary and middling	2s 3d a 3s 1d
Madras (Dry Leaf)	Middling to good	2s 6d a 3s
	Low to ordinary	1s 8d a 2s 3d
IVORY—Elephants' Teeth 60 lb & upwards	Soft slightly def. to sound	£68 a £77 10s
over 30 & under 60 lb	,, ,,	£55 a £73
40 a 100 lb.	Hard ,, ,,	£47 a £59
Scrivelloes	Soft ,, ,,	£33 10s a £54 10s
,,	Hard ,, ,,	£22 a £37 10s
Billiard Ball Pieces 2¾ a 3¾ in	Sound	£81 a £95 10s
Bagatelle Points	Sli def. to fine sound	£67 10s a £82 10s
Cut Points for Balls	Shaky to fine solid sd.	£51 a £70 10s
Mixed Points & Tips	Defective, part hard	£32 10s a £56
Cut Hollows	Thin to thick sli, def to sound	£30 10s a £55
Sea Horse Teeth— ⅝ a 4½ lb.	Crvd. crkd & close strght	1s a 3s 1d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	13s 6d a 15s
	,, II, fair pickings	9s 6d a 11s
	Jubblepore I, good & fine pale	13s a 15s
	,, II, fair rejections	9s 6d a 11s
	Vingorlas, good and fine	9s 6d a 12s
Madras, Upper Godavery	Good to fine picked	11s 6d a 13s 6d
,, ,,	Common to middling	9s 9d a 11s
Coast	Fair	11s a 12s
Pickings	Burnt and defective	8s 9d a 10s 9d
MACE, Bombay	Dark to good bold pale	2s a 3s 2d
	W'd com. dark to fine bold	3d a 1s 2d
NUTMEGS, ,,	64's a 80's	2s 8d a 3s 1d
	83's a 180's	1s 6d a 2s 7d
NUX Cochin, Madras	Fair to fine bold fresh	11s a 14s
VOMICA and Bombay	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON	Fair to fine heavy	1s a 2s 6d
CITRONELLE	Bright & good flavour	¾d a 1d
LEMONGRASS	,, ,, ,,	1½d a 1¾d
ORCHELLA WEED Ceylon	Mid. to fine, not woody	20s a 25s
Zanzibar	Picked clean flat leaf	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER— Malabar, Black sifted	Fair to bold heavy	4½d a 4¾d
Alleppee & Tellicherry	,, good ,, ,,	
Tellicherry, White	,, ,, ,,	1s a 1s 1d
PLUMBAGO, Lump	Fair to fine bright bold	15s a 21s
	Middling to good small	11s a 14s
Chips	Sli'tly foul to fine bright	9s a 12s
Dust	Ordinary to fine bright	4s 6d a 7s 6d
RED WOOD	Fair and fine bold	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	50s a 60s
	Ordinary to fair	28s a 45s
	Inferior and pickings	15s a 25s
SALTPETRE, Bengal	Ordinary to good	16s 6d a 17s
SANDAL WOOD, Logs	Fair to fine flavour	£35 a £60
,, Chips	Inferior to fine	£9 a £30
SAPAN WOOD	Lean to good bold	£4 a £7
SEEDLAC	Ordinary to fine bright	23s a 70s
SENNA, Tinnevelly	Good to fine bold green	6d a 8d
	Medium to bold green	4d a 6d
	Small and medium green	2d a 3d
	Common dark and small	1d a 1½d
Bombay	Ordinar to good	1d a 2d
SHELLS, M.-o'-P.	EGYPTIAN—med. to large	85s a 100s
	small and medium	90s a 100s
	oyster and chicken	85s a 100s
large	BOMBAY—fine thick	80s a 85s
medium stout	bright fairly clean	95s a 102s 6d
chicken part stout	,, ,, ,,	85s a 95s
oyster part thin	,, ,, ,,	70s a 82s 6d
Mussel	medium to fine bold	45s a 60s
	small and medium sorts	36s a 40s 6d
Lingah Ceylon	Sorts	3s a 10s
TAMARINDS	Mid. to fine blk not stony	12s 6d a 15s
	Stony and inferior	4s 6s
TORTOISESHELL	Fair & fine clean heavy	16s a 25s
Zanzibar and Bombay	Low thin to mid. clean	5s a 15s
TURMERIC, Bengal	Leamish to fine plump finger	15s a 16s
Madras	Fin. fair to fine bold brgt	16s 6d a 18s 6d
,,	Mixed middling	15s a 16s
,,	Bulbs	10s a 12s
Cochin	Finger	18s a 14s
VANILLOES, Bourbon, 1sts	Fine, cryst'ed 5 to 9 in.	12s a 19s
Mauritius, 2nds	Foxy & reddish 5 to 8 in.	9s a 13s
Seychelles, 3rds	Lean & dry to mid. under 6 in.	6s a 8s
Madagascar, 4ths	Low, foxy, inferior and pickings	3s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for July :—

OURSELVES.

WITH this number we enter upon our third volume of the Magazine of the School of Agriculture. So far the contributions to the Magazine have been solely from the pens of the staff of teachers at the School and the old boys of the Institution, to whom our thanks are due for their help in the endeavour to fill the Magazine with interesting and varied contents. To judge from the kind notices in our daily contemporaries, to whom also we owe a debt of gratitude for their encouragement, we have not wholly failed in this endeavour. We must however take this opportunity of appealing to *all* those who have severed their direct connection with the School of Agriculture to make a more determined effort to send us news and notes from the various parts of the Island over which they are scattered : and especially to those who have the advantage of occupations which necessitate travel do we appeal (in the absence of *bona fide* Agricultural Inspectors) for such reports as they can find time to send us in the midst of their other duties. Such reports, coming as they will from those who are capable of careful observation as well as judgment in agricultural matters, while they will, when published, make our publication more interesting, will at the same time keep us alive to the condition of native agriculture—which, owing to various controlling causes, is full of vicissitude—and place us in a position of greater advantage than we are able to attain to any otherwise, inasmuch as we shall thereby have a more extended range of observation to our mental eye, and be better able to deal with matters affecting remote places.

OCCASIONAL NOTES.

Hibiscus Cannabinus, of which mention was made in our last issue as being grown together with cotton in India, is being grown experimentally at the School of Agriculture, where the plants have come up fairly well. It is mentioned in Thwaites' *Enumeratio*, as growing "near Trincomalee." Like *H. Esculentus* (Bandikai) the bark yields a fibre of some value. Wight mentions that the leaves are eaten as spinach. The plant resembles the *H. Subdariffa* or rozelle from the fleshy acid calyx, of which excellent jelly is prepared. We are informed that it is grown about Anuradhapura both as a fibre plant and a food-product.

In the School of Agriculture grounds are a few trees of the order Leguminosæ which, according to Dr. Trimen, belong to the genus *Milettia*. The seeds were originally sent to Mr. H. D. Lewis, late Head Master of the School, by a gentleman in America, and was by the latter referred to as "Madre de Cacao." This term is in Ceylon associated with the *Erythrinas*, used as shade for cocoa plantations, and it is to be inferred that the specimens of Milettia we have are used for the same purpose elsewhere. These trees are of an uncommon appearance with long supple plume-like branches. Two of them flowered for the first time early this year and displayed an abundance of pretty pink and white blossoms. It has been found that any broken branch or twig stuck into the ground in a moist place grows without difficulty. The specimens at the School are probably the only ones in the Island.

There seems to be a good deal of uncertanity about the identity of the resinous substance known as Dragon's blood. In Cooley's Cyclopædia, Dragon's blood (*sanguis draconis*) is described as a rich red resin, obtained from various species of *Calamus*. In a list of economic products of the vegetable kingdom, published by Robert Hard-

wicke, it is given as a red resinous exudation from Pterocarpus Draco, a leguminous tree. The substance would appear to have been valued in times past not only for its medicinal properties, but also for tingeing varnishes, especially the varnish used in violin manufacture. It is we believe generally considered among violin makers that the identity of the real Dragon's blood—to which is due not only the beauty, but also in some measure the richness of tone of old violins,—is now lost, and that what is sold at present as Dragon's blood is a spurious article which, though it closely resembles the original, has not its much-desired qualities. The following is a recipe given by Cooley for making the facticious Dragon's blood:—Shellac 4 lb., melt, remove from the fire, and add Canada balsam 6 oz. and gum benzoin 2 oz.; mix well, stir in red sanders wood (or sandalwood) 1½ lb; and Venetian red ¾ lb. (both in fine powder); and form the mass into sticks. In another recipe the Venetian red is omitted.

Resinous exudations from trees of the red or ruby colour of Dragon's blood are not unknown in Ceylon, but they are objected to either because the tint does not quite come up to the standard of that of Dragon's blood, or because they do not, as is necessary, mix with turpentine. The genus *Pterocarpus* includes many trees containing red colouring matter. From *P. Marsupium*, the red sandal or sanders wood is derived the red gum kino, which is used medicinally by the natives.

The *Ceylon Independent* announces the interesting fact that a committee has been formed, with Father Lytton at its head, for taking steps to sink an artesian well in a suitable locality. The sum of R4000 has been fixed as the amount necessary, of which the Roman Catholic Mission proposes to give R1000. The lawyers, who form the bulk of the committee, are expected to contribute a good round sum.

The fibre from the musk plant (*Abelmoschus moschatus*)—Like a great many of the malvaceæ, produces a fibre which is said to be as good as any for bag and rope making. The seeds, which possess a heavy and peculiar odour, are used for flavouring purposes, and at one time sold for over a pound sterling per pound weight; but their value has gone down, we are told, owing to the discovery of a chemical substitute possessing the same properties. There are a few of these bushes growing and fruiting freely at the School of Agriculture.

RAIN.

Rain water, though commonly spoken of as pure, is by no means chemically pure water. It always contains a certain amount of oxygen and carbonic acid gas which it takes up in its passage through the atmosphere. In the vicinity of towns it is rendered still more impure by the presence of nitric and sulphuric acids, which increase its disintegrating power on both natural and artificial structures. On reaching the ground rain takes up more carbonic acid gas, and among other things, decaying organic matter: and it is to the presence of these two substances, together with oxygen that its power as a weathering agent is mainly due. While oxygen alters and breaks up rocks by oxidising their constituents, and while organic matter brings about the same results by deoxidation, the carbonic acid present in rain water forms easily soluble carbonates out of less soluble compounds. While rain water easily washes away the chlorides and nitrates of soda and lime, most soils are able to firmly retain the phosphoric acid, ammonia and potash, which are little if at all found in the drainage water. Even on the heavy soils at Rothamsted, and with a rainfall of only 17 inches, the nitrogen removed every year in the drainage water from bare follow amounts to over 40 lb. per acre, equal to about 2½ cwt. of nitrate of soda. When the roots of a cultivated crop are present to utilize the nitrates as they are formed in the soil, there is of course much less loss. On the other hand, if rain does cause a loss of the valuable constituents already present in the soil, by washing over and soaking through the land, it also imports appreciable quantities of nitrogen in the form of ammonia and nitric acid from the atmosphere into the soil. The rain as it falls in the country in England has been found to contain about ·9 parts per million parts of ammonia, and ·19 of nitric acid. Dew and hoarfrost contain, according to Dr. Fream, three or four times the amount of ammonia and nitric acid found in rain water. At Rothamsted the amount of nitrogen as ammonia in rain, mean of 5 years, was found to be 2·4 lb. per acre; nitrogen as nitrates and nitrites about 1 lb.; as organic nitrogen a similar quantity: giving a total of 4·4 lb. per acre. The average of many experiments made on the Continent gives 10·23 lb. of nitrogen per acre brought down by the rain. This high average is to be explained by the fact that many of the determinations were made near towns, where as a result of thick population and its attendant conditions, more ammonia and nitric acid passes into the atmosphere than is the case in country places. Warrington gives it that chlorides are always present in rain; at Cirencester the chlorides in rain water are said to be equal to 40 lb. of common salt per acre per annum. At Rothamsted it was found that 24 lb. of sodium chlorides were supplied annually by rain.

Looking now at the mechanical action of rain, we find that it has a tendency to wash away and carry off the more easily-weathered parts of rocks and soils. It is a common experience to find after a sharp shower of rain, a number of miniature pillars left standing on roads and bare lands, representing either the more durable matter which withstood the mechanical action of the rain, or such substance as, though not of a durable nature, has been protected from the weather by a pebble or piece of rock capping it. This simply though forcibly illustrates what goes on around us on a large scale. The mechanical action of rain water results in the washing away of soil to a large extent from hill sides, where the transporting power of water is increased by the gradient of the land. Where the rainfall is crowded into limited periods this effect is of course greater than in places where the same rainfall is evenly distributed throughout the year. But what is loss to the cultivator of the hill slopes is generally gain to the tiller of the plains below; transportation of soil from one place resulting in accumulation in another. Another result of the rainfall of a district

being crowded into a short and heavy rainy season, is that the rivers gain in erosive and transporting power, owing mainly to the increase in their volume, which may go on to such an extent that the lower reaches of the river become flooded. These periodic floods due to continuous heavy rains cause much damage to cultivators by submerging their crops, though there is the advantage of a deposit of silt to be expected when the waters abate, which adds appreciably to the fertility of the land.

The "washing out" of soils on hilly land can of course be mitigated to a very great extent by an intelligent system of drainage, but those land-owners who are unfortunate enough to cultivate within the inundation area of rivers, can do little to minimise the evil-effects of long-standing water on their crops. In these latter cases where generally proper outlets for flood water are what are only necessary to avert the evil results of inundations, it is manifestly the duty of the Government to see to the alteration of those natural conditions which prevent the flowing off of this water.

There are, besides, other considerations than the fostering of the agricultural industry—for instance, the danger to health from stagnating water and decomposing vegetation—that should weigh with the Government in undertaking the necessary measures, so far as they are practicable, to prevent if not the recurrence, at least the continuance of floods when they do occur.

THE MADU TREE.

(Cycas Circinalis.)

By W. A. De Silva.

The Madu tree or the Ceylon Cycad grows commonly in uncultivated places. It has the appearance of a palm, and belongs to the Taxid family. This tree abounds in the jungles of Dumbara, Kadugannawa and other districts.

The Madu has a branchless stem, but occasionally branched exceptions are met with. Twelve to sixteen leaves spring up at a time from the top of the tree. When the first set of leaves mature, others come up in the same manner to replace them.

The Cycas is a dicecious tree. The staminate and pistillate flowers being borne on different plants. When the flowers come up they emit a peculiar nauseous smell.

It is seen in fruit in November and December, and the fruits resemble large arecanuts. The ripe fruits are sometimes chopped into pieces and dried, and a flour is obtained by pounding them, after removing the outer shell and soaking in water. This flour resembles somewhat that of rice, but has a peculiar smell though not of unpleasant taste. Sweetmeat and other preparations are made from Madu flour, which is generally much used on account of certain medicinal properties it possesses, especially in alleviating rheumatic pains. Dried Madu fruits are often sold in the village bazaars at from six to eight cents per measure, about hundred and fifty fruits going to form a measure.

The tender Madu leaves are covered with a glossy epidermis, and after this is removed they are generally made into curries for use as food.

NOTES FROM A TRAVELLER'S DIARY.

While travelling through Walapane in March last, and passing through some of the villages in the interior, I was struck by the novel appearance they presented, owing to many of the dwellings having sunflower plants, gay with golden blossoms, growing around them. On enquiry I learnt that these plants had been raised by some of the boys attending the Government School in the neighbourhood. The teacher of this institution had himself got up a pretty little garden of sunflower trees opposite the school-house; and it was he who had distributed the seed among his pupils, giving them instructions how to grow them, and explaining to them the economic value of the trees.

Insignificant as this bit of experience on my part may appear to be, it goes to show that there is a deal of good work to be done in introducing plants and trees from one part of the Island to the other, as well as totally new products that may be found suitable. Dhall, arrowroot, breadfruit and various kinds of yams can with advantage be introduced into these parts. It is just here that one sees the great need there is for Agricultural Inspectors, who while itinerating will ascertain the wants of the inhabitants of remote villages, and lead the cultivators into the way of bettering their position.

I paid a casual visit to the garden of a Moorman in Walapane, and found that he had four or five prolific bread-fruit trees planted there. These plants he had brought with him all the way from Dodanduwa in the Southern Province. By means of a Government officer who will supply seeds of jak, bread-fruit, &c., and instruct and advise the cultivator as to the best means of growing them, the inhabitants of these unfortunate parts may be induced to grow such products as have been mentioned, in their chenas. But it is only by personal influence, and the influence of a Government officer, that such results may be hoped to be brought about.

Of planting-products, coffee is still represented in the village of Walapane, the trees looking healthy enough, and giving promise of a good crop. Having been convinced that cocoa would thrive in most of the villages, and getting several of the villagers to promise that they would give it a trial, I intend sending the village schoolmaster in Walapane a supply of cocoa seed for distribution among the schoolboys. The ubiquitous Moorman is always on the look out, even in the remotest villages I have visited, to buy what coffee, cocoa, pepper, &c., he can get from the villagers.

I cannot say that cotton gives promise of being a favourite with the village cultivator. I know of cases where cotton was grown on a small scale and a few pounds of lint taken in, but the main difficulty in these cases was the selling of the lint. The Moorman will not buy it, for good reasons so far as he is concerned, and it is not to be expected that a villager will take (will *dare* to take) a few pounds of cotton to the Kachcheri for sale.

After what I have seen of cotton cultivation in Ceylon, I do not think it will pay when grown as a separate crop, and I would advice that it should be raised, as is frequently done in India, with some other crop. At the Hunuketale cotton plantation in the Matale district, the property of the Spinning and Weaving Company, I was disappointed to find that cultivation was to all appearances given up, and that but for a few prominent cotton trees the land was overrun with a jungly growth. The surviving plants I found to be either of the kidney or Egyptian variety.

Last February I passed the Government Relief Garden in Walapane. It will be remembered that this garden was opened to give employment to the unfortunate people of this district who had lost their paddy lands, Tobacco and cotton appear to be the only crops that any attempt was made to grow, and their cultivation cannot be said to have been successful. One would have expected that useful and suitable food products would have been raised in a place like this, instead of such doubtful crops as those that have been tried; and the Relief Gardens bring to mind the Alfred Model Farm that proved a failure owing to mismangement. After the major part, if not the whole of the money allowed for relief work in Walapane was expended, it seems that the services of an Agricultural Instructor were secured. This officer was expected to cultivate the land with the aid of a few school boys, by no means willing to work, who are expected to turn out for an hour or two a day (holidays excepted). The previous record of the Relief Gardens has by no means left an encouraging effect on the inhabitants. I heard that dhall, arrowroot, betel and yams have been grown, and that arrangements were being made for planting sugarcane, bread-fruit and jak. It is a pity that the Agricultural Instructor could not have begun work under better auspices.

[Mr. H. D. Juanis, the Agricultural Instructor, Walapane, who was unable to obtain leave during illness contracted at Lemesuriergama, whither he had been sent, broke down completely in health, and was obliged to resign his post.—Ed.]

TRAVELLER.

THE CASTOR OIL PLANT.

(Ricinus Communis.)

By W. A. De Silva.

The Castor Oil plant which flourishes in the warmer parts of the world, is grown largely along with other crops in the different districts of India.

There are two varieties of this plant; one has pink stems and petioles, and generally grows to the height of from six to eight feet, while the other variety is characterized by the pale ashy colour of its surface. The Castor is a quick-growing perennial, with delicate stems filled with soft tissue. The leaves are large and pentafid with numerous prominent veins, and they are borne on long and smooth petioles. The plant is monœcious, bearing distinct staminate and pistillate flowers upon the same raceme. A large number of capsules are borne in clusters, and when dry the oval-shaped black and smooth seeds are easily separated. These seeds contain a large percentage of an oily matter which has a peculiar smell and the properties of a purgative. On account of the latter property it is much used in medicine.

The Castor Oil plant thrives in light soils, and is generally cultivated along with other crops, such as beans, varagu and cumbu. The plants begin to produce in their fourth month, and in India much profit is obtained by its cultivation. It grows wild all over the Island of Ceylon in light soils, and the rapidity with which it comes up without any care in the soils of the Cinnamon Gardens is remarkable.

The leaves of the Castor plant form the food of a variety of silk-producing moths.

The oil fetches from 3*d.* to 5*d.* in the London market, whilst the Castor cake or poonac is considered to be a good fertilizer, and is in great demand.

This plant might be usefully added to the garden and chena products of the villagers, who will be able to raise it along with their other crops.

CEREMONIES OBSERVED BY THE KANDYANS IN PADDY CULTIVATION.

It may not be uninteresting to the readers of your useful Magazine to know something about the ceremonies observed by the Kandyan paddy cultivators, and I trust that the information which I have collected and embodied in this paper will not be considered altogether unprofitable reading.

After having selected a suitable plot of land for cultivation, the goiya presents himself before the Neketrala (village astrologer) on a Monday or Wednesday with the customary offering of forty betel leaves and arecanuts, and expresses his wishes in a humble attitude. The Neketrala then informs his petitioner, after certain astrological calculations, the circumstances upon which the success or failure of his undertaking depends. On an auspicious day (according to the Neketrala), the goiya after partaking of heel-bat (the morning meal) wends his way to his land with a mamoty, his face turned towards the favourable direction of the horizon as indicated by the astrologer, should the goiya on this journey encounter sights or sounds which portend failure—*e. g.*, the hooting of an owl, the cry of a house lizard, the growling of a dog, the sight of persons carrying weapons capable of inflicting injury, &c.,—he immediately turns back and retraces his steps homewards. Again the Neketrala has to be approached in the manner before described, and consulted as to a lucky hour. Were the goiya to meet with a milk cow, vessels filled with water, men dressed in white, &c., when he sets out towards his land, it is considered very propitious.

Assuming he has arrived at his land without the occurrence of any untoward event, the goiya begins to turn up the soil with his mamoty; this process being called *Gevadenawa.* On the following day the goiya entertains such of his fellow-villagers with kaun (rice cakes), kiri-bat (milk rice), &c., as are willing to co-operate with him in the cultivation of his field. At the lucky

hour, these villagers armed with mamoties proceed to the land, headed by the owner, and turning their faces in the direction of Adam's Peak give out the cry of "Ha para hodai" (Ha! a good beginning!). At sun turn the workmen retire for their midday meal. During the time the villagers help the goiya in the cultivation of his field, they are supplied by him with food and other necessaries.

No particular ceremony is observed in ploughing, except that wreaths of sweet smelling flowers are twined round the horns of the buffaloes, and the ploughmen keep intoning the words *"Uvé Uvéuvé, Uvé Uvéuvé"* which are considered pleasant and encouraging to the animals.

When the field is ready for sowing, the ceremony of *Pela mala Hadanawa* takes place after the following manner:—On the advent of a lucky hour, the goiya leaves his dwelling after having recited a number of religious stanzas, bearing an arecanut flower and a pata (handful) of paddy. Having arrived at his field with his eyes turned towards the favourable region of the sky, he buries the paddy in a corner of a ridge, having first moulded the earth at the spot so as to represent a peculiarly-shaped symbolic figure, and lays the arecanut flower on the top of the mound. On enquiring into the significance of this ceremony, Kehelpanala Pohath Nayake Unnanse, High Priest of Kotmale Pansale, informed me, that the arecanut flowers were intended as an offering to the gods who are held to have a great love for them, while the paddy is believed to be taken away to provide a meal. After a lapse of five days all preparations are made to sow the field: but a consideration of the ceremonies which attend the sowing of the field I must postpone for another occasion.

T. B. Pohath Kehelpanala.

Gampola: Angammana Adikaram Walauwa.
June 26th, 1891.

MANURE VALUATION.

The instructions drawn up by Dr. Aitken, Chemist to the Highland and Agricultural Society of Scotland, for valuing manures, give all cultivators of the soil the means of computing for themselves the commercial value of the fertilizers they use. The calculations are based on the analysis of the manures and on the unit values of the ingredients. The units are based on the market prices at port, the terms being cash including bags gross weight, not including carriages When these units are multiplied by the percentages in the analysis of a manure, they will produce a value representing very nearly the cash price at which one single ton may be bought in a fine sowable condition. Large purchases may be made on more favourable terms. The units are of course not constant, but are fixed for different "seasons." For season 1890, the units for soluble phosphates are 3*s.* 3*d.* in dissolved bones, 2*s.* 6*d.* in superphosphates, and an average of 2*s.* 10*d.* in dissolved compounds; for insoluble phosphates, 2*s.* 6*d.* in Ichaboe guano, 2*s.* 2*d.* in genuine Peruvian guano, 1*s.* 9*d.* in fish guano, 1*s.* 8*d.* in Frey-Bentos guano, 1*s.* 10*d.*, 1*s.* 9*d.*, and 1*s.* 8*d.* in the three classes of bones, 1*s.* 9*d.* in steamed bone flour, 1*s.* 9*d.* in dissolved bones, and an average of 1*s.* 9*d.* in dissolved compounds; Ammonia 17*s.* 6*d.* in Ichaboe guano, 16*s.* in genuine Peruvian, 12*s.* in Fish guano, 13*s.* in Frey-Bentos guano, 12*s.*, 11*s.* 6*d.* and 11*s.* in the three classes of bones, 12*s.* in steamed bone-flour, 13*s.* in dissolved bones, and an average of 13*s.* in dissolved compounds; potash 3*s.* 6*d.* in genuine Peruvian guano, and an average of 4*s.* in dissolved compounds.

The phosphates (soluble and insoluble), Ammonia and Potash are the only items to be valued.

As an example, suppose in a high class mixture, the analysis shows:—

	Per cent.
Soluble Phosphates	20
Insoluble „	5
Ammonia (total)	10
Potash	5

Then

20 p.c.	Soluble phosphates	@ 34*d.* p. unit	=	680*d.*
5 „	Insoluble „	@ 21*d.* „	=	105*d.*
10 „	Ammonia	@ 150*d.* „	=	1500*d.*
5 „	Potash	@ 48*d.* „	=	240*d.*
				2525*d.*

or, £10. 10*s.* 5*d.* per ton.

Suppose the manure is pure dissolved bones, and the analysis shows 15 % soluble phosphate, 20 % insoluble phosphate, and 3 % ammonia.

Soluble phosphate..	15 × 3*s.* 3*d.*	=	£2 8 9
Insoluble „ ..	20 × 1*s.* 9*d.*	=	1 15 0
Ammonia „ ..	3 × 13*s.* 0*d.*	=	1 19 0
	Value per ton	=	£6 2 0

GENERAL ITEMS.

Mr. Kumaravellu, who has lately returned after a tour in the North, writes:—"There is little doubt that the Northern Province contains more stock than any other in the Island. The stock consist of bulls and cows, sheep and goats, but few buffaloes. In the Jaffna peninsula, though stock-owners are most assiduous in their attention to their animals, it cannot be said that cattle are at all fed as they should be. The Jaffna cultivator does not raise any fodder crops, and depends for his supply of cattle food on what grass he could get from jungles and uncultivated places. But even this wild grass is only available to any extent at certain times, so that at other times cattle are fed mainly on straw. Goats are allowed to stray about and find their own food, which, however, they do not get very much of. In the mainland on the other hand while there is more pasture land available for cattle, there are, for the area, few cattle-owners."

"Erythrina and tulip (suriya) leaves are also used for feeding bulls and cows as well as goats. The former are got from the live fences or from betel-vine supports, and though they are relished by these animals, they are not suitable for working bulls as not only being not sufficiently nutritious, but as also having a tendency to cause laxativeness. Palmyra leaves are also used for feeding cattle, after being torn into pieces and mixed with straw. A few owners of cattle

breed their own animals by crossing with Indian bulls, but little attention is given to the breeding of sheep and goats."

"Cattle manure is often carefully collected and sold at R3 and more a cart load, but more care can be exercised to prevent manure deteriorating in value from exposure to the weather. It is a common idea among cattle owners and cattle doctors that starving cattle, is the best means of driving away disease. What the origin of this idea, which is embodied in a proverb is, it is difficult to make out. Goats are liable to an epidemic disease, of which the symptoms are cessation of feeding, inflammation of the mouth accompanied by a flow of saliva, costiveness of the bowels, and a blackening of the tongue. The animals die soon after the appearance of these symptoms, but sometimes linger for 6 or 7 days. The cattle doctors have no remedy for the disease, and for the want of veterinary aid, which is required so much here as well as in other parts of the Island, many herds of goats are periodically carried off."

The *Pioneer* seems to think that Dr. Voelcker's conclusions with regard to Indian Agriculture have been rather hasty, and quotes Mr. Benson of the Agricultural Department of Madras to prove that the ryot's systems of agriculture are by no means so perfect as thinks Dr. Voelcker, who "it would seem takes a very rose-coloured view of the Indian cultivator and his methods."

The *Indian Agriculturist* denounces in strong terms Dr. Voelcker's approval of the system of communal grazing. "It is a matter for deep regret," it says, "that a man of his scientific attainments should have given the support of his voice to encourage an unsound economic system.....a system so utterly unscientific."

The *Times of India*, referring to Dr Voelcker's article on Indian Agriculture in the Journal of the Royal Agricultural Society, says:—It is not only that the article is scrappy and imperfect—these are faults that might have been condoned—but it has a curiously superficial air about it, and paints the system and prospects of Indian Agriculture in hues which, judged by the researches of other practical men, seem altogether too rosy.

The supplement to *The Fireman* of May 1st to hand consists of a description of appliances designed by Messrs. Merryweather and Sons for India and the Colonies. Under irrigation machinery is described the improved high-class light irrigation machine specially made to meet the demand in the Colonies for light and powerful pumping machinery for irrigating purposes. It is particularly adopted for use in situations where transport of heavy machinery is difficult, and where it is required to move the engine about to work at different points. The machine can be made to draw water from a depth, and, if required, force it to a height of 40 feet from the water. The weight of the machine on wrought iron wheels is about 30 cwt., and for conveying "upcountry" it may be shipped in parts, the heaviest weighing about 10 cwt. The engine is made in different sizes to deliver from 500 to 2000 gallons per minute. When specifications and estimates are required, the following particulars should be given:—1, quantity of water required per minute; 2, total height to which it is to be raised; 3, character of fuel to be used; 4, character of water to be used in the boiler; 5, length of oiling and suction piping required.

Fixed irrigation pumps to be worked by wind power are also supplied by this firm: and by another arrangement a pair of gun-metal pumps are worked by a water wheel pumping part of the water by which the wheel is driven to a height of 50 feet through 1,500 feet of piping, or the wheel may be worked by river water and the pumps arranged to draw from a reservoir of potable water. A fall of 4 feet has been found quite sufficient to do the work, and the whole is so simple and strong, that it will pump quite unattended for days, only a little oil being occasionally required. The cost of this last arrangement, not including any brick-work, is about £40.

Seaweed is a substance of somewhat variable composition. Dr. Ure, in his *Dictionary of Arts*, gives the following typical analysis of the composition of the soluble and insoluble parts of ash of seaweed:—

Soluble Part—		
Sulphate of soda	8·0	19·0
Soda in carbonate and sulphuret	8·5	5·5
Muriate of soda and potash ..	36·5	37·5
	53·0	62·0
Insoluble Part—		
Carbonate of lime	24·0	10·0
Silica	8·0	0·0
Alumina, tinged with iron oxide	9·0	10·0
Sulphate of lime	0·0	9·0
Sulphur, and loss	6·0	8·5
	100·0	100·0

In Watt's *Dictionary of Chemistry* the percentage of nitrogen in the dry matter of seaweed is stated as follows—Dulse tangle, 1·588; black tangle, 1·396.

The third section of the International Congress of Hygiene deals with the relations of the diseases of animals to those of man. The President of this section is Sir Nigel Kingscote. Papers on the following subjects will be read by noteworthy physiologists, bacteriologists, veterinarians and agriculturists:—The propagation and prevention of rabies; animal parasites communicated to man; the infection of food; infectious diseases of the cow in relation to epidemic diseases in the human subject; the inspection of meat, with regard to the prevention of disease; tuburculosis in all its bearings; the alleged danger of consuming the apparently healthy meat and milk of tuberculosis animals; the infectious diseases communicable from animals to man and *vice versa*; anthrax; the general subject of veterinary hygiene.

It is to be hoped that the representatives of Ceylon will give their best attention to this important section of the Congress.

Received with thanks the Richmond College Magazine for June. We learn from it that Mr. Paulusz, the Science Master of Richmond College for several years, has severed his connection with the institution, and that Mr. G. C. Lee has succeeded him.

We have also to acknowledge the S. Thomas' College Magazine for May-June.

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COFFEE [AND TEA] SOILS AND MANURES.

COFFEE in Coorg seems to have far better resisted the deadly influence of *Hemileia vastatrix* than has been the case in most parts of Ceylon, judging from the fact that Messrs. Matheson & Co. considered it worth their while to employ a special Agricultural Chemist and to incur very large expenditure in prosecuting experiments in the direction of reviving an industry which with us in Ceylon seems absolutely dying out, in this the twenty-first year since the fungus was first observed in the eastern outlying range of Madulsima. By arrangement with Mr. Pringle, the chemist in question, we commence today the publication of a series of papers he has prepared as the results of his investigations and experiments. The detailed and interesting information afforded in the paper we publish today may be useful to the owners of such coffee as still survives in Ceylon, whether the cultivation of Arabian coffee is ever resumed here, on a large scale or not, and in any case tea and cinchona planters cannot but benefit; for we may take it for granted that, whatever, in the shape of manure at least, is good for coffee, is equally good for the other products, especially tea. We have been in the habit of saying that a leaf-yielding plant like tea must be less exhaustive of the fertile constituents of a soil, than a fruit-yielding plant, like coffee. But let our readers mark the large proportion of plant food taken up by the twigs and leaves of the coffee tree, as shown by Mr. Pringle, bearing also in mind that the tea plant, besides being subjected to an almost incessant plucking process, is periodically pruned after a more severe fashion than that applied to coffee. It being certain, therefore, that, even more in Ceylon than in Coorg, the decomposing felspar and mica fairly keep up the supplies of potash, tea requires as liberal phosphatic and nitrogenous applications as coffee does. In tea cultivation as formerly in coffee, the conclusion generally acted on in Ceylon is, that the best all round manure is a mixture of finely ground or steamed bones and *white* castor cake. If some superphosphate can be added so much the better. The bones supply the great element of phosphoric acid, with some ammonia; the cake is rich in nitrogen, and contains a little potash, supplies the soil with organic matter in the best possible condition. Mr. Pringle seems to prefer fish to oil cake; and no doubt pure fish is an excellent manure, better even for tea, we should say, than for coffee, but it is probably more evanescent in its effects than castor cake and does not act to such an extent mechanically on the soil by means of organic matter, which, in the case of the cake, does not at once decompose. Considering the merits attributed to shade in South India coffee culture, surprise will be felt at Mr. Pringle's conclusions in an unfavourable sense. There is a difference, however, between the dry climate of Mysore and the moist climate of Coorg, and between the light shade of *Ficus glomerata* and the dense canopy of the foliage of the jak tree? In Ceylon, long before the fungus rendered every other question subordinate to one which with us was even more than equivalent to phylloxera in vine culture, we had come to the conclusion that where coffee required shade it would be unprofitable to grow it. From some experience we are inclined to believe that tea is far more tolerant of shade, both as regards flushing and flavour of flush; and that the liberal planting of shelter, timber and fuel trees can be carried out on a tea estate, not only without injury but with benefit to the main product grown. We should like to hear experts on this point, and the modified shade as well as the fertilizing effects of the growth of green plants amongst our tea, in order to carry down into the soil nitrogen derived from the air. Is there any danger of fungus from the decomposition of green stuff? We are here reminded of Mr. Pringle's suggestive idea that a soil may get "sick" of one unvarying product, and it *may* be a question whether this was not one cause of the predisposition of our coffee tree to the attacks of the fungus, and whether the same danger has not to be guarded against in the case of tea, grown, as it often is, in wide unbroken expanses

Lime applied in moderate quantity occasionally (after other manures have had time to dissolve and be assimilated by the tree roots) cannot but be of value in averting such a consequence, besides its action in loosening the soil, the latter a process which is less necessary in the culture of tea than of coffee. Tea also flourishes in soils where alluminous and ferruginous constituents are in greater proportion than was desirable for coffee. If Mr. Pringle is correct in showing that a substance so moist, heavy and bulky as cattle manure costs generally in production more than it is worth, especially if it has to be carried any

distance, how much less is its production likely to be profitable in Ceylon, where our forage grasses are generally so poor and imported food in the shape of gram and gingelly poonac so expensive. On nearly every estate, of course, a few cattle must be kept as milk yielders; and there are estates which find it profitable to employ bullocks for draught purposes. In such cases, the manure is a by-product, and will be very valuable, as will horse manure, when applied near the sheds and stables, but it seems pretty evident that, as a general rule, estates when they need applications of fertilizing matter must rely on artificial manures; and the question to be solved is, what are the best to choose and employ? Analyses of soil, such as Mr. Pringle gives, must be of great assistance. He shows that while nitrogen is specially wanted in one case, it would be simply a costly folly to add it in another. So with lime and in the case of kainit or other potash manure. We suppose that anyone buying bones or castor cake from any of the leading firms in Colombo is guaranteed but certainly a system of public and cheap analyses would be very useful, as new manures are occasionally offered for sale. Mr. Pringle is mistaken in supposing that planters have devoted slight attention and incurred but small expenditure on analyses and manures.* Apart from the employment of Mr. John Hughes by the Ceylon planters and the expenditure of large sums in the unsuccessful combat with leaf-disease, we had, in the *Observer* towards the end of the seventies a series of elaborate letters from a Mr. Tolputt, embodying detailed analyses of Wynaad soils and of manures recommended and applied with reference to such analyses. Only a few days ago in going over accumulated papers, we found a series of soil analyses received from the gentleman named, which had been put by for publication at a convenient season. The figures will now be of interest in comparison with those given by Mr. Pringle or those which he may hereafter adduce. Meantime the paper we today publish, although specially devoted to coffee, is just as applicable, in the general principles laid down of adapting manures to constituents of soil shown by analysis to be deficient, to tea, cinchona, cacao, cardamom and even coconut palm culture as to coffee. We can never go far wrong in applying bones and castor cake, in moderate quantities and in due proportion to our soils, at intervals of about three years, whatever the product cultivated may be. Such a potash manure as kainit will be useful on many of the older coffee estates, replanted with tea; and where it can be afforded, we should think it would be eminently beneficial to coconut land, not only for the potash, but for the appreciable quantity of common salt it contains. Lime, bones and kaini, ought, we submit, to largely increase the growth of the palms and the yield of nuts, while the moderate and judicious use of bones, superphosphate, castor cake, fish and in some cases kainit, ought to increase the quantity and improve the quality of tea flush.

COFFEE MANURE.

By WILLIAM PRINGLE, M. S. C. I.,
LATE AGRICULTUBAL CHEMIST TO MESSRS. MATHESON & CO. IN COORG.

(Under special arranement for publication in the "Ceylon Observer" and "Tropical Ariculturist.")

The question of manuring coffee has had little systematic work spent on it, compared with the vast interests at stake; most planters have been content t use such manures as were most readily come at, without bothering their heads as to whether they got an adequate return for the money spent on them or not. I have known line rubbish carted five miles; it could only in very rare instances be worth the cartage.

In selecting a manure to be used on an estate we should be guided by the analyses of the soil, as well as by our knowledge of the composition of the coffee shrub, and its requirements.

One glance at the annexed analyses of South Coorg soils will show that they require very different treatments:—

	Parts per hundred. A.	B.	C.
* Organic matter and combined water	9·530	8·080	5·475
Oxides of iron and alumina ..	13·065	6·861	7·844
Lime	·522	·120	·380
Magnesia	·396	·446	·101
Potash	·044	·127	·042
Soda	·019	·063	·020
Phosphoric acid	·135	·039	·122
Sulphuric acid	·128	·079	·013
Chlorine	·003	·001	·002
Insoluble silicates	76·158	84·184	86·001
	100·000	100·000	100·000
* Containing Nitrogen ..	·143	·292	·089
Equal to Ammonia	·174	·355	·094
Moisture in air dried sample ..	3·24	12·13	1·78

On A and C the great object should be to conserve the moisture by shade, and the use of as much good cattle manure, made by bedding the cattle with leaves and ferns, as possible. Both are rather short of potash, and one cwt. of nitrate of potash (nitre) per acre should be added to the manure: this will supply nitrogen as well as the potash, and C is very short of that most important element.

A, requires nitrogenous manures with potash, but a little bone phosphate should be added to prevent soil exhaustion. The following manure was recommended:—

2 cwt. bone meal
1 cwt. nitrate of potash

This should be mixed with 1 cubic yard of burnt earth or 2 bandy loads of cattle manure.

It would be a sheer waste of money to apply lime to such a soil.

B, is very short of phosphoric acid bones in fine meal will be the best manure, 4 cwts. per acre will be enough and lime may be used with advantage six months afterwards.

To use oil cake as a manure to such land to say the least would be a waste of money. Lime used before the phosphates have time to act would lead to the rapid exhaustion of the land. It is a case where the indication of the analysis is very clear. On such a land ammoniacal manures used without phosphates would never produce any results commensurate with the expenditure, and would do more harm than good. The land as shown by the moisture is very retentive, drainage is a necessity if the coffee is to be kept healthy, over such land the shade may with advantage be kept very light and thin.

C on the other hand is a poor sandy soil, greatly wanting in moisture, shade should be kept thick, as leaf mould will render great assistance in retaining the moisture; cattle and organic manures will also give results beyond their mere manurial value on such land. In fact on such places cattle manure is invaluable. I recommended cattle manure, 2 tons with 1 cwt. fine bone meal, 2 cwt. pure dry fish, and ½ cwt. nitrate of potash per acre. These examples show how we may be guided in our choice of a manure by the soil analysis, that a knowledge of the power of the soil to retain moisture will assist us in regulating the shade, and decide many vexed questions of the best methods of cultivation to be followed in a given case.

The system of cultivation that might be successfully worked on B would not answer on C: the whole treatment required is different, also the manures. So far I have mentioned, as coffee manures, cattle muck

* The late Mr. R. B. Tytler had everything connected with the coffee tree and soil analysed before making up his patent manure, sombreorum.

bones, oil cake, and fish; now let us examine these materials and see what we are dealing with.

Cattle manure is first on the list. Its effects are as much mechanical as chemical, and where it has shown the best results I have generally found the soil possessed a very poor power of retaining moisture as in analysis C. Where cattle are kept solely for manurial purposes, cattle muck is very costly, and does not always pay for the trouble of making it. When made by working bullocks it is a by product, and often represents the sole profit on their keep. If it were not for the muck it would often be just as cheap to hire bandies for the estate work.

The following is the actual cost of the upkeep of a bandy and bullocks in this district:—

	R.	a.	p.
Gram for 28 days 126 seers @ R50 ₱ M...	6	4	4
Straw 168 bundles @ R26 ₱ M...	4	6	0
Salt	0	1	0
Bandyman	8	0	0
Oil, shoes, repairs to bandy... ...	2	0	0
Wear and tear of bullocks... ...	2	0	0
Interest on capital @ 5 ₱ cent ...	1	4	0
	R23	15	4

In full work the bullocks and bandy earn R1 per day, and if they work 24 days out of 28 the profit is only 8 pice and the manure. These two bullocks produced in 28 days 1,491 lb. of dung having the following composition when air-dried:—

	Parts per hundred.
Moisture	7·94
* Organic matter and combined water ...	58·92
Oxides of iron and alumina... ...	1·18
Lime	1·78
Alkaline salts	1·12
Phosphoric acid...	·88
Insoluble matter &c.	28·18
	100·00
* Containing nitrogen	·539
Fresh dung contained moisture ...	73·99%

The dry dung is worth at the most for the manurial ingredient it contains R8 per ton, the dung in its natural state about R2. Well bedded with bracken fern it may be assumed as an outside estimate that a pair of bullocks will produce one ton of manure, worth about R2 per ton. The following is an analysis of a first-class cattle manure produced by bedding the cattle with bracken fern, they were gram fed. Kept in a covered shed the bedding and muck were pushed out into a shed below, the urine flowed over the heap.

The sample was taken in March and appeared quite dry, when powdered it just looked like brown snuff.

	Parts per hundred.
Moisture	25·83
* Organic matter and combined water ...	55·23
Oxides of iron and alumina... ...	1·11
Lime	1·50
Magnesia	·86
Potash	·89
Soda	·41
Phosphoric acid	·55
Sulphuric acid	·13
Chlorine	·24
Insoluble matter, sand &c.... ...	13·25
	100·00
* Containing nitrogen	·49
Equal to ammonia	·60%

Such a manure is exceeding valuable on poor sandy soils, but is too short to be of much use in opening up heavy retentive lands, they require horse dung and straw litter to do good. Cattle manure should never be burnt, as its most useful character—its mechanical condition,—is thereby destroyed, and it sinks to the value of wood ashes or less.

We have seen that the manure is costly to produce; a t is equally costly to apply. The following table shows in lb. what 10 (ten) tons first-class gram-fed cattle manure in its natural state containing 75 per ent moisture will yield; many samples of cattle muck ontain as much as 85 to 95 per cent moisture; other amples are hardly cattle manure at all, being chiefly composed of line sweepings and other rubbish of little or no manurial value. The table also shows the quantity yielded by bones, fish and oil cake;—

	lb. per acre supplied by 10 tons cattle manure.	4 cwt. raw bones.	4 cwt. pure fish.	4 cwt. oil cake.
Tri-calcic phosphate ...	67	226	80	5
Ammonia	34	18	31	27
Potash	50	4	7	6
Lime	49	3	32	1
Sulphuric acid	7			
Total ...	207	251	150	39
Cost, rupees	120*	13½	9½	11
Cost of application, rupees	30	5	5	5
Total cost, rupees ...	150	18½	14½	16

*If the bullocks do not work, gram-fed cattle manure of that quality cannot well be produced for less.

Should the amount put down for the applicati.on of cattle manure appear excessive, let the questioner work out the problem on the supposition that there are 1,200 trees per acre and that one basketful is given each tre e Each basket has to be filled, the distance to the tree and back traversed, and the basket emptied. Suppose that the coffee is moderately thick, and that the roads are 100 trees apart, then to reach the centre a coolie walks:—

To the first tree and back	4	yards
2nd	8	,,
3rd	12	,,
4th	16	,,
5th	20	,,
and so on.		
At the tenth tree he has walked	230	yards
20th	850	,,
30th	1,860	,,
40th	3,280	,,
50th	5,100	,,

and by the time he has reached the 52nd tree, he has manured the 23rd part of an acre, and walked three miles.

Taking filling and emptying of baskets into account he will seldom walk a mile per hour. At such work a coolie would consider 100 trees a hard task, and certainly it would be from 10 to 20 times as hard as putting out 4 cwt of manure mixed with 1 cubic yard of burnt earth. The cost of application entered under bones, fish, and oil cake, includes the cost of preparing 1 cubic yard of burnt earth and mixing it with the manure.

This was given me by several managers as two rupees, and for application three rupees so that taking cartage &c. into account it is not safe to estimate less than R30 per acre for the cattle manture. In Ceylon where cattle are often kept solely for manurial purposes the cost is seldom much under R100 per acre, and with the scanty grazing ground of this district it would be difficult to produce any quantity of cattle manure, and the small quantity produced if the animals are well fed and bedded cannot well be made under R12 per ton. So that, except in the case of work bullocks, cattle manure of first rate quality may be dismissed as too expensive for ordinary use, and we must look for some other manure. We find in good pure fish the cheapest native manure. Where first class fish manure is easily procurable cattle manure and oil cake, *i.e.* castor, Hindy, may be looked upon as expensive luxuries, only to be indulged in where the poverty of the soil demands the use of an organic manure.

Bones decompose very slowly in this district, and steamed bones are preferable to raw on that account, they should also be in the finest meal possible, if an immediate return for the money spent is expected. The use of inch bones in South Coorg might be termed, manuring for posterity, as this generation will reap little benefit from them. The coffee tree is not greedy

it does not ask for a large supply of food. A fair average tree at the end of the hot weather weighed 20 lb. and had seventeen primaries and 2,500 leaves; such a tree will yield 5 cwt. of coffee per annum with its accompanying pulp. Materials removed by:—

5 cwt. Coffee.	lb.	Pulp.	Leaves.
Tricalcic phosphate ...	4	1	41
Ammonia ...	10	2½	135
Potash ...	9	6	101
Lime ...	2	1	90
Sulphuric acid ...	½	½	11

The amount of material taken up by 5 cwt. coffee is very small. That removed by the leaves and prunings is what requires to be replaced by manure as they decompse very slowly, the soluable salts yielded by them are lost in the monsoon rains, and wash. The plant food is not there when the tree requires it to develope its fruit.

Looked at from this point of view, we must, in a manure that has to be applied at the end of July or in August, have all the plant food in an easily assimilable form, and provide fully for the plant's wants. On this basis a coffee manure should have 40 lb. Tricalcic phosphate, 140 lb. of ammonia, 110 lb. potash, and other manurial matters in proportion, if the tree has to depend on the manure alone for the supply of plant food.

But the soil by slow decomposition and disentegration is also supplying food, and the tree appears to be capable of taking up ammonia, or some form of nitrogen compound from the air through the soil by its roots. The great question is what is necessary and how much? To help in the settlement of this question I submit the aggregate results of some of my experiments giving the weight of clean coffee yielded, the results of 1889 and 1890 are added together in the following table:

	Manure.			
	4 cwt. yield lb. per acre.	8 cwt. yield lb. per acre.	4 cwt. yield oz. per tree.	8 cwt. yield oz. per tree.
Bones ...	833	752	13·77	12·84
Bones and fish...	783	818	12·14	13·12
Fish... ...	553½	655½	9·90	11·93
Superphosphate	759	794	12·34	11·11
Mineral phosphate... ...	910	920	13·84	14·90
Ammonia sulphate... ...	983	712	16·39	12·33
Potash nitrate (nitre) ...	813	998	13·38	16·79
Super and ammonia ...	713	744	11·41	14·34
Super and nitre	773	834	13·05	12·23
Minerals and do	648	793	10·45	13·84
Kainit potash salts... ...	607	544½	9·18	9·02
Average...	761	779	12·35	12·95

The average yield from the 4 cwt. of manure is the same as from 8 cwt. practically speaking: at any rate there is not sufficient difference to pay for the extra manure used. The results were almost entirely controlled by the shade where it was thin the results were good, and *vice versa*. This was particularly noticeable in the case of ammonian sulphate where 4 cwt. yielded so much better results than the 8 cwt. One of the 8 cwt. plots was under dense jak shade and the results were remarkably poor, worse than an unmanured plot not thirty yards off where the shade was thin. Nitre, the 8 cwt. had the advantage of the thin shade and the results are just the reverse of the sulphate of ammonia. Bones present a very curious illustration of the great effect of shade, 4 cwt. gave 13·77 oz. per tree, and 8 cwt. only 12·84 oz.

When 4 cwt. of fish were added to 4 cwt. of bones the yield was only 13·12 oz., considerably less than when the bones were used alone. There was only 1-12th of an acre, 100 trees on each of three estates, or ¼ acre in all under each quantity of each manure, and on these small plots shade has had the power to mask and control the results, but in the aggregate they shows that under shade, 4 cwt of manure will produce a good results as 8 cwt., and it is evidently folly to use more.

From the preceding data and analyses, it would appear as if the chief requirements of the coffee tree are phosphoric acid and nitrogen; unless the surface soil has been lost there would appear to be but a small demand for potash.

Potash salts are very soluble in water, and appear to be easily assimilated by the plant, they are abundantly supplied by the slow decomposition of the feldspar and mica schist in the rocks, and the stony matter of the soils, together with lime and magnesia, but the accumulation of the salts in the land is prevented by the monsoon rains.

If they are required as in analysis C I would advise the use of ferns for bedding cattle, particularly bracken where such are procurable. The ash of the bracken fern, according to Lester Arnold confirmed by John Hughes, contains:—

Potash	...	42 per cent
Phosphoric acid	...	10 „

and is a very valuable manure wherever potash is required, and will well repay the trouble of collecting the fern.

Should ferns be unprocurable and the addition of a potash salt necessary, I would recommend kainite. The buyer should stipulate for 25 per cent sulphate of potash, at the very least. But potash is not necessary as a rule, and should never be used in excessive quantities, as it increases the quantity of pulp at the expense of the bean. This however does not apply to nitrate of Potash, which acts more like ammonia sulphate than any thing else. Wherever there is plenty of nitrogen in the soil the leaves of the trees are large and of a beautiful glossy green, but the bean is small unless there is a fair share of phosphates present also.

This leads to the conclusion that the coffee tree must have nitrogen and phosphates in the manure; whether potash should be included or not depends greatly on the nature of the soil. I would say that it was unnecessary with a retentive soil like B. Now with some soils, the analysis shows the weak spot at once and we can easily select a single manure to meet the exigencies of the case; others the manure must be diffusive to cover the whole range of the necessities of the plant and the poverty of the soil.

The following represents a good type of a diffusive manure:—

1 cwt fine bone meal
1 „ pure fish
1 „ superphosphate of lime 40 per cent soluble
½ „ sulphate ammonia
½ „ kainite 25 per cent sulphate of potash

This applied after the heavy rains are over at the end of July or August will supply plant food in a form immediately available for the plant's requirements, and will greatly assist in the perfect development of a healthy bean. It is not stimulating, but holds the plant food in varying degrees of preparedness ready for the use of the plant from season to season. 4 cwt. per acre mixed with 1 cubic yard of burnt earth or two good loads of cattle manure is sufficient for 1 acre per annum. It is well suited to the raising of supplies.

In conclusion I must draw your attention to the advantages of green manuring. Nitrogen is a most expensive item in manures, but certain plants readily take it up from the air in some way little understood at present. Lucern, clover, mustard, &c. &c., may all be planted under the coffee they are excellent manures, as they derive most of their nitrogen from the air and send their roots deep into the ground in search of food. The growth of white mustard is so rapid that it may be used to choke out other weeds, by sowing two or three crops in succession and forking them in. Green manuring, if carefully carried out, should supply all the necessary feed for the bullocks used on the estate, and protect the soil from the action of the sun during the hot weather in the dry districts.

This system of cultivation is specially suited to poor soils such as shown in analysis C.

It will also improve the condition of heavy and retentive lands. If put in force the land should be limed once in three years or so, and the plants should be grown in rotation. In this way it will be possible to clean the land and free it from an excess of injurious salts. The coffee tree is wanted as a permanency, and the best way of keeping the land healthy is to grow a rotation of annuals under the coffee, and as far as possible a rotation or diversity of shade over it. Whenever a shade tree shows signs of becoming a surface feeder it should be rooted out; slow-growing shade should be put in to take the place of the quick-grown shade as it dies off.

By these measures it will be possible to prevent the land in a great measure from becoming coffee sick, which it does by becoming infested with microscopic fungi and bacteria when kept under one crop too long.

The investigations into potato and vine diseases, and clover sickness show this to be the main cause of land refusing to bear one crop in continued succession. It is from this cause that the greater number of coffee supply plants fail, white mealy bug assisting in the devastation. All these pests can be eradicated by proper treatment at the right season. W. P.

PLUMBAGO AND MICA.

For some time Messrs. Parry & Co. have been negotiating with the Travancore Government for the grant to them of a monopoly for mining for plumbago and mica in certain selected taluks in Travancore territory, which were reputed to be rich in these minerals. These negotiations have so far progressed that a draft agreement has been drawn up, which, together with the criticisms passed upon it by the Advocate-General, and the remarks of the Madras Government thereon, has been forwarded to the Government of India for final orders.—*Indian Agriculturist.*

JAVA CINCHONA, CACAO AND TEA EXPORTS.

From the Batavia Exchange Report we see that Java continues to more than make up for the falling-off in Ceylon exports of bark. From 1st July 1890 to 30th April last, ten months of the year, Java has sent away—almost entirely to Holland—no less than 5,718,577 lb. of "Private" estates bark and 484,087 lb. of Government gardens bark against 3,709,648 and 445,940 respectively during the same period of 1890. This shows a very big advance considering that 2 million lb. of Java bark is equal in the average to 4 million lb. of Ceylon bark. The Java exports are in Amsterdam lb. each of which is equal to 1·09 lb. avoirdupois. The comparison for several seasons for the ten months' period is as follows:—

	Total Cinchona Bark, Private Amsterdam lb.	Govt. lb.
1st July to 30th April...1890-91...	5,718,577 ...	484,087
Do. ...1889-90...	3,709,648 ...	445,940
Do. ...1888-89...	2,989,780 ...	723,491
Do. ...1887-88...	2,353,426	532,687
Do. ...1886-87...	1,357,576 ...	571,320

Java Exports—apart from Cinchona—do not compare nearly so well. Of Coffee only 224,121 piculs private and 81,599 Government have been exported in the ten months against 477,849 and 394,272 piculs respectively in 1889-90, showing an enormous falling-off this season, in the case of private crops by over 50 per cent, while of Government coffee scarcely one-fourth the previous season's export goes in 1890-91. So far from coffee reviving in Java, it is therefore evidently going back very grievously, the total export in 1890 91 probably not exceeding 400,000 cwt. against 1,200.000 cwt. in 1889-90 and 1,100,000 cwt. in 1888-89.—Pepper also shows a falling-off of about 30 per cent this season so far, in quantity exported.—Cocoa or cacao shows a sudden and very large increase to 10,600 cwt. in the ten months, against only 1,350 cwt. in the same period of 1889-90, and 1,100 cwt. the season before. Cacao cultivation is new in Java; but it is evidently going to succeed and Ceylon planters may look out for a serious rival in this product.—In Tea not much progress seems to be made. Here are the exports for ten months of the several seasons:—

	Kilogrammes.
1890-91	2,883,277
1889-90	2,548,669
1888-89	2,770,900
1887-88	2,562,072
1886-87	2,722,736

These returns are in kilogrammes, so that one-tenth should be added for English lb. making 3,171,604 lb. export for ten months of the present season.

NOTES ON POPULAR SCIENCE.

By DR. J. E. TAYLOR, F. L. S., &c., EDITOR OF "SCIENCE GOSSIP."

A German chemist and physician has recently demonstrated that there is an increase of nitrogen in the perspiration during excessive muscular work over and above that normally excreted. Another experimenter has shown that the output of nitrogen and urea are closely parallel. The increase of both is most marked during working hours, and it takes some time to subside afterwards.

It is now generally concluded that the little nodules found on the roots of leguminose plants contain bacterial organisms which have the power of assimilating free nitrogen, and that this is the true reason why this order of plants obtain part of that valuable gas directly. Professor Frank thinks there is only one kind of nodule organism common to all leguminous plants, and that it is present in all natural soils. The relationship is one of symbiosis.

Professor de Candolle, the distinguished French botanist, has given a new and original explanaion of certain monstrosities in flowering plants. Some specimens were sent him in which the flowers were borne on the upper and lower surfaces of the leaf. The explanation hitherto given of this phenomenon is that there has been an adhesion (or want of separation) between the flower-stalks and the adjacent leaves, so that they have grown together. Professor de Candolle, however, is of opinion that such inflorescences are real outgrowths from the leaves, and not axillary shoots growing and fusing with them. He regards such examples as proofs that botanical distinctions between stem and leaf are purely arbitrary. —*Australasian.*

HEMILEIA VASTATRIX.

(*To the Editor "Madras Mail."*)

SIR,—"Nilgiri," in your issue of the 2nd instant, writes about "two different gentlemen" having found the cure for leaf disease. If "Nilgiri" includes me in that number I can answer his questions satisfactorily. The remedy I use will cure leaf disease. Invariably one application will be sufficient; but at times a second application may be found to be necessary after a couple of years. The cost per acre, including labor, will not exceed R20. It is impossible to eradicte leaf disease from any particular estate, when thousands of acres round it may be affected with the pest; but the remedy I have, has in every instance cured the disease from the parts applied to, sufficiently to enable the trees to yield fair crops for years.

Coonoor, 4th June. C. E. P. VERNEDE.

[As we have so often remarked, Mr. D. Morris's

lime and sulphur cure was sufficient to clear an estate of the fungus, but it soon returned and was as virulent as ever. Hope for coffee would, therefore, seem to rest in the gradual wearing out and final disappearance of the disease.—ED. *T. A.*]

PLANTING IN PERAK.

Perak, notwithstanding its productive soil and suitability for planting enterprise, shows no great progress in the cultivation of the ground. The difficulty of procuring labour has been a sore hindrance in the way, but there is of course some little prospect of this check being partly removed if the Straits Government will do anything with the Labour Commission report other than pigeonholing it. One great obstacle however arises from the short leasehold tenure of the land available, and there are other minor discouragements in the way of selectors. The Perak Government, to attract pioneering planters, have issued a circular, which we published some days ago, throwing open land on more liberal terms, but on conditions which hold good only for the first ten applicants who can pass muster. The chief feature of the new departure lies in the granting of leases in perpetuity with no premium and a quit rent of 20 cents an acre after ten years free occupation, the area under lease being 1,000 acres in one block or in blocks of not less than 500 acres. The tenour of the circular infers that perpetual leases will be given only to the first ten approved applicants, but the principle once admitted calls for wider application. The privileged ten would enjoy an invidious distinction which will only stir bad blood. Now that the idea of short leaseholds has been attacked, the Perak Government would best consult its interest by making the principle of long leasehold of universal application. Under perpetual leases with low rents, and ample securities against monopoly, the agricultural land of Perak should attract planters of the right stamp.—*Straits Times*, May 16th.

PRECIOUS STONES.

Large quantities of inferior rubies and sapphires always find their way from Siam to Ceylon, the dealers generally mixing them with better qualities of the same descriptions obtained in the island either for export to the London and Paris markets or for sale locally. Of late, the so-called alexandrite has been introduced here from Siam principally in the rough state. This stone (probably chrysoberyl) has all the appearance of the Ceylon alexandrite, but it does not display the brilliant red of the genuine article when exposed to artificial light. Anyhow I understand that large sales have been made at extravagant prices, and even experts have been deceived to some extent. The stones find their way to the gem districts where dealers from all parts congregate, and are more readily purchased under the impression that they come from the adjoining pits. The home of the Ceylon alexandrite is the Weligama Korale; and hitherto all the best finds have been secured from this district alone.—*Cor*

SULPHATE OF COPPER AND POTATO DISEASE.—There is no question that the disease may be controlled by the use of copper solutions, but, judging from the prevalent apathy in such matters, it is questionable whether our growers will think it worth their while to take any steps in the matter. In the Reports of the Connecticut Agricultural Experiment Station we find a report of an experiment, in which five rows were treated on August 10, other rows remaining untreated. The sprayed rows remained green, whilst the others were dead and black. On September 24, when the tubers were lifted, those which had been treated were practicelly free from disease, while the others were considerably decayed. The untreated rows yielded 3¼ bushels per row, those sprayed supplied 6 bushels.—*Gardeners' Chronicle.*

CINNAMON; QUALITY *V.* QUANTITY.

The question raised by our Veyangoda correspondent in Tuesday's (March 3rd) issue, as to the wisdom of the policy of manufacturing fine Cinnamon, after the manner that has became fashionable, is deserving the serious attention of Proprietors. It is well known in the trade that, under the influence of competition, quilled bark has become finer and finer for years past, untill now, as many as forty quills of the finest quality go to a lb., as against, perhaps, half that number between 10 to 15 years ago. The labour of making 40 quills is, of course, greater than that of making 20, and the scale of remuneration to peelers has increased, in some estates at least, in proportion. In most, however, the maximum rate of 16 cents per lb. for the finest quality holds, and the earnings of the peelers—which always seemed to us excessive by the light of the prices which their manufactures fetch—have decreased. Through the influence of competition and of advances, they have been obliged to adapt themselves to circumstances, and now practically do double work for the old wages. The question raised is not, however, one of wages, or of the margin of profit left to those who pay high rates to secure fine Cinnamon; but of the effect of the system on the property. Skill alone cannot produce quills over 3 feet long which average 40 to the lb. The bark to be manipulated must be fine and tender. Does not the cutting down of tender shoots affect the vigour, if not the vitality, of the bush, and thus reduce the productiveness of the estate? It is reasonable to suppose that these results would follow, though we are unable to say whether the estimate of our correspondent is correct, that the productiveness of estates has fallen off from 20 to 40 per cent within the last 15 to 20 years. If there has been such a decrease, the question may arise, to what extent fine cutting has to answer for it, and to what extent the mode of cultivation adopted. Nowhere, so far as we know, is Cinnamon regularly manured. All that the bushes receive are the leaves and the weeds which are buried. The equivalent of the sticks and the bark that are removed, season after season, is not returned; and in these circumstances could the productiveness of estates be maintained?

Confining ourselves to the effect of deterioration from fine cutting, the financial question is by no means as easily disposed of as would be the case with products for which there is a growing demand. The productiveness of an estate is maintained, not for the honour and glory of large crops, but for the larger profits it would yield the proprietor. In the case of Cinnamon, an appreciable increase in the output of the bark—say to the extent of 20 to 40 per cent., suggested as the falling off—might prove a very doubtful benefit. The over production of Cinnamon is a fact, and is chiefly responsible for the fall in prices; it is also a fact that the increasing fineness of quills has not led to any advance of prices. On the contrary, the finest qualities, which entail double the labour in preparation as compared with 20 years ago, realise only about a half the prices which the corresponding qualities fetched then. The lower qualities hardly leave any margin of profit. If the abondonment of fine cutting should result in larger crops, the immediate effect of an addition of 20 to 40 per cent to our Cinnamon exports would probably be a further drop in prices by about 20 to 40 per cent. In these circumstances, we are unable to say that proprietors are doing unwisely in aiming at high prices for their crops, instead of endeavouring to main ain a productiveness which would not add to the value of their lands. It is quite conceivable that larger exports and still lower prices may lead to the abandonment of the worst lands; but even if little gardens worked by their owners will not always be deemed profitable and therefore maintained, the combination to secure that end is hardly within the bounds of practical politics. Abandonment of patches may follow as well from the present system. The question discussed, however, points to the double disadvantage of Cinnamon cultivation. Its profits are not large, and the mode of earning them threatens diminishing profits! —Local "Examiner."

FRUITS FROM WESTERN AUSTRALIA.

It would appear that we are soon to have importations of various kinds of fruit, Potatoes, and Maize from our youngest Australian Colony. The midland Railway Company in that colony extends now some considerable distance from Perth, and the lands abutting on the line have in some places been brought under cultivation to some extent. A small collection of the products of these farms and gardens was exhibited at the offices of the railway company abovenamed at Winchester House, Old Broad Street, on Thursday and Friday last, which we had the pleasure of inspecting.

The apples were a very well-grown lot, and showed in their fine smooth skin and freedom from speckiness the genial climate in which they had been grown. The kinds were apparently Blenheim Orange, Pott's Seedling, Tower of Glamis, Northern Greening and Yorkshire Greening.

The only Pear shown was William's Bon Chrétien, very large and highly coloured. Fine Quinces were also observed.

The Grapes were a thin-skinned white variety, with a good deal of the flavour of the Muscat of Alexandria. These last-named fruits had travelled indifferently, owing to their not being properly packed. With so good a climate as that of Western Australia, the manufacture of raisins would be more profitable to the growers than exporting unprepared Grapes, which are scarcely fitted for a journey occupying six to seven weeks. Ripe Grapes fetch in the colony about 1d. a lb. Wine making is, we believe, already an industry that is carried on in the colony.

A sample was shown of the Giant Rocca, a nice Onion of mild flavour, but one that does not keep for any great length of time; however, it had stood the warmth of the passage through the tropics very well.

It was a surprise to find Pomegranates fully 4½ inches in diameter.

Some of the Potatos—kidneys—were of nice marketable size, whilst others were very large and deep-eyed. Evidently the merchants do not make good selections of these tubers for their colonial customers. The price of Potatos ranges from 20s. to 40s. per ton in the colony. The heads of Maize, both red and white varieties, were of fine size and thoroughly ripened.

The land on which these varied productions were grown consists of a sort of ironstone sand mixed with something of the nature of peat, but in a very fine state, and intimately commingled with the sand, at least it was in the sample shown. It contains no stones. Most of it had, previously to the railway being constructed, been covered with scrub or timber, and at present is in no need of manure, as the various products attest.

In the room were the fruit was laid out was shown the model of a nugget of gold that had been found at Shaw's Falls, which weighed 333 ounces. The winter climate of much of the colony resembles a favourable winter in Cornwall or Devonshire, frost being very rare, and snow laying even inland only a few hours. Of course on the mountains, some of which reach a height of 3000 feet above the sea, it lays nearly the whole summer.—*Gardeners' Chronicle.*

KEW GARDENERS ON THE NIGER.—The last number of the *Kew Bulletin* contains an account of the British protectorate on the Niger, and the efforts made to develop the natural resource of the district. To this end, two Kew men, George Woodruff and H. E. Bartlett, were appointed to take charge of the Botanical Station. Both men unhappily died, but amid the numerous formal and official letters which occupy so much space in the *Bulletin* are interesting extracts from private letters sent home by the two pioneers above named, and which give a good idea of the state of affairs at Sierra Leone, and of the appearance of the country. The *esprit de corps* manifest in these letters is very pleasant, and so are the hopefulness and sense of duty. These, however, were not sufficient to ward off remittent fever, to which both these young men unfortunately succumbed.—*Ibid.*

THE AVOCADO PEAR.—The *Revue Horticole* states that a plant of this species, Persea gratissima (a true Laurel not a pear), has produced edible fruit in the open air, at Golfe Juan, near Nice.—*Ibid.*

THE GRAPE: AN ORIENTAL LEGEND.—Four Travellers, an Arab, a Turk, a Greek, and a Persian, says *The Canadian Horticulturist*, met at a city's gate; it was decided that one of them should take the combined moneys of the four, and purchase for the common stock the food which they needed; but they differed each from the other as to what food should be chosen: the Arab insisted that no food was so sweet and nourishing as the agub, while anghar was the food the Persian desired; the Turk said that azum was the only thing which they should eat, while the Greek contended that symphalion was the choicest of all the foods which men could eat. As they thus quarrelled one with the other, before their eyes a gardener passed with grapes. "See, agub!" cried the Arab. "No, it is anghar," said the Persian. "This is azum," said the Turk. "That is my symphalion," cried the Greek, and so they ate their Grapes in peace.—*Ibid.*

KEW.—Fifty years ago, says *Garden and Forest*, the British Government, principally at the solicitation of the then Duke of Bedford, a man famous in his time for his enlightened enthusiasm in gardening, which made Woburn Abbey one of the great gardens of England, determined to convert the old gardens and pleasure-grounds surrounding the royal palace at Kew into a public botanical establishment. Sir William Hooker was invited from Glasgow to manage it. He brought with him a European reputation as a botanist, unflagging zeal, industry, and enthusiasm, a fund of sound Scotch common sense, the friendship and confidence of all naturalists, and the largest botanical library and herbarium which had at that time been made. His reputation and the importance of his collections at once attracted botanists to Kew from all parts of the world. Their visits benefited the establishment, and plants, specimens and books poured into it from all sides. The scientific character of Kew was thus established, and it is this high character that has given it the lead it has long held among the gardens of the world. Sir William Hooker gave the remainder of his long life to Kew, and devoted all his energies and resources to its welfare. His son, a man more famous than the father, succeeded him, and under his administration Kew gained wonderfully in every direction, especially in popular favour. The second Hooker retired from Kew a few years ago full of honours, handing down the administration of the garden and all the family traditions to a connection by marriage, under whose wise and broad management it is growing now still more rapidly than ever before in usefulness and beauty. In no other spot in the world can so many different plants be seen growing; the museums of economic botany are unequalled, the herbarium is the most extensive that man have ever made, and the library is unsurpassed. This is the work of fifty years, carried on by men of extraordinary ability and world-wide reputation, working under the most exceptionally favourable circumstances, and with the whole British nation behind them. Kew has received many gifts of great value, and is receiving such gifts every week. It costs, however, to carry on the establishment, 75,000 or 80,000 dols, a-year. The cost of all sorts of garden labour in England is not more than half what is paid for such labour in the States, and everything connected with a garden costs less there than it does here. If, then, Kew furnishes the ideal at which the promoters or the projectors of the new garden aim, they must realise that this can be reached only by the expenditure of a great deal of money, and that even with all money needed, such results as the people of New York have the right to expect, can only be brought about slowly, and with the aid of unusually favourable conditions. Something can be accomplished with 250,000 dols, but this amount is only a beginning, if New York expects to rival London, or St. Louis, or Boston in its Botanic Garden.—*Ibid.*

THE DUTCH MARKET.

Amsterdam, May 30th.

All the analyses of the cinchona-bark sales, which will take place in Amsterdam on June 11th, 1891, have been published now. The manufacturing bark contains about 10 tons sulphate of quinine, or 3 87 per cent on the average, divided as follows:—About 1½ tons contain 0·1 per cent; 18, 1·2; 53, 2 3; 70, 3·4; 38, 4·5; 32½, 5·6; 19, 6·7; 6, 7·8; 2½, 8·9 per cent sulphate of quinine.—*Chemist and Druggist.*

TASMANIAN FRUIT IN LONDON.—Considerable interest was shown in Covent Garden Market, on Friday in last week, upon the arrival of the first of the real Tasmanian Apples, the fruit recently received from the Antipodes being from Australia proper and New Zealand. Apples consigned to Mr. Duthoit, a city merchant, had the distinction of being the first to be sold, the fruit realising from 16s. to 25s. per bushel case, and being in splendid condition.—*Gardeners' Chronicle.*

THE LOCUST PLAGUE continues unabated in the Punjab. Government indeed appears to have taken some measures to prevent its spread, but they are evidently altogether inadequate; and as a natural result much sickness is prevalent, the water contaminated by dead locusts having brought in a fever.—*Madras Times*, June 4th.

COUNTING COCONUTS IN THE HERVEY ISLANDS.—The Report of the Australian and Polynesian Races Bibliography Committee of the Australasian Association for the Advancement of Science contains a memoir on the people of Mangaia (Hervey Islands) by the Rev. W. Wyatt Gill. It embodies important original evidence as to the practices associated with birth and childhood, maturity, circumcision, and marriage, the tribal, social, and domestic customs, the doings of wizards, the superstitions relating to death and the spirit world, and the mythology of the people. A list of numerals is appended, from which it would seem that they are able to count comparatively high numbers, though the word "anere" for hundred is adopted from the English. Coconuts from time immemorial tied up in fours, five of which make one "takau," and names are given for multiples by ten up to four stages beyond, so that they are capable of counting a "tiui," or 200,000 coconuts. Mr. Gill also gives a brief analysis of the grammatical structure of the language.—*Athenæum*, May 30th.

COFFEE IN SOUTHERN INDIA.—If a correspondent of the Madras *Times* is to be believed, our staple is not nearly in such a declining way in Southern India as the official figures we published the other day would indicate. The criticism on these is as follows:—

If these figures were correct, it would mean that nearly 60,000 acres of coffee had gone out or been abandoned in four years, viz., 11,000 in Mysore, 9,500 in Coorg, and 38,000 in this Presidency. Taking Coorg for instance, during the last five years, more land has been opened than abandoned, and 9,500 acres probably represent very nearly the total acreage of abandoned coffee in the province. As for the Madras Presidency, the settlement of Wynaad no d oubt caused the official returns of land under coffee to be set down at a good deal lower figure than previously, but according to the latest returns there are stated to be 76,000 acres under cultivation, and I should very much doubt if all the coffee land abandoned, in Mysore during the past ten years comes to anything like 11,000 acres.

Mysore and Coorg are exceptional districts; but surely the process which has brought coffee land down from 250,000 to 50,000 acres in Ceylon, has had its parallel to a great extent in the Wynaad districts. In Travancore, we know it has been so.

FUTURE OF COFFEE.—The *Diario Popular* (Brazil); of the 30th ultimo is informed by a person who has recently visited some of the coffee districts of S. Paulo, that the next coffee crop in that State will reach 3,500,000 bags, and that within five years the annual production of coffee in the State will amount to 8,000,000 bags.—*American Grocer.*

SCENT FARMING promises to be a very profitable industry in Victoria, according to the newly-issued report of the Royal Commission on vegetable products. The climate and soil of the colony are declared to be particularly well suited for the cultivation of perfume-yielding plants. Already scent farms are springing up, and the day may not be far distant when atar of Roses or the like may come to us from "Britain of the Southern Cross."—*Gardeners' Chronicle.*

SUN-DRIED CEYLON TEA AND OVER-FIRING.—Messrs. Rucker & Bencraft in their latest Tea Circular (May 28th) offer remarks worthy of the general attention of planters, thus,—

The fall in price has, as we anticipated, led to brisk buying on the part of the trade, and we consider that lost ground was recovered at auction, perhaps to the extent of ¼d per lb., on the lower grades. The present range of prices, considering the reduction of duty, the increased consumption, and the absence of competition, from Indian Teas, is not such, we think, as to deter free buying.—The very heavy flushing in April led, we are told, to hasty preparation for shipment, and doubtless had something to do with the lower quality apparent in this month's assortment; but we look for improvement, and already the Teas coming to hand are better. —We have seen today a sample of fine Ceylon Tea sun-dried only. This tea has been slightly fermented, but the sun has apparently had enough power to dry the leaf, to "fire" it in fact sufficiently to arrest fermentation, and the tea is in perfect condition. We submit this goes far to support our contention that as a rule Ceylon teas are fired too much or too long, more at any rate than is necessary for their keeping qualities.

CACKLING AND CROWING.—The *Pioneer* deals with Mr. Romanes after an amusing fashion, and we quote as follows:—

The world has hitherto taken the crowing of chanticleer and the cackling of the common or barn-door fowl upon trust. It had never occurred to any one to suppose a time when peradventure the cock did not crow. Why the hen cackled, or whereunto the cock crew, were questions that were never answered because they were never asked. In these latter days, however, if there is anything which shall not be revealed it will certainly not be for want of the asking; and it has occurred to the inquring mind of Mr. George Romanes, the well-known biologist, to inquire whether the crowing of chanticleer may not have been evolved by contact with the refinements of the barn-yard, much as some ladies will find their voice only when there is present a sufficiently distinguished company. Mr. S. E. Peal writes from Sibsagar, Assam, to say that in the extreme east of Assam, on the Upper Diking River, he has often heard the wild jungle cock (*G. ferrugina*) crowing. He admits at the same time that the voice of the wild fowl is "thinner, more wiry and high pitched:" and he adds the interesting observation, "Eggs found in the jungles are often hatched under domestic fowls, and hence these are frequently crossed, and the crow of the cock varies much in consequence." Thus, while there was probably never a cock that had not a crow in him, a judicious crossing of the fowl of the jungle and the fowl of the barn-yard might result in an infinite variety of crow; so that Professor Romanes has still a great field for experiment and investigation.

We have yet to learn what Mr. Romanes has to say to the information sent to him from Ceylon which goes to show that when the domesticated fowl commences to lay away from home in the jungle, she, like her wild sister, ceases to cackle. Mr. Romanes had better pay a visit to the island to investigate the matter thoroughly.

COFFEE IN EASTERN JAVA.

In taking over from the *Singapore Free Press* an interesting account of a trip to the eastern portion of Java, the scene far more of sugar than of coffee cultivation, we cannot help feeling surprise at the sanguine account given of coffee culture near Surabaya and the utter absence of any reference to the existence of leaf-disease, although we know that only more slowly but not less surely than in Ceylon and India the deadly fungus has lessened the production of coffee generally in the great Dutch colony. We are also struck by the violent contrast in the production of coffee estates in immediately following years. For instance, Limburg fell from 1.705 pikuls in 1884 to 500 in 1885, and from 5,700 in 1889 to 1,200 in 1890, and yet it was confidently anticipated that this place would give 11,000 pikuls this year. What, also, are we to say to Mingin's giving 5,620 pikuls in 1888, sinking to 532 in 1889 and recovering to 2.531 in 1890. But surely leaf disease, as well as over-bearing, was at work to account for such an enormous fall in the case of Kati Manis as from 8,000 pikuls in 1888 to 3,100 in 1889 and a miserable 530 (not equal to 1 pikul per bouw) in 1890! Crops varied greatly in good and bad years in Ceylon, but surely there never was such an experience as this! Manure, it will be observed, was not a factor in producing the larger crops; and as the volcanic soil could scarcely require time to recuperate, we must attribute the inequalities to seasonal and meteorological influences, as leaf disease did not operate. A bouw is about equal to $1\frac{3}{4}$ acre we believe, and a pikul to $133\frac{1}{3}$ lb. In the case of Limburg, therefore, 11,000 pikuls would be equal to somewhat over 2 pikuls per acre.—The story of the python, 30 feet long, which allowed itself to be caught as described and which lived in water in its cage (certainly it must have been a big one), is rather more wonderful than the statements about coffee which rest on authentic figures. The author of the monkey flesh and monkey soup practical jokes, must have had original ideas of hospitality. The account is lively throughout.—Since writing this, we have seen the figures for the coffee exports from Java this season given two days ago, showing a woeful falling-off.

A PEEP AT OOSTHOOK (JAVA).

(*From a Roving Correspondent.*)

Coffee in East Java.

There are three passages from Singapore to Java —the Banka Strait, the Gaspar Strait and the Carimata passage. Going by the former you are in sight of land all the way; and the passage is more or less devious. For the last-named you go right out to sea and after passing Lingga on the right and Carimata on the left you shape a course direct for Soerabaya and sight land no more *en voyage*. This was the passage our captain chose as being the shortest.

On Wednesday we were told that Java mountains were in sight at 10 a. m. but we could see nothing till afternoon. It was strange to notice when we got into shallow water the distinct line that separated the very blue deep sea from the very yellow shallow water with a muddy bottom. As Soerabaya is approached all sorts of strange looking craft appear in sight. Some have a triangular sail that looks like a striped blanket, others have two sails which look like broken butterflies' wings. Most of these belong to the island of Madura, just opposite to Soerabaya and which has a very large fishing population. We approached Soerabaya by the Western passage between Java and Madura. This has only a depth of 18ft. so that large steamers have to circumnavigate Madura and get to Soerabaya by the eastern passage, thus adding nearly 400 miles on to the run from Singapore.

At 6 p. m. we were at Soerabaya, and before the anchors were down we were boarded and taken possession by a kind friend who would take no denial, and carried us off to his hospitable abode.

Soerabaya is a "slummy" looking place—narrow streets—lots of mud and the roads rutty and bumpy enough to shake the liver out of one! To the stranger passing along the streets two thingsare especially noticeable; first the marked absence of Chinese (happy Soerabaya!) and secondly the happy, contented and *intelligent* look of the natives of the place—from a cursory glance I should say a much superior type to the Javanese we get in the Straits.

In Soerabaya I was given some coffee figures which fairly took my breath away. I have more to collect and will give the whole lot together. At present I am *currente calamo* and *currente jalano*!

I was commissioned to take an invalid to the hills, and on enquiring was advised to go first to Prigin—elevation about 2,000 ft. From a suburban station of Soerabaya we railed to Porrong, leaving at 7-45 a. m., arriving at 9-6 a. m. Thence in pony carriages a three hours' drive to Prigin where we arrived in time for tiffin. It rained nearly the whole way, but cleared up just before our arrival when we found the air to be just delicious. The railway fare, first class, from Wonokumo (suburban station) to Porrong *f*1.60 and the pony carriage to Prigin is *f*4.50; each carriage can take two passengers and one small box or bag. The Hotel at Prigin is small, but clean and comfortable; and the food abundant and good. There is a fine swimming bath, about 30ft. long and 15 broad, but after the water of the plains, the first plunge gives one a decided shock. There are always ponies at the hotel, and there are said to be many pretty rides in the neighbourhood, but I had no time to explore.

The road from Porrong to Prigin is lined on either side with paddy and cane fields. Both show a most luxuriant growth; and the soil in appearance is wonderfully rich. The only land I can compare it with is the very best of the Fen country in England.

The country appears to be very thickly populated, the markets that we passed being crowded with women buying and selling; in some cases I should say there were over 2,000 present in one market. It is a quaint sight to see them riding along sitting astride their ponies, with a big pannier hung on either side.

To show how these Javanese drivers rattle their ponies down hill, I give the following:—From Prorong to Prigin took us three hours. The return journey was done in one hour and twenty minutes! The steep portion of the ascent was done in one hour and three quarters, with much whipthong and bad language. The same on our return was done smiling in twenty-three minutes.

Before I forget it the etiquette of calling in Soerabaya seems curious. The correct hour is from 7 to 8 p.m. and you have to give notice if you intend to visit for fear of finding the ladies in sarong and kabaya. This last was told me in a whisper, so please print accordingly.

From Prigin my first point was the mountain called the Kloet. I railed to Kediri, where I was met by a friend. Our programme was to take what is by courtesy called a dog-cart for 8 miles, and then ride 12 miles on to the coffee lands. *L'homme propose* &c.! It was the Javanese New Year; and no dog-cart was to be got. After a long wait a carriage was secured at double the regular fare. When we got to the end of our wheel journey, one of the ponies was missing, so we had to start a "ride and tie." Dark fell upon us in the densest jungle I have ever seen. It was pitchy black, and there were sounds in the jungle all round us. Pigs were strongly in evidence,

and their musty smell was with us for furlongs at a time. At last we reached our destination, and were glad indeed to get a long drink.

The coffee in East Java is wonderful. As in other countries, there are failures: but the successes are marvellous beyond description. All the coffee is grown under dadap shade; and where the soil has any inclination to stiffness, it is constantly worked up with changkol. The young coffee is very forward; but perhaps figures of actual results will be more interesting than the most glowing descriptions of appearance. One estate that I went over gives the following returns:—Total area 450 bouws. Age of coffee 12 years old to 2½ years old. All expenses, including the cost of the young coffee not yet in bearing, are paid: and the coffee has further given a clear profit of two hundred and fifty thousand rupees over and above the capital invested. Ye gods and little fishes! Let us pray that the Malay Peninsula may erupt heavily. The old saying is, "It's money that makes the mare to go." I am sure that it's volcanic action that makes the coffee to grow.

I am more or less sensitive about being called an Ananias: so I give the following figures taken from a Dutch Directory. The results are extraordinary, but I simply tell the tale as it was told to me. The appended table will, I am sure, be of interest to many a planter:—

TABLE OF RESULTS FROM SEVEN COFFEE ESTATES IN EAST JAVA.

Estate.	Elevation.	Bouws.	Crop in Pikuls.						
			1884	'85	'86	'87	'88	'89	'90
	ft.								
Limburg	1,200	600	1705	500	2041	5342	6160	5700	1200
Ayer Dingin	3,500	503	3200	3300	5280	3919	4657	3145	3671
Pangadjaran	2,500	462	2160	2230	4500	1964	7970	5550	3000
Minjin	3,000	500	1600	3108	4150	1656	5620	532	3531
Monorarie	3,500	650	3900	4300	1500	3600	2430	2200	1000
Karang Nongko	800	316	....	3800	6000	2400	5000	4000	2000
Kati Manis	2,000	550	6000	3350	6000	1600	8000	3100	630

Let any practical planter work out these figures, and he will find a very healthy average at the end of them. The estimate for Limburg this year is 11,000 piculs; and there is every reason to expect that it will be realised.

I have seen no poor soil. All is very rich, and of volcanic formation. The strongest complaint that I heard was that there was too much ash in it. Considering that the analysis of the coffee bean shows over 60 per cent. of potash, ash must be indeed abundant to be a sense of complaint!

The hospitality of East Java is unbounded. Horses, carriages—everything in fact is put at your disposal, and the merest stranger treats his visitors right royally. Another man and myself went to an estate the manager of which was unknown to us. We introduced ourselves and asked to be allowed to see his coffee. He took us over the whole himself, and then after liquoring us up and asking us to stick up a cigar seegar obstaken) he insisted on lending us his carriage to go on with, as we should find it inconveniently hot to go on riding.

The Java system of cultivation is thus: they work the *soil*, not the bush. But little is done to the bushes after topping, except taking off the suckers but the soil is kept constantly worked up and open. Very little manuring is done: in fact one planter said to me "If my coffee needed manure I should abandon it at once." I went over one estate that had just given 10 piculs per bouw. The coffee looked well and in good heart, and able to be the same next year.

With results such as I have given it is not surprising that there should have been a heavy rush after coffee lands lately, and almost all available land has been taken up. A friend of mine has just got a concession of 7,500 bouws, and this I believe is practically the last land to be got in East Java. I hear however that the Assistant Resident of Bawean is rather sore about the rush on East Java, asserting that he has better lands on his island, which being thickly populated, offers a sure supply of cheap labour. Bawean is in regular communication with Java, and is only 8 or 10 hours' steam from Soerabaya.

The climate of the hills is delightful; cool and bracing: and I think that if Singaporeans realised that such a delightful little sanatarium as Prigin could be reached at such a cheap cost, more would avail themselves of it.

I also heard much of a sanatarium at Tosari, 6,000 ft. elevation, but had no time to sample it myself.

The country swarms with game. A few days ago a planter shot three tigers three nights running. You can scarcely go a hundred yards without finding pig-track; and there is other game in abundance.

Anybody contemplating the trip direct to Soerabaya should go by S. S. "Bawean." She is clean and comfortable with good food, a first rate Captain, artist, musician, raconteur, and general good fellow.

I have omitted one thing which struck me especially, and that was the extraordinary readiness of the Javamen to give you their figures. If you say "By Jove! that sounds healthy." The reply is "Well, here you are; you can copy the figures if you like" and out come the books. One man was so kind as to have his account, which were in Dutch, copied out in English for me. During my trip I came in contact with Scotch, English, Dutch and German; and upon my word it is hard to say which showed the greatest kindness to a stranger in a strange land.

A young Englishman caught a boa-constrictor a few days ago. He was out with two coolies, when he saw the snake, and immediately rushed and seized it by the tail, calling on his coolies to do the same. They pluckily did so: but the great brute dragged them all along after it. Seeing it was hopeless to capture it thus, the master told his men to hang on to the tail while he ran swiftly along the body and collared it by the neck. After a fierce struggle they noosed it and got it home, and caged it securely. Being at the bungalow shortly afterwards I asked to see the snake. "Oh certainly" said my host; "but he will be in the water now; however, I daresay I can stir him up. The beast was 30 feet in length. The same young gentleman had unexpected visitors some time ago, and as is not unusual in the jungle the larder was empty; however he managed to put on the table some very good steak which, after they had enjoyed it thoroughly, he informed them was monkey-flesh. They were horrified and disgusted; however they called on him on their return journey a few days afterwards, when in a loud voice he called out to his boy to "Kill a monkey." His guests smole to each other. In due course tiffin arrived. First came soup—and then the steak. The guests to each other wunk an evil wink, and handed their steaks to the dogs. The host meanwhile ate calmly on, being much bantered by his friends about eating that "beastly monkey flesh." When he had quite finished, he lay calmly back in his chair and said "Well, do you know, I think I have scored off you fellows again: the meat which I ate and which you gave to the dogs was good beef-steak: but the soup which you seemed so to enjoy was monkey-soup."

Before I close these jottings I must sound a note of warning. Let no aspiring young planter wishing to

better himself, or out of a berth, say to himself "Here is a paradise for a coffee planter, I will go and try for a billet." Unless a man knows Dutch language *and customs* and at least one dialect of Javanese, he will have to begin at the foot of the ladder on a salary of something like sixty rupees a month. Preference is also given to a man who has lived for a time either in Holland itself; or in Netherlands Indies. The etiquette in Dutch officialdom is somewhat complex: and a planter is frequently brought into contact with the officials both in regard to his land and other taxes, his labour, and in many cases his water-supply. These dealings require much tact and "a deal o' salutin." Do you know that story? Well, here it is. In a certain British colony a few years ago was a Padré who used to ride 40 miles to take three services every Sunday, and the planters in each district used to help him by reading the lessons for him. On one occasion it fell to the lot of a good man, but somewhat rough in the cut, to read XVI Romans. He got through the first two verses when he stopped and said audibly "Humph! There's a deal o' salutin here!" Glancing down and seeing that all the chapter was more or less of the same description, he read the last verse only, when he shut up his book with a bang saying "Here endeth the Second Lesson."

Here also end I.—*Singapore Free ress.*

LETTERS FROM BRAZIL.

LAWLESSNESS AT S. JOSE'—CLIMATE AND CONDITION OF THE COUNTRY TO THE SOUTH OF THE STATE OF MINAS GERAES—RAILWAYS—LABOUR QUESTION—DRAWBACKS TO EUROPEAN IMMIGRATION—COFFEE CULTIVATION—WANT OF SCHOOLS FOR EDUCATION OF CHILDREN—THE "MINEIROS"—HALF-CASTE LABOURERS ON COFFEE ESTATES—MARRIAGE LAWS—RESULTS OF THE ABOLITION OF SLAVERY—THE LATE REVOLUTION—HOSPITALITY OF THE PEOPLE OF THE ESTADO MINAS—GAME AND SPORT—AN ITALIAN COLONY—NOTES BY THE WAY.

I think my chronicles were brought up to our arrival at the "Travellers' Retreat" at Guaxupé at José. We got very bad accounts of the lawlessness of the people in these parts and Ananias told that a man had been murdered in the open street a few days before, and that was the latest news he had got from that quarter. We were now snugly lodged in the "Travellers' Retreat" in this same village, and we found the people of the place quite tame, and not at all a disorderly lot. However, on enquiry we found that the headman of a troop of pack-mules had been coolly put to death by a band of some six or seven persons under the orders of the local justice of peace. A warrant had been issued to imprison one of the mule drivers, he was not found among his companions when the justice went to serve the warrant, and on the plea that the head-trooper had let the man who was "wanted" escape, with very little ceremony the gang at the order of the Magistrate "despatched" the same head-trooper with ever so many cuts with the sharp-pointed knives which all the male population carry openly in every part of Brazil. In justice to the administration of the law, however, we must add that the most of the fellows were captured, but the justice of peace was allowed to hide amongst his friends. While waiting for trial the whole of the prisoners escaped out of jail, and nothing more was heard of the case up to the time I left these quarters.

During the time my commission lasted, I travelled over the most part of the south of the State of Minas Geraes. A finer climate one could scarcely imagine. The elevation is from 2,000 to 2,500 feet above sea-level. The temperature is seldom above 88° Fahr. even at the hottest time of the year and the nights are always cool. The country is hilly, the hills being covered with virgin forest, except on the parts which are planted with coffee. Coffee is subject to damage from frost, in the hollows, but on these cane and cotton can be grown luxuriantly. Tobacco is largely grown, both for consumption in the country and for export. A large part of the land is in campo, or common grass land. The grass is of a coarse common kind, with little feeding qualities in it, but many farmers are planting the sweet grass called "capim melada," and where this has once got a good hold on any patch of ground, it spreads with amazing rapidity, and soon becomes almost a pest. It being something of the nature of your Mauritius grass, its roots spread rapidly. It seeds once a year, the seed being light, it is carried by the wind to many abandoned clearings and uncultivated prices of land. I am sure it would grow well in your Ceylon patanas, and if land leeches would allow of the practicability of sending cattle and horses to graze, it might be of value to your country. This reminds me that I long ago promised to procure seed for Mr. Whyte of Nuwara Eliya.

The rains here fall regularly, being heaviest and most frequent in September, October, November, and February, March and April. I should say the rainfall would be equal to that of the Province of São Paulo, say 80 inches a year.

The soil is of a chocolate colour, and not considered equal to the *Terra-rocha* of São Paulo; but coffee comes quickly into bearing and continues to give heavy crops for six or eight years, when it falls off a little. On *Terra-rocha* on the contrary, coffee estates are often spoken of as forty years old, and bearing equal to young coffee. What one observes all along the south of Minas, and which they are very scarce of in São Paulo is the abundance of water for driving machinery. This is owing to so many well wooded hills.

Railways are being projected all over these parts, indeed all over the interior of Brazil; and if the finances of the country hold out, of which many are doubtful, transport will by-and-by be made easy. The capital for the making of these Railways has to be found in the country. Some consideration ought to be given to the fact that while they expend so much on these useful works they will have less left to spend on what is really urgent, the supply of labour for agriculture, and which, by-and-by, will be the great burning question in Brazil.

The south of Minas would do well for European immigration, but, there are difficulties in turning it to good account on small farms. Capital amongst small farmers is scarce, and there is a great deficiency of means for furnishing the three indespensible necessaries in starting an European colony on a coffee estate, namely, *tile-covered houses, well enclosed pastures for cows,* and *cash to advance the colonist* for nine months or a year, for domestic needs, until he can procure food from his own patch of ground, so that these necessary conditions can only be implemented by wealthy Fazendeiros. One finds here and there small colonies located on coffee estates, and those are doing equally well compared with others in the wealthy Province of São Paulo. Whatever may be said against European emigration to Brazil,—by agitators in some of the countries which supply the immigrants—the agricultural labourer in the coffee-growing districts of Brazil is much better off than he was in Europe, and he has a prospect at no distant date after his arrival, of becoming a land-owner himself. The only draw back I see to the system, which one may say is now past the experimental stage, is the want of schools for the education of the colonists' children. On large farms the owner supplies a schoolmaster, but the small farmer cannot afford it, and although the Government is very liberal in giving free education where a certain number of scholars can be guaranteed, and schools for primary education are established in all populous centres, many of the small farms are scattered, and at far distances from those schools, and what with the occasional heavy rains incurring danger to the little ones in crossing swollen streams, and the need of the children remaining pretty often at home to help in the harvesting of the various crops, educational advantages cannot be much availed of.

As the country gets populated there will be improvement in this.

The "Mineiros," as those belonging to Minas are called, are a very happy and contented lot of people; they supply nearly all their own domestic wants, not only as regards food, but also clothing. On every farm there are rude appliances for turning cotton and wool into cloth, and it is made of different thicknesses from fine calico to thick counterpanes. Trousers' stuffs made in Minas on the farms are in great demand in other parts of Brazil. They are strong and the colours are fast. Troopers from the interior take often large quanties of these to the Province of S. Paulo for sale. The manipulation and manufacture of these textile fabrics generally devolves on the female portion of the establishment. The lady of the house takes charge of the women and children, from whom she exacts a fair amount of work between seven and ten o'clock at night. I fear that now that forced labour is abolished and railways are bringing European goods that will prove a substitute, this interesting industry will be neglected.

I mentioned before that slavery had not such a stronghold in these parts as in some others, but there are many half-castes between Portuguese and Indian, who work in gangs on the large coffee estates. The condition of these is being very much improved by their being allowed to build a house for themselves, and plant a piece of ground with provisions. Formerly marriage amongst this class was of rare occurrence, but families were reared all the same and couples lived happily together during their lives. The blame for this want of regard for the nuptial ceremony must be laid at the door of the church, for so many confessions and preparatory catechizings had to be gone through, for weeks before the marriage could take place, people evaded it. Civil marriage had been for some time in the programme of advanced liberals, and the republican Government at once declared for it, and made civil marriage the only one recognisable, by law and have also made it a crime punishable by fine and imprisonment for any priest to celebrate a religious marriage before he has assured himself that the civil has been properly, that is to say legally, performed The custom after that decree has been to marry civily. to make it legal, and those who want to keep right with the church are afterwards married spiritually. This will ameliorate considerably the moral state of the class I am now referring to. The improvement in this respect will also extend to the class who were formerly slaves, for the law of 1871, while prohibition the sale of any one member a family, away from the other members, lost this salutary effect as regards the slave, if the father and mother were not married. The consequence was that, as a slave could not marry without his master's consent, and the master allowing him to marry depreciated the slave's market value, the rule was for masters to forbid marriages.

Many snug little homes have sprung up on the estates since the emancipation law of May 13th, 1888, which abolished slavery for ever in Brazil, was passed; and many dark-coloured couples, to whom the masterbefore, or the priest later on, denied this civilized right are being by the civil law made man and wife and their chubby children are legitimized. While referring to these "libertos" as they are now called, I must mention that the effect of abolition has not been so disastrous to agriculture as many predicted. A great many have left the old plantations, but are working on some other, and are very orderly. They prefer to work on piece work by themselves rather than the old system in large gangs, reminding them of the time when they were driven like oxen or mules by a man with a whip behind them. Last year there was not much coffee lost owing to the blacks not working. The change has been most felt in the household establishment, indeed it has upset domestic arrangments terribly. Formerly the house used to be full of negra and mulata women and girls, over whom the mistress of the house used to rule with rigorous exactitude, and whether it was owing to the peculiar temper of the lady or the wilful obstimacy of the female captive a great many authorities agree in haying, that punishment was more severely dealt on ast poor unfortunates inside, than on those outside the house. The instrument of torture was not a whip but a "palmatorio," a piece of wood shaped like a flat spoon with a few small holes bored in it: this was applied to the palm of the hand; one poor innocent was told off to apply it to the offender. I am inclined to think stories like these have been much exaggerated for no case of such treatment has passed under my observation: on the contrary I have known many kind and considerable Brazilian ladies, who gave much indulgence to the females under their charge, and I do not wish to join in this libel against the Brazilian fair sex. At the same time on visiting Fazendeiros' houses at the present time there are many excuses made for want of better treatment to a visitor in the form of having so few servants now, to do particular work. In many instances the mistress of the house or the daughters will bring the usual cup of black coffee, which everyone gives to a visitor here, be the visitor or the householder ever so humble.

It is natural to suppose that the coloured house-servant girls sighed for a home of their own, and many of them left to marry those who had been refused to them before. A great many were trained to do first-class needle-work and lady's-maid work, and all could do laundry work, and cooking, and in the towns both before emancipetion and since there was and is always a large demand for those who can hire themselves out for such useful work.

The natural inclination of the coloured servant girl seems to be to get married to one of her own race and colour, and they seem to make their homes cheerful and comfortable after marrying. Those who thought that the members of the coloured races after emancipation would gradually allow themselves to sink into social vices and degradations have beef woefully mistaken. They certainly, both sexes o them, spend a great deal in outward adornment, and in the exercise of this the taste often leads towards the gaudy and ridiculous, but this is the nature of the African race.

Our housewives here will gradually settle down to do without the coloured servant, and be contented with theItalian, Portuguese and German maids; and when the mistresses come to get acquainted with the treatment of white girls, things will get again into some sort of order in the old homes of the coffee and cane planters.

During my sojourn in these parts the so-called Revolution came off. Dom Pedro II. was quietly sent away to Europe and the army and navy took his place of power, appointing a provisional Government of Ministers amongst people well-known beforeh and for their republican sympathies. In the interior the news was received with perfect indifference.

The leading republicans in the various districts were the first to move in the matter of receiving authentic news and propagating it. The constituted authorities remained still and allowed the others to do as they liked and soon came appointments by the central Government of new municipal councillors etc. to substitute the old, and regularly elected municipal councillors had to retire before the Government nominations, and these selections were made by the central authority for all appointments from the presidents of the provinces down to the postmaster of the smallest village.

Poor people who could not read newspapers got the news from those who could read. It was not considered fashionable nor was it safe to oppose those holding Government views, and those in humble condition were made to believe that the new republican form was essentially a poor man's Government.

As far as my observation went, the deposed Emperor had a great deal of sympathy from among the lower classes. They never could find out what evil he had done, but they all remembered of his being often publicly extolled for great and good actions.

I need not go a second time into the causes that led to this. I may repeat that they were various, but the principal one was that many great military and naval officers thought themselves slighted, and gradually got the two services to promise to take part in the change, and thus it was effected—without bloodshed—for could there be any when all the people who had arms were in favour of the change?

The great Emperor was now banished the country. He who scarcely a year before—when on his return from Europe in improved health—was received in Rio de Janeiro in a manner quite surpassing the reception, in European capitals, given to the greatest heroes of modern times. Triumphal arches were placed in all the principal streets. Life-size portraits in oil of him and the Empress adorned the fronts of many commercial buildings. Rose leaves covered the ground wherever he set his foot. Deputations from all associations, guilds, societies and clubs gave congratulations The populace half-mad with excitement and frenzy, rent the air with their boisterous acclaim. Bells rang from all the church spires, cannon salutes shook the city. Fireworks of all descriptions were let off, even during daylight, and at night the city was publicly illuminated, and windows were hung with Chinese lanterns, and coloured-glass devices. Next day the newspapers and telegraph lines carried the news to the interior, and similar rejoicing took place in all the principal populated centres throughout the vast Empire. Could ever a monarch be more popular than Dom Pedro Segundo? But what a change was in the near future!

A few months passed during which the country was most prosperous, household necessities were much reduced in price, and exchange had risen higher than ever it was known before—the milreis was above par, which is twenty-seven pence, and for over two months it was 28¼ pence, and the minimum during 1889 was 26⅞d. European capitalist were sending arge sums into the country for investment such as loans to railway and other public companies, slavery was a thing of the past, everything showed that an era of prosperity and contentment had dawned in this new country, and the Government to all appearance was a popular one. The unexpected always happens. About the beginning of November 1889, whispers began to be heard by some, who were half afraid to repeat them, about the discontent in the two services and on the 15th of the same month the army were all paraded in one of the large squares of the city and the Republic proclaimed. The Navy also joining, people saw that any opposition could be put down by force. Thus happened the bloodless revolution. The Emperor was told to depart for Europe, a steamer being at once chartered for him. The Prime Minister, his relations and some of the supporters of the deposed Government were banished the country.

The republican form of Government had existed for some five months when I returned from the wlid west. My return to Rio de Janeiro had to be by the Province of São Paulo. Civilized life was met with first in the town of Mococa, for in the interval since I left Rio the branch of the Mogyana had been opened to that town. Some fine fresh looking coffee estates were passed through before Mococa was reached, and most of them with small villages of houses for colonists, but most of the colonists were nationals, that is to say half-breeds between Indian and Portuguese.

I cannot leave the Estado of Minas without noticing and noting the hospitality, which these simple although many people deal out to strangers. However small the farm may be, if you call at it, you have what they can give you with good-will. There is food supplied in abundance for man and beast and if you arrive about "Ave Maria" time you are given supper and a bed and your animals are well cared for. I have lively recollections of the jugfuls of milk drawn from the cow in the morning, as soon as one got out of bed, and if you expressed a wish the night before to start at daylight, the animals were always ready. In some parts winged game was plentiful, and if the day promised to be cool, cloudy, I would spend a day shooting snipe, wild duck, and a sort of grouse they call partridge ("perdice"). Deer is plentiful, as also wild-boar, but it requires some days to get up a pack of dogs, and a party of huntsmen. The Mineiros are a kind, contented, brave and patriotic people;

I spent a day and a night at Mococa, a rising town of some 3,000 inhabitants mostly Italian. More than half of the town seems not more than a year old. A small river runs through the middle of it, and the ground rises on each side of the river at a slope of about one in fifteen. The stream runs towards the west, the public buildings, such as churches, the municipal chamber, court-house, jail, &c. are on the left bank on elevated ground. The railway station is on the right or north side, also on high ground, and near it is a comfortable hotel kept by one Julio dos Santos. The hotel was full of railway engineers, contractors, and the usual complement of "comets."

I enjoyed very much the short time I stayed there, and made a few friends, who pressed me to stay a few days, and if I had known beforehand that I could not get my own favourite mule on the same train along with me I might have accepted some of the invitations. I had despatched my attendants to their homes, had packed up for Ribeirão Preto, had written to a friend to expect me there on a certain day, so I bade good-bye to Mococa.

The train starts at 6 o'clock; the line is a new one and trains have to move slowly, and for these special time-tables are arranged and calculation is made for accidental delays, but it is seldom that the train arrives at the junction with the main line after the express has passed.

At São José do Rio Pardo our old friend Ananias was on the platform: from him I had a cup of black coffee. I also noticed that the kangaroo horse and the one horse trolly were in the station yard. Ananias was quite bright, he had realized the dream of his life. Brazil was now a Republic, and he liked to be reminded that he had prophesied the near advent of it, when I passed up this way some six months ago. San José had increased in size; the Republican Municipality were to pave the streets, colonists were flowing fast into the district, the crop which was nearly all despatched was a large one, and amongst the late unruly citizens of San José all was contentment.

Casabranca was reachod about 9-30 a. m. I knew I had to wait here until 3 p. m. for the express from S. Paulo to take me on to the town of Ribeirão Preto.

Having made the acequaintance of an engineer in the interior the members of whose family were located in Casabranca and who was now on a visit to them, to fulfil a promise I made some time before, I went to breakfast to their house, where I was kindly entertained until the afternoon. From Casabranca passing by the important town of São Simon there are many very fine coffee estates. The railway passes right through the Fazenda of Santa Veridiama, the property of Conselheiro Antonio Pado, which I gave some particulars of in my last. The heat had been suffocating for the most of the day, but at 4 o'clock came on a heavy thunderstorm, and rain continued to fall the rest of the evening. It was quite dark before the train arrived at Cravinhos. This is a small town next station to Ribeirão Preto, and completely surrounded by valuable coffee plantations, which I could not see until my return.

It was past seven when Ribeirão Preto was reached; the rain had ceased for a short interval, and the town was well lighted, not as yet with gas, but with kerosene; so there was no difficulty in reaching the hotel with my friend who was expecting me.

Here I was to spend fifteen days, and include in these the Holy Week, which here, as in all parts of Brazil indeed in all countries where the Roman Catholic is the only religion believed in, is a very important season of the year. My visits to some important coffee plantations I must leave for the second part of this letter.

A. SCOTT BLACKLAW.

COFFEE DRINKERS.—The following curious calculation has been made:—The Dutchman drinks on an average 16½ lb. of coffee per year; the Belgian about half that quantity; the Norwegian about 6¼ lb; the German about 4¼ lb. per head, being about 2 lb. more than the Frenchman, who has the reputation of being a great coffee drinker, whereas, according to statistics lately taken, the Englishman consumes only ½ lb. a year, and the Russian only 1-5th lb.—*English Mechanic.*

PLANTING PROGRESS IN WEST HAPUTALE, CEYLON.

We have the following news of a little known district which is yet to hold up its head with tea and railway communication close by. Our correspondent writes :—

"A considerable change has taken place in the Kalupahana Valley within the last 18 months. Mr. Mayow has about 100 acres in tea on Bray estate ; Mr. Orchard has a fair acreage now on Udaveria, and has just sold a half share to Mr. F. Bateson of Broughton. Mr. Mills (West Haputale) has the largest acreage ; but I am not sure what it is. He also has a factory ; Mr. Anderson on Moneratenne too has some acreage in tea. Our tea is giving us at the rate of 400 lb. of made tea an acre, and as our land was good virgin soil bought from Government at about R40 per acre, we may reasonably expect a better yield still when our trees are older. Most of us went in at first for cinchona officinalis (our elevation bring high) which soon died out ! One good thing about it was it took little or nothing out of the soil ! There is wind in the Valley, but we find we can "dodge" it VERY successfully with belts. The Ohiya Valley, where there is to be a railway station (or siding), is quite close to the Kalupahana Valley, and we hope Government will cut a road for us which will not be an expensive one."

VARIED USES OF RHEA OR RAMIE.—We were lately surprised to learn that rhea was a good food for silkworms. Now we are told that "steam pipes are now made of ramie fibre, and the material is pressed so closely together by means of hydraulic machinery, that it has a tensile strength two and one-half times that of steel"

COFFEE IN BRAZIL.—The *Jornal do Commercio* published on the 6th a letter estimating the Rio and Santos coffee crops at 4,000.000 bags each. The writer says that this coffee will be sold for over 1,000,000,000 francs or 350,000,000$ in gold, equivalent to 560,000,000$ in paper money at its present value. —*Rio News.*

GEMMING IN RAKWANA.—Mr. Baddeley, the gemming expert from Ratnapura left today (16th,) for Europe in the "Myrmidon" his services being no longer required in connection with gemming operations in Rakwana. Mr. Baddeley confirms what our Rakwana correspondent reported—namely, that the pits are being all closed there, good stones not being forthcoming. And yet good stones are on sale each week in Colombo. Where do they come from and how are they obtained ? Until this question is settled and proper steps are taken to prevent theft at the gem-pits, it need not be expected that gemming will be found a profitable enterprise for Europeans in Ceylon.—Local "Times."

A PLANTER ON TOUR.—Mr. W. G. Sandison, of tea-seed fame, is down in Colombo again, awaiting the "Salazie" which is to convey him to Java, where he means to spend about six weeks and then return to the island. Mr. Sandison is essentially a peripatetic planter, and is continually on his travels. He has been to Java before, on which occasion, he says, he went on pleasure, and he adds that "Ceylon chappies may take the hint that Java is the place to go to enjoy oneself ;" but this time, as we stated recently, he proceeds there on business. When he returns, he says, he means to go to Madagascar, but he has not made up his mind yet as to whether he will proceed there direct or visit the "old country" first. Most likely he will do the latter, for, though he has passed over a quarter of a century in travel, chiefly in the East, he keeps up the love for his home in Scotland, which he visits often, and his judgment of whether a thing is good or bad depends very greatly on whether it comes from near Inverness or far from it. It is not generally known that Mr. Sandison was formerly in the Manipur district, near the scene of the recent rising. He was, however, engaged there in planting, and came within an ace of getting killed by the natives just before he left.—*Ibid.*

CEYLON is marching on ! Even if the rubber crop is not yet what was expected, the colony is doing well in other things, and it will supply rubber in time. It is agitating now for an exhibition, not of its own products only, but a cosmopolitan affair, at which all nations may show the goods they want to sell in the tropics.—*Indiarubber Journal*, June 8th.

THE DEATH-DEALING AMAZON.—Wooden crosses, marking the graves of immigrants, are as plentiful as the rubber trees on the banks of one or two Amazon tributaries. The Purus river district has only a population of 16,000, instead of the 40,000 which we might expect from the immigration that has taken place.—*Ibid.*

"BERMUDA IN MAY."—Such is the title of an exceedingly graphic and interesting description of the group of coral islands about twenty miles square, which, like the Bahamas, are largely resorted to by Americans who seek change. This account appears in *Garden and Forest*, a valuable American publication, whence we shall transfer it to the *Tropical Agriculturist*. Apart from the indigenous cedar and the introduced elder tree of Britain much of the leading vegetation is such as prevails in Ceylon.

RICE CULTIVATION IN THE UNITED STATES. —An elaborate article on this subject, illustrated by engravings, principally from quaint Burmese drawings, appears in the *Louisiana Planter and Sugar Manufacturer*. After a sketch of the history of rice culture and the kinds used and modes of cultivation in Egypt, China, India, Burmah, Ceylon &c. The whole process of growth and "manufacture" in the United States is described at great length. We have marked the article for the *Tropical Agriculturist*, because hints useful in Ceylon may be obtained from the widely different mode of culture observed in the Western land whither rice seems to have come from Madagascar. In slavery time the enterprise was of great importance, but it was ruined in the Civil War and the writer of the paper is not hopeful of its revival to any great extent by means of expensive free labour. We have hill rice and irrigated rice in Ceylon : in Carolina the grain is amphibious,—grown in water, but ripened on dry soil.

TEA.—A writer on "Etiquette" in a contemporary emphatically observes, "It is not usual to offer a second cup at afternoon tea. . . . . it is not as if tea were a meal." Let us hope (writes "Miranda" in the *Lady's Pictorial*) few people will be so inhospitable as to be guided by this churlish view of the meagerly supplied teapot. Talking is thirsty and fatiguing work, especially when combined with the pretty behaviour necessary where one's hostess is a smart acquaintance rather than the familiar friend whom one would have no scruple in asking to replenish one's cup, and it is an odd way of welcoming guests, indeed, to limit them to half the refreshment they would have had at home, though judicious, no doubt, when a repetiton of the visit is not desired. "They always gives such a nice tea," is a remark one frequently hears made with much appreciation, and people hardly realise, perhaps, how much the popularity of their "day" depends on the comfort of this little meal—for meal it must certainly be accounted, considering the lateness of dinners. Partially warmed cakes, served on a cold plate with little islands of half-melted butter on them, stale biscuits, bitter, overdrawn tea, or tepid "water bewitched," will dishearten the most cheerful guest, yet such experiences are by no means uncommon in making afternoon calls.

PROMISING INDUSTRIES FOR JAMAICA.

Valuable Lecture by Mr. Morris.

Not long ago Mr. D. Morris, assistant Director at Kew Gardens, England, delivered a lecture under the auspices of the Kingston Horticultural Society, in the Exhibition Hall. There was a large attendance, and among those present were His Excellency the Governor, Lady Blake, the hon. Dr. Phillippo President of the society, the hon. S. C. Burke, the Committee and Officers of the Kingston Horticultural Society and many ladies. The platform was decorated by the Botanical Department in a most tasteful manner with numerous plants and flowers, among which were the *Canna* or Indian shot, (sent by Mr. Bowrey) some beautiful Eucharis lilies (sent by Mr. T. Oughton) and specimens of the coffee, cocoa, nutmeg, and coca plants, while on the table were a fine collection of tomatoes, sent by Mr. Bowrey and a basket of green peas sent by Col. White Oaklands. There were also samples of sisal hemp, bow string hemp, manila hemp and china grass. * * * *

Mr. Morris, who was received with applause said :—The lime is a small acid fruit which can be used in more ways than you, I am sure, are aware of. It can be planted between the banana trees at 16 or 18 feet apart and it springs into a small tree when it is 10 or 12 inches high. Where the bananas are exhausted then the limes are ready to be reaped for the first crop. The latter then can be used in many ways. They can be shipped raw, in barrels to Boston or other towns where they are used in that condition. The raw juice can also be shipped to England or the States. The raw juice is concentrated; being holed down in large quantities until it is reduced to one twelfth of the original volume. It then turns of a black color and is called concentrated time juice. It is sent home for the preparation of citric acid which is in much demand by the large factories of Yorkshire and Lancashire. In the centres of the lime industry, women sit in the plantations with brass basins in their hands in which by a simple process they bruise the rind of the lime from which a fine delicate acid exudes. At the end of the day the woman or girl gets paid 6d., 8d. or 9d. for the quantity she has obtained during the day. It is then filtered into a large bottle carefully stoppered, and sent home. This is the essence of oil of limes for which there is a large demand. I can assure your that there is a wide and profitable field for any one starting the cultivation of limes in this island. * * * *

I now come to the cocoa or chocolate industry. Some years ago we thought the chocolae industry had almost died out in Jamaica. It had been so neglected that except in some few places no cocoa trees were left. Then the endeavour was made to revive the industry. There is not the slightest difficulty in establishing a cocoa estate, you have already got your banana shading: all that is left to do is to raise the plants and put them under the shade of the bananas. The cocoa trees only require to be carefully planted and pruned—young plants like the one here should be very carefully pruned indeed—all the shoots should be removed and the trees encouraged to send out their female branches so that the pods borne on the stem of the plant may have plenty of light and air. The trouble here is in preparing the produce. I am sorry to say that out of 30 samples in the Exhibition there are not more than four or five that are good. Good cocoa properly cured sent from Jamaica would fetch 70/. it now fetches only 50 to 60/—a loss of 10/ to 20/ solely due to th curing.

When the pods are broken and the beans taken cut they should be fermented in such a way as to produce a change in the beans; instead of being bitter and adhering to the beans the skins should readily come off, I appeal to those interested to try and do something to remedy these things. Jamaica cocoa is at the bottom of the list of cocoa in the London market; you lose 10s. per cwt. on account of bad cocoa. It is not reasonable that the people of Jamaica should throw away a sum equal to about £20,000 or £30,000 a year because they will not cure their cocoa properly. It is not because they do not know, for from the number of pamphlets that have been issued and infor mation given by myself and Mr. Fawcett it should be well known. There are two points with regard to the cocoa industry that may possibly assist to do good; first it would be very desirable that some one acquainted with the black people should go among them and talk to them and explain to them exactly what should be done to cure the cocoa properly; then the merchants of Kingston should not buy the half ripe, badly cured cocoa which is being shipped in such a way as to bring discredit on the island. The matter is in the hands of the merchants, they should refuse to buy the cocoa that is dried in the sun and allowed to become covered with dust and dirt. Those who ship it home and call it Jamaica cocoa are doing a bad turn to Jamaica. If they would offer a better price to the grower for good cocoa they would find the men willing to cure it as they ought. I do not think Jamaica deserves to be at the bottom of the list in anything. Blue Mountain coffee is at the head of the list; pimento is unique, your sugar there is nothing to be said against and with regard to cocoa I think it is your duty to raise it above its present value and condition. I may say that the cocoa of Trinidad Grenada, Dominica and other parts of the world are all taking rank above the cocoa of Jamaica. Grenada cocoa is not of the best kind, they have not got as good sorts as you have, but seem to take greater care in curing and they get better prices than you, and near the prices in Trinidad. In Ceylon they took to preparing cocoa and although lately they have many enemies to contend against, their cocoa at the present time gets 110/ to 120/ per cwt. The other day a planter in Montserrat cured it in the Ceylon way and got 90/ per cwt. That shows in regard to cocoa that it is purely a matter of curing it.—*Jamaica Gleaner.*

PLANTING IN THE NORTH-CENTRAL PROVINCE:

Cotton—Coconut—Palmyrah.

The first Provincial Report for last year has reached us from Government this afternoon, being Mr. Ievers' for the North Central Province. We can do no more today than say that Mr. Ievers is a firm believer in the future of his Province with its restored irrigation works and thousand village tanks. But that is in the Nuwarakalawiya division: Mr. Ievers is now anxious that something should be done for the Tammankaduwa district, and he sketches a road (already partly voted for), head-works on streams and sluices for tanks. Mr. Ievers considers Nuwarakalawiya "the best-.. roaded district in the island," and yet Mr,

Christie, M. L. C. in his condemnation of irrigation! said that a network of roads was necessary. Here are some interesting paragraphs:—

Cotton Cultivation.—This industry may be said to have been a complete failure. The seed was supplied in the previous year, and although the plants promised well up to a certain stage, so much damage was done by the drought that the crop was not worth the transport.

Palmyrah.—Mr. C. A. Murray had these plants put in along several miles of the Yoda-ela, and I found that the majority of them were doing well, although they have not been specially cared for or fenced. I hope to procure a large supply in 1891 to extend this cultivation.

Coconuts.—One of the great advantages which "irrigation" has secured for this Province is that coconut cultivation is rapidly extending. To any one sceptical of this statement I would recommend a visit to the villages below the Yoda-ela, or to take Karembewa, in Kalagam korale, as a specimen. I am having a census taken of coconut trees, village by village, which will show hereafter whether the cultivation is extending or not.

Indian Corn.—This valuable grain is largely grown in chenas; and that which is produced in Tammankaduwa will compare favourably with the finest Russian-grown corn I have seen. But its value is much lost from the unhealthy manner in which it is eaten. The pods are half-boiled and then gnawed off. This mode of "cooking" is said to be productive of several evils, as may readily be conceived.

THE LEAVES of *Salvia triloba* are extensively used in the Levant in the preparation of a kind of tea. The plants are simply cut, dried, tied in bundles and sold on the market-place, and are found, ready for use, in every café of Greece, and even in the poorest homes. This "Athenian tea," or as the Greeks call it, "Phaskomylia tea," is believed to be a sure preventive of colds and fevers, and is therefore universally drunk in winter weather and by sailors at sea.—*Garden and Forest.*

GOLD IN SIBERIA.—From a paper in the London *Times* we quote as follows:—

Of all the industries of Eastern Siberia, probably the most important is the gold mining industry. The richest washings and mines are those of Yeneseisk and Olekminsk, but the yield of metal at these places, owing to the present primitive and wasteful method of extracting it, is not nearly so large as it might be. Mining engineers calculate that when the railway is constructed and it is possible to transport hydraulic gold-washing machinery they will be able to save at from 25 per cent to 80 per cent of the gold which is now wasted. When these improved methods of extracting the metal have been adopted, they are confident that the yield will be about double what it now is. At present, owing to the immense distance of the washings of Eastern Siberia from Russia, it is not considered profitable to work "washings" unless they produce five times as much gold as the least profitable of the washings in the Urals. It is easy to see, then, that the railway will give an immense impetus to the gold mining industries of Easter Siberia. A regular gold fever may, indeed, be expected to set in. Few people have any idea of the amount of gold which has been obtained already from Eastern and Central Siberia. * * * Eastern and Central Siberia has alone given to Russia, during the past 54 years, about £120,000,000 worth of gold. The Ural and Western Siberia have, I am told, furnished an even greater quantity. And, when it is remembered that the yield of gold would be much larger—some say twice as large—if proper mining machinery were in use, and that much of the gold which is extracted never finds its way to Russia, but is surreptitiously disposed of to the Chinese and private traders, no one will be surprised that the Government are anxious to keep a firm hold of their territories in Eastern Siberia and turn them to better account.

IMPORTS OF TEA INTO THE UNITED STATES.

These show a gain over last year. The March imports as compared with last year were light, being only 2,244,783 pounds, against 5 640,951 pounds in 1890. For the nine months ending March 31st the imports were 75,609,214 pounds, against 71 792 298 pounds for the same time in 1890.—*American Grocer.*

THE NEW FORMOSA TEA-CROP is larger and finer than it has been for many years. The grower thus far have been a little uppish on account of the superior quality of the leaf, so that the chief if not the sole buyers thus far have been the Chinese hongs. The increased output however will soon cause a fall in prices and a heavy shipment to Amoy.—*Amoy Times.*

PEPPER, PADDY, TIGERS, AND BAT CAVES IN PERAK.—The Report on Trong and Kurau, for April and May, stated:—

During the month I walked through the pepper garden of Haji Mohomed Yusuf (the Assistant Kathi) at Ayer Terjun (Ulu Sungei Tinggi), who has taken a lease of 80 acres for pepper cultivation, but only from 15 to 20 acres are at present planted, none of the plants being more than 2½ years old, but looking strong and healthy, and had they been trained up dead-wood posts, instead of up dedap trees, the owner-I venture to say, would have had a return from the plants this year. In a small pepper garden from 7 to 8 years old the plants having been trained up dead-wood posts, are in full bearing, and looking remarkably well. The owner might have congratulated himself had he had 100 or 200 acres planted up with such pepper. The inhabitants are evidently keenly alive as to the pepper future of the district, as fresh applications for land to cultivate pepper are coming in fast.

The padi crop usually a remarkably good one, was this last season partially destroyed by rats.

It would be a good plan to try the system of poisoned grain adopted throughout the Australian colonies for the destruction of rabbits, and which so far has been the only reliable exterminator of that pest, though scientific men have racked their brains to substitute a better mode of destruction, but without any great show of success.

Since my arrival in the district two tigers have been shot by Mat Salleh, a Patani man, the same man having shot no less than five of them within the last three months, whilst there are several more in the neighbourhood, as was proved on the night of the 18th, a settler having two of his cows killed and eaten, and a third seriously injured. The brutes are of such a ravenous nature that they carried away and ate up the body of a dead comrade killed the previous night. Doubtless they are attracted by the herds of Indian cattle allowed to run loose in the kampongs during the night. All were shot by spring guns ingeniously set in the jungle. A well-known gentleman having offered a reward of $50 for the dead body of the first large tiger brought in, there is every reason to believe that, in this district at any rate, their extermination is at hand.

The Batu Kurau rock, standing about a mile from the foot of the Hijau range, is worthy of note, and well worth a visit. It is an isolated, perpendicular limestone rock of several hundred feet in height, now overgrown with trees, with the Sungei Kurau winding round the foot of it. The largest cave of interest is on the eastern side of the rock, about 50 ft. in length, and proportionately broad, into which I rode a large elephant; at the further end of this cave gapes an enormous black cavern, extending perpendicularly upwards; I had no means of ascertaining to what height it ran. Thousands of bats were flying in the darkness, frightened at our approach, their wings making the caves resound with a noise like distant thunder, whilst the floor of the cave was from 4 ft. to 5 ft. deep in bat guano. There are several other caves of minor interest in the rock, said to have been the lairs of wild beasts, in the remembrance of the oldest inhabitants.

Correspondence.

To the Editor.

SILKWORM REARING.

Agar's Land Estate, June 17th.

DEAR SIR,—Those who go in for the rearing of silkworms may be glad to know that the wild olive or weralu (Sinhalese name of plant) will do for feeding the silkworms on. I have had both Tussa and Atlas variety feeding on weralu trees at one and same time. Although found also on the cardamom bushes and placed on weralu trees, the variation in their diet does not seem to check their growth, or kill them off. The Atlas variety are only found on the cardamom bushes. I have never found the Tussa variety on these bushes.

The Tussa silkworms are found on 3 different variety of trees up here, Weralu, Dhang, or Nawa Palum (Tamil name of tree), as well as on a shrub that grows in Cinnamon Gardens and produces a pale violet flower with few petals; grows near swamps, marshy places, and has a black fruit (when ripe) which discolours the tongue when eaten, like ink. I have found the Tussa silk caterpillars on all these trees. I am sorry I cannot give the botanical names of these plants, but can send branches of them to any one inquisitive as to what food to feed silk worms on. I have 3 different kinds of moths which seem to hatch from cocoons of the silkworms.

1st the Atlas, 2nd Tussa, 3rd which I am not sure of is a large white moth, long swallow tails, pink-edged, with half-moon-shaped spots, one spot on each wing. I should be obliged to anyone informing me what this moth is called.—Yours truly

JAMES GRAY.

[The difficulties opposed to sericulture in Ceylon are not, we suspect, so much connected with feeding the worms, as with plentiful and cheap labour in attending to them, reeling off the cocoons, &c.—ED. *T. A.*]

WEIGHING OF TEAS IN LONDON: COMMON-SENSE REFORM URGED.

June 21st.

SIR,—In your issue of 11th Mr. John Hamilton and Mr. Robert Jones give us information about weighing and taring tea, and wash their hands in innocency. As one of your readers I thank them, and would like permission to ask them to tell us why the packages are tared at all and how to set about avoiding it? If I mark my tea "nett 100 lbs.," what has the weight of the package to do with it? I sell the tea and give the package into the bargain! If there are 100 lb. tea in the chest, deduct one lb. for draft, if it must be so, and pay for 99 lb., but why juggle with the empty *package* and deprive me of another pound or two? If my tea is short of the professed 100 lb. I'll bear a reasonable fine if need be.—If India and Ceylon took up this point and memorialized the Government to order the Customs to weigh to half a pound, they would soon compel the buyer to carry on his purchases on the lines of simple justice, with an extra pound for his pains!—Yours &c.,

A TEA GROWER.

NO. II.

London, June 5th.

DEAR SIR,—Your *Overland* numbers with news to the 30th April and 5th May contain some correspondence regarding tares and loss in weight on teas shipped to this market which are couched in naturally indignant terms; but natural only because the writers, smarting under losses of tea as shown by account sales received from their agents, are ignorant of the way in which such losses may and do arise. The explanation of these losses might well be left to the respective agents of your anonymous correspondents had not you, sir, given apparently the sanction of your influential journal to charges and statements, which no doubt the writers themselves, if they knew the facts and saw things for themselves, would be first to allow were unwarranted. It is perhaps repeationg an old story to show how losses in weight may be incurred. The custom of the trade in weighing is to weigh to the lb. only and in doing so to give the turn of the scale both in weighing gross and taring, against the shippers and in favour of the buyers. The Ceylon and Indian Associations in London have endeavoured to get this custom modified and weights taken to the half lb., but so far without success. As it stands now the teas are first weighed gross and if then a package is only one ounce *short* of the full lb. 15 ounces are thereby lost thus: 135 lb. 15 oz. gross would be called 135 lb. Then the teas are turned out to be tared, and in weighing the tares if the package weighs only one ounce *over* the full lb. again 15 oz. is lost; to the shipper thus 36 lb. 1 oz. would be called 37 lb. So that nearly 2 lb. may be lost on a package, equal to 2 per cent on chests or 4 per cent on half-chests, in addition to the trade allowance for draft. The trade is so strong that it can maintain this system against sellers; and all that planters can do is to adjust their gross weights and tares so that the minimum loss may be attained. This requires close care and attention, and it is difficult to achieve because of the variableness of the tares. That it can be done with some exactness has been proved by shipments from one estate which I know, which for the whole of last year showed a loss of only a quarter per cent beyond the trade allowance for draft. With regard to the dock company or companies it is a mistake to assert as a "Proprietor" does that they form a "monster of monopoly." There are numerous wharves competing with the docks for tea or other produce; and as a proof that charges are not over-remunerative, I may mention that a wharfinger who has a good connection with Ceylon merchants lately thought of adding a Tea warehouse to his other business; but on looking into the matter found that there was little inducement in the way of profit, though he had plenty of promises of support. Shippers and merchants may employ inspectors to see their tea weighed and tared. At a fact this duty is generally left to the brokers who have representatives at the warehouses. The refuse and sweepings which the dock companies and wharves sell from time to time, and which relatively to the bulk of the trade are of infinitesimal importance, would not be thus treated if the importers considered that they were worth more than the duty and dock charges.

A long perience, extending to nearly 20 years in London, enables me to assert with confidence that both docks and wharves in London do their work well and honestly. There is no difficulty in the way of any planter visiting London, satisfying himself on this point. The Ceylon Association in London two years ago thoroughly examined into and sifted out the whole matter of Taring and Loss in Weight, with the result that though it was considered that the system of weighing above referred to was in itself unfair, it was fairly carried out by the dock companies. To assert as a "Sufferer" does that "a considerable percentage of tea is being habitually stolen in the London Warehouses" is to

anyone acquainted with the working of tea here, as foolish as it is untrue. I apologize, sir, for encroaching so much upon your valuable space, and will only add in conclusion that I do not hold a brief for the dock companies or wharves, nor am I in any way whatever interested in any of them, but simply write in the desire that the truth should be known and in the interests of justice and fair-play.—I am, &c.,

THEO. STRETCH.

OUR LABOUR SUPPLY AND COMING LARGE EXPORT OF TEA; LOSS IN WEIGHT.

DEAR SIR,—As an export of from 100 to 120 million pounds of tea in the course of a few years is considered possible it will be interesting to consider what labour is necessary to produce that quantity. From what data I can get I find that it takes the labour of 10,000 coolies working five days per week for 50 weeks to produce five million lb. of tea: therefore our present labour force is for tea alone, at this rate, 120,000 coolies for 60 millions of lb.; and if we are to export 120 millions in five or six years this labour force will have to be doubled in that time. This is a big order, and it is probable that our production of tea will not increase at the rate some expect as the yield will be limited by the labour available and not by what the planted acreage is capable of giving. No doubt, our exports this season would be larger with more available labour, but it is probable that the loss will be partially balanced by this restriction of yield as with a larger export prices would have fallen lower than they have done.

It is strange that an old-established imposition should be tolerated with scarcely a murmur, while a new one such as the increased military contribution raises such an outcry. The loss in weight on Ceylon tea this season will be at least a million pounds which at 10d per lb. comes to more than £40,00, sterling, and the loss on other products, such as cacao etc., would swell this large total still more. It would be better for us if this million lb. were destroyed, as under the present system it assists in depressing the market without in any way benefiting the producer. Could not the Home Government be moved to help us as some return for our increased contribution? It would pay us to lay out £10,000 or £20,000 to have our teas refired and packed to correct weights after or before passing Customs in London, any surplus to be sold on shipper's account. Perhaps the Committee of the Tea Fund will find a way to save some, at least, of this large loss which will grow still larger with an increased export, the loss on 120 millions would about pay the whole military contribution. What is considered an unbearable tax on the whole Colony will, if things are not altered in a few years, have to be paid by a section only, viz., £80,000 to £100,000 loss in weight on Ceylon tea alone.—Yours truly, B. B. B.

120,000,000 lb. at 2% loss = 2,400,000 lb. at 10d = £100,000.

PROSPECTS OF TEA.

DEAR SIR,—Is it not strange that in England and Victoria the reduction of the duty has been followed by prices, lower perhaps on the average than tea ever fetched before—that is Indian or Ceylon tea? You may remember how coffee bounded upwards, newly twenty years ago, when Lowe's budget took 1½d per lb. off the duty. It shows the keenness of the competition now-a-days, when the large firms dealing on the packet system push their trade among the customers of every village grocer. An extensive tea dealer in London told me a short time ago that he had sent out 1,000 circulars to gentlemen, clergymen and leading householders throughout Britain; and that, to those from whom he had no reply or order, he made the members of his family send out a second reminder. He also said that since the establishment of the large London houses in the packet trade, tea once down had never risen again unless in a temporary spurt, because those large houses advertised lower and lower rates, and *have never once raised* their prices. I see it is proposed to raise the duty again in Victoria.

Here is a report on Ceylon teas in Melbourne received from a leading broker by last mail:—"*Ceylon Teas.*—Business has been very dull in this description of tea, and sales when made, have been at a sacrifice. 500 packages were offered at public auction this week. Many teas sold, several parcels under cost price, and the highest paid for a very choice hill tea was 2½d under invoice price."—Yours faithfully,

PLANTER.

THE LABOUR ORDINANCE.

DEAR SIR,—The Labour Ordinance has been, ever since Sir John Phear's time, the one piece of legislation must frequently construed in utterly unexpected directions. The last ordinance was delayed in order that it might be perfected; Sir A. Gordon certainly sought to make it so; our present Governor told us only lately that the best thing he could do for us was to leave us alone; our Planting Representative was commended at every district and at the Planters Association meeting, for his *powerful* grasp of the subject;—and yet there never were so many weak points discovered—I will use no stronger word—as during the last three months. We don't at the present moment know, who has authority to give orders; when one-third of our force (minors) are amenable to any Labor Ordinance whatever; or what are the advances which we are entitled to set against wages. Surely it is not beyond the ingenuity of our Government's legal advisers so to define these matters, that no one can be dull enough to misunderstand, or misconstrue, the intentions of the framers of the act.

Meantime we cannot deny that many stupid cases have been brought into Court recently, and that others have failed for want of evidence which might easily have been forthcoming. But I think we should all try to manage our coolies out of Court. Be true to ourselves, refuse all coolies not holding a proper discharge from previous employers, keep out of Court as one avoids endless troubles.

Stick to the kangani system, and have none of busybodies however polysyllabic, and Ramasamy will in future, as of old, prove the most docile and useful of laborers. His lot in Ceylon was never so good as now—and he infinitely perfers tea-plucking to coffee-picking, with its attendant heavy transport of wet cherry.

ONLOOKER.

THREE RUBIES, uncut, were sold by auctioners yesterday, of a size, never before seen in England, or even in Europe. These were the property of the Burma Ruby Mines Company (Limited). The first, which weighed 1,185 carats, was irregular in form, and resembled quartz, save in colour, which was deep red. Biddings commenced at 200*l.*, and rapidly advanced to 400*l.*, at which it was sold. The second lot weighed 302 carats. This was yellowish red in colour, and sold for 65*l.* Lot 3 weighed 281 carats, was dull red in colour, and brought 32 guineas.—*C. Mail*, June 19.

UVA PLANTING REPORT.

Badulla, June 25th.

Bright pleasant weather, with an occasional shower, is the order of the day. A good deal of wind on the higher estates, but no harm has been done, and it will help harden the wood of our August and September blossoms. Tea has to a certain extent shut up. But it is somewhat of a relief to have a little breathing space after the continued strain of keeping up with the rush of leaf during the past three months, and to be able to devote a little attention to other works. A very severe attack of leaf disease general in the district. We are all however now accustomed to regard this disease with a certain amount of complacency, after our experiences with bug. In the one case, we know that in a few weeks our coffee will, at any rate, look as well as ever. In the other, we cannot avoid wondering whether the present attack may not leave us without any coffee at all. There is very little bug for the time of year visible at present, and I trust it may give us no more trouble and betake itself to pastures new. Autumn crops are generally good, and with favourable weather there is no reason why spring crops should no be equally satisfactory. Coffee has done very well in this season and has ripened its crop and stood its crop better than it has for years past. A good deal of land being cleared for tea this year and clearing works have commenced on some estates. Tea pruning has commenced, and next month will see a large acreage pruned down.

THE BRAZIL COFFEE RECEIPTS are realizing the high estimate of 5,250,000 bags to which the house of Messrs. J. Bradshaw & Co. have persistently pinned their faith, against the general belief in a much lower figure. The biggest export of coffee from Brazil on record was 6,711,000 bags in season 1882-83.

THE PLUMBAGO INDUSTRY.—This industry has recently assumed large proportions consequent upon rich finds and good prices, and large quantities of the mineral are being brought into Colombo from distant places. Pasdum Korle and Rayigam Korle in the Western Province, with Hewagam and Siyana, contribute a large quantity, while the Southern Province, and the Province of Sabaragamuwa and the North-Western Province, contribute largely almost daily to Colombo. Hundreds of people are employed in the pits, most of which we are worked by means of improved machinery which the proprietors have got out. The native merchants engaged in the industry in the Kurunegala district are looking forward to the day when the railway will be opened to Kurunegala, as it will afford an easy means of transporting the thousands of tons of plumbago sent from that district o Colombo.—*Cor.*

IRRIGATION.—The reclamation of arid lands by means of irrigation is of historic and ancient origin. China has had its artesian wells for irrigating purposes for more than 3,000 years. The table lands of Arabia support a population of 12,000,000 who raise wheat, barley, millet etc., from a soil penurious of vitality without the aid of artificial irrigation. Algeria is practically a desert, but its broad plateaus of sand are made productive by the same means, no less than 12,000,000 acres being reclaimed by artificial processes. In Mexico and South America there are 2,500,000 acres fertilized by borrowed waters, in India 30,000,000 acres, in China 60,000,000 in Japan 11,000,000 in Egypt 6,300,000 and in antipodal Australia some 200,000 acres are made green and productive by the irrigation method.—*Louisiana Planter and Sugar Manufacturer.*

TEA AND COFFEE IN BOND.—According to the official statement of the quantities of bonded goods remaining in the Custom and Excise wharehouses of the United Kingdom, as published in the B Bill of Entry, the stock of tea on May 31st was 79,020,834 lb, against 85,239,538 lb in 1890, and 78,940,549 lb at the correspondent period of 1889: coffee, 236,924 cwt against 377,686 cwt. and 460,146 cwt.—*H. and C. Mail.*

AGAINST CHEAP TEAS.—A Stockton firm of grocers recently offered a prize to grocers' assistants for the best essay on tea. This essay, won by a Mr. Laing, has just been printed, with an introduction by the prize-givers, in which they say:—"We unhesitatingly state that no tea offered to the public at a less price than 1s. 10d. per lb. can be a fit or wholesome article for consumption." Speaking of inferior teas they say:—"These teas are not cheap at any money; a greater quantity is required to brew a fairly strong cup of tea, and when made more or less to the satisfaction of the tea-drinker it will contain some 20 per cent. of tannic acid, a substance which speedily destroys the coating of the stomach, and turns wholesome meat into a hard and indigestible substance, just in the same manner as tannin is used at tan-yards to cure cowhides and make them fit for leather."

THE TEA MARKET.—Of Indian and Ceylon tea and last week's sales the *Produce Markets' Review* says:—The value of Indian tea shows no change of importance, the good, medium, and finer grades being a shade firmer, while the lower descriptions have sold at above late rates. The moderate quantities offered at the public sales mainly consisted of the inferior descriptions, and it appears evident that the supply of tea worth over 1s. will for some time to come be very small. The few lots of new season's brought forward were, as is generally the case for the first arrivals, not of a very desirable character, the infusion being thin and showing a want of proper manufacture. As this is not unusual with the first shipment, it is no criterion of the quality of future imports, which is likely, judging from recent reports, to be quite up to the average of past seasons. The figures of the past month are less satisfactory than the trade has latterly been accustomed to, which is mainly to be accounted for by the poor selection and the high prices for the common grades compared with the lower Ceylon growths. A marked improvement has taken place in the demand for Ceylon teas, and consequently prices have improved for all grades.

INFLUENZA AND ITS CURE.—The *Spectator* has a good word for quinine and of all things "snuff-taking" in winding up a long and rather despondent article about the new pestilence which threatens to become an annual visitor. In conclusion our contemporary says:—

We shall have good reports this time on the disease when it passes, and we may perhaps have some lucid suggestion, or, at any rate, a suggestion on which doctors agree, as to the best preventives. At present, everybody has his own panacea, though, fortunately, this year preposterous doses of antipyrine are not among them. It is difficult even for laymen to touch the subject without offering them, so we will yield to the weakness by ending this paper with two suggestions,—the first given only for its interest to a minute and rapidly decreasing class, the other because we rather believe in its virtue. Let snuff-takers postpone abandoning that dirty and ugly practice till the pestilence passes away, for the queer instinct of the common folk, which suddenly doubled the sales of Scotch snuff, has probably a basis. Tobacco is of no use as a prophylactic against influenza, but the thickening of the mucous membrane, which comes of snuff-taking, is probably a protection, and points to a quite possible preventive. So also, and a much better one, is solid quinine, the only protection against aguish fever which travellers in the tropics trust. Influenza is certainly an aguish fever of some sort, and there is no protection like a daily pill of three grains of quinine, a recipe which has at least this advantage, that it can do nobody any harm.

CEYLON TEA FOR RUSSIA.

A Ceylon colonist now in England, writes :—"I send you a cutting from the *Morning Post* of the 26th May about Ceylon tea which may be of interest to planters. The hint to cultivate it for adaptation to Russian water may be of use if the idea is practicable. Ceylon tea is used almost everywhere in the old country especially after the recent high price which it fetched :—

One of the most interesting of the series of consular reports presented to Parliament this Session is largely devoted to an examination of the causes which have led to the supplanting of China tea in the British market by the competing growths of India and Ceylon. The subject has been alluded to by the present Chancellor of the Exchequer in several of his Budget speeches, but it is doubtful whether the general public yet realise the magnitude of the change that has taken place or the causes which have brought it about. Upon these points the report of Mr. Gardner, our Consul at Hankow, which has just been issued, supplies much information. In his opinion the competition of India and Ceylon not only is fast ousting China tea from the British market, but is destined at no distant date to make serious inroads upon the business of the Chinese tea producers with Russia. During the last five years there has been a steady process of decline in the tea exports from Hankow to London, and whereas in 1886 they amounted to 39,545,000 lb., last year they had fallen to 11,314,000 lb. Startling as these figures are, they do not represent the full effects of the competition of our Eastern possessions, for it is stated that very little even of the small quantity of tea exported to London in 1890 went into British consumption, most of it being sold here for the Russian market. In the same period the exports to Odessa rose from 9,899,000 lb. to 22,742,000 lb., the increase being attributed to increased shipping facilities, improved land transit in Russia, and the greater prosperity of the mass of the Russian nation, which led to an unprecedented demand for tea, especially of the finer sorts. The causes that have made England buy her tea in India and Ceylon will, it is predicted, speedily cause Russia to be also a customer of those countries. Though for a long time to come she may still prefer Chinese tea, the strength of the Indian tea and its cheapness and the flavour of the Ceylon leaf will more and more commend them to the Russian retailer as profitably to be mixed with the Chinese teas. Cheapness and quality being the two great factors which have enabled India and Ceylon to dispossess China of her supremacy in the Western European market, it needs no gift of prophecy to foretell that their successful competition will rapidly make itself felt elsewhere. The tea trade of China with Australasia is already being affected, and in America and Canada, where principally green tea is drunk, there is a promising field for future extension. One of the advantages which Indian and Ceylon tea growers have over those in China is their greater command of capital. The tea estates being generally owned by companies, expensive land, machinery, and plant, can be purchased, and large sums can be expended on experiments, on agents, and on investigating the tastes and requirements of purchasers. Then loans can be obtained at from 4 to 5 per cent interest, whereas the Chinese grower has to pay from 20 to 30 per cent. The latter, moreover, has to bear not only a heavier land tax, but also likin and export duty often amounting to 30 per cent of the selling price of the tea abroad and to 100 per cent of the prime cost of its production. The Indian and Ceylon agriculturist has the further advantages of a better labour market easier modes of transport, nearer access to the markets, better public works, preventing or mitigating the disastrous effects of floods and droughts, improved machinery, and enormously larger tea estates on which the various processes of preparation, packing, and carriage can be carried on without intermission or risk of deterioration through exposure or delay. He has also greater knowledge of the methods and requirements of the retail dealers, and can command the services of chemical and agricultural science. How important this last-mentioned point is, Mr. Gardner remarks, none but an expert can explain. He gives, however, one illustration to show how science may be applied in order to enable the tea planter to adapt his crop to the requirements of a particular market. One of the chemical ingredients of tea is tannin, which gives the tea its bitter and astringent flavour. In some parts of England the water is of such a nature that it does not easily assimilate with the tannin, and for these regions a tea containing much tannin is desirable. The water on the plains of Russia, on the other hand, readily assimilates with tannin, and hence the tea required must contain only a little of that ingredient, or else it would be too bitter and astringent to be saleable. The tea planters of Ceylon and India have the necessary knowledge of agricultural chemistry at their command to produce in the tea, by cultivation and manufacture, the requisite amount of tannin* for the market which has to be supplied. As between the producers in our own dominions and those in China it is the old case of scientific knowledge *versus* "rule of thumb." The Chinese tea grower, working for his own hand instead of for wages, brings often greater care and more industry to the task—and this is the one advantage he possesses against those which have been enumerated as belonging to his Indian and Ceylon competitors. Experience, with him, takes the place of science, and if he is still able to produce a finer flavoured tea than has yet been produced in India, his superiority in this respect is not likely to remain long unchallenged. The extent to which his former monopoly of what is now almost a necessity of life has been destroyed is, perhaps, the most remarkable illustration that could be adduced of the boundless resources comprised within the limits of the British Empire.

PLANTING NOTES FROM THE NILGIRIS.

COONOOR, May 31.—The coffee season of 1890-91 is well nigh over, only a few of the estates at high elevations having any berries left on them. None of the estates during the past year gave bumper crops, and only a few yielded average ones. High prices have, however, compensated to a great extent for short yields, and planters are on the whole fairly well satisfied with past results. Prospects for the season 1891-92 are very good indeed; the weather has so far been most favourable, and there has been a good show of blossom on most estates. Some of the sanguine planters expect (always expected but, of late years, never realised) bumper crops; but leaving the over sanguine ones aside, if the weather continues favourable, very fair average crops will probably be the yield of most of the estates during the coming seasons and in my opinion average crops are to be preferred to bumpers. Allowing coffee trees to over-bear is a very great mistake. They get so weakened after a too heavy crop that they fall easy victims to every disease that coffee trees are heir to, and many a good estate has been permanently damaged by over bearing. In fact, neither leaf disease nor bug has played greater havoc amongst coffee trees than too heavy crops. With judicious pruning and handling crops can to a great extent be regulated according to the strength of the trees. Planters on the Nilgiris, except those at Kotagherry, are never troubled with the labour question, and are in that respect better off than their brethren of Coorg and Travancore. We neither require nor employ Labour Agents; the chief part of our labour is drawn from villages in the District of Coimbatore. On nearly every estate a few Canarese from Mysore are also employed, and on some Malligars from beyond Bellary. But it is in the Kongu coolies of the Coimbatore District that the Nilgiri planter has to put his trust for the execution of his work; and provided he can speak the language spoken by the Kongas (a very poor apology for Tamil) not merely etymologically, but with the peculiar twang of the Kongas, (which is the most important part of their language), he can procure any number of coolies on

* This is just what Mr. Hooper, the Madras quinologist, held could not be done. Such was his conclusion derived from a number of tea analyses.—ED. *T. A.*

short notice and small advances. A Konga mistakes a Sahib who speaks his native tongue like himself for some sort of a distant relation, and he seldom deserts such a Sahib for trifling causes. The Konga likes to get his weekly advances of from 8 to 12 annas; and to his credit be it said, that although Government has most considerately to the cooly, and considerately to every one else, placed liquor shops in every nook and corner of the Nilgiris, he spends nearly the whole of his weekly advances on food. But on the monthly pay day, which is invariably a Saturday, he spends a part of his earnings on arrack, and the Sunday succeeding pay day is generally reserved by him for settlement of disputes with his fellow labourers, which, however, are never attended with broken limbs or bloodshed, as the Kongas are wise in their generation, and while they abuse each other in the vilest language and call each others forefathers all the abusive names they can think of, they stand about 10 yards apart, and after exercising their lungs for a couple of hours they return to the same lines and live in peace and harmony until next pay day.

Hitherto, as I have already said, Nilgiri planters have been well off for labour, but it is doubtful whether we shall be as fortunate in the future. The railway line between Coonoor and Mettapollium has been traced and as soon as certain disputes are settled between the Government, the Railway Company, and the planters, with reference to the amount of money due to planters for the portions of their estates taken up by the line and for the damages that may be done to the adjacent parts when the line is being opened, work will commence, and as a very large number of coolies will be required for the earthwork, there will be a great strain on the labour market. I believe ordinary labourers—for skilled labour is to be imported from elsewhere—will be drawn from the Coimbatore District, and as some thousands of hands will be required for this work it will, to a certain extent, interfere with estate labour. It will be a very serious matter if labour falls short during the picking season, and it will be advisable therefore for planters to anticipate matters and to enter into early contracts with maistries for a sufficient number of hands for their estates. There is another question to be considered in connection with the railway works, and one which is of far greater importance than the mere number that may be employed by the Railway Company, and that is the rate of wages the Company intend paying their coolies. The present rates of R6-8-0 per man and from R4 to R4-4-0 per woman for a month of 26 working days, were fixed some years ago, after taking into consideration both the requirements of the coolies, and the paying powers of the planters. But if the railway contractors should either through ignorance of present rates or through some short-sighted policy, raise them they will be doing a great deal of damage to planters and residents on the Nilgiris without in any manner benefitting themselves; for as soon as the rates are raised by one party, the others will be compelled to do the same, and thus no advantage will be gained. Hitherto Mr. Woolley has acted in a right spirit with regard to the rates of pay for coolies employed by him for surveying the line, and although he had at first some difficulty in getting men for a work new to them, he overcame them without enhancing the rates. But as contracts will have to be given to different parties, unless stipulations are made in the contracts with regard to coolies' wages the contractors may give higher rates than those at present in vogue and do a deal of mischief. There has been some talk among planters on this subject, but nothing definite has as yet been done to prevent an impending evil. The sooner, however, something is done the better.—*Madras Mail*, June 2nd.

HEMILEIA VASTATRIX.

To the Editor of the "Madras Mail."

Sir,—Reference to the correspondence that has appeared in our columns during the past month, on the subject of Hemeleia Vastatrix, and more especially to Mr. Pringle's assertion that he has discovered a remedy for it, which he is willing to communicate to the planting community for a consideration, would it not be well for such of them as feel disposed to entertain his proposal to first ascertain from Messrs. Matheson & Co., or from their Agent in Coorg, what has been the result, in this way, of his experiments on their behalf? Mr. Pringle states that he has been employed for four years on this and kindred subjects at a cost of £5,000 sterling, and the inference from his offer is that he has given his late employers a *quid pro quo*. I do not think Messrs. Matheson & Co., or their Agent in Coorg, could have any objection to answering a simple question of this kind, which might be so put as to take in the borer difficulty also.

PRUDENCE.

Pollibetta, South Coorg, June 5th.

THE ART OF MANURING COFFEE.

To the Editor of the "Madras Mail."

Sir,—I feel sure that all interested in coffee will join with me in thanking you for publishing, and Mr. Pringle for writing, the interesting, valuable and suggestive paper on "The Art of Manuring Coffee" which appeared in your issue of the 9th instant. The discussion of the numerous points connected with the cultivation of coffee is of the highest value, and if planters can only be persuaded to publish in your columns the result of their experience, the *Madras Mail* will soon become in India all that the *Ceylon Observer* is to the interests of that Island. My object in writing now is to ask Mr. Pringle if he has carried out any experiments in Coorg as regards the green manuring to which he alludes in his closing remarks. The subject is one of great importance. Baron Richy (?) called attention to it many years ago, and suggested that lupins might be sown with advantage between the rows of coffee in Ceylon, and I may mention that I am now making some experiments with various leguminous plants in my plantations in Mysore. But if leguminous plants are valuable from their power of taking up and retaining nitrogen from the atmosphere it is possible that coffee might be much benefited if we used leguminous trees as shade, and I venture to suggest that this point is worth looking into. It is supposed that leguminous plants take up and retain, through the medium of nodules on their roots, the nitrogen of the atmosphere. Now, I am informed by a very competent observer that he has noticed nodules of a similar character at the roots of a leguminous tree, and it is therefore probable that these roots are as rich in nitrogenous matter as are the roots of clovers and other leguminous plants. And if this surmise should turn out to be correct, and our coffee were shaded with leguminous trees, we should, when digging, be constantly cutting many of their roots and so obtain cheap supplies of nitrogenous matter. I am now going to make some experiments with leguminous trees and shrubs, or rather very short trees, as shade for coffee, and I would suggest to other planters to do so too. Mr. Pringle alludes to land becoming coffee sick, and doubtless it must often become so; but the land does not necessarily become so even when kept for a very long time under no other crop but coffee. One of the oldest pieces of coffee land that I have seen was opened in Mysore about 95 years ago. It was replanted about 25 years ago, and when I saw it some years ago the coffee could not be surpassed, and there seems to be no reason why the land should not go on bearing coffee for as long as the world is likely to last.

Ootacamund, 11th June. ROBERT H. ELLIOT,

PEARL FISHERIES OF CEYLON

(BY A ROVING CORRESPONDENT.)

The fishing grounds are reached by steamer from Colombo, which conveys the visitor to the northern parts of the island. All the luxuriant foliage, the leafy lanes, the wonderful growth of palms, creepers, and gorgeous flowers are left behind. The home of the pearl oyster is off a flat low-lying coast of barren sand. For miles inward towards the interior, the country is sterile and repulsive; the only wood that thrives here are the umbrella plant, the cruel prickly buffalo thorn, and the monstrous "boabab" tree, whose short-stunted growth and ragged branches can withstand the strong gusts of wind which sweep over the desolate sand. This tree was mysteriously imported from the West Coast of Africa in distant days—a huge shapeless mass of wood from twenty to thirty feet in circumference, and very little more in height. The long sweep of desolate shore has a dreary appearance, and seems a fitting abode for great crabs, tortoises, and snakes. On those sands, where the sea-turtle basks in peace, and the solitude is only broken by the wild cry of the seafowl, crowds assemble as soon as the pearl fisheries begin, and the dreary waste becomes enlivened by numbers who congregate from the distant parts of India. The shore is raised in many parts to the height of several feet, by enormous mounds of shells, the accumulations of ages. Here the millions of oyster shells, robbed of their pearls, have been year after year flung into heaps that extend a distance of miles. These heaps shining bright on the beach add to the glare, while the burning heat of the sand under a noonday sun is almost unsupportable. The flat shore all round is riddled with holes by a large ocypeid, who must be terribly surprised at the invasion of his territory. These huge creatures suffer from the general barrenness; their food is scant, for if one of their number is killed and left on the shore, his fellow-creatures promptly carry him away into a burrow and doubtless devour him.

The only inhabitants are a few fishermen, who find a modest living by curing sharks and other bony fishes, finding a market for their poor stock in the forlorn peninsula of Jaffna.* Hope is kept alive in their breasts by washing out the forsaken "Kottus," in search for pearls, lost by the gleaners of other days. The inhospitable shore is further haunted by sharks, sea-eagles, and black and yellow snakes that frequently dot the surface of the water over the oyster banks. A pitiless sun flings down burning rays on the shifting sands, and over its surface sweep clouds of big red-eyed blue-bottle flies, helping the process of putrefaction, as the pearls are not removed till after the fish has decayed. At Mavrecha Khadi I found hundreds of half-naked Arabs, yellow-skinned Moors, Afghans, Malays, Tamils, and Sinhalese divers, traders, pedlers, *fakeers*, conjurors, a heterogeneous mixture of thousands of different colours, countries, castes, and occupations. On the shore, a large town had sprung up, consisting of tents, cadjan huts, bazaars, and the rudest edifices. The roofs of these temporary dwellings presented an unusual spectacle, every imaginable article of clothing was spread thereon to dry cloths, turbans, and jackets of every possible shape and colour met the eye in every direction. In the front of the huts were mats, on which were heaps of black-looking earth. Watching these carefully, were seated greasy Chetties with massive bed-curtain rings of gold in their ears, and sleek Moors, with cold calculating eyes, almost wide, [nude ?] whose attention could not be distracted from the operations going on before them. This work was being undertaken by women and children, who were busy sifting the heaps consisting of shells, sand, and all the filth that remained after washing the putrid flesh of the oysters on their removal from the shells, in search of any of the remaining precious pearls. The pestilential smell of putrefying fish poisoned the air, and became most offensive when the wind blew from the south. The putrefaction of millions of oysters generates an immense amount of worms, flies, mosquitoes and vermin of all sorts. To guard against disease, a hospital and medical men were provided, and a rigid scrutiny is made of all the arrivals to guard against infection. Every precaution to prevent cholera or small-pox patients coming from other parts of the island is also adopted, for Ceylon at present has not a clean bill of health.

The divers are mostly Moormen and Tamils, with a few Arabs from the Persian Gulf, a brave hardy race of men, of a speculative turn, who betake themselves year after year to this hazardous occupation. They usually come in common lighters, eight or ten tons in burden, such as commonly convey cargo to ships, using both sails and oars; each boat has a complement generally of twenty-one men, with five diving stones for ten divers. The usual equipment is very simple, an open scaffolding to each boat from which the tackle is suspended, and pine-shaped stones of coarse granite, from 30 to 50 lb. in weight, with a loop attached to each for receiving the foot: some divers use half-moon stones to bind round their waists that the feet may be free. The diver is also provided with a small basket, or bag, woven like a net, which he takes down to the bottom, and filled with the oysters as he collects them; and the rope is attached to his body, the end of which is held by the men in the boat This rope he jerks when he wishes to be drawn up.* While five divers are coming up, five are preparing to go down. When the diver reaches the bottom, he throws himself on his face and collects all he can. If the bank is rich, about 150 oysters can be taken in each dip; if, however, the oysters are scattered, not more than five to ten. The Arab can remain submerged for about ninety seconds, while the Moor or Tamil rarely exceeds seventy seconds. The former wears a nose compressor, but the others scorn the use of any such helps. The diving generally begins at sunrise, and continues till the sea breezes or west winds set in. The hours of work do not exceed six. The men enjoy the labour as a pleasant pastime, and never murmur or complain. The noise of going down from the several boats continues without interruption. From a little distance it resembles the dashing of a cataract.

When the day advances and sea breezes set in, the signal is made for the boats to set sail for the shore. It is a lovely sight to witness a flotilla of about 200 boats, with white sails set to catch the breeze, lightly skimming the blue waters in the dazzling sunlight. The oyster banks are some distance from the shore. As soon as the keels touch the sand, eager enquiries are made from all sides as to the results of the day's fishing. The fishing grounds are marked by buoys over the spots, ornamented with flags of different colours, giving the waters the festive appearance of a regatta. In the olden times the Governor visited the scene accompanied by a military guard armed to the teeth, to resist any raid from the Kandyan Chiefs bent on plunder. The beach from Condatchy Bay to the old fortress of Areppo is very convenient for boats, the water being deep close to the beach, and not agitated by any surf. When the signal for work is given at early dawn, the noise and shouts from those embarking is deafening in its clamour. Strange prayers are recited, hasty ablutions performed, and the solemn pall of night is pierced with a conglomerate shout of voices, which to European ears makes a din, strange and unearthly. The divers are a superstitious class given to charms and extraordinary ceremonies. No diver will go under water till the shark conjuror has performed his incantations.† Once the Government had to keep two of these functionaries in its pay, to remove the fear of the divers from their enemies, the sharks. The conjuror is stripped naked and shut up in a room, where he

* A most inaccurate description of a scene of exceptional fertility, by means of well and garden cultivation, and densely populated.—ED. *T. A.*

* When he wants the basket hauled up. The diver floats to the surface.—ED. *T. A.*

† This statement raises a suspicion that the account is not first-hand. For many years back the shark charmers have ceased to be employed.—ED. T. *A.*

mutters his spells in secret from the time of sailing until the boats return. While this is going on, the natives believe that the sharks cannot open their mouths. The waters of Ceylon abound with these remorseless pirates of the deep. Yet strange say to that the number of accidents in the fishing grounds are very few. If a shark is seen, the divers make a signal, when all the boats return; it is not often, however, this occurs, for, whether, it may be the charm or the multitudes or the noise, few of those monsters approach the scene during the diving operations. While at work no food is taken by the divers according to the instructions of the conjuror, else the charm for their protection is broken, They are, however, allowed unlimited privileges in drink. This permission is rarely abused by the divers, who are for the most part abstemious men.

On reaching the shore the boats are made fast, while the oysters are carried on the heads of boatmen to the "Kottus" or palisade enclosures on the sand, where they are thrown into heaps. Some boats land as many as 30,000, while others only five or six hundred. When all the shells are landed under the careful eyes of the overseers, the whole is divided into heaps, two-thirds going to the Government, and one-third to the divers. The diving operations of the present year have proved a great success, exceeding the expectations of the official inspector. It was estimated that about 10,000,000 oysters could be available, whereas the actual number fished has reached 37,810,552, the Government share of which has realised R8,27,081, at an average price of R32-14 per thousand. The highest price obtained has been R50, and the lowest R28. The largest number of boats out on any one day has been 206, and the lowest 35. A further R1,00,000 should be realised by the Government, if the monsoon will only hold off, as the banks are not nearly exhausted. This is, I think, the largest sum that the fisheries have ever yielded, and is all clear gain to the revenue. I notice from the official statement showing the estimated revenue and expenditure for the year 1891 that the Pearl Fisheries are shown as yielding only R500! At the close of last year's operations, it was authoritatively asserted that there could be no operations this year, and the estimate of 10,000,000 oysters above alluded to was only an after-thought. Surely, the Government can be better served in a matter of this sort, by having the banks more carefully surveyed by a competent official. Oysters do not form pearls in the space of a day or two. It is to be hoped that all the other estimated figures of the budget will not go away, or there may be a deficit of some sum that will act disastrously.

The representative of the Government promptly holds an auction duly summoned by tom-tom, when its share of oysters in lots of 1,000 each are put up for sale, being knocked down to the highest bidder. The brokers, jewellers, and merchants who congregate bid and outbid each other in the most lively manner. About the same time a great fair is held, at which articles of all description from India and elsewhere are sold. A great number of beggars, cripples, and *fakeers* find their way here. I noticed one of the latter who was doing penance, for which he wore round his neck a gridiron about a foot and a half long. I was told this strange ornament was not removed while either eating or sleeping. There were other loathsome practices exhibited, too filthy to chronicle.

The greatest care was taken to prevent theft. Yet I was informed that pearls are dexterously removed from the shells by means of a stiff piece of brass or bramble.

The natives think that the pear is formed from the dew drops in connection with the sunbeams when the oyster comes to the surface to catch the drops of rain. Some think the pearls are formed as a defence against interior worms, while others state authoritatively that the pearl is the effect of disease. I find it is easier to criticise their speculations than to substitute a more rational theory, which I leave to the reader. Between one hundred and two hundred pearls have been found in a single oyster, while sometimes a hundred may be opened without finding any. The yellow or gold colour pearl is most prized by the natives. The largest I saw was about the size of a small pistol bullet; spotted pearls are cheap. For a long time it was supposed that the pearl oyster was anchored to a certain place, and that the crustacean was incapable of locomotion. More recent researches prove that it can detach itself from its moorings and form its byssus at pleasure, to prevent being carried away by the current. According to the statement of one naturalist, an oyster was seen taking a walk round the inside of a "chattie" and mounting the glass side of a vivarium. They are supposed to change their places a dozen times in a month.

An oyster reaches maturity in its sixth year, and in its ovaria there are reckoned to be about twelve million eggs. Owing to its many enemies it is hardly necessary to add that few of these millions arrive at a mature condition. This curious family of crustacea are so human as to be gregarious in their habits, while they are addicted to night walking, not however, to be regarded as an aspersion on their character like that of the human biped, but solely on account of their enemies, darkness being their best protection. The pearl oyster is, on the whole, a hardy creature, capable of living in brackish water, inclined to leave its moorings if the water gets agitated and disgusted with the conduct of crabs and shrimps, which nibble at its byssus and compel emigration. The shape of this strange creature carrying so valuable a treasure is that of an imperfect oval, while the inside of its shell resembles a silver palace more beautiful than the pearl itself.—*Times of India.*

CINNAMON ADULTERATION IN AUSTRIA.—The Austrian ministry for home affairs has issued a circular to all police authorities throughout the country calling attention to the growing practice of adulterating spice, especially cinnamon, and enjoining a strict application of the laws against food adulteration. The circular states that it has been brought to the knowledge of the authorities that large quantities of hazel-nut shells are brought into commerce by way of Trieste for no other purpose than to be ground up with cinnamon.—*Chemist and Druggist*, June 13.

TECHNICAL SCHOOLS are very much in favour in England now and the system of education is being extended to the youths of the upper classes. Sir Ed. Hay Currie, the founder of the People's Palace in London, has started one for the sons of gentlemen. Agriculture, Practical Engineering, Electricity &c. are taught with the ordinary subjects of a public school course, and the pupils are made to be proficient in riding, boating, swimming and other manly sports. The object is to make the sons of gentlemen who have to fight their way in the world more practical men as colonists than they are generally now. A knowledge of a few of the sciences with an aptitude for manual work enable a colonist to find employment without any great difficulty.—*Ceylon Colonist at home.*

FIBROUS PLANTS AND NEW PRODUCTS.—Here is an interesting paragraph from Mr. Moir's Administration Report for the Central Province just out;—

Negociations have been in progress for some months with Messrs. Gordon Reeves and W. Gow respecting the lease to them of a large tract of Crown land in Matale East, for experiments in growing fibre plants chiefly and other products. Unavoidable delay has occurred in concluding a formal agreement, but I trust that these gentlemen will be in possession of a portion, at any rate, of the land before long, and that their experiment will turn out a success. The land is, at present, profitless to Government, and success with the experiment would be a great boon to the neighbouring villagers, who are, I understand, anxious to see operations in progress, in order that they may obtain regular remunerative employment within easy reach of their homes.

PROGRESS IN "WEST HAPUTALE."

"THE DARJEELING OF CEYLON"; A TEA COMPANY WANTED: ALL THE PRESENT PROPRIETORS TO BECOME SHAREHOLDERS?

We are indebted to a correspondent who supplements the recent notice of this district that appeared in our columns with the following further information:—

"In reading a correspondent's notes from West Haputale in your *Overland* sheet, I see he passed without mentioning Lentran and Callender, flourishing tea estates both owned by Mr. Dunsmure, who has established a tea factory in the centre of the Valley. On Wellatenne too Mr. Margary is opening land in tea. There must be well on to 700 acres of tea planted in the Kalupahana Valley out of a total of three thousand acres available in private lands. It would pay better to make it all into a Company with one factory if someone would take the matter up. In addition to being near the railway, the district has the advantage over the old estates in other district. in being all virgin soil, with ample fuel supply, and if properly managed the tea at that elevation should command a better price than the average. There is undoubtedly a fine field for a Company. Some of the present proprietors sank their capital by paying an average of R60 a acre at the Government land sale in 1880; and when cinchona failed, tea was only in its infancy, whereas now it is proved to succeed in the wind, which after all is much the same as in the rest of Haputale. There is a prejudice against Kalupahana, but it is the healthiest climate in Ceylon, and will yet grow the best tea. It runs to 7,000 feet in some parts where the climate and lay of the land has been compared to Darjeeling."

THE COLOMBO PUBLIC TEA SALES.

THE FIGURES FOR THE HALF-YEAR.

The public sales of tea in Colombo for the half-year closed with yesterday's heavy auction, and we have pleasure in supplying our readers with the figures for the six months, and the comparative totals for the latter half of 1890. This is the first year in which the season is being reckoned from January to December, instead of—as in the old coffee days from Oct. to Sept. The progress in the quantity of Ceylon tea placed in the world's markets are well-known to the public; but the figures below show that the tea trade of Colombo from the beginning of 1891 has made even greater progress compared with the total exported. The quantity offered in the local market in 1885-6 was about 20 per cent., while the following year it fell to 17 per cent. Since then, we believe it has not reached, or at any rate not exceeded, the 20 per cent., until the present occasion, for out of about 33,000,000 lb. of tea which by the 30th inst. will have been exported from Colombo since the 1st Jan. last, about 6,776,000 lb., or 21 per cent, will have been offered in public sale by the brokers of Ceylon. This is doubtless a great increase on the previous six months, but we are inclined to believe that it is a sign of greater confidence in the local market which will continue. From July to December last inclusive the number of packages offered and sold were 67,550 and 45,164 respectively as against 96,804 and 69,488 for the present six months. As to the number of lb. they can be easily calculated throughout, at the average rate of 70 lb to a chest or package. The following list, the figures of which we have obtained from our brokers, are for the half year concluded yesterday, and represent the number of packages offered and sold. It will be seen that Messrs. Forbes and Walker still hold a very secure first position, while from the indications of the last quarter more especially, the next three firms, which stand fairly close together, are engaged in a keen competition for second place, or will be during the coming half-year.—The figures concerning Messrs. Benham's sales are necessary to make the totals.

	offered pkgs.	sold pkgs.
Messrs. Forbes and Walker ...	40,847	34,387
„ Somerville & Co. ...	20,010	13,156
Mr. E. John	18,314	12,532
Messrs. A. H. Thompson & Co. ...	17,279	9,227
„ E. Benham & Co. ...	354	186
Totals ...	96,804	69,488

Local "Independent."

PLANTING IN PERAK.

We are very pleased to hear of the good work being done in the Straits Settlements by old Ceylon Planters. From a letter just received from Mr. Thomas Fraser, we quote as follows:—

I suppose you have heard of the very favourable terms the Perak Government is offering land for, viz: blocks of 500 acres, of which any applicant can have two and select where he likes, at $3 an acre and no quit rent and purchase in perpetuity. The Government however may impose an advalorem duty of 2½ o/o or any part of it, should they wish to do so on the crop exported.

People at home are turning their attention to it and a very considerable acreage has already been taken up on these terms and there is plenty of capital to open it.

Our coffee, Arabian and Liberian, are both doing exceedingly well. The latter has certainly found a home here as it never did in Ceylon. Tea is also doing remarkably well and there is any quantity of land to be had suitable for its cultivation and cheap. I am surprised that some of your old coffee planters have not come over to take up land and so participate in the liberal terms now being offered by the Government.

WESTWARD HO!—THE COMMISSIONERS FOR PERU.

We have a letter from "Old Colonist" dated 31st May from on board the S. S. "Etruria" off Queenstown, Ireland—the precursor, we trust, of many chatty notes to follow. We quote his news so far:—

Here we are so far well and hopeful, the spirit indeed being very willing. Ross has had "La Grippe," but I hope a few days on the Atlantic will set him right. We may have a few days in New York. We are to visit Trinidad, but whether we may find it most convenient to do so in going or coming I do not know yet. This great Yankeeland liner of somewhere about 8,000 tons is no doubt a smart affair, but there is a *quiet dignity* about life on board the good old P. & O. which I have never found elsewhere at sea. Dear old "Logie" came down to see us off yesterday and stayed till the bell rang. Very kind of him. How well he looks! When I am asked "Who is the happiest man you ever met?" I'll think of "Logie." I wish he had been going along with us. You will probably see him soon *en route* for the Straits. Most kind letter from another old colonist, W. Donnan of Belfast today! Wants me to go to South Africa when I return! I presume it will be January 1892, before we can emerge from Peru, Brazil or Bolivia?

THE AMAZON STEAM NAVIGATION Company has sold its hundred steamers, and all its wharves, landings, and wharehouses to the Brazilian Corporation, known as the Empreza de Obas Publicas, for £850,000, making £350,000 by the transaction. This transaction renders the great rubber-carrying trade of the Amazon a Brazilian monopoly.—*Indiarubber Journal.*

CINCHONA BARK IMPORTS AND PROSPECTS.

Messrs. C. M. & C. Wodehouse in their latest monthly Report sum up the total imports of bark into the United Kingdom for a series of years, and we see at a glance how the same has begun steadily though slowly, to decline. The figures extend from 1885 to 1890 inclusive. The import from Ceylon fell off from 12,872,384 lb. (in 1886) to 8,135,456 lb. last year. From India, Java, and other parts of the East there has been an increase, however, the import rising in six years, from 985,264 lb. to 1,588,480 lb. [Of course the bulk of the Java bark goes to Holland.] In the case of South and Central America, West Indies, &c., we have 873,264 lb. imported thence in 1885 and only 335,552 lb. in 1890. Re-imports from the Continent of Europe, however, have increased from 573,120 lb. in 1885 to 1,023·344 lb. in 1890 —this means of course Java bark mainly; for the grand total of imports into the United Kingdom, which was close on 14½ million lb in 1885, and exceeded 16 million in each of the three succeeding years, fell to 14½ again in 1889 and to about 13 million lb. in 1890. This makes it all the stranger, in view of the increase in consumption and the clearing out of bark and quinine in second hands in London of late years, that the market for bark has not improved. That it has not done so, must be chiefly due to Java, which, it will be seen, has more than doubled its total export of high-class bark in four years.

COAL AND OTHER COMBUSTIBLES IN CEYLON.

From the letter of a Ceylon public servant now in England and who shows his patriotism by not forgetting his adopted land, we quote as follows:—

"I met Mr. Blanford of the Indian Meteorological Department lately, and in a discussion about coal in India he said it was not likely to be found in Ceylon, as the strata lying below the mountain ranges were of too recent formation and did not go back to the carboniferous period. The mountains themselves were of crystalline origin and belong to one of the oldest systems of rocks in geology. A good knowledge of chemistry however might lead to the discovery of some substitute for coal, as has been done in Italy recently. A description of this discovery will be found in the enclosed slip from the *Standard* of the 28th May."

'ROME, Wednesday Night.—An experiment was successfully carried out yesterday which will probably mark the commencement of a new era of prosperity for the mechanical industries of Italy, and especially for her carrying companies. A train was run yesterday from Rome to Frascati, furnished with a new combustible, prepared according to the invention of Signor Sapor, of Siena. It is a preparation of lignite, of which there are immense and rich deposits in Italy. It is found of two qualities, the xiloide and the schistose, of which the latter is the richer in combustible material. In yesterday's experiment the train ran easily and smoothly up one of the steepest gradients in Italy. The quantity of fuel used during the transit was three hundred and sixty-seven kilogrammes, as against three hundred of ordinary coal. The train was a heavy one, of eight carriages and luggage van; and there were seventy passengers, including members of Parliament, engineers, &c.

'Lunch was served at the Hotel Frascati, at which toasts were given. An English gentleman said England would witness with pleasure the success of the experiment, and the commercial emancipation of Italy. A telegram was sent to the King, announcing the success of the experiment. A very brilliant gas is also to be obtained from lignite.

The importance of this new manufacture will be seen when it is remembered that Italy now pays from a hundred to a hundred and twenty million francs yearly to other countries for coal, and that her supplies of lignite are practically unlimited. The smoke from the new combustible is very light, and not disagreeable in odour.'

We should be only too well pleased if even lignite were found to exist in quantity in Ceylon. Meantime it is curious we have heard nothing further of the Siam lignite which, a few years ago, a mining engineer told us abounded in a locality whence it could be cheaply shipped to Ceylon.

SALE OF TEA ESTATE PROPERTY.

A third share of the Mipitiakande estate in the Kelani Valley has been purchased by Messrs. Kennedy & Evans for £5,000 sterling. Mipitiakande has 260 acres of fine tea in full bearing with 112 acres of reserve. The price—£15,000 over all—is a handsome one, equal to £55 per acre for the tea.

COCONUTS AND CINNAMON.

Kadirana, June 20th.

After an interval of fine weather, which lasted from the 6th to the 12th, rain set in again steadily yesterday, and the previous night being stormy with heavy rain; the gauge showing 3·46 inches in the 24 hours. The total for the month so far is 8·43 inches. With so much rain all vegetation is looking fresh and green, but it even would benefit by a few weeks of warm sunny weather. The vigour in the cinnamon bushes seems to be forcing out a "bud" which it is hoped will not be heavy, as it would interfere much with the peeling which is now good. The last cinnamon sales in London show no improvement in price or demand for fine spice; this is bad for those who cultivate well, for the preparation of lower quality cinnamon scarcely pays expenses. Fever I regret to say still prevails extensively all over the district; fresh cases are common, and relapses numerous, and this last is the most serious, as each relapse leaves the patient weaker. The poverty of the people will not permit of their lying up till strength is quite restored, for being poor they must work to maintain themselves and their family, and the food they can afford is not what one would prescribe for convalescent fever patients. Quinine is coming greatly into favour, and the various dispensaries and the hospitals are freely patronized. The people are beginning to recognise the fact that by the use of quinine fever can be subdued in a few days before the strength is much affected, while under native treatment the patient as a rule is fit for nothing for weeks after the fever has subsided. This is a serious matter to the poor.

THE STORY OF A TORTOISE.

Mr. J. H. Tuke contributes the following very interesting paper to the *Journal* of the Hitchin Natural History Club for May:—

[After recording the deaths of animals and birds from cold, the writer proceeds:—]

But to my family and myself, the loss of an old friend and summer visitant, who has for more than a quarter of a century amused and interested us by his odd ways and quaint old-world appearance, caused the deepest regret. He was a tortoise. I speak of him as a summer visitant, for with the regularity of a bird of passage he took his departure, leaving no trace behind of the quarters he had selected for his winter residence. It is a curious fact that that the self-burying of the tortoise is accomplished without any visible disturbance or heaping up of the earth, and we have rarely, if ever, been able to discover the precise spot, until on some warm day in the early spring his muddy form was partially seen at the mouth of his hole. This he usually confined himself to until he thought the warm weather was fully assured to him.

Then he commenced to ramble about the garden during the day, hiding at night under a shrub on the sunny side of the wall.

"For his winter residence he seldom selected a south aspect. The short grass on the lawn seemed in the early spring to give him the food he needed: then dandelion and a variety of young seedlings or tender herbaceous plants were all devoured with evident relish. So much was this the case with certain plants—young *Aquilegia* for instance—that we lost some varieties which we have not been able to replace. But the 'bonne bouche' of the summer was evidently the soft juicy stalk and seed of of the *ornithogalum nutans* (Star of Bethlehem). These seeds he devoured in large quantities and they were with the dandelion flower, the only food which we could tempt him to eat from our hands. The ravages he committed led to many complaints from the gardeners and various devices were resorted to, to restrain him within bounds. A low fence of wire netting six inches high enclosing a space of five or six feet square made him a convenient 'pound' where he was fed with lettuce and dandelion; but this imprisonment was evidently very irksome, as he spent most of his days in making a futile attack upon the wire netting; very amusing it was to watch him retreating a few inches from the wire and then with all his force rushing like a battering ram against the obstruction. Whether in revenge or not I cannot say, but of late years the tortoise took great delight in creeping after the gardeners and butting hard against their boots whilst they were engaged in work: and on 'mowing days' especially this became so troublesome that it was more needful to imprison him. In order to give him a wider range we at last resorted to the plan of inserting a wire ring into the outer edge of his shell to which a string was fastened to a short post which could at pleasure be moved to different parts of the lawn. This he more quietly resigned himself to, though it was evidently opposed to his quaintly active habits during the summer days. Even on summer nights he went to bed early. During the past autumn I had noticed that he appeared less active than usual and that food left for him was frequently untouched. The tortoise, however, disappeared as usual when the cold weather came, leaving no trace behind him, and it was only in April when the border was being dug up that he was found, and then, alas, it was discovered that he had perished from the extreme cold, and thus quietly ended his uneventful [illegible]

[illegible]

"I cannot remember that he [illegible] effection for any of us, and the only sound he ever gave forth was a very angry hissing when lifted from the grass, which sounded like a vigorous attempt at cursing. But for all that we miss him more than many who have sain more, and we can place him among those of whom the poet says:—

'Alas for those that never sing
But die with all their music in them.'

Silently he lived his lonely little life, separated from his kindred, and silently he passed out of it. But he lived surrounded by friends who had a sincere regard for him, and who did what they could to make him happy, and he died lamented.

"I cannot remember where he came from, and I cannot guess how old he was; but for near thirty years he has wandered over our lawn in sunshine and cloud, and the children who loved to play with him when he first came are now grown men and women, and are scattered up and down the world. He had been with us for a generation, and we mourn for him as a 'link' with the past, though it be but a small one."

The mail of 5th June has brought us the following:—

A LIVING HEIRLOOM.—We are indebted to Mr. A. C. Jefferies, of the Gloucester Arms Hotel, for the following very interesting narrative:—"The interesting account of the life and lamented death of an old friend and summer visitant given by Mr. Tuke in the *Journal* of the Hitchin Natural History Club, and reproduced in the *Express*, has led me to record a few particulars of another sojourner in our town of the same species. This tortoise is named Jacko, and he has not, I am happy to say, succumbed to the late severe winter, but is, at the present moment, as hale and hearty as ever. The scene of the earliest recorded event in Jacko's history is laid at Gloucester. There, about 55 years ago, he was purchased (like most of his kindred who have taken up their abode in this country) from a sailor, by the present owner's grandfather. He was then quite small; he now measures eleven inches in length and ten across. He has lived successively at Gloucester Derby and Hitchin, and has been treated as a sort of heirloom by the family into which he was purchased, and has descended in a direct line to the present owner. Jacko is a very much domesticated tortoise. His food consists chiefly of bread sopped in milk, which constitutes his morning and principal meal; he is very fond of fruit, also of dandelion and lettuce. He apparently possesses affection for or partiality to some members of the household and will even follow those he is supposed to be fond of, but he is very sulky with strangers. He is the children's playfellow, and is very fond of snugly stowing himself away in a doll's cradle; at other times he prefers to sleep with the household cat, with whom he is on the most friendly terms. Though such an unostentatious creature, he has nevertheless figured to some extent in public life. On two occasions he has during his winter's sleep been exhibited at local bazaars as the "Sleeping beauty," when some of the spectators have seemed dubious as to his claims to this description. At autumn he has always been closely watched, and when his natural inclination to bury himself manifested itself he was placed in some warm and secure corner and covered up, and his burying propensities thwarted. During last winter he was well wrapped up in old cloth, and does not appear to have experienced any inconvenience from the severe weather. Jacko has met with one adventure in the course of [illegible] eventful life. On this occasion he was lost [illegible] to say stolen— [illegible] to work [illegible] and lying on his back in the yard, having it is supposed, been thrown over the wall, and thus returned to his rightful owner. As a result of this experience he was seriously indisposed for a time, but eventually recovered. Jacko has now been a resident of Hitchin for 20 years."

[Perhaps some correspondent may put together all the authentic details which are available regarding the veteran tortoise, now blind, which has for so many years wandered in the Tanque Salgado swamp and the grounds of Uplands, Colombo?—ED. *T. A.*]

ECHOES OF SCIENCE.

According to the annual report of the Agricultural Department on Injurious Insects and Fungi recently issued by the Board of Trade, it has been arranged with the Post Office to distribute leaflets on the attacks of crops in the rural districts. Trials of the plan have been made in the case of the Hessian fly and winter moth; posters showing magnified illustrations of these insects being also

displayed in the country post Offices to enable farmers to recognise them. The report also suggests that washes of sulphate of copper (blue vitriol) should be applied to potato crops not only to check the outbreak of the disease, but to prevent it. Recent experiments in France and Belgium have proved the efficacy of this remedy, as also of sulphate of iron (green vitriol) washes.

FIGS.—The old Greeks had a notion that certain parts of the fig were good for digestion, and their observation is borne out by recent investigations. In 1880 M. Bouchut pointed out that the fruit and branches of the fig-tree contained a fermentive juice which digested albuminoid substances. Quite recently, Dr. Mussi has isolated the digestive principle, which he calls "cradina," after *krade*, the digestive part of the fig. The juice, when filtered and evaporated, and then treated with alcohol, yields a white precipitate, which, on being dried, becomes yellow. Treated with water it swells, and the insoluble residue, when dissolved in acid or alkali, digests moist fibrin. It differs from pepsine by preserving its digetive properties in alkaline liquids, and from papaine, in its action not being destroyed by hydrochloric acid. In a neutral liquid it has no digestive power over starch.

An imitation wine is made from figs in France and Algeria, by steeping the figs in warm water and fermenting the liquor obtained. When mingled with a little wine it is difficult to tell it from genuine wine; but M. P. Charles has found that by evaporating it, a residue is left containing a considerable quantity of mannite. As this substance is only an exceptional ingredient in wines, and is never present in anything like the same quantity, it, therefore, becomes a test of grape and fig wine.—*Globe.*

THROUGH SUMATRA.

(From the *Bataviaasch Nieuwsblad.*)

The intended working of the Ombilien coal fields and the construction of a railway to the West Coast of Sumatra has for a long time attracted general attention. People became still more interested when they learned that Mr. Yzerman, the well known Chief-engineer for the construction of the State railway, at the head of a commission, intended to make a journey overland to the East Coast in connection with the possible carriage of coals to that coast. Concerning the long and difficult journey on foot, we were not without fears for the fate of the travellers in this *terra incognita* of our Colonial dominion, and we received the news with joy that the scientific expedition after many difficulties, and with the loss of one of its members, by the treacherous murder of Inspector Van Raalte, had met engineer J. André de la Porte at Langgam in safety. It can astonish nobody therefore that a numerous and intelligent audience assembled at the Hall at the Gardens to hear the interesting information which Mr. Yzerman had been invited by the Administration of the Natural History Society of Netherlands India to give concerning the expedition across Sumatra. The lecture was illustrated by a large map of the explored ground. A branch of the Kwantan runs through the Ombilien coalfields; falls into lake Singkara; leaves the lake on its southern border and winds its way eastward. The object of the expedition was to seek a trace for the railway on the left side of this river. Of the great rivers on the East Coast of Sumatra the Siak has the greatest navigable length and this river is intended to be made use of in the export of coals. On the 17th Feb. all who were to take part in the expedition were assembled at Si Djoendjaing, the station of the Controller of the united VII. Kottas. Besides Mr. Yzerman there were Mr. S. H. Koorders, forest department, Dr. Van Bemmelen, natural history. Lieut. Bakhuis chief of the topographical department at Padang, Inspector Van Baatten, Mr. Van A'phen, champion tiger hunter of the Padang highlands and Tuanku of Rau Rau. Eighty coolies were wanted for the baggage, instruments &c. Food, arms and clothing had to be carried, so that the whole expedition consisted of about 250 men. The journey along the Kwantan the lecturer described as one of the most beautiful of the many excursions on the water he had made in the Archipelago. The step wall of naked granite, porphyry and calyx, tinted and shaded in hundreds of colours and crowned with gigantic forest trees were very imposing. The river here has cut cut for itself a bed in the rocks from ten to twenty yards wide. High above the head of the traveller gigantic trees rear themselves whose branches meet above the stream which runs beneath their roots. Flowers of the most brilliant colours add life and glow to the exceedingly beautiful and natural scene. A solemn stillness reigns in the regions. It is virgin nature. The beautiful and interesting surroundings did not prevent the attention of the bold travellers being frequently drawn to the dangers which beset them on account of swiftness of the current, and great praise is due to the Malay boatmen of Salahé. Fallen trees blocked up the spaces between the rocks. This was only a foretaste of the difficulties which the voyagers were afterwards to meet. Mar Mokko-mokko the goods were taken out of the boats and brought overland past the waterfalls and currents to be placed again in the boats lower down. The place where this happened is called Solok and here a tunnel of 1800 meters will be necessary, which can however be built in two sections of 1,350 and 450 meters. Having arrived at Ambatjong a camp was formed and some days' rest were indulged in. The reception by Tuanku Kadi Radja was very hearty. A flask and a *slendang* were accepted as valuable presents by one of the chiefs which shows the primitive condition of the people in these parts. Labo Ambatjong is one of five districts which in name recognize the authority of the Radja of Basorah who has his residence at Tjarantei on Kwantan. In this region called the Rantau the authority is said to be merely nominal and in the district Lubu Jambi and Taloe which are hostile, the Radja has nothing to say. On account of information from Padang according to which the Taloers had declared themselves to be under the authority of the Radja of Basorah, Controller Ringat went to Indragiri to ask the chief for his co-operation and approval of making surveys for constructing a railway. These were granted and the travellers went there but they were firmly forbidden to enter the land as they wanted nothing to do with the *Blandas*. There is now some ground for this distrust. The authority of the Government in these regions is very weak. Districts under Dutch authority in case of war against independent provinces always ask the Controller for assistance and he invariably refuses for some reason or other, generally from inability to grant it. The cute Malay sees this at once and is *malu* to seek our support. Another reason, said the speaker, for hostility to us is the *ladies*. The women contrary to the custom in other Malay countries have an extraordinary amount of influence over their husbands and they make full use of it. While in other district, the man is spoken to as *angkau* and the woman as *kau*, the males in Taloe are disdainfully addressed as *kau*. A Malay legend gives the following as the cause. Once upon a time some men and women were weeding in a *ladang* when a gigantic tiger sprang roaring into the midst of them. The men instead of uniting to offer a courageous resistance took to their heels and left the women and children in the lurch. Thus came the men into bad odour. These people gave proofs of their hostility and Mr. Yzerman to avoid political questions was obliged to turn aside so as not to pass thro' their land. On the second of March the party left Logoi di Rambu. Messrs. Yzerman, Bemmelen and Koorders were in front, then came the coolies who formed a long train with Mr. Bakhuis behind. A few paces off came Messrs. Alphen and Raalten one armed with al Beaumont rifle and the other, with a revolver. Peacefu and without a thought of insecurity the journey was continued. Wherever we had been we were received in friendly manner and we had no suspicion that this day would have so sad an ending. Suddenly we in front heard rifle shots echoing thro' the jungle. Not suspecting any evil we continued calmly on our way, then cries from the coolies made us think somet hin was wrong. Again shots were heard and the coolies bolted. Those close behind us threw away thei r

bundles, ran past us followed by the others all frightened and panic-stricken. Thousands of enemies had attacked the rear of our party and had overthrown all those who did not take to flight. We did not try to rally the coolies; it would have been useless. Followed by some of the most courageous including a Javanese mandor we returned to the rear and met Bakhuis. He had heard shots and turning round saw Van Raalten staggering out of the jungle and after going a few paces he placed his hand to his head and fell down. Van Alphen had seen Bakhuis fire at some figures that suddenly came out of the wood and then disappeared again in the thicket. Rifle fire was no use here. It was a case for calm reflection and parley with the enemy if possible. What could we, a handful of Europeans, do against such numerous enemies on ground known to be completely hostile. Do not shoot, was my order. These were the most painful moments of the journey and they will always remain in my recollection. The moment has come to express a word of sincere thanks to my fellow travellers. My time has been so much occupied that I have not been able to do so before. Then I learned to know them, not only as men inspired by a holy love for science but as men who in the hour of danger can be implicitly trusted. Whilst we stood there we decided on the one hand not under any consideration to take to flight and on the other to sell our lives as dearly as possible. More shots were fired and the Javanese mandor by my side fell mortally wounded. We found Van Raalten with a bullet in his head and klewang wounds on his body, lifeless on the path. The Malays had disappeared. All along the track goods that the coolies had carried were strewn about. A portion of the baggage had fallen into the hands of the robbers. Robbery, the Malay ideal, was the object of the attack. By degrees the coolies were persuaded to take up their loads, and we placed Van Raalten in a simple grave near where he was murdered. The expedition between Logei Rambu and Langgam met a number of natural obstacles. The land between Kampar and Kwantan is not as was supposed a series of swamps but just hilly and with comparatively little water. The formation of the land between Siak and Kampar differs little from that between Kwantan and Kampar only that it is more swampy in the neighbourhood of the Siak river. The way through the Sumatran woods in high situations is not difficult. They consist principally of upright trees of three feet or more in thickness and fifty feet high under which there is a thin lean undergrowth of young timber that has not had sufficient air and light to make it flourish properly. Here ten or twelve men armed with knives can easily cut a path for the bearers. Where, however, a thick growth of *lalang* or what is worse extensive swamps lie in the way then difficulties begin. In the swamps a sort of root tree grows which spreads out a network of roots which catch the feet of the exhausted traveller as in a trap. Then the experienced catch hold of a branch, a creeper which offers support and his skin and flesh is torn by the sawshaped bent, cutting thorns which are completely hidden from the view by thick leaves and which cause intense pain Besides these difficulties there are those from the animal world. The wasps in the jungle and *lalang* fields, when the unwary traveller sets his foot on a nest of them, spring up, and he then experiences the painful consequences of their anger on his face, neck, and other bare parts of body. The horsefly sometimes comes in swarms and is very troublesome. But the worst of all is the ant. The ant, says the proverb, belongs to the east; and this is true with regard to Sumatra. All varieties of this insect are found in the woods, and fields; from the tiny black one that bites and torments the victim whilst he seeks in vain for him, to the gigantic red one. The population in these regions do not regularly cultivate the land and they are constantly on the move. Poverty rather than affluence is met with, as is usually the case in thinly populated lands. The Malay, however, is not discontented with his lot. We saw that the men as well as the women we met had intelligent friendly faces. The men have a comic appearance because they stroke upwards the few small hairs that adorn their upper lips into a pointed miniature moustache. Days passed without the travellers meeting a single human being. Deer and pigs were comparatively scarce in the bush. On the other hand there were numerous traces of pachyderms such as the elephant and rhinoceros. There were traces of bears' claws in the trees, so that these animals must be there in comparatively large numbers. To find the way in these almost limitless unfrequented woods is most difficult especially for the Malay who has no compass. The half cutting through branches on their way is a help to them and these bud out again and in this way serve as sign posts for years. At Langgam on the Kampar river on the 17th March the expedition met Engineer La Porte from Siak On the 31st of that month the whole party arrived at Siak. Of the coolies there were twenty behind on account of sickness and desertion. The speaker finished his highly interesting reading with the wish that the iron horse should speedily break down the barrier which now separates the East Coast from the West Coast of Sumatra which will bring welfare and civilization to the impassable woods and inhospitable lands.

"HEMILEIA VASTATRIX."

PREVENTION IS BETTER THAN CURE.

By William Pringle, M. S. C. I.,

LATE AGRICULTURAL CHEMIST TO MESSRS. MATHESON & CO. IN COORG.

(*Under special arrangement for publication in the "Ceylon Observer" and "Tropical Agriculturist"*)

Coffee leaf disease, *Hemileia vastatrix*, has produced such dire effects on the coffee of Ceylon and Southern India that most of your readers are quite familiar with the name, and a brief outline of the life history of this deadly parasitic fungus will probably prove interesting. Those who wish for fuller information are requested to carefully read Mr. Morris's and Mr. Marshall Ward's reports.

I have carefully gone over the ground traversed by the latter gentleman, and can fully corroborate his statements.

When a field of coffee is attacked by the disease, the bright glossy green of the leaves is changed to a dull yellow, and on examination the under surface of the leaves is seen to be covered more or less with an orange-colored powder. This powder is composed of myriads of spores of the fungus *Hemileia vastatrix*. One of these uredo spores, sown on the under side of a leaf of a tree, if the conditions of light, heat, moisture, and texture of the epidermis be suitable, will in ten to twenty hours germinate, and penetrate the stoma of the leaf; if the medium on which it is planted prove unsuitable it dies, or may remain inert for months. On a coffee leaf Arabian species after germination in about three to five days a mycelium is formed, consisting of microscopic tubes. When these have absorbed all the food contained in the cell in which they were first formed, sucking organs are developed, which penetrate the neighbouring cell walls, feeding on the juices of the plant. As the cells' contents are removed and taken up by the fungus, so the mycelium extends, pushing its suckers into the surounding tissues; when the cells are emptied a yellowish spot appears, generally visible about two to three days after the parent spore is planted,

The rust patch is formed in about two to four days after the appearance of the yellow spot as a rule when the conditions are favorable. If the weather is unfavorable or the medium on which the spore was sown unsuitable, the development is greatly retarded, and a yellow spot may show on a leaf for two or three weeks before any spores are shed, or they may not form at all.

The rust patch is formed when the spores are forced up through the stomata. As the mycelium spreads, and increases in size, more spores are developed, and the patch of rust grows larger, radiating from a central point.

As the work of destruction is carried on within the leaf by the mycelium, it is quite evident that remedies applied after the spores appear on the epidermis of the leaf are useless: they must destroy the tissues to reach the foe within. Any agent to be of use must be on the leaf before the spore finds a resting place on it.

When experimenting on the development of the spores on a coffee leaf, I took a clean seedling and raised it in a case prepared on Tyndall's method, with the result that I got a plant free from leaf-disease growing in sterilized soil. The spores only grew where planted on the leaf, nowhere else, and Mr. Marshall Ward's results were fully borne out. The disease is not constitutional: the spore of the parasite must be deposited on the leaf before the disease can appear.

A weak tree suffers more than a strong one from the loss of its leaves; and a tree weakened by injury to its roots, due to removal of the surface soil by wash, mamotie digging, or other causes, recovers less rapidly, and if the attack of leaf disease or succession of attacks are virulent will in all probability succumb. The lower the vitality of the tree attacked the smaller its chance of recovery.

A half-starved coolie readily falls a victim to fever, cholera &c., while if well fed he more easily resists the attack of disease; so it is with the coffee tree.

The conditions most favorable to the developement of the spores are a close, steamy, hot, stagnant atmosphere, with a subdued light.

Heavy dews followed by hot days, if a dense shade is over the coffee, aid in the fructification.

As a rule leaf disease is bad in South Coorg twice a year: just after the early rains, and during the autumn showers. In the hot weather we are practically free from it, though I have found the disease spots and rust patches in every month of the year.

Shade under which the coffee of South Coorg is grown affects the disease in two ways.

It acts as a wind screen and retards the passage of the spores from one estate to another. If the coffee is one continuous sheet the disease may start at one corner of the estate and roll right over it when the climatic conditions are favorable.

I have visited an estate on the first of the month, and though leaf disease was to be seen, it was not suffering to any extent; fourteen days after the estate was red from end to end, and by the end of the month it had resumed the appearance presented at the beginning.

This estate suffered from these periodical attacks, which always began at one corner, and swept over the estate in regular progression.

Further examination showed that it was not the only estate affected in this way; and in every case the starting point of the attack was where the shade was thick, with damp and sour ground below. The air was, especially in the early morning laden with moisture, with often not a breath of wind. As the sun rose, the best possible conditions for the development of the fungus came into play.

Here shade did more harm than good; being too thick it prevented the free admission of light, conserved the moisture to an undesirable extent, and aided greatly in the production of the moist heat necessary for the germination of the spores.

Under the circumstances the course to be pursued was first to render the conditions unsuitable to the fungus, by regulating the shade, and draining the land; then apply the remedies.

The reason why the lower leaves of the tree suffer most, is that the great restingplace of the spores is on the ground, on the dead and dying leaves resting thereon; the coolies pick up spores and dust as they walk through the coffee, and the bulk of the spores find a restingplace on the lowest leaves. These are shaded by the upper branches and intercept more of the moisture evaporated from the ground so that in general there are not only more spores on the lower leaves but the closer they are to the ground the more favorable the conditions are for the development.

Unless the ground and the jungle trees are treated, to say nothing of the neighbouring estates, it will be impossible to eradicate leaf disease.

But an estate can be kept practically clear of the pest by one application to the ground and two to the leaves per annum.

In France remedies are applied to the vine four times per annum with great success. The work is not expensive; only labour must be there to do it at the right time.

The *Hemileia vastatrix* or a fungus so closely allied to it that I can see no difference between them is to be found on at least three jungle trees. Unfortunately I know next to nothing of botany, so cannot classify them. It was on the goni (*Ficus mysorensis?*) that I first found the spores: whether these are the uredo spore or the second sort of spore which prefers another host I am not sufficently well up in cryptogamy to determine, but the spores taken from the goni and sown on the coffee leaf developed there,

I had a few failures, in transferring the spores from the coffee to the goni, but on the whole, results were satisfactory. The atty (*Ficus glomerata*) when a young plant was taken could also be infected. If the leaves are old, the yellow spots may show in the leaf, with but very few spores being formed.

Liberian coffee, which has a much tougher leaf than the Arabian, displays much the same characters as the atty and goni.

The damage done by the *Hemileia vastatrix* is entirely that of depriving the tree of its leaves. You can make a coffee tree sick by varnishing its leaves on the under surface and so preventing its breathing: consequently in selecting a remedy care must be taken that it does not clog up the pores of the epidermis. It would do more harm than good. Stripping off the diseased leaves ranks in the same category.

A tree must have its leaves which are its lungs in good order or it cannot develope its fruits. If all the blossom that appears would set, crops of from five to ten tons per acre would be common. As a matter of fact only from one or two to ten per cent set, and all of that does not come on.

The true use of a manure is to enable the tree to set its blossom, and to assist in the developement of a healthy bean. My experimental plots being systematically manured were able to set a larger proportion of the blossom than the estates, though both received the same work, the only difference being in the manures and ————.* Though pruned and handled down to the level of the estates, they had a finer show of leaf and wood, and recovered from an attack of leaf disease more rapidly.

The results from the estate where leaf disease was worst, taking the crop of 1887-8 as the basis and stating results as percentages on that, for both plots and estate, we get the following result:—

Year	1887-88.	1888-89.	1889-90.	1890-91.
Estate	100	63·1	34·2	8·5
Plot	100	90·9	239·5	36·3

This shows the value of steady systematic manuring broadcast annually, and this year the plots have a splendid crop on them.

It requires time, patience, and careful observation to get reliable results, and the results to be of value must form a series obtained by steady systematic work. Not knowing how the various manures would act on the coffee tree I began with only small plots of 3,200 trees, or rather the space occupied by that number when the estate was originally planted. Each manure acted on two plots of 100 trees each, and the results individually taken are not conclusive. Therefore I had to take for comparison the aggregate results, including good, bad, indifferent and the unmanured plots for comparison with the estates, which in most cases did not receive the manures I recommended, owing to failure of the supply of fish and other causes.

Now as to preventative measures. Steady systematic manuring annually holds the first place; drainage is in some cases quite as important, and the careful regulation of shade render the conditions under which the coffee is grown suitable to it, and unsuitable to the fungus; then special remedies can be successfully applied.

* A word which cannot be made out.—ED. *T.A.*

Six months ago I did not know how the practical application of remedies was to be managed. Sponging the leaves over took from 15 to 20 minutes per tree, spraying with a syringe took from 5 to 10 minutes and was not thorough. Laboring under this difficulty I did not consider that any practical good was to be gained till this point was settled. For as Mr. Ward said it is not the most difficult thing to find a substance to destroy the fungus, but it was somewhat difficult to comply with the other conditions laid down, but I managed even that. And in February last two spray machines were sent from England by Messrs. Matheson & Co.: these fulfilled all the conditions necessary for practical work.

All that is now required is to test the remedy and method of application on a wholesale scale.

I have been engaged in practical work, ever since I left school, and I can honestly say that leaf disease is preventible by practical measures, if there is labor* to carry through the work at the right time.

WILLIAM PRINGLE, M.S.C.I., Late Agricultural Chemist to Messrs. Matheson & Co., in Coorg.

WYNAAD PLANTERS' ASSOCIATION.

Proceedings of a general meeting held at Vayitri Jubilee Hall, 3rd June 1891.

LEAF DISEASE.—Revenue.—"The Government considers that it would be very desirable to comply with the request of the Wynaad Planters' Association (that Surgeon Major Barclay be sent to the coffee districts of Southern India on the special duty of investigating Hemileia Vastatrix) and the Government of India will accordingly be addressed."—Recorded with satisfaction. Read Honorary Secretary's letter of March 10th to Professor Galloway, Bureau of Vegetable Pathology, Washington, to which no answer has been received.—Read letter from Mr. Pringle, M. S. C. I. offering his services as a scientist and analyst: the Honorary Secretary was instructed to thank Mr. Pringle, and to inform him that the proposal to give a large reward for a practical cure for leaf disease was still under discussion.

TEA.—Mr. Hockin stated that five Essays had been received. Resolved:—"That Mr. G. L. Yonge be requested to act as Judge of the Essays."

THE TEA MARKET AND VARIATION OF PRICES.

SIR,—Every year, when the tea market is low and prices poor, one hears a great deal said about the poor quality of the tea sold, and only in one or two cases are good prices realised. Now it appears to me that a good tea has no chance at all if sold when the market is low, as I will show. In January I had in the factory between 8 and 9,000 lb. tea, but, being unable to send it all forward in one invoice, I divided it as equally as I could and sent the first lot forward to London by the 8th of the same month valuations on samples giving, for Broken Pekoe 1s 1d, for Pekoe 11d Pekoe Souchong 9d, for which I got—for Broken Pekoe 1s 4d Pekoe 1s, Pekoe Souchong 10¾d, average 1s 1¼d. Through one delay and another the second lot did not go forward to London before March. This was valued in Colombo at a higher figure than the other half (though the same make)—Broken Pekoe 1s 3rd, Pekoe 11d to 1s, Pekoe Souchong 10d, while the prices realized were Broken Pekoe 10½d, Pekoe 8¾d, Pekoe Souchong 8½, average 9d, the same teas from one invoice fetching 1s 1¼d and 9d average.

June 24th. CORRESPONDENT.

—Local "Times."

* And Money.—ED. *T. A.*

THE CHOCO is a new plant or vine well known in the island of Samoa, which is creating great interest in Santa Barbara. The fruit weighs on the average about three pounds and has the flavor of a chestnut. It ripens in about 90 days and has been known to grow to weigh 20 pounds. —*Rural Californian.*

TEA IN JAPAN.—*The Japan Weekly Mail* of 13th June says:—

A large business has been done in Tea, and settlements to the 10th instant total 132,323 piculs. The leaf now being mostly handled is said to be not quite so good in cup as the same grades last season. Prices are well maintained, and second pickings are coming in.

The same paper in its issue of 20th June says:—

The Tea trade has not been quite so active, but prices have been well maintained. Second crop leaf is now in full supply, and total settlements to date are 20,000 piculs more than at same period last year

THE COLONY OF THE LEEWARD ISLANDS.—The text of Mr. Morris's lecture on these islands has just been printed in the journal of the Royal Colonial Institute. It comprises a description of the natural features of the islands and their agricultural resources. As in the case of agriculturists nearer home, the colonists have manifested a tendency to put all their eggs into one basket, and with more or less disastrous results. Thanks to the initiative of Kew, and the energy of Mr. Morris, "botnical" stations, which should rather be called agricultural stations, have been instituted for the purpose of introducing and distributing tropical and other plants likely to be of economic importance and suitable for cultivation in particular districts, such as Coffee, Tea, Caoutchouc in various forms, Cinchona, spices, fibre-plants, and so on. A great federation of botanical and agricultural stations, with Kew at the centre, has been the ideal of successive directors, and now the ideal is being realised Perhaps in the future the West India Islands, or other suitable localities may be utilised as nurseries for Orchids and other tropical plants, whence the home market may be supplied, somewhat as the propagating houses at Kew furnish the decorative plants for the show houses.—*Gardeners' Chronicle.*

JAVA CINCHONA ESTATE DIVIDENDS.—The annual general meeting of shareholders in the Java Cinchona Planting Company, "Melattie," was held in Amsterdam on June 3rd. A dividend of eleven per cent was declared for the working of the year 1890, while, in addition 2,000f. was written off for depreciation of buildings, 3,000f. carried to the reserve fund, and a balance of profit of 1002·54f. carried to new account. The name "Melattie," does not occur among our list of Java estates. There is however, a Goenoeng Melati estate, which is one of the best in the island, and produces an equivalent in bark of 4,000 to 6,000 kilos. sulphate of quinine per annum. It does not follow by any means, however that the dividend was not obtained from produce other than cinchona.—*Chemist and Druggist*, June 13.

THE NAME OF CEYLON and of its chief products, especially tea,—has probably been made known more widely through the *Tropical Agriculturist* than even through the Tea Fund or its agents. We get letters from the most out-of-the-way corners of the world in appreciation of the *T. A.* and its contents. One of the latest is from the editor of "The Telegram," Colon, Central America, who thinks so highly of the periodical and of its usefulness to the agriculturists in his State, that he has begun advertising it without waiting for our order! The filing of the *Ceylon Tropical Agriculturst* in the Agricultural Department, Washington, makes reference to it not infrequent in the official papers which are issued by the Secretary to all the States of the Union; And so the name of Ceylon and its planting enterprise becomes known far and wide.

THE TARE WEIGHT OF TEA AND CEYLON TEA CHESTS.

We recur to this subject in order to make it clear what was done last year. The action of the Ceylon Association in London was then sought by our local planting representative body with the object of the removal of the cause of complaint. The letter addressed by the Secretary to that Association in reply to this request stated that after the fullest examination of the matter, which included the questioning of several of the leading Ceylon men in London, it was not found that the assertions as to undue deduction, emanating from this side, were borne out by the experience of those from whom evidence was obtained from home. That letter, however, proposed to our Planters' Association that a test case should be obtained. It suggested that a Commission, to be appointed by the last-mentioned body, should personally supervise the weighing and packing of a considerable consignment of our teas; that these should be sent home in the ordinary course and that parties to be nominated by the London Association should in the same careful manner supervise the weighing of the shipment when received in the London Docks. Now it seems to us that no fairer opportunity could be offered than this of ascertaining how far the complaints made were well-grounded or the reverse. Yet it appears to be the fact that no notice whatever has been taken of this suggestion. Must it not be naturally concluded therefore that the representatives of our planting interest were satisfied that—in the majority of instances at all events—substantial justice was done to Ceylon planters in this particular matter by this Custom authorities in London?

The London brokers and merchants go further and allege in effect that the whole mischief is due to neglect on this side of the Customs regulations with regard to weighing and packing here in Ceylon. It is pointed out how completely the fractional parts of a pound are ignored under those regulations. Thus if a chest turns out say 49 lb. 15 oz., it is reckoned as 50 lb. gross. Similarly, if a chest turn out but 49 lb. 2 oz., it is still reckoned for tare at the same weight. So in the one case the shipper would lose but one ounce on the tare weight, while in the other he would have to sacrifice 14 ounces. The object of our planters should therefore be, to see that their chests are of weights as close to, but under the full pound, as may be possible. It is alleged for the defence that in an exceedingly large number of instances of shipments from Ceylon this point is altogether overlooked: that in fact the whole burden of blame for what is complained of rests upon those on this side who carelessly or ignorantly overlook the conditions upon which their shipments will be dealt with by the Customs authorities at home.

We do not suppose that the latest suggestion made from London can affect this, but we should like to know if any of our planting community have had experience of the capacity for change of weight of ordinary tea chests under varying conditions of atmosphere. Mr. Cameron of the Eastern Estates and Produce Company is of opinion that a not inconsiderable part of the difficulties as to the tare weight of tea recently complained of, has been due to the changed weight of the tea boxes used here after the passage to London. Mr. Cameron thought this might amount to as much as half a pound; and he unsparingly condemned a large number of the packages in which our tea is sent home, as being of such unsuitable wood that damp in the hold of the vessel is readily absorbed by it and the tare weight thereby most sensibly affected. Now as we have shown a very much smaller increase of weight than half-a-pound per chest would very injuriously affect the tare weight and the consequent burden to be borne by the planters. The advice from Mincing Lane is to weigh as close to the even pound—but below it—as possible for tare weighing, and we are advised to allow a margin of two or three ounces only. But if during the voyage home, a chest increases, owing to the absorption of damp, as much as half-a-pound in weight, that margin would be passed and—hey presto!—the Customs officials would tare the unfortunate one at the additional pound. The use of thoroughly seasoned wood for the chests will of course be recommended as the obvious remedy; but where is such wood to be obtained? No doubt it is quite within the power of our planters to accumulate a stock of wood and season it; but then, unfortunately, a very large proportion of our country-grown woods will not stand the process of seasoning without developing faults which render the boards cut from them wholly useless for the manufacture of tea boxes. No doubt Japan boxes have the advantage here and as a matter of fact it would be interesting to know if the complaints about loss of weight have all been confined to boxes of country-made wood? Some hopes were entertained, we believe, that the Stanley-Wrightson patent chests might not be affected by the damp and resultant increase of might, but from all we hear this has scarcely proved to be the case. We really think this difficulty about absorption of moisture during voyage might well be employed as an argument towards inducing the Customs authorities at home to reconsider their present inaction with regard to their minute about weighing to the half-pound instead of to the pound. If this obstacle respecting the variable weight of tea chests cannot be got over, it is exceedingly hard that, despite all precaution by the planter, he should be mulcted in a pound weight as the result of a circumstance over which he can exercise little or no control. We have been told that the China teas imported give no trouble with respect to this question of tare, but that is solely because no China teas are bulked after arrival in London. There are very many objections to metal chests; but certainly this uncertainty about tare weight could not apply to them, and this might be a gain compensating for many minor disadvantages appertaining to their use.

VISIT TO JAMAICA.

Taking advantage of Mr. Plant's new Jamaica line from Tampa, I have just paid the island a two weeks' visit, chiefly for the purpose of gaining new ideas of methods of culture and propagation of tropical fruits. I think my experience is on the whole very flattering to our own State, though the object of my visit was not realized.

I found a truly tropical island with a deep, fertile soil, provided with tillable slopes, elevated enough to admit of the successful growth of apples and peaches, where a paternal government at a heavy annual outlay has for many years kept up extensive experimental gardens and nurseries presided over by talent from England, with trained and educated horticulturists for foremen; and still they are far behind us in methods of propagation and varieties. They still inarch the mango in the slow unsatisfactory way introduced from India. They plant only sweet seedling oranges and never bud. The peaches and apples of

slavery days have been allowed to die of neglect and forest fires. With an abundance of water-head in mountain streams they allow fertile plains to dry up and remain sterile for want of irrigation. But the Boston Fruit Company, represented by their founder and president, Capt. S. D. Baker, the banana king (as the natives call him), are making things move on the north side, and with a progressive governor and pushing earnest chief of their botanical department, bid fair to revolutionize Jamaica in a few years.

Most of the soil is stiff red or brown clay and but little of it seems suited to pineapples, while but little seems unsuited to bananas. We see them growing on the steepest hill-sides, so steep that the top of the stalk is nearer the ground horizontally than vertically. A large portion of the available land was all in sugar cane before abolition, but since then, though the slaves were all paid for, the planters could not pay running expenses, hiring the lazy freed-men; and gradually all the estates were turned into pasture or abandoned. The freed-men preferred to strike out for themselves and be independent, so they squatted here and there and have lived a lazy, hand-to-mouth existence, such as their forefathers enjoyed in Africa ever since. The paternal government only interferes with this for the first few years of their lives, obliging them to acquire a good common school education. These few years of enforced labor, I presume, are sufficient to reconcile the colored man to a prolonged rest during the balance of his life.

The Boston Fruit Company have acquired some 20,000 acres of these old sugar estates and are gradually reclaiming them for bananas and cocoanuts. They run steamers three or four times a week to Boston, making the run in five to seven days, and have never failed to carry their vegetables in better order than our railroads usually do. This year, for the first time, they secured the services of a market gardener from the North, and he has been experimenting with ten acres in vegetables as a trial. His tomatoes yielded almost as they would at the North, when they were not dried or drowned out; and his cucumbers seemed to be quite free from insect enemies and yielded much better than with us. Mango trees line the roads and are as abundant in the woods and fields as native forest trees, while coffee and cocoa trees form the underbrush everywhere in the abandoned estates; and here and there an enterprising colored family squat and make their living gathering and selling the fruit of these wild trees, which, however, they never cultivate. The all-spice, *pimenta officinalis*, is a native forest tree and the logwood, a leguminous tree, is the regular second growth timber, which, in time, with *lignumvitæ* and cactus, takes possession of old fields. A fair quality of tobacco is raised in the valleys by Cubans; Liberian coffee a hardier, more prolific and superior variety, is being introduced; also the colanut of India, which is used on account of its large amount of caffein to give strength to chocolate. Nutmegs and cinnamon are being tried also, but the great crop is bananas. From 10,000 to 15,000 bunches per day leave Jamaica for the States, three fourths of which are either carried or supplied by the Boston Fruit Company through the banana king, Capt. Baker.

The scenery is grand. A midrib of volcanic mountains serves as a background for the views inland on the east end of the island, towering to upwards of 7,000 feet. Innumerable ranges of foot hills, wooded to their summits, are intersected by crystal streams, cutting deep gorges through their rocky sides, all draped with luxuriant tropical foliage. Tall tree ferns wave on shaded slopes while graceful cocoanut and royal palms raise their majestic heads proudly against the sky on mountain tops thousands of feet above the sea, which rolls "deeply, darkly, beautifully blue" at their feet. Tufts of feathery bamboo, like bunches of ostrich plumes, wave on every slope and plain, tall as the forests trees and indescribably soft and graceful; while large silk cotton trees with their ponderous, root-butressed trunks and great straggling limbs seem to writhe and stagger beneath their burden of throttling vines and parasitic orchids. Aroids, climbing plants with the leaves of a caladium and stem of a sugar cane, climb to their summits and envelope the tree with long, white, rope-like roots, half an inch in diameter, which spring from every joint of the stem. When you add to those orchids with leaves like bananas, the efforts of the tree at foliage seem very insignificant and secondary.

Coolies and Chinese are found occasionally, and each one does the work of three negroes, though not nearly as large and muscular. Some of the octaroons and quadroons make good foremen and under-bosses as well as clerks and book keepers.

The government levies an apparently indiscriminate duty upon all imports, a tariff for revenue only, so far as I could learn, taxing flour $2 per barrel, though they can raise no wheat, but strange to say, entering potatoes free! With the revenue thus collected splendid macadamized roads are kept up, abundance of excellent water supplied to every town and village, excellent nurseries (which supply trees at cost) good schools and efficient police force maintained. Enough money is left over to pay the Englishmen who exile themselves here to fill the higher government offices handsomely for their services; and if the bulk of the colored population is poor, they are happy; poor because they *are* lazy, and happy because they *can* be lazy.

Melbourne, Fla. JOHN B BEACH

—*Florida Dispatch.*

CINCHONA cultivation is rapidly progressing in India though unfortunately the tree will not grow with any prospect of commercial success in any spot north of Lower Bengal, the Peninsula and the Straits Settlements. An American paper recently gave a graphic account of the plantations in Java which are running the Bolivian industry, and from this it appears that at the age of eight years the trees are ready to strip, or if the owner is hard up, as is usually the case, part of them may be utilised sooner; and young plants put in their places. In some sections it is customary to remove from each tree about a quarter of its bark every year, but in others the tree is cut down to the ground, its trunk and large limbs are peeled, and the smallest branches carefully scraped clear to the leaves. An eight-year-old tree yields from twelve to fifteen pounds of bark. If the peeled-off bark happens to get wet it loses much of its alkaloid quinine, hence every planter has to build ample sheds in which to dry it. There are said to be no fewer than twenty-one varieties of the quina tree, some worthless, others ranging in the amount of quinine contained in the bark from one half per cent to seven per cent. The buyer must know his business, for if not an expert he is likely to be badly sold. The "gold brick" swindle has not been so often perpetrated in the United States as that of selling for cinchona bark the worthless bark of some other tree. A well-known dealer of La Paz, who ought to have known what he was about after years of experience, recently lost $160,000 at one fell swoop on a ship load of bark supposed to be cinchona, but which, when it arrived at the English market, turned out to be a species of oak good for nothing at all. The only way to test the bark is by testing it. That which gives out a better taste immediately on being taken into the mouth will yield a comparatively small amount of quinine, while the best must be chewed before the quinine taste is apparent.—*Indian Agriculturist.*

EMIGRATION OF THE UNEMPLOYED HIGHER CLASSES.

[An old Ceylon Colonist and friend—now of North Borneo—writes as follows in the *Field* of June 6th.—Ed. *T. A.*]

Lord Derby, when speaking at Liverpool, on Dec. 29th, on the subject of emigration said that England cannot find employment for its increasing population. This applies to the rich as well as to the poor, and I would like to say a word through your columns to the unemployed sons of the richer classes in favour of a planter's life in British North Borneo. As I spent thirteen years in the coffee and tea districts of Ceylon, and have taken an active part during the last eight years in the planting industries of British North Borneo, I may reasonably claim an intimate knowledge of my subject, gained by twenty-one years' practical experience of tropical planting.

British North Borneo is rather larger than Ireland, and is situated at the northern extremity of the great island of Borneo, in the same latitude as Ceylon, which it much resembles in climate, but its hills are much higher, and cover an area probably five times as large as the central, hilly, province of Ceylon, and, what is of chief moment to the planter who desires cheap transport, good soil is obtainable near the sea—soil that has been proved to be suitable for tropical plants like tobacco, coffee, cocoa, pepper, gambier, sugar, &c.

Tobacco planting is being prosecuted on a very extensive scale, and the companies engaged have a nominal capital of about six millions sterling. Tobacco is an annual, and the accounts of the 1890 crop (amounting to 15,000 bales), which was cut before the rains began to fall in December, are very good, and indicate that the troubles connected with new enterprises are being overcome, and those who are most capable of judging anticipate a great future for the silky leafed tobacco grown in British North Borneo, which now obtains as much as 3s. per lb. for cigar wrappers, as compared with 8d per lb. obtained by American tobacco, which is used as cigar fillers. The amount of land taken up by the tobacco companies on the low alluvial flats on the great and small rivers is about three quarters of a million acres, which afforded a reason for raising the price of land intended for tobacco planting to 6 dols. (one pound sterling) the acre. For other products than tobacco the price is still 3 dols. (10s.) the acre.

In Sumatra, where wrapper tobacco is cultivated, the price of suitable land is very high, and the Netherlands government has lately limited the sale of land in its colonies to Dutch subjects only.

Coffee appears likely to be the next product to be planted in large quantities in British North Borneo. The price for coffee is high, and the coffee brokers inform me that, as far as they can judge, they see no reason for a fall. In 1882, a coffee planter from Ceylon, Mr. T. S. Dobree, visited British North Borneo, and reported that the new colony was suitable for coffee, and that, in his opinion, it might become the greatest coffee producing country in the world. The island of Borneo is surrounded by the coffee-exporting countries of the Phillipines, the Indian Peninsula, Java, Celebes and Sulu; but I have no knowledge of coffee exports from British North Borneo until 1887, when coffee and pepper appeared in the export return. Pepper, encouraged by high prices, is now largely cultivated by the Malays, who formerly supplied the markets of the world, until the cultivation of pepper was strangled by the exactions of the sultans; thanks, however, to our English rule, the agriculturist in British North Borneo can now pursue his vocation in peace.

Coffee has hitherto received little attention, cocoa being the rich Malay man's favourite beverage, and thriving well without much trouble; but enough coffee can be found to warrant the statement made by Mr. Dobree, that British North Borneo is very suitable for coffee growing. Since then we have learnt more about it, and a small pamphlet issued by the British North Borneo Company, in August 1890, gives details of the steady progress, since 1882, of the cultivation of coffee, which has lately found favour among the immigrant Chinese who began to settle near Kudat, in 1883, and now number over one thousand. The coffee in the experimental garden at Silam, opened by the company in 1882, yielded 76 cwt. in 1887 from about six acres, and continues to bear well. Those who have no knowledge of coffee planting will understand the meaning of the above figures, when I say that at present prices the profit per cwt. on crops such as the above should be quite 30s per cwt., and the cost of bringing coffee into bearing should not be more than £20 per acre, taking the cost of land at 10s.

When I was in Ceylon in the "seventies," good land was considered cheap at £10 the acre. The British North Borneo Company make only one charge for land, [now 10s the acre] and give a 999 years lease, which compares very favourably with land in Sumatra and India. In Sumatra land is leased for seventy-five years, and at Darjeeling for thirty years, on payment of a premium and a rental, and in both places the rent increases up to the fifth year, when it amounts to about sixteen pence per acre.

Having lived in British North Borneo, and being about to return for a further stay, I feel that my recommendation of emigration to this new and comparatively little known country is worth a hearing by those who like an outdoor life. At present there are about one hundred Europeans engaged in planting in our territory, among whom the proportion of married men is steadily increasing, and the ladies tell me they like the life. Comforts are obtainable by those who can manage properly, and have the wherewithal, which means about £15 a month for a bachelor, and £25 for a married couple, though, if necessary, it can be done upon less, and I have known men to live upon about half the above.

To show how the country is progressing, I quote the following returns for 1881 and 1889, in which time the imports and exports rose from £25,000 to £400,000; and the revenue from £3,000 to £80,000 sterling. For 1890, the returns of trade will be about thirty per cent more than those of 1889, and the statement made that British North Borneo is advancing by leaps and bounds is not out of place, as the yearly returns show a steady annual increase of over 30 per cent upon each preceding year. The commercial importance of British North Borneo has lately received acknowledgment by its admission into the Postal Union.

The laws are based upon English colonial usage, and have chiefly been adopted from those ruling in the Straits Settlements and British India. The distance of the territory from England is about thirty-five days steam, and the cost of a first-class passage varies from £50 to £70. Should any one desire to make a visit, good hotels will be found at the two chief ports, Sandakan and Kudat, and some sport with deer, cattle rhinoceros, and elephant can be had for the seeking.

The reason why I specially recommend coffee planting as a means of employment to some of our unemployed wealthier classes is, because it is within the means of men with from £2,000 to £5,000, and beca use coffee appears to have found a natural home in the climate and soil of British North Borneo, and promises to give very large returns.

The cultivation of cocoa, gambier and pepper can be combined with that of coffee, the same soil being suitable. I am particularly desirous of seeing gambier planted. I am told by the Mincing-lane brokers that the 40,000 tons of gambier now produced may be largely increased without lowering prices very much, and that all tanners use it. The leather trade of the world is so large, and markets for tanning materials are so numerous, that I believe the cultivation of gambier would be exceedingly remunerative, and I shall be glad to give figures of cost of production if desired.

15, Leadenhall-street. Henry Walker.

THE AMSTERDAM CINCHONA SALES.

(*Telegram from our Correspondent.*)

At today's auctions, 2,606 packages Java bark were disposed of at an average unit of 6¾d cents (equal to

about 1½d) per lb. Manufacturing barks in quills, broken quills, and chips, realised from 9 to 57 cents (equal to 1½d to 10d) per lb.; ditto fine root, from 7 to 43 cents (equal to 1¼d to 7¼d). Druggists' barks in quills, broken quills, and chips, 17 to 139 cents (equal to 3d to 2s 1d); ditto root, 11 to 15 cents (equal to 2d to 3d). The principal buyers were Mr. Gustav Briegleb, the Brunswick Quinine Works, and the Auerbach Quinine Works.—*Chemist and Druggist*, June 13th.

NOTES ON PRODUCE AND FINANCE.

A SPLENDID RESULT.—The shareholders and directors of the Brahmapootra Tea Company, Limited, may congratulate one another upon the excellent result of the year's working and the handsome dividend earned. Mr. Robertson, who presided at the meeting, stated plainly that "the policy of the board was not to stint where good cause for spending was advanced," and so long as this policy, coupled with that of placing complete confidence to the local management, is productive of such a result as a 20 per cent. dividend, there will scarcely be two opinions as to its wisdom. The affairs of the Brahmapootra Company are excellently administered at home and in India, and allowing that this year's results are exceptional, the dividend just declared by this company is not only a source of satisfaction to its shareholders, but should prove encouraging to the tea industry generally, inasmuch as it establishes the fact that, given a good garden and capable management, there are few better and safer investments than Indian tea shares. Shareholders have been slow to recognise this, but it is beginning to dawn on them.—*H. & C. Mail*.

INDIAN AND CEYLON TEA.

38, MINCING LANE, June 1891.

MESSRS. THOMPSONS' ANNUAL REVIEW.

If the course of the past season—though full of interest—has been unmarked by incidents which specially distinguish it from the years preceding, the fact may perhaps find an explanation in the assured position as a great industry which Indian [and especially Ceylon.—ED. *T. A.*] Tea has attained, and the now well-matured experience on which that position is based.

As in the past so now, there have been difficulties to contend with; disappointments to encounter; competition to face; but these notwithstanding, the Industry thrives and Indian tea continues to make its way in the markets of the world, justifying the enterprise of those who have made its interests their own.

The sanguine estimates of the crop—which we observe again prevail for the coming season—unfortunately were not realised; and the shortfall of 9 million lb., attributed to untoward weather at the beginning, and the early closing of the season, left the total supply but little larger than that of 1889 to meet the growing wants of the world.

In point of quality the crop was not altogether satisfactory; for while some districts, *e. g.*, Upper Assam and Nsowgong, did exceedingly well, others fell below their usual standard until late in the season, when a general improvement took place. The Darjeeling crop with a few exceptions was a disappointing one; but under such conditions as prevailed nothing else could be expected, and its lowered value must not be taken to indicate any falling off in the estimation of *good* Darjeeling tea, which is far from the fact. Dooars and Sylhet have again supplied a kind well suited to the needs of the great retailers, for whom the large breaks, uniform in character, thick and plain in cup, and purchasable at a moderate price have a special attraction. The produce of the gardens in Travancore, though still limited in quantity, is growing, and promises to develop into a considerable item, now that tea is being planted successfully on the lower levels, and yields a quality which finds favour with consumers.

Throughout the greater part of the year the market was favourable to producers. From the increased consumption which followed the reduction in duty, India derived special benefit, felt not only in heavy deliveries, but also in a more general demand for the better qualities. During the early months rates were maintained without much variation at a level low enough to encourage consumption, yet not so low as to cause apprehension to producers; but before the end of the year prices gave way under the combined influence of the financia crises dear money, and the inevitable pressure of supply. The lowest point was reached about the beginning of December, but before the market closed a reaction set in, when it was seen that the crop was likely to weigh out far short of the estimate, and that supplies would be light from China. The movement initiated in December by substantial trade buying, fully warranted by the low prices and steadily increasing rate of consumption, was accelerated in January by speculative transactions, and the eagerness of those who held insufficient stocks to acquire them, with the result that in the space of a few weeks quotations for the lower grades advanced 25 to 30 per cent., and for medium grades 10 to 15 per cent. from the December level. The excellent quality of the latter portion of the crop also encouraged purchasers, and kept up prices without much fluctuation until the end of April, when the market began to feel the influence of the large supplies coming in from Ceylon, selling at gradually receding rates, and by the evidence which figures gave that the higher scale of price was reducing the percentage of Indian tea consumed.

Analysis of the Board of Trade Returns for the United Kingdom shows the fluctuation to have been as follows, viz.;—

Percentage consumed,	1890.	Dec. 1890.	Jan. 1891.	Feb.—April 1891.	May. 1891.
	per cent.	per cent.	per cent.	per cent.	per cent
Indian	52½	57	53½	51	45
Ceylon	18	17½	18½	20	28
China & Java	29½	25½	28	29	27

While ordinary qualities have been subject to these movements, the value of the finer descriptions has been supported more or less steadily throughout, which is due in some measure no doubt to the smaller quantity produced, bu more, we think, to a growing appreciation of the merits of good tea; and to the fact, of which evidence accumulates, that formidable as the competition of Ceylon is, it does not affect the *finest* growths of India. The position indeed, is one that may well encourage those who have proved their gardens capable of producing fine tea, to make that their aim; and the more so at the present time, as the recent rates paid for the lower sorts will probably tempt many to work for heavy crops without special regard to quality. Should this be generally the case, a low range of price for common and medium sorts may eventually result, as it will be difficult to put into consumption another 10 or 12 million lb., *wanting the attraction of quality*, except by the process of underselling some other kind.

Reviewing the year's trade in its broadest features it appears that, allowing for difference in quality, growers have received more for their produce than in the two preceding seasons. As the average price to the consumer has not been raised in the interval, the inference is either that producers have received part of the remitted duty, or that there has been a shrinkage in the intermediate trade-profits. As regards this, we have authority for saying that a portion of the public elect to pay the price they did before duty was lowered, and to have a better tea: while it is the case that the trade of the country is finding its way into new channels, and is gradually passing from the small retailer into the hands of a class of large distributors, who in order to make and keep their business are compelled to submit to some sacrifice of profit. The extensive scale of their operations enables them to do this; and the producer benefits.

The rapid advance in January, on the mere possibility of a short supply, has also afforded the trade a useful object-lesson on the contingent risk of the modern system of working on short stocks.

The extension of trade with other markets has progressed slowly, owing to the comparatively high prices of the kinds called for, but the increased demand from Australia promises well for the future; and the work which has been done in Canada and the States only waits to bear fruit until the kinds which suit them can be shipped at the rates they will pay. Whilst the United Kingdom absorbs nearly all the Indian tea produced, much expansion in other quarters cannot well be looked for.

CEYLON.—The fortunes of this industry are now closely interwoven with those of India; the same influences shape the course of events, and movements in the one market are quickly reflected in the other. The later months of 1890 were marked by few events calling for comment, production and consumption progressing on parallel lines, while values were maintained at a fairly remunerative level, and as high as could be expected for a crop not plentiful in fine tea, the highest point being reached in October. In the upward movement which took place in January, Ceylon participated, the lower grades rising to a point which carried the average value above the best in October, where they remained until it was seen that consumption was not growing fast enough to take off the large increase in supply. The gradual lowering of rates, however, has placed Ceylon in a better position with respect to other growths, which is of the utmost importance to producers, even though attained at the cost of price—and until more plentiful supplies of Indian are avail-

able, consumption should progress, for there is little prospect at current prices that China tea will be taken in preference by any who are not prejudiced in its favour; especially if the statement that the new crop from the North is "tarry" should prove correct.

The point which most urgently demands attention is that of quality; for the crops of the past year have again fallen short of their early promise, and in a way which justifies the opinion that the cause is within the Planter's control.* We refer, of course, to the absence of tea sufficiently marked by distinctly rich liquor, or finely made leaf, to lift it above the level of average quality, and to the predominance of tea too light in cup and pungent in taste to suit the general body of consumers, unless blended with other kinds. The narrowing range of quotations, to which we drew attention a year ago, has been still more marked of late, and it constitutes a serious drawback to Ceylon that among the large supplies now offered weekly there should be so few breaks worth more than 1s per lb., whereas in a similar quantity of Indian there would be numerous lines selling from 1s 6d upwards. A wide range of quotation is of great help to the buyers in re-selling, and it goes without saying that whatever makes the market a profitable one for them to operate in is for the good of the producer.

We must again refer to the multiplication of breaks. The business is developing so rapidly that buyers cannot value all the samples. Two invoices per week from an estate are frequently seen in print, which is of itself a disadvantage, apart from the extra work entailed. In India the problem has been widely solved by packing the tea directly it is finished, and storing the chests until large invoices can be despatched. Experience shows that estates which do this, and bulk here, put their teas on the market in high condition; they unquestionably profit by offering larger quantities of their brand at less frequent intervals.

The average price of Ceylon sold in auction during the twelve months has been about 11d per lb.

The following figures for the past season, kindly supplied to us by proprietors, cover nearly 71,600 acres yielding 29,597,000 lb., an average of 413 lb. per acre, realising an average sale price of 11¾d per lb.

[We quote all with crops exceeding 500,000 lb.—ED. *T. A.*].

District.	Estate.	Average Yielding.	Crop.	Area	Average Price.
					s. d.
Assam	Assam Co. ...	7,827	2,731,200	349	11·20
	Jokai Co. ...	4,408	2,300,000	521	1 0·75
	Jorehaut Co. ...	4,448	1,496,900	336	11 03
	Assam Frontier Co...	3,440	2,415 300	702	1 0
	Brahmapootra Co...	2,848	1,462,000	513	11·07
	Upper Assam Co. ...	2,738	1,066,400	390	1 2·17
	Land Mortgage Bank ...	2,260	917,000	405	11·26
	Noakacharee Co. ...	2,300	753,400	328	10·19
	Bishnauth Co. ...	1,577	657,400	416	11·88
	Doom Dooma Co. ...	1,412	893,900	633	1 0·50
	Mungledye Co. ...	1,439	408,500	284	9·75
	Jahanzie Association	1,415	514,700	364	1 0·75
	Attaree Khat Co. ...	1,239	620,000	500	10·75
Assam and Cachar	British Indian Co. ...	1,310	600,000	459	9·75
Darjeeling	Darjeeling Co. ...	1,906	607,000	319	1 0·66
Dooars	Dooars Co.	(abt.)		(abt.)	(abt.)
		3,256	1,386,100	425	10·75

Previous Tables showed the following results:—

	Average.	Quantity. lb.	Per Acre.	Price per lb.
1889-90...	73,000	29,800,000	408	0 11¾
1888-89...	66,000	27,200,000	412	0 10 3-7
1887-88...	60,000	22,654,000	377	1 0 1·20
1886-87...	56,300	21,500,000	382	1 0

W. J. & H. THOMPSON, Brokers.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, June 13th.

ANNATTO.—Dull of sale. For 42 bags West Indian seeds, of good bright colour, 2½d per lb. was paid, while 10 packages very common and almost colourless seed from Ceylon sold at ½d to 1d per lb.

ARECA NUT.—Five bags realised 30s per cwt.

CINCHONA.—Of Crown bark, only a small quantity was offered, and sales are not of any importance: 22 packages very thin, but fair, Bolivian quills sold at 6½d to 7½d; good bright Maracaibo at 5½d; damaged at 2d and 4½d; and 30 packages bold, partly quilly, rather dark Carthagena, imported from Hamburg, and offered without reserve at from 3½d, rising to 4d per lb.

COCA LEAVES.—At today's auctions 1 bale of sound Ceylon leaves, imported via Madras, good strong rather dark leaves of Huanoco character sold at 8½d per lb. Another parcel of 8 bales thin brown leaves is held for 6d per lb. There has just been a fresh arrival of 15 cases (weighing only about 225 lb. in the aggregate) of coca leaves from Ceylon. The leaves are well cured, but rather dark, of decided Huanuco character, and well packed in tea lead.

ESSENTIAL OIL.—Citronella oil was held for 11-16th d. per oz. in sale today.

QUININE.—The market has been exceedingly flat this week, and prices are lower. German bulk quinine could probably be bought from second-hand holders for 11d per oz., and 10,000 oz. are said to have changed hands at that figure early this week. Another report, however, give he price as 11½d per oz.

PLANTING IN THE CENTRAL PROVINCE.

[CIRCULAR NOTES BY "WANDERER."]

THE NEW TEA COMPANY—NO USE EXTENDING TEA—BETTER TEA—THE RAILWAY—THE TEA CROP—COFFEE—CACAO—TOBACCO.

Upcountry men seem to have settled to work, now that the levee gaieties in Kandy are all over.

A little "bolt from the blue" has fallen on employes of the C. T. P. Co., in the shape of "an absence on leave" circular from their jove, who sits on his Olympus in the Hill sanatarium. The Managers of that Company are so well dealt by in the matter of Home leave, that they must expect a little strictness, where absence from the estates on short leave is granted.

Higher rates of exchange, and low prices for tea are exercising the planting mind. The Labour question however is a more pressing one, and the general feling is clear on the point, that the cases tried in Court so far have been most unfortunate ones, and give the outside public anything but a true insight as to the general relationship of master and coolie.

Many planters are of opinion that there is no use extending the tea area till we have a sufficiency of coolies to do justice to what we have already planted. They maintain that the yield of made tea and its quality depend most on a sufficiency of labour to "catch the flush on the hop." A planter of great experience told me the other day that he could get 500 lb per acre against the ordinary 350 lb, if he could be certain of his labour when he required it. Of course there is the other side of the question how to employ such a labour force when the flushing is scanty?

The New Tea Company deserves the support of all the Planting community. I presume it will run the Tea Kiosk, and supply the orders that will be handed to the manager of that institution.

The tea flushing is now moderated, and the tea turned out of the factories is consequently of better quality. I notice one of your correspondents advising his brother planters to prune in such a way, as to have light flushes in April, May and June. We all wish to get less tea in these months, but Dame Nature is a stubborn old lady. What we all aim at is to prune, so as to have no large portion of our estates coming into full flush at one time.

It is high time that the Government took steps to get their railway engine drivers, stokers and guards, in a less grumbling mood than they exhibit at present. The newly imported guards will no doubt tell their brethren in Ceylon, that Unionism can work wonders in the old country. Measures of reform should be anticipated by employers (Government or private) and not forced on them. A Pension Fund should be at once started, ⅔rds being contributed by the Government (as the Government and the employers share) and ⅓rd by the men themselves.—This will at once make the service a favourite one.

I don't think the outturn of tea will be so large in the last half of 1891, as in the first half.

Coffee will be a very feeble crop this season.

Cacao blossom is kept back by the long-continued wet weather, but we have all July before us.

Tobacco planting has I fear all ended "in smoke."

* Quality is largely dependent on meteorological conditions, which are certainly not within the control of planters. —ED. *T. A.*

HAPUTALE WEST DISTRICT: AS IT WAS AND AS IT IS.

The following account of the plantations in this out-of-the-way district was written for us some time ago; but the manuscript got mislaid and so has never been used. The account is, however, of historical if not present interest; but in giving it to our readers, we have secured from a well-informed quarter, a supplementary Report which brings our information up to date. Here is the original paper:—

HAPUTALE WEST.

(Written in 1889?)

BANDONG ESTATE.—A small place planted up almost entirely with reputed ledgeriana; since, all available bark harvested, and the place is now abandoned.

CALLANDER ESTATE in the Kalupahana Valley has a field of 40 acres of very fine coffee, which I believe gave 600 bushels parchment last year, and under favorable circumstances it ought to do better this year; it has a considerable amount of cinchona scattered throughout the coffee which has yielded, in shavings alone, large quantities of bark. Under a systematic shaving, from 8,000 to 10,000 lb. of bark, all renewed, ought to be procured. About 40 acres planted up in tea last N.-E. monsoon is coming forward very rapidly.

Mr. MAYOW'S BLOCK was originally planted up in cinchona, and this after the lapse of a year or two (3 years I think) was uprooted and the bark harvested. A very small nursery was laid down with tea seed and allowed to take its chance, and the plants in it throve so well, that Mr. Mayow has, I believe, since planteld up the whole 50 acres with tea.

DENEGAMA ESTATE properly speaking is not in the Haputale district at all, nor does it in any respect resemble the Haputale climate, or share the Haputale rainfall,—it is decidedly in the Balangoda district. I went over it some three months ago with Mr. Smart the superintendent. It has over a hundred acres of coffee which still bears, and I understand that last year's crop was over 3,000 bushels. It also has a considerable area planted up with tea rising two years old and for growth it will compare with any I have seen up here. I don't know what yield of bark it gave last year, but I should imagine that of renewed shavings they could get for the coming year say 15,000 lb. Part of the store has been converted into a tea factory, and plucking will be commenced shortly if they have not alredy started.

KEENAGAHAELLA ESTATE.—The same remarks apply here is in the case Denegama: the estate is actually within 3 miles of Balangoda town and distant about 18 miles from Haldummulla. It possesses 30 acres of tea in full bearing, besides a number of other products, coffee, cardamoms, cinchona succirubra, annatto, and crtons. The expected coffee crop is 1,000 bushels; and I am, I think, within the mark in puttingt tea down at 10,000 lb. Mr. Bastard informed me that the annatto and crotons had yielded him very handsome crops, and from the latter more especially which has given him handsome profits. From succirubra he ought, with judicious shaving, to get 5,000 lb. easily as althongh he has got no large area under cinchona what he has is chiefly 6 or 7 years old and has been only once shaved.

ETTRICK ESTATE has still got fair bearing coffee, but is being rapidly put into tea. They have been plucking leaf for the fast nine months, and it is purchased and manufactured for Hiralouvah. The yield is increasing, and judging from the area which will come into bearing this year, 5,000 lb. ought to be easily obtained. I cannot speak as to the coffee or cinchona.

GALLAGAMUA is now entirely abandoned, and so is also.

GRUCKERIYA in the Kalupahana Valley.

HIRALOUVAH.—I can give you pretty accurate information as to probable yield of all products here. Coffee, I estimate at say 1,200 bushels. Tea 10,000 lb. from 40 acres; cinchona—renewed shavings succirubra, officinalis, and hybrid, from 15,000 to 20,000 lb. and cardamoms from 5 acres 500 lb. Tea promises well here and the growth is decidedly good. There are now 150 acres fully planted up with this product.

LENTRAN in the Kalupahana Valley has been almost entirely planted up with tea, although Mr. White still reaps enough from coffee and cinchona to enable him to plant tea without diving deeper into his purse. It last year gave 400 bushels coffee and about 10,000 lb. of shavings from cinchona, and it will do better still this year as there are some magnificent specimens of succirubara on the estate. The tea will not be bearing for another year yet as it was only last year planted, with the exception of a few thousands put out the previous year by way of experiment.

LEYBURN is another of the Kalupahana places, and now entirely abandoned. It was partly planted with tea, and in spite of the chena which now covers the whole estate, the tea bushes may be seen growing luxuriantly and holding its own against all the surroundings of chena, weeds, &c.

MEERIATENNE, LAST ESTATE IN THE KALUPAHANA VALLEY NEAR HALDUMMULLA.—Planted in coffee and cinchona, but the former is of very little account, and never will recoup the money expended on it. The cinchona is, however, remarkably fine, and nothing in Haputale that I have seen can compare with it. If the value of the product is not going to go out entirely, this will be one of the most valuable cinchona properties in the island. The estate contained at the lowest estimate a hundred thousand of all ages up to six years and the greater percentage is over 4 years old. The trees have never been shaved, and little or no lopping has been done, the proprietor, Mr. Anderson, having an idea that by allowing them to grow as naturally as possible the growth is very much accelerated, and that he will eventually reap much larger profits. Were he to shave the whole cinchona, he could, I think, easily obtain 50,000 lb. bark from one round. There is no tea on the estate.

NAGRAK AND NIADOVA, KALUPAHANA VALLEY.—Mr. Orchard has 10 acres of tea here which he still cultivates as regards weeding. It is now rising three years old, and is being allowed to grow up with a view, I think, to becoming seed-bearing trees. If Mr. Orchard cared he might by plucking it regularly, after pruning down, get 3,000 lb. or 300 lb. per acre.

NONPAREIL AND UGALDUA I have never been over, and I cannot speak as to their capabilities. The former has, however, long retained a good name as a coffee-bearing estate.

WEST HAPUTALE is now fully planted with tea, and to those who cast disparaging remarks on the Kalupahana Valley let them visit this estate and believe what they see. The tea is now close on 2 years old, and a finer sheet of tea for its age is not to be found in the island. It is the best criterion that can be brought forward in proof of the Valley being best suited for the cultivation of this product, and we will yet, I think see this much despised corner the scene of busy life. This estate will, ere many years are over, fully repay the enterprize displayed by the proprietor, Mr. Mills, who is in every way worthy of it, for having stuck to his belief in the face of the surrounding proprietors, one and all, abandoning their properties.

WELATENNE is not yet planted up in tea, but the proprietors, I believe, meditate doing so this year. It still contains some very fine cinchona from which a lot of bark has been obtained, and it will still yield as much if a judicious course of shaving be adopted.

All the other blocks in West Haputale are either not opened up or have been opened and ultimately abandoned. There is no doubt about the entire success of tea in the Kalupahana Valley, wherever it has been tried; and I think it is equally certain that, if the article keeps up in price, we will, ere many years are past, see many hundreds of acres fully opened up in this product.

The Report just received says:—

HAPUTALE WEST IN 1891.

The detailed Report on the estate in this district written some three years ago was I think a very correct description and I would not attempt to give you such a careful Report on the present state

of each place, seeing I do not possess the information. In a general way I note any changes taking place when passing along the road, and nothing very striking has been done in Kalupahana to call for a fresh description since the last was written. I see a new factory on Callender, and another on West Haputale. The open land has been gradually put into tea as the proprietors gained confidence, while they lost faith in coffee and cinchona. The tea when planted seems to take a year or so longer to give a return than down in Dimbula, but when once it takes a grip of the soil, it holds its own against all enemies, of wind, or weather, and rather likes bad usage. The bushes after 4 years' growth are stronger than common, and look as if they will yield good results. Of the 3,000 acres sold in 1880, five blocks were entirely abandoned several years ago, after much outlay in opening, roading and building for cinchona estates. The whole is now grown up in jungle, and nothing to be seen except the roofs of deserted bungalows, or lines. An expenditure of a few rupees an acre would clear the small jungle, and the land is there ready roaded for tea if the proprietors cared to begin again, but no one is in any hurry to return. The original loss of capital has much to do with checking progress, and it points to the formation of a company in which the owners of unopened land would take shares. Several blocks were never felled, and cannot be called abandoned. The best tea land is still unplanted, or at least the easiest lay of the land. The cinchona on some of the estates would have paid well had the average price for bark not fallen below a shilling a lb., but the cultivation will not pay of itself at current rates.

After so many disappointments the proprietors want a stimulus in some shape; and I think Government might make a few miles of a cart road from a station in Ohiya to join the Kalupahana bridle road at about the 6th milepost where I understand it can be made on an easy gradient. The land would gladly be given free if Government will do the rest without asking anything from the planters. The natives as well as Europeans want to use the railway; and a road of some kind must be made there, as well as in all directions where a station is situated. It will be said there is not enough produce to require a cart road yet until more land is brought into cultivation. This is more through the misfortune than the fault of the proprietors, who paid to Government R180,000 eleven years ago, and who hope yet to make something out of their properties. There is land there capable of producing yearly one million pounds of high class tea, if the railway can be made easy of access. It passes within half a mile of the valley, but unless there is a good cart road made to the nearest station on the line, it will be of no benefit to the Kalupahana estates and the produce will find its way to Colombo by Ratnapura at a cheaper rate than carting it back to the Haputale pass.

[We certainly think Government should make the short connecting road referred to—a truly reproductive work to them.—ED. *T. A*]

JAPAN AND CALIFORNIA.

[We are privileged to copy from a letter of Mrs. Barnett, the wife of the "Whitechapel Vicar" as follows.—ED. *T. A.*]

Japan interested us greatly. It is not so picturesque as we expected. Indeed it is not Eastern at all in the sense in which India and China are Eastern. It is a unique fossil startled into life by the vision of the Holy Grail of Western ideas and ideals which it is now pursuing with feverish and passionate enthusiasm. Then the acceptance of Christianity is very beautiful, and I have seen few more impressive sights than the 700 ugly keen upturned faces of the Tokio undergraduates as they listened to the Vicar telling them of the poor and how they could help them "This matter is not yet arrived with us"—one said—"but it will be with our nation soon and then it is well that we should have understood how to meet it." We had a very interesting time, and instead of taking a travelling servant interpreter, we invited one of the University students to be our guest and interpreter. In this way we learnt much of the educated thought of young Japan.

Here, in California, there is much to make one sad. At every turn and corner one is cheated. Large firms lending themselves to lies and sharp practices that could be expected only from street hawkers at home. From the carman who cheats you in your change to this country's "Oook" who dodges you, expecting your ignorance of American geography, they all swindle you, and if you complain to what one would hope to be better class people, they say "Wa-e-ll I guess it sharpens yer wits to have to look after yourself. You won't catch our young folk napping in this country;"—and you *don't*; but you do find them without trust in each other, and I think the great verse might be with truth transposed, so as to read "He who cannot trust his brother whom he has seen, how can he trust God whom he has not seen." But the country is wonderful. Miles and miles and miles of land—lovely, fertile, wooded, watered—ready to yield abundantly at man's merest touch.

SOUTHWARD HO!—IN NEW SOUTH WALES.

THE STRIKE—BIG FIRES—FRUIT-GROWING AT PARRAMATTA.

Kellyville, N. S. W., 12th June 1891.

Since my last letter we have had some stirring times in Sydney and in other seaport towns in consequence of the great maritime strike, which extended to the coal miners, sheep shearers, trolly and van drivers etc., etc. This foolish strike continued for 77 days and cost over 100,000 men in loss of wages and some three million pounds streling, the shipowners and other employers of labor losing another two millions, making a total loss in money alone of 70½ millions of rupees! During these 79 days the public were subjected to much inconvenience and annoyance, the local trade being almost paralyzed. Most of the local shipowners were obliged to lay up their vessels and the few that did run were officered by spare captains (the only class not out on strike) and manned by seasick landsmen. It is a matter of history now that the men were beaten all along the line, the fact being that there was no reason whatever for the movement. Some question as to whether or not mates and other officers should join the Trades Union. The men called out were satisfied with their wages, their hours and their employers. They blindly obeyed their leaders, a thing they are not likely to do again in a hurry. During the progress of this strike Sydney was like a city in a state of civil war. Large parties of mounted troopers (regulars and specials) continually patrolled the streets, and over 3,000 gentlemen acted as special constables. In consequence of these precautions non-Union men were enabled to attend to their work and peace was preserved.

Then again we have had a great fire, when banks, club-houses and many places of business were destroyed at a loss of some millions sterling. The buildings were too high for the firemen to do much in the way of extinguishing the flames. The shafts of the various lifts used in such monster buildings became so many vast chimneys to draw up the flames, and no power could overcome such fire under such conditions. A law is to be brought in limiting the height of city buildings to seven or eight stories instead of 10, 11 and 12 stories which is now the rule. Later in the year there was another fire. I happened to be in Sydney at the time, and it was the grandest sight I have ever witnessed. A store containing 35 thousand cases of kerosine oil (just landed) took fire and for some three or four hours blazed away furiously. The flames fed by 280,000 gallons of kerosine reached a height of fully 200 feet, and as layer after layer of cases was reached by the fire the flames would shoot up afresh accompanied by loud explosions as the tins of burning oil were shot up into the air. The waters of that part of the harbour were at times one sheet of

fire, and a valuable wharf and a huge stock of timber were also destroyed. The Fire Brigade under Mr. Superintendent Bear worked splendidly. At times so hot were the flames that while one party of men played on the fire another party had to turn their hoses on them to keep their clothes from taking fire. This fire was witnessed by some thousands of persons who covered all the heights surrounding the harbour, and altogether the spectacle was grand in the extreme. During the Easter military encampment at Sydney there was a sad catastrophe. A field day was being held, and at one stage of the operations a cutter with a crew of two officers and twelve men belonging to the Submarine Miners Corps left the wharf with two submarine torpedoes which they were to lay and fire (by means of a Siemens dynamo which they carried in the boat) for the edification of the Governor and others assembled to witness the sight. A mine or torpedo of 100 lb. guncotton was laid and the boat drawn off so as to fire it, when through some unaccountable blunder the wire belonging to the other torpedo of 150 lb. still hanging at the stern of the boat was placed in the dynamo. They consequently fired the mine still alongside the boat and blew themselves to atoms. The two officers and two men were thus destroyed. The remaining ten men escaped with comparatively trifling injuries, although it is feared that one of them has been rendered permanently deaf by the force of the explosion.

After a residence of twelve months at Milton surrounded by dairy farmers we have come to spend the remainder of my furlough amongst the orange groves and orchards of Parramatta. Fruit growing although not so profitable as dairy farming is still a great industry and is increasing. The chief drawback seems to lie in the difficulty to secure remunerative prices for the fruit. The orchardists of California make large fortunes out of their fruit, but then they have a population of 62 millions of fruit eaters to supply, whereas our Australian population is only about 3½ millions all told. Efforts are being made to send the surplus fruit, oranges in particular to Europe; but hitherto this business has been attended with great risk on account of the length of the voyage and other difficulties. A friend of mine, Mr. Acres, has recently sent 2,000 cases of oranges to London with very unsatisfactory results. As all of the fruit arrived more or less damaged from two causes—the skins of the oranges were not dry enough when packed and the cool chambers of the ship were too damp. Still under proper conditions Mr. Acres feels sure that it is possible to deliver vast quantities of oranges in London and elsewhere in Europe in sound condition at the very time of the year (August, September and October) when there is least fruit there from other parts of the world to compete with ours. In this neighbourhood the orchards vary in size from 10 to 400 acres, and in these are grown oranges, lemons, apples, pears, peaches, apricots, plums, nectarines, loquats, quinces and passion-fruit. The orange season is from June to about November. Lemons bear all the year round; apricots etc., called summer fruit, come in from November to May. The trees are planted 100 to the acre, and come into partial bearing in about four years and into full bearing probably in ten years, at which time each tree ought to yield a return of fruit to the value of four shillings per tree, or £20 per acre: an orchard of 20 acres will thus yield a gross income of £400 per annum. The cost of working such a place would be about £150, leaving £250 nett to the owner. Dear labour is the great drawback in this country where "One man one vote" is aimed at, and where the majority being of the working class are doing their very best to keep out cheap labour so as to keep the rate of wages to as high a point as possible. False policy, as, with cheap labour, most of these very people who now work so hard could become employers of labour, occupy more land, make more money and enjoy life as we do in the Tropics. A properly managed orchard must be kept well worked and constantly ploughed and much like a well-managed coffee estate—be kept free from weeds. The trees must be well washed with mixtures containing soft soap or sulphur or other chemical to destroy the various insects and fungoid pests. Bone dust and chemical manures are necessary to supply the lack of lime or phosphate or other wants. Certain trees requiring certain chemicals, *e. g.*, oranges and lemons require phosphate of lime, sulphate of lime and sulphate of ammonia; peaches require in addition to these sulphate of potash &c. Unimproved orchard land costs in this district £30 per acre, and it is difficult to secure a good well-planted orchard at even £100 per acre. There is a good deal of hard work necessary on an orchard; but to one capable of working a place on scientific lines the work is most interesting as well as profitable. Thousands of acres of splendid orchards have gone out of cultivation in consequence of the ignorance and the slothfulness of the owners. "Knowledge is power" here as well as elsewhere. The climate here is colder than that of Milton: we have already had several nights of hard frost. In Milton we had no frost until July. I must now close. In my next I shall have something to say on the question of "Ceylon Tea in Australia."

HENRY R. PIGOTT.

ECHOES OF SCIENCE.

The Government of the United States have appropriated 9,000 dols. to assist some experiments in the production of rain, which are about to be undertaken by Colonel Dyenfurth, of Washington, during this month in the State of Western Kansas. The principle of the experiments is the well-known effect of concussion in producing rain. It has often been remarked that artillery fire in battle has brought down showers of rain; and Colonel Dyenfurth proposes to send up balloons filled with oxygen and hydrogen gas into the atmosphere, and explode them by means of an electric spark sent along a wire attached to the balloons. These elevated concussions will also be assisted by dynamite explosions on the ground. Rain is a great desideratum in the Western Prairie States, and hence the Government support.

A new machine for taking the contour of a country in a short time is in course of construction. It is a bicycle which is simply wheeled on the ground, and as it rises over a hill or descends into a hollow, traces the curve of the surface on a sheet of paper by means of an adjusted pencil. The theory of the machine is too mathematical to enter into; but engineers in trying climates will be glad to avail themselves of an instrument so convenient

Mr. E. Deville, the Surveyor General of Canada, has introduced a speedy method of surveying in the Rocky Mountain region of the Dominion. It is to photograph the country by a specially designed camera, which is carefully levelled and adjusted. Ortho-chromatic gelatine plates were found to give the best results. Mr. Deville considers the photographs as accurate as a plan which has been laid down by means of a very good protractor. The method is likely to be useful in military operations.—*Globe.*

CONSTITUENTS OF COCONUT MILK, IN UNRIPE AND RIPE NUTS.

Our readers will observe, by the following extract, that the weight of the liquid in unripe coconuts ranges from 230 to 383 grams, while in ripe fruits the weight of the milk was reduced to between 109 and 151. The explanation, of course, is the solidifying into kernel in ripe coconuts of a very large proportion of the substances which were liquid in the young fruit. The proportion of water in the clear milk of young coconuts ranged from 94 per cent to 96, which in the turbid milk of ripe coconuts was reduced to 91. The saccharine matter in the milk of young coconuts is in the form of glucose, varying from 3·45 per cent to 4·58. In the milk of the ripe nut,

glucose disappears in favour of cane sugar, as nearly as possible equal in quantity. The varying figures for proteids and fat are curious. Had the kernels been analysed, those of ripe nuts would, of course, have shown a large proportion of fat:—

Analysis of Milk of Ripe and Unripe Coconuts.—By F. L. Van Slyke (*American Chemical Journal*). The milk of the unripe coconuts was transparent like water, containing in suspension a little cloudy white substance, which was readily removed by filtration. In the ripe nut the milk was quite turbid in appearance and did not filter clear. The specific gravity was determined by a picnometer, water by drying at 60° C. and proteids by Gunning's modification of Kjeldahl's method. Hammerbacher's analysis probably refers to ripe coconuts.

Milk of unripe Coconuts.							Milk of ripe Coconuts.	Hammerbacher's analysis.
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8
Weight in grams	230·5	378·6	347·0	383·7	350·0	330·0	109·6	151·9
Sp. gr. at 15·5° c.	1·0246	1·0230	1·0223	1·0230	1·0221	1·0215	1·0440	1·0442
Water ℔ cent at 60° c.	94·37	94·48	94·59	94·89	95·27	96·43	91·23	91·50
Ash, ℔ cent	0·575	0·635	0·675	0·611	0·608	0·602	1·06	1·19
Glucose, ℔ cent.	4·58	3·83	3·45	4·06	4·36	3·56	trace	—
Cane sugar, ℔ cent.	trace	trace	trace	trace	trace	trace	4·42	—
Proteids, ℔ cent	0·120	0·126	0·114	0·205	0·140	0·095	0·291	·46
Fat, ℔ cent (ether extract)	0·084	0·100	0·133	0·131	0·145	0·120	0·145	0·07

—Journal, Chemical Society.

A NATIVE ACCOUNT OF THE KEKUNA TREE.

We print, *literatim*, a contribution sent to us as a specimen of what the author could do for a free copy of the *Observer*. One sentence must be corrected: the kekuna does not grow "in any district." It is essentially a lowcountry tree which we do not recollect seeing at an altitude of over 3,000 feet.

ABOUT KAKOONA TREES.

(*By an Upcountry Resident.*)

I think some of the tea planters are glad to hear a small article about these trees, although many people have seen them, I do not think they understands the name and what for they are. The Kakoona tree is a very past growing tree in any district and do not require weeding or anything. These trees are very useful thing to upcountry villagers, many of the poor villagers who have no money to spend for Kerosine oil, they generally using these oil in their houses to light only. In this month many of these poor villagers very busy in collecting these seeds; from 3 to 3½ years the tree will grow up very straight as "toona," and began to give crop 2 twice a year. The heavy crop is from this month, (March.) When the seeds are ripen, all falling down, the childrens are collecting them once a day generally in every morning. After they collect the seed they have to clean them from the shells and put in the sun to dry them well, when they seen it properly dried, again they have to break it by stones or hammer and to make oil. There are two ways taking oil from kakoona: one way is pressing by a wooden thing, made like a thing press; they have made these things 5 or 6 to a large village, and some baskets made by Kitool. The other way is to take oil by a big chattie from 2 measures of kakoona will give 3 to 3½ bottles oil. This oil can sell 12 to 15 cents for a bottle, after the oil is taken out, the dust is like a poonac, this is a very good manuare for them, I think this poonac is very good for manuaring tea, &c.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, June 20th.

CINCHONA.—A rather moderate supply of bark was offered at auction on Tuesday, the total supply consisting of:—

	Packages	Packages	
Ceylon cinchona	600 of which	535	were sold
East Indian cinchona	1,116 do	1,031	do
Java cinchona	18 do	18	do
South American cinchona	321 do	82	do
Total	2,055 do	1,666	do

The excess in the supply of Indian over Ceylon grown bark, which has been noticeable at our bark auctions for some months, is still maintained. The East Indian cinchona on this occasion comprisedone or two parcels of unusual alkaloidal richness. These were the produce of the well-known "Wentworth" plantation in British India and were shipped from Calicut. One of the parcels in question consisted of 1,180 lb. of natural Ledger shavings (said to contain an equivalent of 10 per cent s. q.), which after vigorous bidding, commencing at 7d per lb. was disposed of at 12d per lb.; another (which was reported to analyse 8·85 per cent s. q.), sold at 10d per lb. The proportion of yellow barks (Calisaya and Ledger) at the auctions was unusually large, whereas the grey varieties were offered exceedingly sparingly. The tone was a fairly good one throughout the sales, and over 91 per cent of the Eastern barks sold, with pretty steady competition, at unaltered prices, the unit ranging from 1½d to 1¼d per lb.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Mannheim and Amsterdam works	135,673
Agents for the Brunswick work	64,400
Agents for the Frankfort o/M. and Stuttgart works	66,553
Agents for the Auerbach works	39,942
Agents for the American and Italian works	32,080
Messrs. Howards & Sons	29,9 3
Mr. Thomas Whiffen	1,990
Sundry druggists	41,874
Total amount of bark sold ...	412,415
Bought in or withdrawn	69,824
Total amount of bark offered ...	482,239

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it, firms who buy a small quantity of bark by weight frequently take the richest lots and *vice versa*.

An analysis of the sales of manufacturing barks effected at the last Amsterdam auctions shows that an equivalent of 1,167 kilos sulphate of quinine sold at 6 cents; 4,406 kilos at 6½ cents; 2,280 kilos at 7, and 317 kilos at 7 cents per unit. Druggists' barks in quills were offered very sparingly. For long Succirubra quills of first quality the figure of 1s 8½d per lb. was reached. The richest bark offered was a lot of 27 packages Government-grown Ledger bark in broken stem quills. It analysed 8·27 per cent q s., and sold at 55 to 57 cents per ½ kilo. The next Amsterdam sales will be held on July 16th.

COCONUT OIL.—Sluggish—fine Ceylon, 29s 3d; good Cochin, 34s per cwt.

ORCHELLA.—Ceylon weed is cheaper, a parcel of 33 bales fair flat having sold at 20s per cwt. at the auctions.

QUININE.—The market has been very flat this week, and the only sale of which we have heard was one of 7,000 oz. Brunswick in second hands at 10½d per oz., the figure showing a fresh decline in value; that is still the nearest quotation today, but the manufactures themselves do not seem to care to give any quotation at all near the second-hand price.

NOTES ON PRODUCE AND FINANCE.

THE DUTY ON TEA.—On Wednesday in the House of Commons, on the motion for the third reading of the Customs and Inland Revenue Bill, Mr. Picton called attention to the large increase in the consumption of tea since the reduction of the duty. According to the statistics given by an eminent firm of teabrokers, the increase in 1890 was between nine and ten million pounds' weight of tea. It might be said that at the time of the reduction of the twopence on the tea duty a large amount of tea had been kept in bond, and was suddenly drawn out. But the statistics, as far as they were available, showed that the increase had continued. This was an indication that the enjoyment

of a healthy beverage was prevented by the duty placed upon it. It was a serious consideration that the effect of a tax of this kind was to keep down below the natural level the consumption of an article of necessity. He thought it was quite plain that the present or any succeeding Chancellor of the Exchequer could not stop at the present point, and that the whole tendency of opinion and of expediency would urge them on until the duty was finally abolished. Apart from the inconvenience involved, there was always an amount of uneasiness occasioned among business men by the existence of the duty and its possible alteration. He hoped the Chancellor of the Exchequer would bear this matter in mind. It was not only the duty that had to be considered, but also the expense of collecting it; and both fell disproportionately on the poor, because the teas recently sold at fabulous prices did not pay and more duty than the cheapest teas. The Chancellor of the Exchequer said the hon. member would not expect him to reply. There was satisfaction in reflecting that the reduction of the duty was one of the causes of the increased consumption of tea. The Bill was then read a third time.

TEA AND ITS DRINKERS.—The British people are doing their best to maintain their pre-eminence as tea drinkers. and this circumstance should console in some degree those who are worried by the vast extent to which rum, whisky. and other intoxicants contribute to the resources of the Chancellor of the Exchequer. For the season ended on the 31st ultimo, the consump tion of tea in this country was over 198,000,000lb. in weight, against a little over 14½ millions a century ago. Of course the population has increased in the interval, but tea consumption has developed a great deal more, and is now much more than three times what it was per head of population in the year 1700.

TOO MUCH PACKET TEA.—That the trade in packet tea has been for some time overdone, is known both at home and abroad. There is, according to the *Grocers' Chronicle*, too much Ceylon packet tea in the market. It says:—"The rapidly increasing popularity of Ceylon tea has, as might be expected, attracted all classes of dealers into handling it. Just as when some years ago, we were inundated with Indian packet tea companies, so almost every week now we find a Ceylon packet tea Company, 'breaking out in a fresh place.' The consequence is that we now have striking titles ending 'Walle,' 'Yalle,' 'Boddie,' and so on, attached to 'judicious blends' of Ceylon and Indian teas, so skilfully blended and named, that they are like the boy stolen by gipsies, who was so altered and disguised that his own mother did not know him. Many a Ceylon tea planter would, we suspect, find it difficult to say what estate the contents of some of these 'Ceylon tea' packets come from, whilst the Cingalese might be forgiven if they failed to recognise or understand their mother tongue 'as she is spoke' by those responsible for the titles they bear. It was to put a stop to the practice of palming off on the public Ceylon blends containing but a small percentage of the genuine article that the planters prosecuted and obtained convictions against certain tea packers some time ago, and from statements that have reached us it seems that the practice was only 'scotched, not killed,' and we commend the matter to their attention. But another complaint which we have heard about this packet tea trade, and one which specially affects our readers, is the way unprincipled dealers are treating grocers who become agents for them. An enterprising traveller goes into a town and presently secures a respectable grocer to undertake what is promised to be a sole agency for the 'Bottewaddevalle' Ceylon tea. Under the belief that this arrangement will be adhered to, the agent pushes the article and works up a trade in it. But no sooner has he done so than he finds the firm for whom he has been acting as agent has appointed others in the same town or district who thus reap the benefit of his efforts. Remonstrance with the packers is unavailing, and at length the agent gives up the matter hopelessly, and resolves that he will never again take up a sole agency."

LAST WEEK'S TEA SALES.—The *Produce Markets' Review* says:—"Owing to the poor assortment of Indian tea the demand continues inactive, and no improvement can be expected until more desirable teas are available. The bulk of the supply brought forward mainly consisted of the lower qualities, which met with a slow enquiry at about late rates. For the few lots of the medium kinds, and particularly broken pekoes, the competition, owing to the unusually small supply offered, was fairly active at higher prices. An increased quantity of New Season's tea, representing several districts, has been placed on the market. The quality is fairly representative of early imports, the infusion generally being thin, and the demand has been only moderate. The quality of the Ceylon teas brought forward during the last two weeks has happily been better than for the previous two months, but this has evidently been due more to the favourable weather than to any extra care in the manufacture of the leaf. When more attention is paid to this many Ceylon planters should easily obtain the rates frequently commanded by Indian teas worth between 1s 9d and 2s 3d."—*H. and C. Mail.*

A FLORIDA PAPER SAYS there are "over thirty-three" varieties of sweet oranges, not to mention the "natural stock," which is a larger and handsomer fruit than the sweet orange, and it is excellent for orangeade and marmalade, but, being very sour, is seldom shipped North. The medium sizes are apt to be the choicest and "probably the very sweetest orange that is marketed is the rusty-coated and rather ill-looking orange, which might be considered inferior by an amateur." Furthermore, "the way to test oranges is to 'heft' them in your hands: pick out the thick skinned, heavy fruit,and you will be right." The light weight fruit is apt to be juiceless—a condition caused either by slight freezing while on the trees, or more probably by the poverty of the soil in which it grew.—*British Quarterly Trade Review.*

THE FRENCH Consul-General of Guatemala directs attention to the great advance which coffee cultivation has made in that country during the last few years. Statistical reports make it appear that in ten years production has more than doubled, and the prices realised by the product have more than quadrupled. It was calculated at the time the Consul-General wrote (11th February) that the harvest of 1890 would reach about 700,000 quintals, representing the sum of $16,100,000. The extraordinary high price of coffee has led to a transformation of the country; small landowners, who drew from their harvest resources merely sufficient for working purposes, find themselves now with considerable capital, with which they can improve their property. These good results have led to unbridled speculation, and large companies, principally German, have been formed for creating vast "exploitations"; "they have bought for 7 to 8 hundred thousand piasters, or 3 million francs, properties that three years since were estimated to be worth 2 to 3 hundred thousand dollars." The impulse has become general, and every small artisan who was able to save a little has abandoned his first work and turned agriculturist. "This will last as long as the price of coffee rules so high, but a reaction may be produced shortly, and complete ruin will be the consequence of a large number of producers. The harvest of Brazil, which was last year only 4,200,000 bags, is 9 millions this year. The European markets will therefore be largely supplied, and the Guatemala coffee will have to bear a fall in price, of which the reflex will make itself felt on the economic condition of the whole country."—*Indian Agriculturist.*

CEYLON TEAS IN LONDON.

A good many people are expressing the opinion that prices have now touched bottom and that the up-grade has been reached. They are partly induced to believe this because the Ceylon printed Returns have arrived, and these show only 6,200,000 lb. shipped during April, instead of the 7,000,000 lb. which had previously been telegraphed. Others, however, there are who are not so hopeful.

Westhall Estate, Ceylon, had three boxes each containing 5 lb. of Golden Tip, in one case, duty paid, at auction on Thursday. This was one of the fancy lines. The bidding, however, only reached £1 2s 6d, which was declined. It will probably never get any thing like as good a bid again. This Fancy Market is a ticklish one, and no price over good value, such as 5s a lb. should be refused. The mistake made in this case was that of being greedy. The Westhall Estate appears to have been governed by the idea that it would send plenty and get the fancy prices for a decent quantity, fifteen pounds was greedy. Thus as £30 was the last top price paid per lb., the next advertising bidder, to create his sensation must top that bid, and the buyer of the £30 per lb. tea must try and protect his £30 bid or his position at top. So to beat record the next fancy line (if they are not already tired of the game), is not likely to sell at less than £35 per lb. Now 5 lb. at £30, the last top price, is only £150 for the advertisement. But 15 lb. at £35 would be £525, altogether too dear a price for the advertisement. Had Westhall Estate been contented with sending over 5 lb., it is not improbable that it would have realized £35 per lb. or £175 for the *5 lb.*—as against the bid of £1 2s 6d, or £16 17s 6d for the *15 lb.* which they declined, and which they are not likely to see anywhere approached again. Rather a severe blow this. One can understand that at *first* starting the bidding for a "Fancy Tea," after what has passed of late, several "*starting*" bids may have been made by parties who had not the slightest intention of buying the tea at such prices, but who jokingly merely lifted it along, to start it on the record-breaking track. Take the advertisement value out of the tea and it sinks back to commercial level, and 7s 6d becomes a fancy price for it, and 5s good value. Being such a simple matter of calculation, a very slight knowledge of the advertising world should have sufficed to caution people from expecting £525 for such an advertisement as this. There is a limit to its value. That limit I should put at £150 to £200, originally, but it is depreciating with each sale in my opinion. Others may differ from this view. Certainly much of the sensation of novelty has become dulled, and the public are beginning to detect the quackery and to laugh at it. Nevertheless, it would pay today, to buy *one lb.* at £100, for several reasons, as *e.g.*, among others, it would be a cheap advertisement at the price, and it would not be likely to have its record beaten for some time, owing to this class of advertisement being almost played out; so the record would probably be an enduring one, though it should be borne in mind, that as it is the *total* cost of the purchase, which governs the price paid, there is no reason why, if this class of advertisement is *not* played out (or is *not deemed* to be by these buyers, which amounts to the same thing), we should not find these fancy prices should not be paid per *ounce*, instead of per lb. so soon as the price per lb. becomes so extravagant as to be prohibitory from the advertisers' point of view.

Westhall Estate is now suffering for its lack of grasp of this common-sense view of the situation, and has reduced the value of a good round number of lbs. by having withdrawn the "tip" therefrom. It has not been altogether alone in this failure, as there are Brokers too, who have failed to see the governing factors, from the advertisers' (purchaser's) point of view. This craze may collapse at any moment and waste the effort, otherwise I would venture to suggest a tin box of 10 *ounces* of *superlative* tea being sent home, parcels post, duty paid, just to test the matter. Instructions should accompany it; that it is to be sold *per ounce* (being the first tea ever so sold, would of itself be a great advertisement, and an attraction to buyers, as anything distinctly *new* always is). Instructions should also be given that it should be well "puffed," among the competing advertising buyers as some of the recent "Fancy Teas" have been. If the craze is not over by the time such a box arrives, it would probably stand an excellent chance of beating record. Another tip to Planters is, that, the first few lots of the "Fancy Teas" of late were called *Golden* Tip. The last, *i. e.*, the one which sold at £30 per lb., was called *Silvery* Tip. That struck a *new* line, and of itself was worth a lot to that Tea. There is something in a name, after all. *Don't under* name your teas; it distinctly depreciates them.—*London Cor., Indian Planters Gazette.*

PADDY CULTIVATION AND POLICY IN THE KANDY DISTRICTS.

An old resident—a European gentleman with most friendly feelings towards the natives, but who has never been blind to their weaknesses, nor to the need of a patriarchal administration—once more addresses us on this subject. His subject is the mischief that will be done, in the Kandyan districts especially, if an indiscriminating "abolition" policy is carried out. He says it is quite disgusting to one like himself who has known the people for thirty years (first living in a Kandyan village in 1861) to see the ignorant and yet dogmatic, *ex cathedrâ* way in which certain press writers (the editor of the "Independent" and his correspondents) discourse on a matter of which they can know little or nothing except from hearsay; for their knowledge is based solely on what some of them may have seen in the hilly parts of the Central Province. We extract as follows from the letter before us:—

"I have asserted before, and I now again assert, that in my opinion, an opinion based on 30 years' experience, if the paddy rent be removed it will (in the Kandyan districts) simply result in a proportionately smaller area of land being cultivated. It has several times been my lot to see none of the fields cultivated, although water was abundant, and on my asking why, to be told that as their last crop was sufficient for two years, they had no occasion to grow rice during that season.

"What I would suggest is this,—that the Government Agents of the North-Central and North-Western Provinces be asked to send in a return showing:—

"1st.—The extent of asweddumized land left uncultivated during the whole year although there was a sufficiency of water.

"2nd.—The extent of asweddumized land cultivated for only one crop, although there was a sufficiency of water for two crops.

"3rd.—The number of cases where, instead of cultivating asweddumized land lying under their tanks, they had preferred to cultivate the beds of the tanks, specifying those instances in which the bund of the tank had been cut and all the water drained off to begin with, so that, should the rains fail, the crops must fail also.

"A Government Agent would probably be slow to admit, but it is nevertheless a fact, that he has no opportunities of seeing the goyiyas in their everyday life. He visits a village and is met by tomtom-beaters, flags are flying, and he passes under a triumphal arch to the place where he is to stay. He sees all the men idle, but of course that is because they have made a holiday on account of his visit. But he might go as a tourist, a Survey or P. W. D. officer for 200 days in the year, and still find every man idle.

"The goyiya feels perfectly safe from the consequences of his own improvidence; for if he has consumed all his rice, and his growing crop has failed, a relief work is at once started at which such man is paid daily in rice. One result of these relief works speaks for itself, viz., that all local employers of Sinhalese labour lose their coolies, who at once leave them to flock to the relief works."

This is evidently, we fear, a true picture of laziness, improvidence and utter want of shame in being pauperized. One feels that something more than a mild form of coercion is required; and certainly if the only influence now brought to bear to secure cultivation, is prematurely removed, the consequences will lie at the door of a Government that has been fully and fairly warned.

NOTES ON POPULAR SCIENCE.

BY DR. J. E. TAYLOR, F. L. S., F. G. S., &c., EDITOR OF "SCIENCE GOSSIP."

One of our young agricultural experimenters has just published the results of his application of sulphate of iron to fruit trees and plants generally. Most soils contain iron, but lack sulphur; nevertheless, sulphur is one of the necessary six ingredients in the composition of protoplasm. Grape vines shank and fruit trees canker for lack of it. There can now be no question that sulphate of iron is best of all manures for fruit trees of all kinds. This has been proved to be especially the case when the soils had an excess of lime. Even old apple and pear trees frisked up into rejuvenescent life when thir roots were treated to a solution of this mineral. The mixture applied was in the proportion of half a pound of sulphate of iron dissolved in four or five gallons of water, and applied to the roots in a small trench dug for the purpose round the tree.

Dr. M. C. Cooke, the well-known fungologist, evidently does not agree with the suggestion that the attractive colours of fungi are for the purpose of attracting insects, &c., to them, so as to induce them to carry away and distribute the spores. But Dr. Cooke draws the attention of botanists to another class of phenomena, the mimetic resemblances of fungi. He shows that some poisonous species resemble the edible and harmless kinds so closely that only a skilful and careful botanist could distinguish the difference.

Two American chemists, Messrs. W. O. Atwater and C. D. Woods, have published in the *American Chemical Journal* the results of a large number of experiments they have been making on the important subject of the acquisition of atmospheric nitrogen by plants. They experimented with peas, oats, and corn, and they conclude that nitrogen is readily absorbed from the atmosphere by these plants, where treated with "soil-infusion," and that the gain of nitrogen is dependent on the number of root-tubercles which the application of "soil-infusion" induces. It should be remembered, however, that these root-tubercles have been found to be literally nests of bacteria, so that the latter may probably produce the nitrogen by assisting in the nitrification of the soil.

More interesting experiments on this subject still have been conducted by two French chemists, Messrs. Schloesing and Laurent. It has long been suspected that the natural order of plants leguminosæ had the power somehow of absorbing atmospheric nitrogen. The leguminose plants experimented upon were grown in closed vessels, which were so arranged that the gases introduced and withdrawn could be acurately measured and analysed. They found that when the leguminose plants were watered with an infusion of nodosities from other plants of the same order, there was an absorption of nitrogen much greater than could be put down to errors of experiment. On the other hand, when the legiminose plants had not been inculatedi n his way, and were therefore free from nodosites, a : such absorption of nitrogen was observable. It is belived, therefore, these experiments demonstrate that under the influence of microbes leguminose plants can fix and untilise the gaseous nitrogen of the atmosphere.—*Australasian.*

CEYLON TEA is taking first rank, says the *L. and C. Express*, both for large supplies and moderate prices. The yield for 1891 put at 60,000,000 lb., is somewhat of a staggerer to China traders.

PLANTATION PRODUCTS IN THE CENTRAL PROVINCE:

TEA—COTTON—TOBACCO—CACAO—ANATTO.

[*From the Administration Report for* 1890 *of Hon. R. W. Moir.*]

The assured and increasing success of the tea enterprise has led to the area cultivated with tea being largely extended during the year. Not only have European proprietors added to their properties, but the facilities afforded at several factories for the disposal of green leaf plucked on native gardens have encouraged natives to plant up abandoned coffee land and chenas. And the improvement observable in the circumstances of the people generally, consequent upon the largely increased circulation of money amongst them in many different ways connected with the tea enterprise, is very marked. The opportunity also for obtaining employment, promptly paid for, which the estates offer, is a great help to the residents in villages where the cultivation of paddy and dry grain has suffered, as it has in many parts of the country suffered, from successive unfavorable seasons.

Experiments made in the cultivation of cotton did not prove successful, and the seasons appear not to have been generally favourable for tobacco, with which also experiments were tried. Cacao thrives well in Tumpane, Harispattu, and Dumbara, and numerous small patches are in native hands, but the cultivation of this product does not appear to be appreciably extended by the natives.

[*From the Administration Report for* 1890 *of Mr. G. S. Saxton, Matale.*]

Mr. Hugh Fraser, of Bandarapola estate, has kindly supplied me with the following information:—

Tea is prospering, and is being extended in Matale North, Matale East, Bandarapola, Ukkuwela, Laggala, and the Matale East end of Kelebokka. From 500 to 600 acres were added to the previous area in tea. More expensive machinery, and more of it, is required for tea than for coffee; and it is pleasing, after one gets over the idea of the cost, to see the successful efforts made by engineers to provide tea planters with such suitable and good machinery.

Cotton and anatto have had a check in popular esteem, and have not been much extended. Moisture and insects are the bane of the one, and low prices, consequent on limited demand, of the other. It is believed cotton would do better in a drier climate.

The south-west monsoon was comparatively a failure in the matter of rain; consequently the season was an unfavourable one for tobacco, and the large clearings in Matale are below expectations. This enterprise deserves better results, and these I hope await further efforts,

Cacao continues to improve in favor, and there is the encouraging fact that prices have kept up. Small patches of native plantations of this product are to be seen here and there at long intervals in the villages, but a great deal more might be done in this direction, and further effort impressed on the villagers. Moormen traders are at present perambulating the district, paying 50 cents a pound, equal to R56 a cwt., for cacao, cured in a very primitive fashion. The European cultivation of cacao in various portions of Matale, as for instance Wariapola, Mr. Barber's Grove estate, Yatawatta, Sylvakanda, and many others, is equal to anything to be seen elsewhere in the Island.

Cardamoms do well in suitable situations at the higher elevations, but unfortunately there is not much suitable land left unopened, so the extension of this product is scarcely possible. The Mysore variety does better than the Malabar. The lowlands do not seem to be suitable for the successful cultivation of either variety.

An experiment on a limited scale has been made in the district with Coorg coffee, and the result of this clearing will doubtless be watched with interest.

GRAIN CROPS IN CEYLON.

From the abstract of season reports for June 1891, published in the *Gazette*, of July 10th we learn that in the Colombo district of the Western Province heavy rain and floods had injured the prospects of crops in low-lying villages to a great extent, but it was not expected that there would be extensive or complete failure of crops in any particular locality. In the Negombo district an unusually large extent had been sown for yala, and crops were thriving; very little damage having been done by floods. The Mahaoya valley dry grain crops were very small, but thriving well. In the Kalutara and Panadure totamunas prospects were good; in Rayigam korale slight damage was caused by floods in pattus bordering Bolgoda lake; in Pasdun korale low-lying lands generally were damaged by floods. In the Kandy district of the Central Province the prospects of yala harvest so far were very favourable, there having been abundant rain. The yala chena crops in Yatinuwara and Pata Dumbara promised well. In Matale district rains in Matale south were avourable to yala; in Matale north lands under tanks were partly cultivated; in Matale east the maha crop just reaped was damaged by rain; tala and chillies were successful in the north; a good crop was expected from the chenas severally. In Walapane paddy crops had failed. Coming to the Northern Province, we learn that the prospects of various crops were on the whole good. In the Southern Province the Galle and Matara districts had suffered considerable damage from heavy rain and floods; but the dry grain crops in some parts were very good. In the Hambantota district the yala crop at Tissa was damaged by flies; in other parts prospects were good or fair, except in Tangalla, where the crops were greatly damaged by floods. Indian corn however was ripening a good crop. From the Eastern Province a cheering report comes from Batticaloa district:—

Early and late pinmari crops cut, and turned out excellent. Large sowings in progress for Ettalai, including 4,000 acres of pinmari lands cultivated a second time in consequence of large supply of water in the big tanks and the favourable season. Paddy in hand largely in excess of local requirements, and heavy sales being made for export to Jaffna at R1·44 per bushel delivered in town and R1·25 on threshing-floors in Manmunai pattu. High price due to scarcity in India. Chenai crops all over, but good supply of plantains in markets, and manioc being dried and exported to Jaffna. General condition of district prosperous, and as money is available for reinvestment there is a brisk demand for land for paddy and cocoanut cultivation to be cleared before next rains. No cattle murrain; foot-and-mouth disease not severe. In Trincomalee district the paddy prospects were good. In the North-Western Province the crop were generally good. From the Anuradhapura district of the North-Central Province the report was:—

Nuwarakalawiya cultivation for yala, prospect good—somewhat restricted by want of seed paddy in some villages. The rain having fallen only at end of May there was no time to arrange for supply of seed paddy to those who wanted it. Most of the village tanks filled except in Keligan and Korosagalla tulanas. Chenas are being reped. Gingelly crops fair. Tavalu cultivation not yet commenced. Meneri and chillies are being reaped, fair crop. Tamankaduwa tanks are half to one-fourth full. Condition of crops fair. No rain since the heavy rain on May 20th.

In the Province of Uva the prospects were pretty good on the whole, except in Bintenna, where they were unsatisfactory owing to drought and flies. In Wellawaya potatoes were being planted. Coming to the Province of Sabaragamuwa, we learn that in the Ratnapura district the prospects for the yala harvest in all korales were favourable, though some damage was reported from recent floods. In the Kegalla district also, the yala prospects were good, fair, or middling; and the dry ground crops also promised well on the whole.

SPONGE FISHING OFF FLORIDA.

"The sponge is a strange beast," says an old fisher, who has grown gray in the chase himself. "He ain't a fish, or a hanimal, or a wegetable, an' yet he's all three. Nobody knows what they grows from, or how they does it. But sometimes we'll scrape a place clean and conclude that that's done for, for good. Next year we goes back, an' there's just as many of 'em as hever. An' do you know if you cuts up a green sponge under water an' scatters the bits, each bit 'll grow by hitself?" This is authentic. "Nat" Niles, a local celebrity, started a "sponge farm" on Torch Key, thirty miles from Key West, and failed only for want of a cement to hold the sponges to the bottom under water. During the fishing the schooner keeps its catches in wooden pens along the quay-beaches. There the animal matter decomposes, and the ebb and flow of the tide washes it away. When the end of the cruise approaches, the men jump into the water up to their waists at the pens and beat each sponge separately with sticks, rinsing and squeezing it until the "meat" is all eliminated. Then they load up, run a needle through the sponges, string them together in bunches of ten or a dozen, and joyfully turn homeward.

The largest vessels, of course, can make the biggest hauls, since they can send out the most men in dingies. But the crews all share in the same proportion. A five-ton boat, carrying five hands, including the captain, will perhaps bring back from a three weeks' trip 300 bunches of sponge. These are spread out on the wharf at Key West and sold to the highest bidder, the skippers often agreeing together informally to take nothing below a fixed price. Two hundred good bunches should bring 400 dols. Of this sum the vessel receives a third, and the captain and crew divide the balance equally. The vessel costs about 150 dols. a year for repairs. Where the merchant is the owner, the shares are graded according to the crew's duties. Some years ago Mr. E. J. Arapian, a shrewd Greek, who has practically built up this trade, sunk about 12,000 dols. in trying to introduce the Turkish style of diving for sponges. He brought expert divers from the Levant and purchased elaborate apparatus. But where the water is deep enough for divers, it is too deep for small vessels to manœuvre safely. The State Government since prohibited diving. Appalachicola, in Western Florida, was once a great sponge port, but the industry has fallen off there considerably for lack of attention.

Except in October, the "hurricane month," the sponger makes a trip of three weeks every month the year round, spending other week in harbour. "Do I like the life?" says the old skipper before quoted. 'No, indeed. It keeps us scratchin' for a livin' an' it's the same thing hover and hover again. We never gets nowhere to see nothink, an' we're away from our families hall the time." The cry of "Shark ho!" is the most exciting the sponger usually hears. Among the "keys," where the water has the prismatic tints of emerald and sapphire that you see in Bermuda and the Bahamas, "bonnet-noses" and "shovel-noses" are plentiful. The shovel-nose is a little too fierce a foe for the peaceable spongers. But his congener they readily harpoon and "play" until he gets exhausted. Then they bury an axe in his head, hoist him on board, cut out his liver and throw the carcass overboard, where it sinks to the bottom. Many people think the sailors' use of oil for calming troubled waters is a device of modern science. Yet these spongers have been trying out sharks' livers for a generation to get a clearer view of the bottom in breezy weather. The spongers fish twice a week for their own larder. They are better judges of turtle than Cheapside aldermen. The Florida sponge is superior to that of Bahama, and inferior to that of Turkey. The best native sponge is the sheeps-wool, with a firm but open texture. The grass sponges grow in the shape of hats and pine apples. Sponges are used in nearly all trades, even by curriers for finishing leather, and by potters for glazing their ware. The sponges as they come ashore are bleached with secret preparations (the formula elsewhere is

oxalic acid, potash, and soda), clipped into merchantable shade, and short and baled for shipment. The Mallory steamers for New York always carry a great quantity. There is a large market in England and France. Since Turkey forbade diving in the Archipelago, the best "Turkey" sponges have come from the Barbary coast. There are now more spongers in these waters than ever before, yet the supply was never so great.—*New York Tribune.*

THE CEYLON TEA INDUSTRY.

To the Editor of the "Manchester Guardian."

Sir,—Referring to your article on Ceylon in your issue of today, the following figures will testify to the wonderful development of the Ceylon tea trade:—

	Shipments. lb.	Annual increase.	Percentage of annual increas.
1885	4,411,578	—	—
1886 ...	8,111,137	3,699,559	84
1887 ...	13,800,545	5,689,408	70
1888 ...	24,381,296	10,580,751	75
1889 ...	34,043,085	9,666,789	40
1890 ...	46,901,554	12,853,469	37
1891 (Estim.)	63,000,000	16,098,446	34

The annual percentages of increases in shipments, nearly all of which come to the London market, cannot fail to impress everyone taking any interest whatever in the development of British-grown tea generally. The fortunes of Ceylon tea-planters are now closely interwoven with those of their brethren in India. To a very great extent the movements in one market are quickly reflected in the other. The analysis of the Board of Trade returns for the United Kingdom published lately in their annual review by Messrs. William, James, and Henry Thompson shows the fluctuations to have been as follows, viz:—

	Percentage Consumption.				
	1890.	Dec. 1890.	Jan. 1891.	Feb.-April 1891.	May. 1891.
Indian	52½	57	53½	51	45
Ceylon.....	18	17½	18½	20	28
China and Java	29½	25½	28	29	27
	100	100	100	100	100

The same authorities are also responsible for the following figures:—

Home Consumption of Tea in the United Kingdom for 12 months ending May 31st 1891.

Indian lb.	China lb.	Ceylon lb.	Total lb.
98,381,000	53,246,000	41,189,000	192,816,000

In addition to which there was re-exported from the United Kingdom for the same period, as per Board of Trade:—

Indian lb.	China lb.	Ceylon lb.	Total lb.
2,327,200	28,052,800	1,426,000	31,806,000

Indian like Ceylon tea nearly all finds its way to the London market, the direct demand for other markets being yet very small and of singularly slow growth. The demands made for these strong teas for export from the United Kingdom is also small as yet, as evidenced by the re-export figures above. While admitting that today Ceylon holds by far the better position with respect to other growths, yet it has been attained only by a sudden lowering of prices, and I think that I cannot be rightly charged with taking a too pessimistic view of the near future when it is admitted by the best authorities that Ceylon exports will again increase this year so very largely. India and Java will also very appreciably increase their shipments to the London market, leaving, in fact, no room for weak China and Japan teas. Indian exports this season to London are estimated at 112,000,000 lb. The London Produce Clearing-house daily quotations are, however, evidence enough that the "good old days" for tea are not considered likely to return in a hurry. Every additional 1d per lb. lost on present low prices means incalculable things to the British tea planters, who, happily, still continue to be blest with a cheap silver exchange, failing which their prospects would, even now, become somewhat embarrassing. It will be astonishing if, at present prices for British-grown tea, China tea should still be taken in preference by any who are not prejudiced in its favour.—Yours, &c.,

ONE INTERESTED IN CEYLON.

Colwyn Bay, June 15th, 1891.

DIVING.

THE SIEBE-GORMAN DIVING DRESS.

The Siebe-Gorman diving dress as we see today in the tank at the Naval Exhibition is the development of the Siebe costume invented in 1837. The dress is used in all parts of the world, and all submarine operations. The diver must, therefore, be a practical man, able to turn his hand to any trade. Pier construction, wreck-raising, submarine mining, the cleaning and repairing of ships, work in collieries and tunnels—in all such operations the diver is required,

HOW DEEP IN THE DEEP.

Mr. Gorman has drawn up from his large experiences a valuable paper on the art of diving. Here, for instance, is a table which shows the pressure on the square inch at a given depth of water:—

feet.	lb.	feet.	lb.	feet.	lb.
20 ...	8½	90 ...	39	150 ...	65¼
30 ...	12¾	100 ...	43½	Limit.	
40 ...	17¼	110 ...	47¾	160 ...	69¾
50 ...	21¾	120 ...	52¼	170 ...	74
60 ...	26¼	130 ...	56½	180 ...	78
70 ...	30½	140 ...	60¾	190 ...	82¼
80 ...	34¾		*204	...	88½

It is obvious that the least flaw in the construction of the dress would be fatal to the diver, and Mr. Gorman is very proud of the fact that no diver has died owing to faulty manufacture. The air pipes are tested to bear a pressure of 100 pounds to the square inch.

SPONGE AND PEARL FISHERIES.

Within these last ten to fifteen years a large commerce has sprung up in the above fisheries, and this can only be attributed to the use of the diving apparatus, which is now daily becoming of greater importance for those purposes: formerly naked divers only were employed, and the result was only the recovery of a limited quantity, as the diver could not remain but a few seconds to collect, and then only in reach of his arms' length; now the divers remain from two to four hours under water, collecting in that time what would have required twenty naked divers. In the sponge fishery in the Mediterranean waters there are employed over three hundred sets of diving apparatus, without reckoning the fisheries at the Bahamas, Bermuda and off the coast of Australia and other parts of the world. The pearl fisheries are rapidly becoming of the greatest importance, not only for the pearls, but also for the shells, the last-named of a certain species fetching from £7 to £8 the cwt. The pearl oyster (classified as the *Avicula margaritifera*) is an oyster slightly larger than the European congener, and is valuable for the pearl it bears, the shells themselves being of no commercial value; these are found more or less in all parts of the world, but more principally on the coasts of Ceylon, West Australia, Fiji Islands, Malacca, Straits and some parts of the coasts of the West India Islands. The pearl oyster (*Meleagrina margaritifera*) is valuable for the shells only, a pair of them weighing about two pounds. These are found in great quantities all over the north coast of Australia, and in the Malacca Straits and coasts of Guinea large fisheries are now being conducted with considerable success and profit; and, as the diving apparatus is now being more and more introduced into these fisheries, we may expect them to become a very important industry.

CORAL AND AMBER.

Coral has received as yet very little advancement from the use of the diving apparatus, and the fishermen seem at present bound to their ancient style of

* The greatest depth any diver has descended.

fishery. Whether it is the shortsightedness of the fishermen thinking to keep up the price of coral, or the want of knowledge in the use of the apparatus, we cannot tell; but in the cases where we have supplied diving apparatus the owners have spoken of their great success in obtaining pure specimens in all colours, from the pale pink to the dark red, and in some cases black, and we believe they have not complained either in the commercial point of view. Amber is found in the Baltic, on the coast of Prussia, in tolerable quantities, but as yet the use of the diving apparatus has not formed any important industry. We hope when the attention of practical men has been brought to this fishery, like those already mentioned, the diving apparatus will be the only means of obtaining this important resinous exudation of an extinct genus of coniferous trees from the depths of the sea.*

How to Dive.

Here are a few hints which Mr. Gorman gives to divers:—With inexperienced men it is advisable to have a rope ladder down to the bottom, but an expert diver prefers simply a rope; they must both be weighted at the bottom. Each diver while under water requires a signalman to hold his life-line and air-pipe, both of which should be kept just taut, clear of the gunnel, so that any movement of the diver may be felt. The diver should descend slowly, halting for a few minutes after his head is under water, to satisfy himself that everything is correct, and then continue the descent. If he feels oppressed or experiences any humming noise in his ears, he should rise a yard or two and swallow his saliva several times; he must not continue to descend unless he feels comfortable. If oppression, singing in the ears, or headache continue he must not persevere, but return slowly to the surface. To dive to great depths, such as 130 or 150 feet, requires men of great practice and able to sustain the consequent enormous pressure. On arriving at the bottom the diver will give one pull on the life-line to notify that he is "all right." In returning from great depths the diver should ascend very slowly, and thus avoid the effects of passing too abruptly from considerable pressure to that of the open air; if he stops now and then, he gets gradually and regularly accustomed to the change. The ascent from the depth of twenty fathoms should occupy about five minutes. "It is more important to move slowly in rising than in descending." The diver takes down with him the ladder line, which he secures to the foot of the ladder or rope by which he has descended; this line should be coiled up in his hand with a loop round his wrist, and as he leaves the ladder he lets the line gradually uncoil, so that if he be at any distance off he can find his way back to the ladder when he wants to return. If working in thick water, while at the bottom he should never let go the ladder line; if by any accident he does so, and cannot find the latter, he must make the signal to be hauled up.—*Pall Mall Budget,*

THE ART OF MANURING COFFEE.

To the Editor Madras Mail.

Sir,—In your issue of the 9th instant you have a long article on this subject by Mr. Pringle, in which he gives the public gratis information that has cost us £5,000 sterling. In the first column, on page 5, he writes:—"The great question is, what is necessary, and how much? To help in the settlement of this qustion, I submit the aggregate results of some of my experiments, giving the weight of clean coffee yielded." Then follow the results. I think it right to warn your readers that these results are, by Mr. Pringle's own confession, *valueless.* He wrote Messrs. Matheson & Co., in connection therewith, as follows:—"I am very sorry to say that the crop from the experimental plots is very disappointing," and in a letter to myself, added—"The plots were too small, and each one has affected its neighbour. I have compared the results in exery way, and it is impossible to say what manure is best." He wrote me again, on 31st March last, "and though my experiments in regard to manures and leaf disease are incomplete, they have thrown considerable light on the subjects, and the *doubtful* results I have obtained may yet be turned to useful account." In further proof that the results are unreliable, I may mention that the *manured* plots gave an average for 4 yeras of only cwt. 3·20 per acre, while the *unmanured* gave cwt. 3·05. The excess was, therefore, only cwt. 0·15 per acre, worth, on the trees, say R6, or about a sixth of the cost of the manures and application necessary to produce it. The self-evident conclusion is that manuring, except as a means of keeping the estates alive, is a mistake which carries absurdity on the face of it. His figures with regard to cattle and cattle manure, too, are fallacious and misleading. There is not a bandy and pair of bullocks in Coorg that costs R23-15-4 per mensem. If they did, the work they perform would be worth R1-8-0 a day instead of a rupee, and they would work 26 days instead of 24. The profit, therefore, instead of being 8 pie per month plus the manure, would be R16 plus the manure.

Mercara, 12th June. C. Meynell,
Attorney for Matheson and Co.

II.

Sir,—There is no doubt that planters like the farmers of old in England have a distrust of Agricultural Chemists. Two gentlemen now claim they can cure leaf-disease. It has long been known that any given coffee tree can be cured and kept clear of leaf-disease by the use of sulphur and other agents. As far as a laboratory or garden experiment goes there is no great difficulty in the matter. In fact, without the use of any such agents, if the soil is made rich enough in the ingredients coffee loves (decayed vegetable matter being the chief) a coffee tree will practically defy leaf-disease—that is it will bear heavy and continuous crops and not suffer from them. What any man has to do who wishes to get planters to adopt his cure for leaf-disease is to show them a field of 10 or 20 acres in an estate which he has kept clear of disease for 3 years; which has borne an average crop of at least 5 tons per acre for 3 years, and which shows a marked superiority in appearance and yield to the fields adjoining it. Any man who can do that and patents his process may be sure of every planter adopting his process and paying him a handsome royalty. No system which cannot do this at a moderate cost will ever be carried beyond a garden experiment. Now of the two gentlemen who are offering their cures for our acceptance Mr. Vernede is I believe a planter, and Mr. Pringle has been experimenting for 4 years on Messrs. Matheson and Co.s' estates. Presumably these gentlemen have applied their cheap and infallible cures to at least one of the fields under their care. Let them show us these fields and the records of their crops, and if they can show they have made coffee averaging £3 per acre yield an average of £6 per acre by keeping it clear of leaf-disease and borer the planter will be convinced, but *nothing else will convince him.*

I should like to make a few remarks on the article on the art of manuring coffee as it rather illustrates why a planter distrusts an Agricultural Chemist. Mr. Pringle gravely assures us that gram-fed cattle who do not work cannot be made to produce manure under R150 for ten tons of manure. I don't suppose any practical planter ever gives gram to cattle which do not work, but I can assure Mr. Pringle that a cattle manure which has excellent effects on coffee can be made in Wynaad and applied to the coffee at the rate of 15 to 22 tons an acre for R50 per acre—including every charge for tending cattle, cattle sheds, a certain amount of feeding stuffs for the hot weather and medicines, carting and application, and that this is habitually done in the Wynaad over large acreages. I have done as much as 100 acres a year for two or three years, and I know other places where it is done. How Mr. Pringle gets his cost of application up to R3 per acre I don't know. If a cooly applies manure to 100 trees, that is 3 per acre of 1,200 trees, he could fork 70 trees, which would make a total of R704. Another R1 for filling baskets and commission to the

* Amber is washed on to the shores of the Baltic in considerable quantities after storms.—Ed. *T. A.*

maistry would be ample. As 10 tons to an acre is under 20lb. of manure a tree it would not be very hard work and could be easily done for R10 an acre as the total cost of application. Carting can generally be avoided, but if it cannot it would not average over R2 an acre (less at 10 tons to the acre) as carting could not be necessary on all fields. As a matter of fact, planters apply 20 to 30lb to each of 1,742 trees in an acre, or 15 to 22 tons, and this can be done for a cost of from Rs. 13 to R17·8 for application, according to the distance and lay of land etc.

It would be a mot desirable state of things if we could dispense with bulky manures, and depend entirely on the advise of the chemist as to the use of small doses of artificial manures. But only the result of which planters so far are certain is that if they can apply sufficient bulky manures, such as cattle manure or decayed vegetable matter, they can be certain of abundant crops. Even those who have been most successful with bone and poonac recognise that bulky manure once in three years at least are a necessity, although large accumulations of leaf are received from the shade-trees which are now a *sine qua non* with coffee. Nor do they believe in small doses. £4 of steamed bone dust and £12 of poonac every year is a minimum dose, and men would apply more if they could afford it. This may be absolute waste from a chemist's point of view, but it is a fact that such over manuring is the only way to make coffee pay. Nor is this remarkable when we know that over-doses of phosphoric acid improve all crops, even these which have only a small proportion of that element in them. I do not wish to seem captious. I am exceedingly grateful to Mr. Pringle for the information he has given us and would be delighted if he would eradicate borer and leaf-disease. But we have found so often that the teaching of the chemist does not, for some unforeseen reason, produce in the field the effect it theoretically should produce, that we prefer to go on with our old wasteful ways,—certain that the result will be that if we can only apply enough, something or other in the old fashioned manures does tell. If is only rotten wood, 2 or 3 inches of it on 6 inches of mould, will grow such coffee as no artificial manure can. If Mr. Pringle wishes to turn us from our ways let him grow finer fields on regulation doses of artificial manures and we will believe; but that is the only wey. SOLVITUR AMBULANDO.

P. S.—How does Mr. Pringle get lucerne, clover, etc., to grow under good coffee? I have tried gram (koolty) and find it will not grow under any shade. Of course it might be grown in young coffee.

THE LEAF DISEASE OF COFFEE.

Sir,—In your issue of the 30th there is a misprint, days being written for weeks in the sentences "When the cells are emptied a yellowish spot appears, generally visible about two to three weeks (not days) after the parent spore is planted." In the next column are three errors viz. "the estate was rid of it from end to end," should be "the estate was red with it from end to end." Lower down "The coolies pick up spores" should be "coolies kick up spores," and the word "post" for "host." Now in regard to your Coorg correspondent's letter of the 27th *re* leguminous trees. *Dalbergia latifolia* (Beetie) is given in Vol. I of the Mysore and Coorg *Gazetteer* as one; it is certainly the best shade tree in South Coorg judging by the coffee under it. I would suggest that Mr. Cameron of the Lal Bagh, and the Manager of the Madras Agri-horticultural Gardens, Mr. Gleeson, be asked to furnish a list of the leguminous trees that are not surface feeders. Here is an extract which will, I hope, show your readers how the question of the fixation of nitrogen is being worked at:—"It was first in the year 1878 that it was shown by Schloesing and Muntz to be dependent upon the presence of certain minute forms of life, or micro-organisms, or in other words to be a fermentation change." Quoted from F. and G. C. Franklin's "The nitrifying process and its specific ferment." The following is quoted from 'New experiments on the question of the fixation of free nitrogen by Sir J. B. Lawes and Dr. J. H. Gilbert":—"Experiments similar to the well-known ones of Hellriegel, which were commenced in 1883, have been made by the authors at Rothamsted in 1888 and 1889. The results fully confirm Hellriegel's statements, and show large gains of nitrogen over that contained in seed and manure in many cases of leguminous plants grown in prepared sand or soil containing known percentages of nitrogen. The cases showing this luxuriant growth and increase in nitrogen were those in which the root tubercles were well developed and this was brought about by adding a little aqueous extract of the crushed tubercles to the prepared pots, or by watering them with the washings of soil in which similar leguminous crops, provided with root tubercles, had grown. The authors therefore are now prepared to endorse the conclusion drawn from Hellriegel's experiments that although chlorophyllous plants may not directly utilise the free nitrogen of the air, some of them at any rate may acquire nitrogen brought into combination under the influence of lower organisms, the development of which is apparently, in some cases, a coincident of the growth of the higher plant whose nutrition they are to serve." There are over a dozen of the cleverest chemists of Europe and America working steadily experimentally at these questions, and every point is tested by independent investigators, keenly critical, as is shown by the above extract. Leguminous plants may be said to have a parasitic beneficent lower organism developed with them, which possesses the power of rendering nitrogen capable of being fixed by the plant. Thus it is that they afford a cheap means of obtaining nitrogen from the air. As regards shade trees my experience is that, in South Coorg, all surface feeders are bad, and I do not think surface feeding leguminous trees would be exception, but they might. Only experiments can decide the question.

WILLIAM PRINGLE, M. S. C. I.

Bangalore, July 2nd.

COAL IN CEYLON; ELEPHANT LEATHER.

Great interest is felt here in your announcement that coal has at length been discovered in Ceylon. If it can be demonstrated that the material found is absolutely coal, any inferiority of quality which may be reported as to the samples sent home need have no effect in disheartening you as to the ultimate value of the find. All experience has shown that surface coal is of little relative value, and the real quality can never be ascertained until a considerable depth has been reached. Should preliminary reports justify it, we hope to hear that some deep borings have been made in order to obtain samples which may enable an accurate test of quality to be established. We think that geologists who have visited Ceylon hitherto have generally reported adversely as to the likelihood of coal being found in the island but these reports have not shaken the faith of many who have entertained a confident hope that the mineral would be discovered some day or other.

Having read your extract from an American paper referring to the use of elephant leather, I paid a visit this week to Messrs. Toulmin & Gale to learn what they know of the subject. I was assured by them that they had never heard of elephant leather being employed in the manufacture of the articles mentioned in your extract referred to. They said a leather was known in their trade as "elephant leather," but this was only cowhide stamped in imitation of the latter, and they expressed their belief that it was impossible to work up the genuine thing into bags, pocket-books &c. They showed me a piece of elephant hide in their possession and asked me if I did not see the impracticability of so adapting it. However, they obligingly sent for the foreman of their works, with

whom we discussed this matter. He gave his opinion as a practical workman that he could use the leather, but it must be carefully tanned and cut down in thickness as soon as it was lifted out of the tanning pits. Perhaps this is what is done in America, but it is certain that no such process is known here. It must be a very costly one, and to cut down a hide said in your extract to be 1½ inch in thickness to a thinness which would render it available for working up into fancy goods, seems to me to be a useless waste of labour. Even when all was done the leather could scarcely be as supple or as sound as crocodile leather, and it has none of the handsome and peculiar marking which makes the latter such a favourite.—London *Cor.*

THE INCIDENCE OF OUR ROAD TAXATION

There are few of what we may term our fiscal arrangements that have called forth more criticism from time to time than the relative burden imposed by the collection of money for the upkeep of our roads. At first sight it appears to be an anomaly that the agricultural laborer should be called upon to contribute towards this in the same degree as his more wealthy fellow subjects. But there are few anomalies in the matter of taxation the redress of which would not produce further anomalies which are impossible of being taken into account, or even of being accurately foreseen and provided against.

It is this difficulty no doubt that led to those who originally devised this method of upkeeping and extending our roads to ignore altogether any scheme of assessment such as could alone distribute evenly the burden to which we have referred, and to substitute for it a level impost of so many days' labour. Power to commute in money was a necessity of the case. Had not this been allowed, the existing anomaly—if anomaly there really be—would have been intensified; the higher among our social grades would have contributed at rates varying from say £1 to £10 per diem, while the agricultural laborer would have contributed but from 3 pence to 9 pence per day. The power to commute the days of labour for a fixed rate of money payment became therefore absolute, and unless a sliding scale were fixed mulcting the planter in so much, the native proprietor at so much, and so on throughout the many varied grades and occupations, it was necessary that the current value of a day's ordinary road labour should be accepted as the standard for everyone whatever his rank or degree in life. Many among those who have brought this question forward from time to time have contented themselves with drawing a sharp line of distinction between natives and Europeans only. They have advanced that the latter should be amerced to a greater extent than the former. They would follow the absurd coach-fare practice still carried out, of so much for Europeans, so much less for Burghers, and so much less for natives. This argument is a ridiculous one, for many natives paying road tax are really better off in this world's gear than are hundreds among our hard-working European population.

There is a strong feeling in most of the more advanced countries of the world that the working classes, as the rule, do not contribute their fair quota to the taxation which provides for them the comforts and security of civilized Government in which all share alike. The difficulty is as to how to reach such classes without imposing inordinate burdens. It is all very well to attempt to fix a boundary line between rich and poor but it is an acknowledged fact that many of the working classes are better off in their degree than many who rank higher in the social scale. Their burdens are in many respects lighter, and from their circumstances are more easy, relatively, to be borne. In a vast number of cases, too, to increase the burden of the higher classes is to place a tax upon the industry or intelligence which has enabled these to rise in life out of the dead level of the mass of the community. Now in the case of road upkeep everyone is equally benefited. For if proper attention to our roads enables the more wealthy to pass from place to place the more readily in pursuit of mere pleasure, it equally provides facilities whereby an enormous number—in fact the greater portion of the population—can earn a living. Were it attempted, therefore, to impose a tax for road upkeep in proportion to apparent means, the wealthier would be called upon even far more than they do at present to pay for a privilege which is shared in equally by every member of the community.

But it should not be forgotten that in respect of district roads in planting districts—a series of roads by which the Central Province has been scored—half of the original cost, as well as half of the cost of upkeep, is directly imposed on the planters. The native agriculturist in the low country gets a road to his village or neighbourhood, and through it finds a profitable market for his straw and grain, paying no more than his commutation; while the planter for his district road often pays a large sum every year, apart from commutation.

And it must in addition be recollected that the contribution made under the road ordinance is but a proportion only of the outlay required for the efficient maintenance of our highways. Now whence is the balance for this derived? It is drawn from the general revenue, and this we know to be chiefly raised, not from the labour of the classes who elect to work out their apportioned task on the roads rather than commute for it by a money payment, but from the fruits of the industry of the higher classes among the people. No means, we feel assured, could have been better devised to ensure that contribution should be made towards a general good by those who in other respects are relatively free from taxation than this demand for a certain number of days' labour from each and all alike. It enables those who are poor in cash to bear their share of the burden, while it makes it possible for those whose day's labour would be worth a hundred-fold that of the goyiya to escape the anomaly that would fall upon them were they compelled to the absolute performance of so many days of labour on the roads. Were this not so, the anomaly complained of as regards present arrangements would be, as we have said, largely increased. All should contribute to a common good, and no method suggests itself whereby this can be more fairly enforced than by the present operation of our Road Ordinance.

COFFEE PLANTING IN EAST-CENTRAL AFRICA.

(*By an ex-Ceylon Planter.*)

Nyassaland, East-Central Africa,
May 4th, 1891.

Mails to this part of the world are slow and irregular, I get your papers by fits and starts; the last lot just to hand is wishing your readers a prosperous New Year! We hope soon to have more regular mails. The commander of the gunboats on the shore is doing his best with the home

Government to get a Postal Union Service to the Chinde mouth of the Zambezi, as well as a telegraph station, which I 've no doubt we shall get in due course. It is terrible the way the Portuguese humbug the British subjects here, stealing letters containing drafts &c. and only despatching whatever telegrams they think proper, excusing themselves by saying the line is out of order &c.

The British gunboats have just gone down to the Chinde mouth to await the final decision *re* the free navigation of the rivers. The S. S. "James Stevenson," African Lake Co. Shiré boat, is made the subject of frequent insults to the British flag by the Portuguese; they fire across her bows at night, stop her firewood &c., &c., till the gunboats are constantly running up and down the rivers demanding explanations, &c.

I may tell you I have settled down at planting in mis outlandish spot, but would not advise any Ceylon than to come here yet a while, at all events till the country has a settled government. There are two of us, myself and an assistant, armed to the teeth with Martini-Henry rifles and nearly 1,000 rounds of ammunition in the midst of a surrounding population of savages. Although a peaceable and unwarlike people, the life of anyone, black or white, is in the hands of the Chief; so it is as well to be prepared, but it is to be hoped no rupture will take place here, for ours is a peaceful mission and our arms for defence only.

The climate here is like that of Udapussellawa; but there is a lot of fever. After the first few attacks however it only comes in a very mild form, which is easily shaken off by a few doses of quinine.

Until I know you get my letters, as the Portuguese are, and justly too, accused of destroying lots of letters belonging to British subjects, I won't write much.

I may say however that coffee grows here and the climate seems to suit it, but cultivation there is none, the trees are allowed to run to wood, get smothered by weeds, and bear all the crop they can stand without killing them outright, so the planters wonder—and well they may—why the trees won't crop for two years after a bumper.

There is no leaf-disease here, but there is a bean disease: in the inside of the bean black rot sets in, destroying it completely, in most cases leaving only the parchment shell, so that the crop is worthless on some fields. Messrs. Buchanan Brothers attribute the disease to a small scarlet-spotted bug called the ladybird, but I think differently, and blame the clay subsoil for rotting the roots, and crop as the result. Perhaps you would kindly let us know the cause of the disease, and I shall be glad to give you more on the subject.*

Slave-raiding and murder are as common as ever about here. A Chief near this told his people to kill a man of another tribe, and they at once pulled him limb from limb and buried their victim in pieces, for which brutality only a few pieces of calico were paid to the Chief to whom the man belonged.

The Lake Shirwa people and the Matchingeries have been at war for some time and only last week a lot of slaves were sold to an Arab caravan on its way from Kilimane to Nyassa, war prisoners no doubt. It 's high time the African Lakes Co. got a charter, or the British Government protected the people and not have such scenes taking place within the sight and hearing of European British subjects who cannot interfere because of their weakness.

P.S.—I send you two mission papers. There has been an unprecedented number of deaths amongst the missionaries lately who have really done good work here about.

* Will some expert give us an opinion?—ED. *T. A.*

THE cultivation of the giant sunflower for oil-making purposes is making great strides in Southern Russia.—*E. Mail.*

THE JAVA COFFEE CROP.—According to a telegram from the Governor-General of Netherlands India, the Government's coffee crop in Java for 1891 is estimated at 354,160 piculs.

TEA SALE.—We learn that there is a very good *jat* of tea in the Wynaad, introduced from Assam by Colonel S. Ponsonby Scott, and that one rupee per pound for good sunk seed is being freely paid. It is also said that several persons are visiting the locality in search of tea land, and it is to be hoped that success has attended them. Time will shew.—*South of India Observer.*

CHINA TEA SEED FOR CALIFORNIA.—The *N.-C. Herald* states:—"The Chamber of Commerce at Los Angeles, California, are getting tea seed from Hankow, in order to experiment in tea culture." Even if severe "freezes" were out of the question, the absence of cheap labour would ensure failure.

CONSUMPTION OF NON-ALCOHOLIC BEVERAGES IN THE UNITED STATES.—The accounts for the ten months ended April 30th confirm the view that, while cacao makes good progress in the United States and coffee consumption increases enormously, the use of tea remains about stationary. In the case of cacao, there was an increase from $1,846,000 in 1889 to $2,270,000. Coffee rose from $62,191,000 to $79,431,000. Tea, which showed a value of $15,000,000 in 1886 and went down to $11,345,000 in 1889, recovered only to $12,865,000. Tea has probably fallen in value, but clearly the Americans are not yet by any means a tea-drinking people.

STEADY PROGRESS IN THE SISAL INDUSTRY of the Bahama islands is reported by Consul McLain. No small amount of Canadian, English and Scotch capital has been invested therein during the past year. Joseph Chamberlain, for one, has bought substantially the whole of a small island, and one of his sons will manage the enterprise. The matured product is yet small, but by next year will make a very large-quantity. The few tons already shipped found a ready market, and samples sold in London were pronounced to be of the best possible quality, and brought 40 per cent higher prices than the Mexican or Yucaton fiber. Little or no American money has gone into the business, notwithstanding the fact that the United States supplies most of the imports of the Banamas. Possibly Florida will become distinguised for sisal production in course of time. The natural conditions in that state are favorable.—*Bradstreet's.*

EXPERIMENTS in fostering the growth of seeds by electricity are not a novelty, since they were made by Mr. Andrew Cross many years ago, and even in the last century by a Scotch electrician but M. Spechneff, a Russian agriculturist, has recently drawn attention to the subject. He electrified the seeds of peas, beans, and rye for two minutes by passing a current through them, and then sowed them. The result was that the plants which sprang from the seeds thus treated were much more vigorous than those from unelectrified seeds. Mr. Spechneff also electrified the soil by burying plates of zinc and copper in it so as to make what is called an "earth-battery." The plates were connected above ground by an iron wire, and the electricity circulated from one plate to the other through the intervening ground. Vegetable seeds planted in this ground gave rise to an astonishing crop. A radish grew over 17in. in length and 5½in. thick; a carrot 10½ in. diameter weighed 6½lb. M. Spechneff estimates that for root crops the harvest in the electrified earth was four times greater than that in unelectrified ground; and for ordinary plants two or three times greater.—*Globe.*

Correspondence.

To the Editor.

APICULTURE.

Glasgow, June 25th.

Dear Sir,—I enclose a cutting from the *British Beekeepers' Record* in answer to a query of mine regarding *Apis dorsata*. I was much obliged for the *Tropical Agriculturists* which you kindly sent me.—Yours truly, APIS.

[The large bee of Java (*Apis dorsata*) has never been domesticated in Europe. An attempt was made several years ago by a gentleman resident in Burmah (as reported in the *American Bee Journal*) to locate a swarm of these bees in an observatory hive; but after remaining for twelve days in the hive they refused to submit to the ways of civilised bees and absconded. The writer says of them:—

'In the Padung-Karen country, about eighty miles north-east from Toungoo, these bees are in some sense domesticated, as is also the *Apis indica*. In order to secure the services of the *Apis dorsata*, the Padungs dig a trench in a side hill, and drive a stout stake, inclined about 45° towards the down slope of the hill, into the ground, and lean branches of trees against the stake on either side, making a shield from the wind. The *Apis dorsata* returns to these places year after year, and the natives secure bountiful harvests of wax and honey, always leaving some for their yellow workers. May it not be that the *Apis dorsata* builds one comb only because it does not usually find a place to build double combs? The comb is so large that it must indeed be a large limb of a tree to give room for double combs. I am strongly inclined to believe that the *Apis dorsata* can be domesticated, especially the black-coloured species. Yet, to ensure success, doubtless much study must be given to the habits of this bee.' The same gentleman, in a subsequent number of *Gleanings*, again refers to the departure of his swarm as follows:—'The comb of the *Apis dorsata* left with me measures about 2 ft. long by 1½ ft. deep. The honey-comb and brood-comb are quite distint. The honey-comb is placed always *highest* up on the limb of the tree on which the nest is built. From this, which is on the right in my comb, the brod-comb extends to the left, new comb being added along the whole edge, from the honey-comb around to the limb again. The honey-comb is three inches thick in its thickest part, but built in a cylindrical form. The natives say they have seen this honey-chattei 6 in. in diameter. The cells are 1½ inches deep, and less as the slope changes. There are three honey-cells to the inch. This comb is beautifully white, and the walls of the cell are almost transparent. Honey is also deposited among the brood, but it seems to be of a different kind from that in the honey-chattei. The brood cells are from ½ to ⅝ of an inch deep. The number to the inch varies from 4 to 4½, or 23 cells to 5 square inches. The brood-comb varies a little in thickness, and is about 1⅝ in., and is a light brown in colour. These bees on the comb form one of the most beautiful sights in nature I ever saw. During their stay they built comb and brought honey and water, but they did not at any time work as if they were happy. Just before leaving there was a great running to and fro, and preening of wings and legs, preparatory to flight. Not more than half a dozen bees remained.'—Ed.] *T. A.*

A TEA WITHERER.

June 25th.

Dear Sir,—Some short time back I read a letter in your paper suggesting that Mr. Jackson should invent a "witherer." This has already been done, and anyone desirous of seeing same at work can do so on applying to me.

The "Cyclone Witherer" is much used in Assam now, and is patented in Ceylon by the inventor. I understand, it is advertised in the *Indian Planters' Gazette* in India, and it is all the inventor claims for it—a thorough witherer—and I wonder it is not advertised here also. I shall call Mr. Turton's attention to this. He wrote me he would be in Ceylon in February last, but, I fancy, has not had time.

I send you his pamphlet. The one here *represented* is his *first attempt*. His improved one is very much better and more effective. I have diagrams of it, to show anyone who thinks of getting one.—Yours truly, WALTER AGAR.

[It is certainly surprising, if the "Cyclone Witherer" is a success in India, that it has not been *advertised* in Ceylon; but we have seen it strongly condemned by "Peripatetic Planter," Mr. Lepper. Perhaps that may have been an unimproved one. —Ed. *T. A.*]

IRRIGATION IN SIND.

The Indus Valley Steam Irrigation & Trading Co, Limited, Bombay, June 25th.

Dear Sir,—May I venture to ask if you would kindly reproduce the article appearing in today's *Bombay Gazette* in respect to Irrigation in Sind, the development of which this company proposes to undertake.—I am dear sir, yours faithfully,

JOHN CRIPER, Managing Director.

SIND IRRIGATION OLD AND NEW.

According to a Government Resolution on irrigation in Sind, which was issued a few days ago, there were during the official year 1889-90 2,109,804 acres of Government lands and 240,015 acres of Jaghir lands under cultivation, or an increase on the figures for 1889 of 222,248 acres and 8 936 acres, respectively, while the revenue, deducting remissions and land share, increased from R44,12,756 to R47,80,328. There is thus an increase in cultivation of nearly eleven per cent., and in total canal revenue of nearly seven and three-quarters per cent., over the figures for 1888-89, and of twenty-four per cent. and twenty-one and three-quarters per cent., respectively, over the results for 1887-88. Large as these figures appear, they are very small compared with the total area irrigable in Sind, and much smaller still when contrasted with those of the irrigation works of other provinces. The Ganges Canal, for instance, comprises 437 miles of main canal and 3,569 miles of distributaries, and irrigates 807,574 acres. The Sirhind Canal in the Punjab has 542 miles of main channel and 4,389 miles of distributaries. The Godavari, Kistna, and Cauvery irrigation system in Madras totals 1,246 miles of canal, and waters two million acres. In Sind the system is much simpler, and under existing conditions much less effective. The inundation canals are for the most part mere earthen channels, innocent of masonry dams and sluices, and supplied by the annual rise in May of the Indus and its tributaries. Simple as the system is so far, the method of the ryot in getting the water from these channels to irrigate his land is even more rudimentary, for he knows no better appliance than the clumsy Persian wheel which has been in use for thousands of years. The cultivator with three pairs of bullocks capable of ploughing an acre and a half per day, has to employ two of these pairs night and day to raise a scanty supply of water barely sufficient to irrigate enough land to keep the other pair of bullocks ploughing six hours a day. Slow and costly as this method is—according to an official return it is estimated that each acre costs on this system R32-8 to irrigate—the Sindhee practically knows none other, and until recently little or no attention has been given to the question of find a cheap and effective substitute for this dear and effete system.

Recently, however, a Company has been formed under the title of the Indus Valley Steam Irrigation

and Trading Company (Ld.), which, according to the prospectus, proposes to effect this very desirable reform. The capital of the company is £50,000, divided into £5 shares, of which the prospectus inform us £30,000 worth have already been subscribed for in England. The directorate includes the names of Dr. George Yeates Hunter, late Civil Surgeon, Kurrachee; General McLeod Innes, R. E., late Accountant-General to the Government of India; Colonel Ernest Schreiber, of Woking; Captain W. F. Annesley, of East Sheen; and Mr. John Criper, Managing Director in India; and a local Board of Directors is in course of formation, Mr. S. W. Anderson, Kurrachee, being the Secretary *pro tem.* The Company proposes to purchase as a going concern the cotton-ginning factory, and the buildings, stores, plant, machinery, tools, appliances, and all effects connected with it, at Khokar, Sind; to erect two other ginning factories of a similar kind at Dera Gazi Khan, and at Mozaffargarh, in the centre of neighbouring cotton districts in the South Punjab, and to develop and work the same under one control; and to take over the business of Mr. J. Criper of steam irrigation and the supply of water to ryots for the cultivation of cotton and other produce, together with the cultivation leases of about 32,000 acres on the Sarfraz, Imamva, and other Government irrigation canals of the rich lands of the Delta of the Indus, and to irrigate and cultivate them. Ginning operations last roughly from December to April, and in that time, according to the prospectus, each factory working twenty of Messrs. Platt's machines for six days a week, with an output of 100 maunds of marketable cotton per day, can make a net profit of R27,000, at an exchange of 1s. 5d., or say, £1,912, or £5,736 on the intended three establishments for ginning alone. Added to this is the merchant's profit on the purchase of the cotton from the grower of about one rupee per maund—or on the three factories £2,550, making a total profit on the two items of ginning and purchasing cotton of £8,286 nett. At the termination of the cotton season, the engines, which are portable, are removed to the irrigation works, where it is estimated by the promoters very profitable employment will be found for them. The cultivator in Sind during the irrigation season usually takes up for cultition a small area of about 20 gheribs (10 acres), which is named a Huvla, if worked by a Persian wheel. He requires three pairs of bullocks, or two camels and one pair of bullocks, for this area, and two men and a boy. Two pairs of bullocks are employed day and night at the wheel raising water, and one man is employed in making small channels to convey the water raised over the land. After about a month it is moistened sufficiently to allow of ploughing being commenced. The third pair of bullocks is then set to plough; but water is still required to be continually raised day and night until the close of the season. Consequent on the limited area for which a Persian wheel can provide water, only land immediately adjacent to the canals can, as a rule, be cultivated by lift irrigation, and all beyond 1,000 yards or thereabouts is fallow virgin soil. Lift cultivation is open to such enormous risks owing to the rise and fall of the Indus and consequently of the canals, that the ryot is at one time raising water from possibly a two to three feet lift, and the next week ten to twelve feet, making a difference of two-thirds of the quantity of water raised, the loss on the crop, as remarked by General Fife, in his Note on this subject, being correspondingly great. An average kharif crop in Sind requires about 20 inches, and an ordinary Persian wheel under favourable circumstances as to height of the Indus, &c., it is computed can only provide 12 to 16 inches. On the other hand, when steam irrigation comes into use, it is claimed by the promoters of the company under notice that a 15-inch centrifugal pump raising 4,000 gallons (makers guarantee 5,000 gallons) of water per minute, at lifts of 15 to 20 feet can raise 633,600,000 gallons in 110 days, or one season. This equals 24 inches to 1,000 acres and 22,622 gallons is equal to one inch to one acre. One engine and pump will irrigate 800 acres, while one Persian wheel will only irrigate 10 acres, so that it would require eighty Persian wheels to do the work of one steam-pump. To do the work therefore of which one engine and pump are capable, the ryot, according to the prospectus, at first spends R3,200, in wheel, pots, pans, &c., without including the value of the 480 bullocks (about R10,000 in Sind) required, and their food for the entire year. Steam irrigation will release his bullocks from the main part of their toil, and enable him to plough forty-five acres instead of ten; and for doing this work the ryot is, it is stated, willing to pay seven-twelfths of the crop produced. The company irrigate his land, but it is cultivated entirely by the ryot himself and at his own expense. In connection with this project it is pointed out that the Hyderabad-Omerkote Railway is already commenced, and passes within eight miles of the factory and land proposed to be irrigated, while the Delhi-Kotri Railway has been surveyed, and a company is about to be formed for it. As to ginning, it is also to be noted that the average rate obtained in the Bomby Presidency per maund of 82 lb. is R1-5 as against R2 to R2-4 in Sind, while the cost of wood fuel in the Bombay Presidency averages R19 per maund, and in Sind R13 per maund.

[Mr. Akbar of Negombo, the enterprising coconut planter, who first systematically applied irrigation to palm trees on a big scale in Ceylon, utilizes the steam engine—devoted to the pumps in the dry season,—in the wet season, to run a sawmill.—ED. *T. A.*]

COFFEE DISEASE AND ITS PREVENTION.

DEAR SIR,—Coffee cultivation would seem to be on the *tapis* again! Mr. Pringle's letters to the *Observer* are interesting and his conclusions reasonable, but his proposed remedies appear to be impracticable. I am inclined to believe with General Braybrooke, who, if I mistake not, wrote in your journal years ago, that the disease was to be looked for at the root of the coffee tree, due to some unfavourable condition of the soil; for there can be no doubt that there is a very great diminution and in some instances total absence of the white thread-like rootlets which were in former days so abundant just below the surface all round the foot of healthy coffee trees. In writing to one of your contemporaries a few days ago, your "alphabetical" friend expressed the opinion that he thought the value of salt in agriculture was somewhat exaggerated. It may be so, yet I mention that some time back I procured a cask of compressed seaweed and applied it as a manure to a few coffee trees growing in my compound in Kandy, and it had a very beneficial effect as regards the appearance of the trees; but unfortunately I left Kandy before the time of fruiting, and am unable to say the after results. Examination, however, of the roots of trees a short time after the application of the seaweed showed that numerous little white rootlets were permeating the cakes of sea-weed in every direction. An experienced planter told me the other day that bug and leaf-disease are repugnant to each other. That however bad bug may be, it disappears immediately *hemileia* puts in an appearance. There must be some change coming over our seasons, for leaf-disease has come several weeks earlier than usual this year, and bug accordingly took its departure correspondingly early. This change is further indicated by the very unusual phenomenon of albatross being seen in the latitude of Ceylon! an occurrence I imagine never before heard of.—Yours faithfully,

E. F. TRANCHELL.

TEA PRUNING.

July 8th.

DEAR SIR,—We do not want an "Arboriculturist" to teach us tea-pruning. The science of forcing bushes to give us the maximum amount of flushes

is not the science of the arboriculturist. It is a science peculiar to itself and has been studied on its own merits. As far as I have made it out, the matter stands thus:—The art of pruning for flush depends on the skill of training coolies to recognize red wood and prune accordingly. The man who is fortunate in having rich loamy soil and good developed trees of high jât on flat ground and sheltered from marauding winds, this man can prune high and make the most of his bushes. But even *he* will have to cut down now and again to stimulate his bushes. The man who has a great many white-wooded trees of low jât which are inclined to go to seed; the man who has exposed fields and unfavourable soil, or high elevation and cold temperature,—*these men* have to prune "as if they were angry with the bush." It is a matter of experience. Commonsense will tell you that bushes which soon shut up, whether on account of soil, jât, aspect, or elevation, MUST be kept down and plucked hard from the start. The old idea of pruning for breadth is exploded. You have a fine big bush, and your fields look luxuriant and the ground is well covered; but if you count the number of available shoots in the old method as compared with those in the severe method there is no comparison. We don't want to cultivate trees, and we don't want to kill our bushes. On the one hand we do not want our bushes to run away up, neither do we want to kill them outright. But I think experience shows that the greater distance from the ground the greater likelihood of the sap ceasing. Those "thick leafless sticks" that your tree-cultivator is so angry with are just those from which you will get fine red wood. *Follow the red wood.* That is the whole secret. If you have not got it cut down for it. If you have plenty of it cut bigger and you will have no fear. Follow the red wood and treat each tree according to its individual characteristics and idiosyncracies. If your bushes are white, inclined to blossom, or sulky, or backward in any way—cut away and force a crop of red wood. If you can't get red wood, pull the whole blooming estate up. But a word to the wise. Don't prune severely in very dry weather, or it is the very d—l. The old way of pruning high, then leaving a long pipe of 6 inches on the top of that (to prune into next year, "dontcher know"), which makes the bushes sulk as long as a pruning, or rather which is in itself a second pruning, then mild plucking on the top of that:—why, before the year is out your bushes are away high up and only the centres are yielding flush. Then the jealous way with which the side branches were guarded from the coolies ruthless hands. Why, if you leave this they become "bangey," and don't come on. If you pluck them you encourage flushing and draw them up.

Let your maxims be:—

(1) Follow the red wood;
(2) No stagnation;
(3) Commonsense;
(4) Sweat and shoe-leather.

PRACTICAL MAN.

MICA AND TALC; USEFUL INFORMATION.

SIR,—That talc and mica are commercially interchangeable terms may account for the fact that many people use the term talc when speaking of mica, but how anyone who knows anything of geology could confuse two substances so distinct in composition, appearance and properties, is difficult to explain. There are some who are under the impression that mica only when it occurs as flakes as it does in many igneous rocks, merits the name of mica; but that when it is found as a distinct mineral in plates of any size, it should be termed talc. This is as unreasonable as supposing that graphite when it occurs in flakes as a rock constituent must only be called plumbago; but when it is found in any quantity, as a separate mineral it should receive another name. The micas are silicates of alumina with silicates of potash, magnesia and other bases: they crystalize in prismatic forms, and are all remarkable for their very perfect cleavage—splitting into very thin laminæ which are flexible and elastic. Talc is a hydrated magnesium silicate and is monoclinic: it is very sectile with a greasy feel, and splits up into thin non-elastic folia. But these definitions and descriptions, which can be found in any book on mineralogy, are quite unnecessary to one who has once seen and felt talc and mica. The soapy feeling to the touch is sufficient to enable anyone to distinguish talc from mica with closed eyes. However excusable it may be for commercial men to confuse these terms, that those who as scientific authorities and heads of scientific institutions should do so, and what is more mislead others, is unpardonable.—Yours D.

"D" renders a useful service in making clear the scientific and practical distinction between Mica and Talc. In the Export Trade accounts of the Government of India we find the heading to run:—"Mica (commercially called Talc)"! In the Ceylon Customs accounts, now, the heading "Mica" is omitted and only "Talc" given.—ED. *T. A.*]

COTTON CULTIVATION TO BE STARTED AT KARATIVU,—July 19th. Lord A. Osborne and Mr. Butler have been the guests here of Mr. Pennycuick, but left two or three days ago for the Karativu island—a long strip of land lying north of Dutch Bay. It is their intention, I am told, to buy up this island and to plant it with cotton—a capital idea, and one which I hope will be carried out!—*Puttalam Cor.*

COCONUT CULTIVATION IN THE NORTH-CENTRAL PROVINCE.—By returns received for our Directory, we are glad to see that coconut—like paddy—cultivation under the influence of the new state of things, is fast extending in the North-Central Province. The Government Agent lately instituted a census of palm trees and the result so far as coconuts are concerned is:—

47,613 bearing coconut palms.
34,470 young palms not in bearing.

So that in the past five years, the number of coconut palms previously existing has been increased by 75 per cent. At 80 trees to an acre, the total of 82,083 palms represents 1,026 acres fully planted in the North-Central Province.

RICE CULTIVATION IN THE UNITED STATES.—An elaborate article on this subject, illustrated by engravings, principally from quaint Burmese drawings, appears in the *Louisiana Planter and Sugar Manufacturer*. After a sketch of the history of rice culture and the kinds used and modes of cultivation in Egypt, China, India, Burma, Ceylon, &c., the whole process of growth and "manufacture" in the United States is described at great length. We are reprinting the article in the *Household Register* and *Tropical Agriculturist*, because hints useful in Ceylon may be obtained from the widely different mode of culture observed in the Western land whither rice seems to have come from Madagascar. In slavery time the enterprise was of great importance, but it was ruined in the Civil War; and the writer of the paper is not hopeful of its revival to any great extent by means of expensive free labour. We have hill rice and irrigated rice in Ceylon: in Carolina the grain is amphibious,—being grown in water, but ripened on dry soil,

COST AND VALUE OF CEYLON COCONUT PROPERTY.

(Communicated.)

Some years ago there appeared in the *Observer* a notice of the sale of two coconut properties, at R38 and R40 per acre, to which the reporter appended the remark, that it was a good price, as they were not in full bearing. It is very possible that the price paid for these properties may be their full value, as they may have been treated on the old native system, or some slight modification of it, that instead of adding yearly to the value tends to depress it below that of the original jungle. At all events, the price paid for the fields in question is less than old chena in a favourite district commands.

Suppose a would-be coconut planter secures at R20 per acre a tract of land of the average quality of the undulating uplands of the lowcountry, and that he dispenses with the service of goiyas and thus avoids the deteriorating effects of their operations, his first year's work will cost R20, which with the price of the land will make up R40 at the end of the first year. R10 per acre per annum will provide for a conserving but not for a high and forcing cultivation,—such a style of cultivation as will produce the first appreciable crop in the eighth year and its full measure of yield in the fourteenth or fifteenth, by which time the crops will have run up to 2 500 nuts per acre at current prices worth R60. At ten years' purchase on the net proceeds, the value of the estate in the fifteenth year will be R50 per acre, having cleared off the whole expenditure with 10 per cent of interest during the previous seven years.

The following table shows the principal and interest of expenditure, the probable crops, and the annual increment of value for each year of the series.

COST AND VALUE OF COCONUT PROPERTY.

Years.	Expenditure and Interest per acre R.	Proceeds per acre R.	Value R. per acre.	Remarks.
1st	40	...	50	
2nd	54	...	80	
3rd	69	...	110	
4th	85	..	140	
5th	102	...	170	
6th	120	...	200	
7th	139	...	230	
8th	154	5	260	
9th	154	10	290	
10t	144	20	320	
11th	122	30	350	
12th	92	40	380	
13th	52	50	410	
14th	...	60	440	
15th	...	60	470	
16th	...	...	500	

There are lands that at the same cost will give much better results, and others that will give worse, but this is a fair average result, and one that can nowhere be attained at less cost. At a return of 10 per cent it is better to keep than to sell a coconut estate, in view of the average returns of other agricultural investments; accordingly no one sells coconut property except under financial pressure, or incompatibility of joint ownership, which affords the waited for hopportunity to the larger capitalists, who usually make great bargains of any such property that may come into the market. The value of coconut property depends most on the character of the cultivation. Even good soil will not tell under neglect, and indifferent soil may be made to pay well, by liberal and judicious treatment. A dozen years ago, there were hardly any means of comparing different measures of cultivation; now there are plenty of examples of various modes, between the extremes of a close cover of lantana, and garden culture, with heavy manuring,—the one costing R5 or R6 once in three or four years, and the other taking from R20 to R25 per annum. Here are two fields with a strip of paddy field between them, the one four and the other nine years old; one has merely been kept lean, and the other has lately been cleared of four years' growth of lantana; the plants on the younger field are the bigger and stronger of the two. Here are two adjoining pieces, the one six and the other three years old, the one has been cleared of three years' lantana, and the younger field is four years nearer bearing than the older.

A JAPAN CHEMIST ON THE CONSTITUENTS OF TEA;

AND THE EFFECT OF EXCLUSION OF LIGHT FROM THE GROWING PLANTS.

Paragraphs have appeared in the newspapers regarding some interesting experiments made by a Japanese scientist on tea leaves grown under normal conditions of full exposure to light and on others which were shaded long enough to produce the effect of bleaching on the flush. The result was that the shaded tea was deemed superior, from increased amount of theine and *not* from diminished proportion of tannin,—the conclusion being thus in support of the dictam of Mr. Hooper, the Madras Quinologist, that by no known method of preparation coul' tannin in tea leaves be increased or diminished, and that the superiority of tea seemed to rest on the larger quantity of tannin contained in it. Professor Y. Kozai's experiments are taken as justifying the inferences, not only that the bleached leaves yielded a finer infusion, but that this finer tea acted more strongly on the human frame than tea normally grown and manufactured. Such are the conclusions indicated in the full and interesting abstract of Professor Kozai's paper which we copy into our *Tropical Agriculturist* from the *Chemist and Druggist*, and which we recommend to the careful attention of orthodox planters who consider shade trees amongst tea as objectionable as if the cultured product were coffee. When tea is well established, experience would seem to show that trees judiciously chosen, primarily for shelter and ultimately for fuel and timber, can be planted over the fields, without danger of injury to the tea accruing from the shade. In the Japanese experiment light was entirely excluded, and with results which, if they can be depended upon, are certainly very curious and suggestive. A partial analysis of bleached and normal leaves showed nearly 1 per cent more theine in the former, with more than 1 per cent excess of total nitrogen and an appreciable increase in "theine-nitrogen." Hence, no doubt, the finer aroma and high quality of the tea. But if the analysis of bleached leaves confirmed Mr. Hooper's conclusion respecting tannin, what are we to say —what will Mr. Hooper say—to the figures (if they are correct) for the analyses of leaves prepared as green or unfermented and black or fermented tea? As the result of Professor Kozai's experiments, it is distinctly affirmed that the fermenting process in the manufacture of black tea is destructive of tannin! The figures are so astounding that we cannot help suspecting some error. The percentage of tannin in the original leaves, 12·91, was reduced, so it is affirmed, to 10·64 when the leaves were prepared as green tea, and to 4·89 when manufactured as black tea! What renders this low figure for tannin in black tea the more puzzling is that the proportion of tannin in medium Japan tea is subsequently given at 17·65 per cent. Even recognizing the fact that Japan "oolongs" are more of a green tea than a black, the discrepancy is astonishing. Mr. Hooper will, no doubt, have something to say on a result so directly contrary to that obtained by him. A black tea with only 4·89 of tannin and 3·30 of theine would doubtless be pronounced "delicate in flavour but deplorably deficient in strength."

We cannot help suspecting some serious error in the experiment of the Japanese scientist, for no tea analysis we have ever seen has given a figure for tannin at all approaching 5 per cent in lowness. Indeed 10 per cent is a low proportion. Could the results of the Japanese experiments be at all depended on, it is obvious that due regulation and even arrest of the fermenting or oxygenizing process would assume a new importance in the manufacture of tea. The low percentage of tannin in the Japanese Professor's experiment may, however, after all, be explained by the technical statement as to "the conversion of large quantities of soluble tannin into insoluble phlobaphene," whatever that may be. It is interesting to learn that the process of refiring teas ("final firing" is the term in Ceylon) preparatory to packing in hermetically closed packages, improves the quality of the teas.

RESEARCHES ON THE MANUFACTURE AND ANALYSES OF VARIOUS KINDS OF TEA.

In a recent bulletin issued from the Imperial College at Tokyo, Komaba, Japan, is a very interesting account of some investigations into the values of various kinds of tea by Professor Y. Kozai, of which we give an abstract.

Since good tea can only be prepared from very young leaves, liberally supplied with manure, there should be some difference in the composition of the leaves of young and of old, and perhaps also of manured and unmanured plants. Researches have shown that very material alterations take place in the tea leaf—particularly in its earlier periods of growth—thus:

a. The percentage of water in the leaves continually decreases from the spring up to the autumn.

b. Crude protein and nitrogen-free extract regularly diminish, while crude fibre and ethereal extract increase proportionally.

c. Theine diminishes gradually while tannin increases slightly.

d. Substances soluble in hot water gradually diminish up to a certain period, and then increase slowly.

e. As regards the quantity of ash, there is but a slight fluctuation throughout the year, but its components undergo a remarkable alteration: thus, there are a decided diminution of potash and phosphoric acid, and a considerable enhancement of lime, magnesia, and iron; furthermore, the quantities of soda, manganese, and sulphuric acid increase, while the percentage of silica and chlorine remains nearly constant.

Whether the age of the tea plant may have some influence upon the composition of the leaves is a subject not yet experimented upon, although the opinion that older plants produce better leaves prevails among tea-planters. Hence the practice of preferring—or, rather, selecting—the older plants for the preparation of a superior kind of tea: for instance, dew-drops. It is, however, certain that careful pruning and liberal manuring are necessary to obtain a fair crop of the leaves from the older plants.

Still another factor which exerts an influence upon the composition of tea leaves is the peculiar method of screening the plants from light for a week or two just before the time of picking. By this means a peculiar, fine aroma is said to be conferred upon the tea, so that it is very easy, according to Japanese tea-drinkers, to tell beforehand whether or not the tea they drink originated from screened plants. It is, *a priori*, certain that there should be some difference in the composition of the leaves of normally-grown and those of screened plants.

In order to solve the problem, a small plot in a large tea plantation was selected, where a most uniform shooting was observed; a part of the plot was covered with wooden frames, so that the plants within were in complete darkness, while the other part was freely exposed to the light. In this state the plants were kept for three weeks, after which time the leaves in both parts were picked, when the leaves of the screened plants were found to have been completely bleached. A partial analysis of these two specimens of leaves gave the following figures (per cent. of dry matter).

	Grown in darkness	Grown in light
Theine	4·532 ...	3·784
Total nitrogen ...	7·835 ...	6·945
Theine nitrogen ...	1·311 ...	1·094

A special trial showed that there was no practical difference in the amount of tannin contained in the tea leaves, whether etiolated or green. It seems, therefore, that the chief difference in the composition of these two specimens of leaves lies in the quantities of theine contained. This difference is, however, not due to any new production of the said alkaloid in the darkened plants, but is simply caused by the formation of various organic substances, such as fibre, &c., in the leaves normally grown, and by the destruction of nitrogen-free matters by the continuous respiration in the shaded plants. It is concluded that the tea originating from darkened plants acts more strongly upon the human frame than that from the normal plants.

A large quantity of young tea leaves was next carefully collected from a part of a large tea plantation where the most uniform shooting was observed. The leaves were thoroughly mixed together and treated as follows:—

1. 500 grs. were immediately dried at 85° C.
2. 1,500 grs. were made into green tea.
3. 1,500 grs. were manufactured into black tea.

The following table gives the percentage composition of the dry substance of these three specimens.

	Original Leaves	Green Tea	Black Tea
Crude protein ...	37·33	37·43	380·9
Crude fibre ...	10·44	10·06	10·07
Ethereal extract ...	6·49	5·52	5·82
Other nitrogen-free extract...	27·86	31·43	35·39
Ash	4·97	4·92	4·93
Theine	3 30	3·20	3·30
Tannin	12·91	10 64	4·89
Soluble in hot water ...	50·97	53·74	47·23
Total nitrogen ...	5·97	5·97	6·22
Albuminoid nitrogen ...	4·11	3·94	4·11
Theine nitrogen ...	0 96	0·93	0·95
Amido nitrogen ...	0·91	1·13	1·16

From this it will be seen that the loss of etherea extract is somewhat remarkable owing to a conversion of a part of the tannin into a form insoluble in ether as a consequence, nitrogen-free extract shows a remarkable increase. The fact that the loss of ethereal extract in black tea is less than in the green indicates the formation of organic acids and other components soluble in ether during the fermentation of the leaves. Ash, too, suffers in both cases a slight loss, owing to the mechanical loss of the sap in which it is partly dissolved. The trifling loss of theine may also be attributed to the same source of loss rather than to its sublimation during firing. The destruction chiefly concerns tannin, this happening chiefly during the process of rolling and drying and, in the case of black tea, fermentation is the most energetic agent for the destruction of tannin. It is, indeed, true that it is very prone to alterations, since even during the mere drying of tea leaves in the sun a slight but appreciable quantity of tannin is destroyed. The diminution of extractive matter in black tea is most probably owing to the conversion of large quantities of soluble tannin into insoluble phlobaphene, and also the decomposition of organic matters by the organised ferments during the fermentation of leaves, while in the case of green tea, though a fraction of tannin is decomposed, it will not suffer so far-reaching a change as in that of black tea, and the decomposition-products thus formed may be soluble in water.

From the foregoing it is evident that black tea suffers more material alterations during preparation than green, since in the former the leaves are subjected to fermentation, while the manufacture of the latter consists entirely of mere mechanical manipulations.

Export tea is always refired in the godowns of the exporter. This process is resorted to in order to drive out the excessive moisture from the tea and to destroy the germs which, particularly in the presence of much moisture, would exercise an injurious action upon tea during a long voyage. Ordinary tea contains generally 10 to 11 per cent. of moisture, which is reduced to 3 to 4 per cent. by refiring; and, as this process is conducted at a high temperature, there should be some alteration in the composition of the tea. An investigation showed that the refiring process does not deteriorate the quality of tea, as was supposed by many, but, on the contrary, it increases the fine aroma and diminishes the astringency, while a slight loss of theine is of no practical moment. It is, however, during the process of refiring that the shameful practice of facing tea is performed. Both black and green teas are thus generally artificially coloured or faced. But, owing to the minute quantity of the admixture used, some regard it as an admissible, or even as a legitimate, practice, indeed, facing, as generally conducted, is of no great consequence to public health—but this cannot be taken as the ground for declaring the practice legitimate or even admissible.

With regard to the preparation of green tea different methods are adopted for different classes of tea. The principle should however, be to extract the largest possible quantity of theine and a moderate amount of tannin without dissipating much aroma. Now, the object cannot be attained by boiling tea or by brewing it with cold water, but by subjecting it to the action of water of a certain temperature for a certain space of time, the latter two points being determined by the nature of the tea. The method employed in Japan for making tea of an extra-fine quality—viz. "*tencha*"—is to grind the leaves to powder, which is drunk with the infusion. The second method, used only for a superior tea, is to digest the leaves for about two minutes with warm water at a temperature of 50 to 60 deg. C. The third one for [illegible] tea, is to expose the leaves to the action of boiling water for about one minute. The last, which is used for making an inferior tea, is to boil the leaves with water. These methods of making tea are quite rational, since the finer the tea the higher is its solubility. In connection with this, it is interesting to know that Prof. Eder determined what and how much of the constituents of Chinese tea are soluble in water, and the results show that the three active constitutents of tea—theine, tannin, and volatile oil—are completely dissolved by water, whilst only 42·5 per cent. of ash goes into solution, amongst the ingredients of which potash and phosphoric acid predominate.

The following table gives the percentage composition of a medium class of Japanese tea:—

In 100 Parts of Dry Substance:—	
Crude protein	26·87
„ fibre	10·89
Ethereal extract	15·64
Other nitrogen-free extract ...	22·92
Ash	6·23
Theine	2·03
Tannin	17·65
Soluble in hot water	38·89
Total in hot water	4·30
Non-albuminous nitrogen ...	0·96

Comparing these figures with those of the best quality tea, we find a decided deficiency of crude protein in the organic substance, and a consequent less solubility of the tea, with a corresponding increase in the amount of ethereal and nitrogen-free extract, and an augmented proportion of ash.—*Chemist and Druggist.*

THE CEYLON AND INDIAN RICE CULTIVATORS AND THEIR BURDENS.

A gentleman with access to official information is good enough to write from London for our benefit as follows. We allow his statement to speak for itself:—

"June 26th, 1891.—I noticed in a paper of yours that I saw the other day in Downing Street, that, in comparing the burdens on Indian rice imported into Ceylon and Ceylon-grown rice, you debit the former with an impost of 50 per cent on account of Indian land tax. The Indian land tax averages 50 per cent *not* of the gross crops, but of the nett crops *i. e.* of the gross crops *less* the cost of production. 50 per cent of the nett crop is equivalent in India to from 12 per cent to 16 per cent of the gross crop according to the varying cost of production &c., &c.

"You have so good a case that it is a pity to make any overstatement which is sure, some time or other, to be made the most of by the other side.

"On the other hand—(I haven't your paper by me, and don't remember whether you have specially mentioned the fact)—the charges for *irrigation* in India are enormous as compared with Ceylon. On rice lands in some parts of Madras they amount to R5 an acre. The land in India is *further* burdened with cesses for education, roads, payment of headmen, and other charges (vide Powell's Manual of Indian Land Settlements.')

"It will be some time yet before the question of your Paddy Tax is finally settled, I believe, by the Home authorities.

"I trust that it will be settled as justice and policy and a true appreciation of the interests of the natives demand."

It is very striking to find the experienced Government Agents in their Reports for 1890 bearing nearly uniform testimony against the policy of abolishing the Paddy rents.

PLANTING INDUSTRIES IN THE UVA PROVINCE.

(From Mr. F. C. Fisher's Administration Report for 1890.)

COFFEE.—There has been a decided and continuing improvement in the appearance of both native and plantation coffee for some time past, and now that most of the worthless estates have been abandoned or uprooted to make way for tea, there seems every prospect of the remaining plantations proving profitable for many years to come. Indeed the natives have been so encouraged by the change for the better in the appearance of coffee that they have again commenced to manure their gardens heavily and in some instances to form fresh plantations. The area of plantation coffee is computed to be 21,490 acres, which yielded 136,870 bushels of parchment, showing an increase, as I anticipated, on the crop of 1889, which was only 134,500 bushels. I do not expect any diminution in the yield for next year, but rather the reverse; and in Uva the prospects of coffee are as good, and probably better than they have been for some years. I regret that I have not been able to procure reliable statistics as to the acreage and yield of native coffee, but the gardens, though only grown in small patches, are collectively of considerable extent, and the crops gathered during the past year have certainly been largely in excess of the yield for many previous years.

TEA.—The area under tea cultivation has increased from 14,268 acres in 1889 to 18,377 in 1891, giving an addition of 4,109 acres planted within the year. A large proportion of tea previously planted came to maturity in the present year, and the production of manufactured tea is reported to have risen from 1,113,500 lb. in 1889 to 3,077,500 lb. in 1890. Satisfactory as this progress appears to be, there can be little doubt that the production will be doubled within the next three years if the sale of the new land applied for and surveyed is authorised. Some of the best results already obtained are from patana land, and as there is a great deal of waste land of this description available, it is hard to predict how far cultivation will eventually extend.

CINCHONA.—I fear there is little or no encouragement for growers to persevere in the cultivation of cinchona. No new plantations are being made, and in a few years the existing stock of trees will be exhausted and the export of bark must cease. About 6,439 acres are still under cultivation, and 3,318,000 lb. of dry bark

were harvested during the year, but the bulk of this being held with the hope that prices will improve.

CARDAMOMS.—The acreage under cardamoms is given at 295 and the crop at 7,100 lb.

TOBACCO has been tried for the first time on a large scale in the Madulsima district, and 200 cwt. have been successfully cured and favourably reported upon. If the experiment should prove financially successful it will no doubt lead to more extensive cultivation.

CACAO at recent prices has proved very profitable, and its cultivation appears to be now better understood, but the area available for it is restricted. The introduction of suitable shade trees has worked wonders in resuscitating old and apparently worn-out trees, and it is to be hoped that whenever suitable soil is available the planting of cacao will now be extended. It is most disappointing to find how little interest the natives take in growing cacao, for in the native gardens as a rule are to be found the soil and surroundings most conducive to its successful cultivation. 725 acres are under cultivation, and the crop for the year amounted to 1.050 cwt.

COCONUT PLANTING IN THE LITTORAL OF THE N.-W. PROVINCE.

It is not often that I trouble the "Old Rag" with 'a few remarks,' so I hope you will give the following a spare corner in an early issue in the interest of those who, unaffected by the glamour of "Tea," will think it desirable to find some product other than that dangerously over-done one, in which capital might be invested with a prospect of equally valuable if not equally quick returns. Reference is of course made to "Coconuts," and especially to coconuts in the Chilaw district, which are rapidly making it one of the most promising of the younger districts in the Island. Since last writing, the further progress of converting unprofitable jungle into thriving young plantations of coconuts, plantains and manioc—well laid out and neatly hedged with sappan fences—has gone on at a steady rate; and where formerly solitude and all it means reigned supreme, one now sees signs of life and health, prosperity and happiness on every side; due almost entirely to the new start which agriculture has made here and enhanced by the beneficial effects of regular and healthy toil upon the people. Sufficient time has now elapsed since planting was begun, in real earnest, north of the river Deduruoya—(not inaptly termed by strangers "the Dreadoya," and which we hope to see spanned by a substantial iron bridge shortly)—to enable us to arrive at reliable conclusions as to the *staying* properties of our soil, the sandy nature of which has so often proved a stumbling block to otherwise willing settlers. Fields within my knowledge have commenced to blossom in the 5th year, and in the 7th year (quite unaided by manure) are now showing from 12 to 15 per cent of the total number of trees carrying very fair crops. These figures are well within the mark. These trees have not the sickly, early-bearing, early decaying look about them that one might suspect: on the contrary, they have all the appearance that only thoroughly well-established palms from good seed can develope, viz. big boles, healthy bark, dark glossy foliage and well formed nuts, distinctly denoting that an abundance of sap is present. To say that this state of things will not continue for very long on our sandy soil without chemical aid is saying nothing; but to say that with the natural adaptability of the soil to the particular form of root-growth of the palm in question,—with the perennial moisture present at a moderate depth which has enabled the young trees to withstand already one severe drought,—with the salt-laden breezes incessantly sweeping over the land and the example of mature trees close by in robust health, and with a modicum of manure (without which no real cultivation can be carried on) applied judiciously—the trees will respond to the extent of returning two rupees where only one was expended, is I think as true as it is satisfactory to landholders. Grass is abundant, and consequently cattle-manure can be availed of at a small cost. Labor is now more plentiful than formerly, since most of the Sinhalese villagers have had it practically demonstrated to them, that a good day's work will earn a good day's wage, and have thrown off their so-called "inherent" laziness, and go to work regularly, except during sowing and harvest and their all-too-frequent festivals, which, however, can only be looked upon patiently and as a set-off to the absence of that troublesome system of coast advances in vogue in connection with Tamil immigrants. There is a very large extent of land in this and the adjoining districts suitable for the cultivation of coconuts and which the Government is, I think, desirous of selling. It will all be ultimately sold and the best blocks will of course go first, and my main object in writing now is to put the matter before the Planting public as one solution of the difficulty in regard to easing the tea industry of the burden of congestion which undoubtedly threatens it, but which I for one hope may be delayed for many years to come. Europeans are slow to take a fancy to coconut planting, chiefly [illegible] certain fallacies which have taken [illegible] hands, concerning delay in obtaining returns on their capital amongst other things, but these fallacies are now exploded; and if Europeans still continue to believe in them, the Ceylonese do not, and *they* are now making all the running. You will excuse the length of this letter, but will recognise the importance of the finding some outlet for the capital and energies of the Ceylon planter. You may give my name to anyone desirous of making enquiries, to whom I shall be happy to give all information in my power.

G. D. M.

[No one can doubt the importance of the coconut planting enterprise;—the practically permanent character of a coconut plantation, when it is once in full bearing, so that is a good form of inheritance for one's family, being a full compensation for delayed returns. The establishment of desiccating factories, for the product of which there is, apart from Britain and Europe generally, a very large demand in the United States, adds a new item to the exported products of the palm, while, as population increases, the already great local demand will go on largely increasing. As our correspondent has mentioned plantains, we should like to know if this culture is as exhaustive in the North-Western as in the Eastern Province, where, according to an administration report, a plantain chena is abandoned at the end of three years. In Western hemisphere plantain orchards seem to last many years with no other manure than that of the decaying stalks and leaves,—so we have recently read.—ED. *T. A.*]

TEA PREPARING MACHINERY.

It seems to be generally acknowledged that there is no better machine of its kind than Messrs. Brown, Rae & Co.'s Tea Sifter. We hear it well spoken of on every side, and combined with the 'Elston" Cutter, it is likely to grow in planting favour. The makers are kept so busy with orders that as a merchant entirely connected with them, informs us, they are booked full with orders to cover at least three months to come! Altogether the firm have sold over 200 Sifters and several have gone to India, indeed as far as Assam from Ceylon

PACKET TEAS.

For some years past a new development of the tea trade has, to the surprise of the older wholesale and retail dealers, assumed a good deal of prominence. If the advertisement columns of the newspapers, and startling placards at railway stations and on hoardings, form a criterion, the public has taken a liking to tea packed in leaden packages, and under fancy names—the latter having generally little connection with any locality where the leaves are grown. That the public should buy, to a certain extent, anything persistently forced upon its attention, is perhaps possible, but tea packed in small leaden packets would have seemed a somewhat hopeless direction, in which to attempt to drive John Bull's tastes. Tea in bulk, in a proper lead-lined chest, undoubtedly keeps better, and has a better aroma and flavour, than it can have if exposed in this climate, and packed into unseasoned lead, ornamented with a label which, the more gorgeous it is, the more it is apt to communicate a taste of paint or glue, to the tea it is meant to adorn. Then these lead packets add as nearly as possible 2d per lb. to the cost of the tea, and the expense of flaunting them before the eyes of the public must also be enormous.

A new form of advertising has been recently hit on, and a few pounds avoirdupois of Tea—whether by concerted action or not does not appear doubtful to the initiated—have been run up at public auction to prices exceeding £10 to £30 sterling per pound weight. Then this fact is simultaneously, and apparently gratuitously, blazoned throughout the Press, of course as a sign of the extraordinary quality of the Tea that the so-and-so companies deal in. As the said companies sell their Tea by retail at 2s to 2s 6d per pound, it ought to be pretty obvious, even to the most casual observer, that they cannot use tea in their packets, costing £5, £10, £20, or as in the case of the last sensational sale, £30, per pound. To purchase five or six pounds at such prices, and worth intrinsically perhaps 3s or 4s per pound, is in reality a cheap form of advertisement so long as people can be found who cannot see through so very transparent an operation. Of course the minute quantity sold at these absurd prices is as far as possible kept quiet.

The public, naturally, are ill-informed in such matters, and the tea trade might look with amused surprise on the apparent demand for packet tea, if it were not that a considerable number of grocers appear to be bitten with the new system Engaged as most of them are in trying to stop the plague of all sorts of proprietary goods, which yield them so little profit and render them the servants of the manufacturers, it is singular that other grocers should be found, who are actually adopting the system with tea. A grocer cannot manufacture mustard, nor can he grow wine or distil whisky or brandy, or brew beer. But he can, as generations of grocers have done before him, sell good tea out of an honest tea chest, and make a living out of it for himself, and not for others, while serving the public well. Surely the attitude of the grocers on this question of Packet tea should not be doubtful. They should make it clear to the public that they can sell better and fresher tea of their own, and with a far better guarantee that the source of supply named is adhered to, than if a label, however handsome, is trusted to.

Of course, there can be no reason why every Grocer, if he see fit, should not offer lead packet tea with his own name upon it, if the public desire a costly package, with no advantage attaching to it. But it seems marvellous that any number of retailers, thoroughly understanding their business, should turn their old legitimate remunerative tea business, into a means of sinking their own individuality, and ultimately, of losing their profit for the benefit of others.

One excuse for the new development, is that Ceylon tea will not keep; but if that be so, it will surely keep as well, and probably a good deal better, if retained in the original lead-lined chest, than if it is turned out in a London warehouse, perhaps in a smoke fog, passed through mixing machines, and then packed into small packages. It would also be interesting to know how large a proportion of so-called Ceylon Packet Tea ever saw its nominal place of origin. The trade are well aware that a very great deal of it never was shipped at Galle or Colombo.—*Produce Markets' Review.*

SALAWE GOLDEN TIPS.—We hear that the small parcel of tips from this estate has been sold privately at R20 per lb.

THE TEA MARKET.—A broker writes:—"Did you ever see such an irregular market? The *poorness* of the teas is keeping prices down—and unless you and the rest of the press advise planters to go in *more* for *quality* we shall see still *lower* rates!"

A SERIOUS CHARGE AGAINST CEYLON TEA AND TEA PLANTERS is thus preferred by the London correspondent of the *Indian Planters' Gazette*:—

Ceylons.—The quality so far from improving is still on the down grade, and invoices containing any Teas with the old characteristic Ceylon quality are now getting extremely rare, and when they are offered, command very good prices. On Thursday the bulk being poor, prices fell ½d to ½d per lb. It looks as though quality were being set aside for quantity in Ceylon, and a race begun for record in yield per acre. The more the pity. Is it that, having made the record for price, (as made so much of in advertisements now-a-days) there is an intention to show wonderful yields per acre, that allusions to the prices obtained by Ceylon Teas plus a heavy yield per acre, may make prospectuses of future Ceylon Tea Companies, Limited, all the better bait to catch the British investor? Are there such Companies in nubibus? If not, why this abandoning of quality and desire to excel in quantity?

COFFEE PLANTING IN DUMBARA.—The following information which we have collated for our Directory is of interest at this time, to our planting readers generally:—

At Kondesalle in Dumbara in 1887 Mr. Hamlin, the General Superintendent Oriental Bank Estates Co., commenced opening some old coffee land which had been abandoned for about 20 years. 104 acres were planted with coffee plants raised from "Nalkanaad" Coorg seed—the coffee was planted 5½ ft. × 5½ ft. and *Cacao Forastero* 11 × 11. The clearing was planted also 11 × 11 with *Ficus glomerata* for shade, all the ridges were planted with grevilleas. The clearing now in its fourth year is most encouraging; the coffee is very vigorous and is bearing a crop which will more than pay the cost of the clearing—the cacao is unusually robust and the shade is most satisfactory, it having been carefully pruned and thinned out. The above company is extending more land on this system which appears a paying one, for even should the coffee not last many years, it would have served the purpose of bringing the cacao into bearing, free of cost to the proprietor.

COCONUT PLANTING AS AN INVESTMENT.—The great drawback to coconut palm cultivation as an investment, in the estimation of Europeans, is the long delay in obtaining a return on the capital invested. "Who is to wait 15 or even 12 years," says the colonist bent on an income within 5 or 6 years, but who, nevertheless is too often destined to remain hard at work, long after the time at which coconuts would have come into bearing. Still 15 years is a long period to look forward to for adequate returns; and therefore the report on the Chilaw district—or rather that of Puttalam as just North of the Deduruoya,—with good big palms beginning to bear well by the 7th year, opens up a new prospect, and offers special encouragement to invest in a culture so steadily, if not handsomely remunerative as coconuts are generally recognized to be. "G. D. M." is known as the European planting pioneer of the Rajakadaluwa district, and we believe he does not exaggerate in his description of conditions and prospects, as qualified by enquiries in our footnote.

THE PLANTING INDUSTRY IN WYNAAD.

A brief discussion has recently been held in these columns between our Wynaad correspondent and our contributor of planting notes, "St. Louis," concerning the state of the planting enterprise, and more especially Arabian Coffee, in Wynaad. Wynaad is that tract of upland country which lies between the Nilgiri plateau and the Western Ghâts, at the extreme southern end of these before they fall away and form what is commonly known as the Palghat gap. The elevation varies from 2,000 feet at Manintoddy, North Wynaad, to over 4,000 feet at Nellacotta in South-East Wynaad. The rainfall along the ghâts runs as high as 200 inches in the year, while in the districts remote from them 70 inches may be stated to be the annual average. Wynaad obtained a notoriety in the London financial markets early last decade by the reckless and prodigal manner in which Gold Mining Companies were floated, and in the majority of cases nothing was ever done to justify their existence. These Companies still exist, and own large tracts of land in South-East Wynaad. After most of their capital had been squandered in the purchase of worthless machinery, in the erection of extravagant buildings and the construction of unnecessary roads, in the remunerations of directors and the upkeep of a large establishment in London, and after the cultivation had been permitted to go to rack and ruin for several years, they suddenly turned their attention to this, and devoted the residue of their capital to irregular and perfunctory operations in the field. The natural consequence has been that the cultivation has hardly paid its way, and where a profit has been made which was not entirely swamped by London charges, it has been so dwarfed by the gigantic original capital as to appear next to *nil*. It is no wonder that the British investor should come to look on Wynaad as a veritable "Dismal Swamp" in which no one except a Mark Tapley could be happy. He has been told that it is the land of Ophir, but discovers that gold is conspicuous by its absence. It is pointed out to him as a second Canaan, a land flowing with milk and honey, or, to be exact, rich in coffee and quinine, but so far as his balance at his bankers is concerned, it might be a howling Sahara. These Companies are doing much to retard the planting industry. It would be a fortunate day when an influential Company with a small capital was started to take over these blocks of land and to open out cultivation on a sensible and economical plan. With work carried on systematically and regularly and the cultivation of several products undertaken on a paying scale, there is but little doubt that such a Company would be able, in the course of a few years, to return handsome dividends to its shareholders.

The first fact that particularly impresses itself on the mind of the Planter travelling through Wynaad for the first time is that it is essentially not a one product district. Coffee, both Arabian and Liberian, tea, cinchona and pepper all grow vigorously and crop well, and if we are beside the mark when we say that money was made out of all these products last year, a disastrously bad season; yet if we except Liberian coffee, which has just begun to be planted up, we are well within the truth when we state that during the past quiquennium, coffee, cinchona, tea and pepper have all yielded a handsome profit in one or other district of Wynaad. Wynaad is split into three divisions, known as North, South, and South-East. The first two are in the collectorate of Malabar, the last in that of the Nilgiris. These divisions, with the exception of North Wynaad, are sub-divided into planting districts, the South into Vayitri, Meppadi and Sultan's Battery; the South-East into Nellacotta, Devala and Cherambadi. Vayitri, Devala and Cherambadi are situated on the ghâts, but where the ghâts at Vayitri face the west, at Devala and Cherambadi they face the south. Meppadi lies close to the Ghâts, but is protected by the Vellera Mulla range of hills. Sultan's Battery and Nellacotta are inland; and their rainfall only averages from 60 to 70 inches in the year. The various situations of the districts, with their different rainfall and elevations, make one district better suited for one product and one for another; so that we find at Vayitri that tea, cinchona and pepper thrive best; at Meppadi, coffee, cinchona and pepper; at Sultan's Battery, coffee and pepper; at Cherambadi, cinchona; at Devala, tea; and at Nellacotta, coffee and cinchona. Sultan's Battery and Nellacotta have the best reputation for coffee planting at the present day. The latter is a comparatively new district which has attracted the attention of successful coffee growers in other parts of Wynaad and in Coorg, but there are some old estates there which have given splendid results for many seasons in succession. In Devala tea has lately been opened out with the most satisfactory results, and it will in every probability do equally well at Cherambadi, now simply a cinchona producing country; and as these two districts have a large supply of local labour, Corumbars and jungle tribes which live in Wynaad all the year round, there should never be a want of hands for plucking leaf. Meppadi is a district in which every product appears to thrive equally. Vayitri may be said to be the last ghât district in which coffee has lingered. Last year leaf disease swept through with terrible virulence, and much land had to be abandoned. Here are some of the finest fields of cinchona, more especially Ledger, that are to be seen in Wynaad. Pepper flourishes and crops well, and tea has been proved to pay in this district. North Wynaad is the healthiest part of the country, and contains the only town of any size, Manintoddi. There is but little cultivation left here, though tea should grow well on the hills all round the town, and there would never be any want of labour. Pepper cultivation should also prove a remunerative enterprise. On the Bramagherries, some twenty miles north of Manintoddi and bordering on Coorg, there are one or two coffee estates which produce a bean that in boldness, weight and colour is not surpassed by any coffee in Southern India.

In every district of Wynaad more land is being opened out this monsoon under one or other product. It is estimated that a thousand acres of coffee *Arabica*, and five hundred acres of Liberian coffee will be planted up.* A large acreage will be opened with tea, and Ledger cinchonas, and lakhs of pepper cuttings will be put out. The labour supply is adequate, so there will be no delay in pushing on with the work, and the last accounts to hand speak of perfect planting weather. The planting industry is evidently in a healthy and expansive state. We should like to see more capital brought into the country, and there is no reason why there should not be, if only Wynaad could get rid of that bad name which the gold fever left behind it and for which the desultory cultivation to which we have already alluded, has since been largely responsible. With five such staples as Arabian coffee, Liberian coffee, cinchona, tea and pepper all growing luxuriantly and cropping heavily when seasons are at all favourable; the country should attract the attention of capitalists both large and small. There are very few corners of the world where a young fellow with a love of outdoor life and a little money at his back is more likely to get a handsome return on his capital and at the same time to lead a more healthy and happy life, in a good climate with lots of shooting, both big game and small game, at his door, and plenty of pleasant neighbours. The large capitalist ought also to find a good investment for his money here, provided that he does not put all his eggs into one basket but cultivates all the various products, not experimentally, but on a large remunerative scale, and opens out land in various districts simultaneously. Coffee has recovered wonderfully after last season's bad attack of leaf disease; cinchona if only rich in quinine, still pays in spite of the low unit, and this wave of influenza that has swept over England shows what a little thing is needed to send the price up; tea is in a transition state, but it is generally thought that the increased consumption of Indian and Ceylon kinds will keep pace with increased production; the pepper market is depressed

* Then, surely, the leaf fungus has disappeared or is comparatively innocuous?—ED. *T. A.*

just at present, but each year new markets will be found in Central Asia and the interior of Africa which will help to keep down stocks; so that taking things altogether, we may safely assert that the prospects of the planting enterprise in Wynaad are today as bright as they have been at any time in the past.—*Madras Times.*

TOBACCO PLANTING IN DELI, SUMATRA.

(*From an old Ceylon Planter.*)

I intend writing you a brief letter very shortly; in the meantime things are at very low water at present; prices for our tobacco ranging from 100 to 150 per cent* lower than last year.—1892 will show a very great diminution in the planting area, and it will go very hard with a great many assistants and managers after October of this year. Estates are being reduced and closed all round. I myself am doing well; shall be very glad to see any old Ceylon friends who may think of taking a look round here.

THE DUTCH MARKET.

AMSTERDAM, June 29th

CINCHONA.—The cinchona sale to be held here on July 16, 1891, will consist of 3,548 bales and 406 cases, about 335 tons bark. From Government plantations, 282 bales 71 cases, about 28 tons; from private plantations 3,266 bales 335 cases, about 306 tons. The bark is divided as follows:—*Druggists' bark*: Succirubra quills, 310 cases; broken quills and chips, 114 bales 45 cases; root, 89 bales; Calisaya Schuhkraft quills, 8 cases; broken quills and chips, 9 bales 11 cases. *Manufacturing bark*: Ledgeriana quills, 3 cases; broken quills and chips, 2 351 bales 17 cases: root, 685 bales: officinalis quills, 15 cases; root, 49 bales; hybrid quills, 2 cases; broken quills and chips, 161 bales; root, 90 bales. Total 3,548 bales 406 cases. —*Chemist and Druggist.*

THE EXTENDED USE OF QUININE.

The valuable medical properties of quinine as a medicine, the advisability of the drug being more extensively used, and the possibility of a decline in the cultivation of cinchona, the source of quinine, has called forth a protest and a warning from a correspondent in the *Economist* against what the writer declares to be the unreasonably high prices at which it is sold by retailers. According to this correspondent, who seems to be well informed, while quinine is sold to the public in various parts of London at from 6s to 8s per ounce, it can be purchased from the most noted manufacturers by the retailer at 1s 5d per ounce. Singularly enough, though ten or eleven years ago the wholesale price was 12s an ounce, and has become so cheap since 1880, the retailers of the drug have generally declined to follow the wholesale market. And though it is at present sold at some stores at 2s an ounce, realising even then a profit of over 40 per cent, "so far as the great mass of the public is concerned," the retailers have "practically succeeded in maintaining the price at an altogether artificial, and to many a prohibitory level." The mention of quinine is not likely to awaken pleasant memories among those who recently suffered from influenza, but they at least recognise its value. It was universally prescribed as one of the best prophylactics that could be taken during the epidemic, and the medical fraternity are well aware that an "increased supply of this unique drug cannot fail to be a benefit to the world at large." The high price at which it is sold to the public, if the correspondent's facts be correct, not only deprive poor people of a useful remedy, but, the supply being limited, the cultivation of cinchona is not so profitable as it ought to be. At present, according to the best authorities, the normal consumption of quinine is 7,000,000 ounces, and the fall since 1880 in the value of the drug annually consumed in the world is put down at no less than 3,750,000 pounds sterling at wholesale prices. There is a glut in the market, because, it is said, the retailer sells the drug at an enormous profit, the result being that the trade in bark with South America has been practically destroyed, and in Ceylon while the number of cinchona trees was 90,000,000 in 1882, there are only about 19,000,000 trees in the island now. Most of the bark imported into England, however, comes from India. If the correspondent's facts be correct it is evident that the price of quinine might be greatly reduced with advantage to all.—*Manchester Courier.*

* Impossible! 100 per cent less would be nothing at all: our correspondent means 50 to 75 per cent.—ED. *T. A.*

THE MICA INDUSTRY OF SOUTH AUSTRALIA.

A £500 ORDER FROM AMERICA.

Mr. W. Crooks, of Port Adelaide, received a letter on Wednesday from Messrs. Henry W. Peabody & Co. of New York, giving some interesting information respecting some samples of mica that had been forwarded to them, and enclosing an order for an experimental shipment to the value of £500. Messrs. Peabody & Co. order 1,000 lb. of mica of sizes varying from 3 × 5 inches up to 7 × 9, and at prices ranging from 8s 4d per lb. to 14s 8d per lb., delivered in New York, the purchasers paying the duty. The value of this 1,000 lb. will, at the prices named, exceed £500. The prices show that America is a decidedly better market than England. Though this is an experimental order Messrs. Peabody & Co. plainly indicate that if the shipment is satisfactory it will lead to further business. In their letter of instruction as to shipment they mention that the first thing to do in preparing mica for the American market is to get patterns made of hard wood and for the exact size. They use a pattern made of black walnut about 1 inch in thickness and cut with regular shears made for the purposes. In cutting mica care should be taken not to cut over cracks and imperfections. The mica as it comes from the mines should be split up into thicknesses 1-16th of an inch, so that the cutter can hold the piece up to the light and see that the pattern is not placed over cracks and imperfections. After the mica is cut it is then taken by the cleaners and each size sorted and weighed up in pound packages according to size, and packed in boxes of 100 lb each. Messrs. Peabody seem to lay stress on the necessity of having mica properly cut and put up in a proper manner. They indicate that the total sale for first-class mica throughout the United States does not exceed $200,000 per annum. There are mica mines in the country, and importations are likely to be restricted owing to a recent duty of 35 per cent placed upon mica by the McKinley tariff. With regard to the quality of samples sent them by Messrs. Crook & Brooker, Messrs. Peabody & Co. state that much admiration has been expressed as to the quality and size of the larger pieces, but unfortunately a proportionate increase of price is not secured, owing to the large-size sheets having to be cut in smaller pieces before being marketable. Of the smaller pieces of cut mica sent the quality varied, appeared as it had been taken near the surface. If such is the case, and the mine holds out, it is likely to become clearer and better further down. Another element which is criticised is the iron which is mixed to a considerable extent with the mica, which renders it useless for electricians' purposes. They thought, however, that certain veins of the mine would be clear from this element. A quantity of mica is imported from India, and owing to the cheapness of labour India would probably be a strong competitor to contend against. Nearly all the mica shipped from India is forwarded in a cut state, and arrives ready for market. Another criticism regarding the mica from

South Australia is that it is far softer than the Indian or American mica. Messrs. Peabody state that several of their friends are quite ready to purchase Australian mica if it can be laid down at the right price and good quality, and their order is for an experimental shipment; they also send samples of mica according to which the order must be filled. If the shipment is satisfactory it will no doubt lead to larger orders. They thought that the 35 per cent. duty and the high cost of labour in Australia, as compared with India, would be two obstacles that would be difficult to surmount in the development of this industry. On the whole the communication from New York is considered to bevery favourable, and the prices at which the order is to be filled are very satisfactory. The sample of American mica forwarded does not from appearance seem to be equal to the usual samples of South Australian mica.—*Adelaide Observer.*

RAINFALL: EXPERIMENTS EXTRAORDINARY.

The Agricultural Department at Washington have made an experiment, as our readers are aware, in the production of rainfall. A balloon was sent up into the clouds, where it exploded with great violence. Later in the evening a downpour of rain occurred; but (we thank Reuter's correspondent for the postscript) "whether this was due to the explosion has yet to be determined."

It is not likely that our 'cute Yankee friends are wrong; and as the experiment "is to be repeated on a large scale," we had better look out. For if a downpour of rain can be produced, why not a blizzard or an October gale? Meanwhile have every reason to believe in the genuineness of the following announcements.

NEW YORK.—Tuesday last being a foggy day, experiments of a novel kind were attempted in order to clear the surface of the sun. For this purpose the new electro-telescopic Hotchkiss gun which has been stationed upon the summit of the statue of Liberty was heavily charged with nitro-glycerine and a hundred packets of Messrs. [Notice to Advertisers.—This space £5 5s.] world-purifying soap, and repeatedly discharged at the luminary in question.

The following Thursday, June 25th, was a fine day. It is understood, however, that this may not prove the success of the experiment; that Messrs. [see notice above] do not guarantee their soap to clean objects outside the terrestrial atmosphere.

CHICAGO, Aug. 1.—The municipal authorities having determined, at any expense, to secure fine weather during the World's Fair, a perfect army of stationary and moveable balloons are to be continuously employed in the removal of any clouds found upon or above the premises of the exhibition. Rain-clouds declining to "move on" are punctured and exhausted by a novel and interesting electro-hydraulic pump. The atmosphere is strictly watched at night by means of the electric search light. The adjoining states have already complained of an excessive and disproportionate amount of rainfall and are petitioning Congress on the matter.

VERY LATEST NEWS.—The Protectionist party in Washington have organized a committee of scientists to consider the proposal mooted by a wellknown financier for the manufacture of a European blizzard. It is believed that the experiments have so far been of an encouraging nature, the only drawback arising from the difficulty of direction; the idea being that the atmospheric disturbance should only operate on free trading countries.—*St. James's Budget.*

THE CHINA TEA TRADE.

In considering the China tea trade it is not often that a ray of light is found to relieve the general sombreness of the picture. In his report on the trade of Foochow for 1890 Consul Phillips tells us that "taking all things into consideration the year under review has been more prosperous than the preceding one for the foreign merchant." He has to add, however, that it has gone badly with the native tea brokers, the losses sustained by many of them having been very great. The total quantity of tea shipped from Foochow last season was 452,000 chests, as against 576,000 chests in 1889-90 and 596,000 in 1888-89. The quantity taken for the Australian market as well as that for London shows a large decrease, and the present season will no doubt see a further falling off. The reason that the last season proved comparatively profitable for the foreign merchant was that there was a short supply from India as well as from Hankow, a condition of things which is not likely to be repeated very often. The demand for teas of a common kind led to the shipment of a large quantity of tea many seasons old, and on the arrival of this tea in Melbourne a great quantity of it was at once condemned by the Customs Authorities as unfit for human food. As the Consul remarks, this must prove a heavy blow to the Foochow trade, which cannot at the present moment afford to have the quality of its tea called in question. The incident will doubtless give a further impetus to the growing demand for Indian and Ceylon teas in the Colonies.

It is satisfactory to find that in the Fuhkien tea districts some attention has at last been paid to the plant, the shrubs being properly trimmed and well attended to, with favourable results. The authorities are awakening to the fact that if the Foochow teas are to hold their own against those of India and Ceylon more care must be paid to their cultivation and preparation, and they appear, Mr. Phillips says, to be ready to listen to any suggestion that promises to bring about an improvement in the trade. The most valuable suggestion that could be given them, but one which we are afraid they will not be willing to listen to, is that the export duty and lekin should be swept away *in toto*. This the only course that can save what remains of the trade, for it is absolutely impossible for China to hold her own against her equally or more favourably circumstanced competitors while she continues to handicap herself with taxation to the extent of 25 or 30 per cent. To take measures for the improvement of the article is an excellent thing in itself, but what has been the cause of the deterioration in the quality? Mr. Phillips tells us there was a time when the Foochow teas were so well prepared that they retained all their good qualities for a season without considerable deterioration. Under the pressure of the competition from India and Ceylon the producers have adopted the no doubt shortsighted policy of scrimping the quality in order to make up for the taxation from which their rivals were free. Remove this crushing load of taxation and the farmers and others concerned in the industry would have more freedom to improve the quality of their tea.

Consul Gardner, in his report on the trade of Hankow for last year, enumerates the advantages Indian and Ceylon tea growers have over those in China as follows:—1st, greater command of capital; 2nd, facility of obtaining loans at a lower rate of interest; 3rd, freedom from *lekin, octroi*, and export duty; 4th, command of a better and cheaper labour market; 5th command of chemical and agricultural knowledge; 6th, better acquaintance with tastes and requirements of purchasers; 7th, easier modes of transport; 8th, greater nearness to countries that purchase; 9th, enormous public works facilitating irrigation in dry seasons and preventing floods in wet seasons; 10th, large size of tea estates; 11th, better machinery. Against all these advantages of the Indian and Ceylon grower, China, Mr. Gardner says, possesses one advantage, and that is, that the Chinese tea-grower, working for his own hand instead of for wages, brings often greater care and more

industry to the task. Experience takes the place of science, and he is able to produce a finer flavoured tea than has yet been produced in India. A noteworthy feature in the tea trade of 1890 has been that some of the Russian and British merchants at Hankow have sent skilled agents to the tea-firers in the interior to teach them how to select leaves and fire the tea, so as specially to suit the Moscow market. The chops thus produced have sold so well in Russia that Mr. Gardner anticipates that this year this operation will be extended. But it is only a question of time how soon the Russian tea trade will follow the example of the English trade and draw its supplies from India and Ceylon, which are already busily nursing the market. To concentrate attention on the improvement of quality will not save the trade to China, for India and Ceylon are also studying the taste of the consumers and every year the superiority of China in the matter of flavour is diminished. To free the trade from its burden of taxation is the only course China can adopt for her own salvation as a tea-exporting country; this done, improvement in the quality of the article would naturally follow the demand. At present the position of the Chinese tea producer is much the same as that of a tradesman in embarrassed circumstances who, being hard put to it to make ends meet, cannot afford to improve the quality of his wares.—*Hongkong Daily News.*

COFFEE BORER.

CLYTUS COFFEOPHAGUS (DUNNING).

BY WILLIAM PRINGLE, M. S. C. I.,
LATE AGRICULTURAL CHEMIST TO MESSRS. MATHESON & CO. IN COORG.

(*Under special arrangement for publication in the "Ceylon Observer" and "Tropical Agriculturist."*)

This insect is the larva of an elegant beetle generally known as the "fly," from its likeness to a horse-fly or wasp. Scientifically it is one of the Coleoptera, of the genus Clytus, and is represented in America by the hickory tree borer, *C. pictus* (DRURY) and locust tree borer *C. robiniae* (FORSTER). The generic name *Xylotrupes* signifying wood borer has also been applied to this insect; and if people are not satisfied with DUNNING's name, *Clytus coffeophagus*, I would suggest the name *Xylotrupes Coffea Indica*, which simply means Coffee Borer India, and leaves the question of sub-order and genus open. But planters are very little interested in names, and a beetle which has wrought such havoc, killing off estates *in toto*, decimating others, and even in those most free from it causing an appreciable loss, is to them the "coffee borer" in its larva state and the "borer fly" when it has developed into a beetle.

During my four years' residence in Coorg I have been collecting statistics of damage done by "Borer" and experimenting with remedial agents. I have been successful beyond anything I hoped for, not only in unravelling the history of the beetle but also in applying remedies; it is easier to deal with than leaf-disease, *Hemileia vastatrix*.

It is possible in from three to five years to reduce the losses of the trees on the estates by treating the tree for leaf-disease and borer simultaneously, by from fifty to seventy-five or eighty per cent, calculated on the present losses. More it is useless to expect, as a great many trees die out from over-bearing and other causes.

The following is an approximate statement of the trees ripped out, and entered as "Borer" in South Coorg from estates under European management:—

Year.	Rainfall inches.	Crop cwt.	Per cent of trees on acreage.
1885	62·31	5	8·3
1886	57·82	3¾	6·9
1887	71·00	4½	7·0
1878	50·66	2½	8·8
1889	65·98	2¾	8·9
1890	50·68	2	8·5

Neither the average crop nor the rainfall appear to have much to do with borer failures. But when the details are examined a very close connection is found to exist between the weather and both crop and borer.

I cannot in the brief space allowed, fully discuss the meteorological features of the question in this paper, but will just say that when the number of sunspots were at the maximum the crops were good, as the number decreased so did the crops, and as they are now on the increase, crops will probably prove good till the maximum is again passed. [Our correspondent alone is responsible for this theory. What is certain is the melancholy fact that crops have gone down in 6 years from 5 to 2 cwt. per acre.—ED. *T. A.*]

For the purposes of this paper we will consider that the averages of the various styles of planting give fifteen hundred trees per acre original planting.

It takes fully three years for supplies amongst old coffee to come into bearing, and I would not be far off the mark if I said fifty per cent fail in South Coorg.

However to carefully understate the case we will suppose all to come on. Then the land out of bearing per acre of cultivated coffee was in

1887	Equal to	22·2 per cent.
1888	"	22·7 "
1889	"	24·7 "
1890	"	25·2 "

All this is paying taxes, absorbing work, and manure, and taxing the best energies of our planters to prevent it increasing.

The insect was the subject of Government inquiry some years ago, when Dr. Bidie investigated the matter. He however had not the opportunity to sit down and work out the life history, or probably his work would have been as complete as that of Marshall Ward on Leaf Disease.

In 1887, in the month of May, I obtained my first specimen of the beetle, and I soon found that as far as the estates with which I was connected were concerned it caused greater destruction than leaf disease, in spite of their being under shade. I began a careful study of the life of the insect, and though one or two minor points are still undecided on the whole of its history is fully worked out.

In the central district of the Bamboo the beetle appears later than in the hot Eastern, but sooner than on the Ghauts.

My remarks apply to the central district.

After the first or second week in June, depending on the monsoon, the beetles disappear. Stragglers are to be found all the year round, but it is not till the end of August that there is any certainty of finding specimens of the autumn flight, and it is well on into April before the spring host appears.

The maxima are two: one at the end of May, one at the end of October; the minima occur in January, February and July.

To make the influence of the weather on the beetle's development clear I append a table drawn up from personal observation:—

Month.	Weather.	Temperature: deg. deg.	Beetles.
January	Dry	60 to 90 Fh.	Very scarce
February	"	50 to 90 "	"
March	Showers?	55 to 90 "	Scarce
April	Showers	66 to 90 "	Few
May	"	75 to 95 "	Plentiful
June	Monsoon	60 to 70 "	Few
July	"	60 to 70 "	Very scarce
August	"	70 to 80 "	Scarce
September	Heavy showers	65 to 90 "	Few
October	"	65 to 90 "	Plentiful
November	Showers?	79 to 86 "	Very plentiful
December	" ??	55 to 85 "	Few

Where a note of interrogation follows weather remarks it means the showers are uncertain. There is occasionally a much greater variation in the temperature than that given: for instance in May I have known the thermometer to be over 104 deg. in the shade, and I have in January seen it down to under 40 deg. F

Broadly speaking the temperature represents the averages of the maximum and minimum observations, and they do not as a rule vary in South Coorg more than five or ten degrees from those given.

A consideration of the foregoing explains why 'shade," recommended by Dr. Bidie, who saw its good effects on the Polli Bettas where it had been planted by Mr. Minchin, who I am informed saw its good effect in Munzerabad, is so useful in retarding borer development.

The mean minimum temperature must not fall below 65 deg. F. or the development of the beetle is retarded, and shade by shutting out the sun's rays lowers the temperature.

The eggs if kept at a temperature of 36 deg. for 24 hours are all killed, few resist a temperature of 40 deg.; but if the temperature is maintained at from 80 deg. to 90 deg. almost all the eggs will give forth larvæ in about 10 days. Hence when a very dry season with hot east wind occurs "borer" failures are more numerous. It is also the reason why borer has been so much worse in the "Bamboo" districts than in the forest and ghauts, and is the chief reason for shade becoming necessary in the hot eastern districts.

The beetle when depositing its eggs selects a crack or crevice on the sunny side of the tree, and avoids the side upon which the monsoon rain beats. Every shower of rain destroys the eggs which have not been so placed that they are kept dry. Shade does great good by retarding the development of the eggs, so giving the trees a greater chance of being freed by the rain from them.

To satisfy myself as regards the influence of moisture I conducted a series of experiments on the development of the eggs, which I will briefly describe.

Twelve "borer" trees taken out in May were chosen for the experiment: they were as equal as possible in size; the primaries were cut off.

No. 1. Four of the stems were placed standing in a dish, with soil up to the old ground level, on the top of each was placed a pad of wool. The whole was enclosed in a muslin cage which was kept about one foot clear of the trees. No. 2 was the same as No. 1, only the pad of wool was omitted. No. 3 was the same as No. 2. In Nos. 1 and 2 the soil was kept constantly damp, and in No. 1 the pad of wool also; No. 3 was quite dry. Previous experiments had shown that a temperature of 80° to 90° was most favourable to the development of the eggs, and I maintained that temperature as nearly as possible.

No. 1 was damp all over
No. 2 " " at the root
No. 3 " " dry

A beetle escaped from one of the trees in No. 3 in August, and in September I cut up the trees with the following results:—

Trees brought in May 13th, 1888. Trees cut up Sep. 9th, 1888.

No.	Larvæ.	Pupæ.	Beetles.	Totals.
1	20	3		23
2	63	7	1	71
3	191	12	3	206

The average per tree is

No.	1	2	3
	5·75	17·75	51·50

This shows that a tree left lying on the ground during the monsoon, when it is kept constantly damp, does not develop many beetles, but such a tree if left out during the dry weather will develop almost all the eggs deposited on it. This points to the urgent necessity of burning the trees as soon as pulled out.

The greatest number of borers I found in one tree was as follows:—

Tree taken out July 8th, 1887, cut up September 8th.

60 Borer Grubs, or Larvæ
22 Pupæ
1 Fly, Beetle or Imago

83 total in the tree in various phases of development. One beetle escaped before I cut up the tree, so that there were altogether 84 "borers" in that one tree.

This tree was kept carefully dry, and at an equable temperature varying from about 65° to 80°.

Under favorable circumstances the life history as follows:—

The beetle deposits the eggs in a crevice of the bark on the sunny side of the tree; in about ten days the larva hatch out, but it may require 15 to 20.

The larva works on its side and cannot advance unless there is a resistance behind: this the newly hatched insect obtains from a projection or corrugation of the bark; in 24 hours or less the creature is buried under the bark. Once in the tree it advances, compacting the sawdust-like matter it excretes by admixture with a gummy substance which aided by the pressure of the insect forcing itself up against the wood it is devouring becomes almost as hard as the surrounding wood, and fills the tunnel behind the advancing larva. This work goes on for from three to five months, when having reached its full development the larva having advanced to within about ¼ inch of the bark undergoes transformation entering the pupa state. In this state it is covered by a thin transparent envelope, and lies with its head towards the bark and the tail towards the centre; it remains in this state till the temprature is suitable, probably about three weeks or a month, when it undergoes its final change to the beetle which eats its way out. If the larva has not worked near enough to the bark before changing, the beetle may fail to escape, there being more wood than it can consume.

From egg to beetle the average duration of the individual life is about six months, the majority of the race developing in May and October.

As I have already exceeded my limit I must conclude, though I have omitted a description of the Beetle and Borer Grub, and merely given an outline of the most important facts.

WILLIAM PRINGLE, M.S.C.I., Agricultural Chemist.
Bangalore, 3rd July 1891.

PART II.

This paper gives a description of the Holometabolic insect, the habits of which were described in my last article.

The beetle is classed with the great natural division of insects the *Mandibulata*. It belongs to the order *Coleoptera*, suborder *Arambycida* (*Longicorna Latreille*) of which there are according to Packard about 4,000 named species, all more or less destructive wood borers. Of these the genus *Clytus* to which the coffee borer belongs is well known in England from its representative the Wasp Beetle (*Clytus arietis*), the larvæ of which do not however cause much loss, chiefly confining themselves to old posts and dead timber. In America there are several species which do great damage: of these *C. pictus* the hickory tree borer and *C. robinias* the locust tree borer resemble in shape and size most closely the *Clytus coffeophagus*, the Coffee Borer. But there are several important differences between them not only in the marking of the elytra, but in their shape also. They do not quite cover the body which extends about one-twentieth (·050) of an inch beyond them. When closed over the wings the posterior extremity is almost square across, on the outside of it a small spike projects.

Further differences between the Coffee Borer and other known species of clytus will be discovered by carefully reading the following description of the insect, and comparing it with the description of named species.

The ova (egg) is cream-colored, and is just large enough to be visible to the naked eye.

The larvæ are when full grown about one to one and a quarter inches long, about two-tenths (·200) in diameter at the anterior extremity of the body, tapering gently down to fifteen one-hundredths (·150) at the posterior. The body is divided into eleven segments, thumped on the back to-

wards the tail, but flattened at the anterior portion. The head proper armed with powerful jaws is placed in the centre of a half-sphere, and is an obtuse knob, about five-one-hundredths (·050) of an inch diameter and projection. The underside of the body for the first four segments from the head about three-tenths of an inch (·300) is quite flat, the divisions between the segments being almost *non est*.

The last four segments are developed into knobs with a slight indentation parallel to the axis of the body, dividing each one forming rudimentary feet.

From point to point the last two segments are about one-tenth of an inch apart when the creature is at rest, it can, however, bring them together or extend them to about two-tenths (·200).

The humps on the back are not exactly opposite those beneath, but are placed on the half-lap, so that a side view suggests a screw. The tail is a protruberance on the last segment, it is about two one-hundredths (·020) of an inch in diameter and projection. Counting head and tail there are thirteen segments.

Pupa: the colour is a yellowish white, which becomes darker as the insect approaches its final change. A well-developed specimen measured sixty-five one-hundredths (·650) of an inch in length, but some are only (·500) half an inch long.

The elytra are folded under the second pair of legs and overlie the third. The antennæ are carried back over legs and elytra and extend back as far as the posterior portion of the wings which are overlain by the former of the second pair of legs.

The whole is enclosed in a transparent membrane through which the form clearly shows, all the details of the future beetle being discernable.

The beetle (imago) perfect insect.—The female is a little larger than the male, measuring from fifty-five (·550) to sixty-three (·630) hundredths of an inch in length, while the male is only from fifty (·500) to fifty-five (·550). Dr. Bidie gives a good drawing of the insect in his book.

The following is a description of the female; it applies also generally to the male, only as before stated it is smaller. The head is depressed, small, flattened in front, with two white grey lines, formed by minute hairs, extending from the roots of the antennæ past the eyes. These are large, prominent, brilliant, compound lenses; about forty-one thousandths (·040), and fifteen (·015) to twenty (·020) thousandths of an inch in diameter.

They are placed more to the side than to the front, just below the antennæ, forty-five (·045) thousandths above the mouth. They command a very wide field of view, the insect practically seeing all round at once.

The antennæ are two hundred and fifty (·250) thousandths to sixty (·260) in length; filiform (resembling a piece of black silk thread); eleven-jointed, covered with microscopic hairs incurved and pointed at the tip. The first joint is heavier and stronger than the rest; the second longer; the joints taper up towards the head, this being nearly twice the diameter of the joint which fits into it.

The mandibles are forty-four thousandths (·044) long, thirty-three thousandths (·033) broad at the base, very powerful, incurved at the point, which is blunt and rounded; each one when dissected out is in shape like a boar's head, the snout being curved down; they are sparsely covered with bristles.

The back of the head is black, polished, and smooth with minute, concave, rounded indentations; it is free from hair. The pro-thorax is one hundred and twenty thousandths (·120) long on the underside one hundred and eighty (·180) on the back, one hundred and sixty (·160) in diameter; it is when dissected out nearly spherical, a portion being cut off at one end to allow of junction with the head, the other end is also sliced off for attachment to the meso-thorax. It is covered with minute yellowish gray hairs more particularly noticeable on the underside, and is marked on the back by three black spots the centre one being four to five times the size of the outer ones, they are just the size of these full stops . . . .

A pair of short strong legs spring from the posterior portion of the pro-thorax, they are four tenth, (·400) of an inch long.

The feet are armed with hooked bifid claws; the femur (thigh), in color black brown, is remarkably well developed. The meso-thorax is very short and wedged in between the pro- and meta-thorax giving just room for the free attachment of the second pair of legs. The meta is in shape ovoid; on the underside from the termination the pro-thorax to the anterior extremity of the abdomen is two hundred thousandths (·200) of an inch. On the back the meso- and meta-thorax are covered by the elytra, when the insect is at rest. They are in color black-brown under the wings. On the underside they are covered with a dark gray down; two lines one on each sides of a yellowish white color, extending from just below the anterior extremity of the elytra, almost on the division line of the pro- and meso-thorax to the second pair of legs, from which it curves backwards over the meta-thorax to the third pair.

The second pair of legs leave the body at the posterior portion of the meso-thorax close to the first pair, they are four hundred and thirty thousandths (·430) long.

The third pair arising from the posterior portion of the meta-thorax, have the femur particularly well developed, it is twenty (·020) in length, and as with the second pair, of a light brown color. The total length of the leg is six hundred and twenty-five thousandths (·625). All the tarsi (feet) are armed with claws, and are black in color; those of the first pair are hooked, those of the second and third straight: this giving the beetle great power of holding on and forcing itself up against the wood itself it is devouring. The short stiff hairs on the limbs enable the insect to clean itself; the great length and strength of the third pair of legs enable it to jump a considerable distance and as it springs off it often unfolds its wings. It seems to be all eyes and ears and is as active as a flea and requires no little skill to catch it.

The elytra (wing-sheaths) spring from the meso-thorax; they are thin horny plates, covering the wings proper; they are four-tenths (·400) of an inch long; from shoulder tip to shoulder tip two-tenths (·200) broad, tapering gently down down to fifteen one-hundredths (·150) of an inch at the posterior extremity, which is squared off. A spike projects about eight one-thousandths (·008) of an inch on the outer extremity of each one. The marks on the back of the elytra are a bronze color, on a black background. Beginning at the anterior extremity they consist of a cross line about two one-hundredths (·020) broad extending right across the back. It has a small, bright-yellow spot in the centre.

Resting on the outer extremity of this cross line are two dashes which with it forms a bracket , between the horns of which a with a much curved top is inserted. The horns nearly touch the enclosed angle at the top of the . The bottom of this almost rests on the yellow spot in the centre of the cross line from this point to the top of the is fifteen one-hundredths (·150). Posterior to this is a shorter much flattened and spread out at the top, which has the point coincident with, but twenty-three one-hundredths (·230) from the yellow dot.

A wedge of bronze color measuring one-tenth (·100) of an inch base to apex, completes the marks on the elytra the base extends from spike to spike.

The wings when the insect is at rest are carefully folded under the elytra; they are rather square at the top, tapering in a beautiful curve to a somewhat rounded point.

The length from the junction with the body to the extreme tip is four hundred and forty-eight (·448) thousandths of an inch, and the extreme breadth is across the top one hundred and fifty-five one-thousandths (·155).

They are thin transparent irridescent colorings. The midrib of the wing is very powerful, it ends in a shaped piece which enables the insect to extend or fur the wing at will, it is aided by another powerful rib at the anterior extremity. The outer edge is fringed with minute hairs which are also spread over the upperside.

The abdomen is divided into five segments marked with lateral yellowish grey lines, It tapers off gently

to the tail to its junction with the meta-thorax. It is about twenty-six one-hundredths (·260) long and culminates in a square tip measuring five one-hundredths (·050) across the base.

The telescopic ovipositor enables the female to deposit the eggs in the bottom of a crack over one-eighth of an inch deep.

This description of the personnel of the insect can leave little doubt that it belongs to the Clytus family, and I am inclined to think that Dunning was right in naming it *Clytus coffeophagus*, as though I have found several of the genus Clytus amongst wood-boring coleoptera of Coorg none was identical with the coffee borer, though several closely resembled it. Probably it is only one of the numerous cases where a tree has an insect, or rather a special sub-order of a genus of insect preying on it. If this is the case Dunning was right in giving it the name *Clytus coffeophagus*. If not, we then must just accept it as the coffee borer *Xylotrupes Coffea Indica*, until such time as entomologists prove that Dunning is right or wrong, or that one of the known species previously named is identical with it.

WILLIAM PRINGLE M.S.C.I., Agricultural Chemist.
Bangalore, July 17th, 1891.

[This purely technical description of the coffee-boring insect will be more interesting to naturalists than to planters. What the latter desiderate is information to enable them to destroy this and other pests.—ED. *T. A.*]

BURMESE RUBIES.—Three rubies, uncut, of a size never before seen in England, or even in Europe, were sold by auction recently in London. These were the property of the Burma Ruby Mines Company (Limited). The first, which weighed 1.185 carats, was irregular in form, and resembled quartz, save in colour, which was deep red. Biddings commenced at 200*l*., and rapidly advanced to 400*l*., at which it was sold. The second lot weighed 302 carats. This was yellowish red in colour, and sold for 65*l*. Lot 3 weighed 281 carats, was dull red in colour and brought 32 guineas.—*Rangoon Gazette.*

WYNAAD PLANTERS' ASSOCIATION.—From the proceedings of a General Meeting held at Meppadi Reading Room, 1st July 1891, we quote as follows:—*Leaf Disease*—Read letter from the Honorary Secretary to Mr. Pringle M. S. C. I. Approved. *Tea Essay.*—Read letter from Mr. Yonge returning the 5 Essays on Tea planting in Wynaad in connection with a Central Factory, and awarding the Association's Prize of R200 to the Essay bearing the Motto *In te spes est* (W. M. Standen Esq., Naduvattam.) The Honorary Secretary was authorized to pay the above award to the gentleman named, and to make arrangements for the printing of the Essay. *Cinchona in Java.*—Resolved, that the Honorary Secretary address the Secretary to Government, requesting that Mr. Lawson be sent to Java on the special duty of reporting on the cultivation of Cinchona in that Island.

A PROSPEROUS TEA COMPANY GROWING "NEW PRODUCTS"—Dr. Berry White at a meeting of the Joktai Tea Company announced a profit of 16 per cent and said,

Last year I mentioned that on several of our estates we had instituted experiments in the cultivation of other products, especially of such as were suitable to low-lying and unfit for tea cultivation. We have increased the area under rhea, although as yet we have not brought any fibre to market, thinking it of more importance to extend the cultivation before attempting to work it on revenue account. We have also grown some jute, which has been very favourably reported on by the experts in Calcutta, and a considerable part of our fee simple forest land in North Lukimpore has been grafted with the rubber-yielding *Ficus elasticus*. A still larger area will, we hope, be put out next cold weather. It has been done under the superintendence of the manager of that division, Mr. Crowe, who is now at home on sick leave, and who is very sanguine regarding the success of the rubber plantation.

THE TEA TRADE OF BRITAIN.—Messrs. Geo. White & Co have issued a comparative table of figures for the past three seasons, from which we quote the main results:—

Total deliveries of India from 1st July, 1890, to 30th June, 1891, were 98,840,000 lb., or at the rate of 8,236,700 lb. per month. (Including Exports 2,384,000 lb.) Total deliveries (including Exports 1888-90 to 30th June 1891, were 102,541,000 lb., or at the rate of 8,545,000 lb. per month. Total deliveries (including Exports) 1888-89, to 30th June 1891, were 93,264,000 lb., or at the rate of 7,772,000 lb. per month.

Total deliveries of Ceylon from 1st July 1890 to 30th June 1891, were 44,482,000 lb., or at the rate of 3,706,900 lb. per month. (Including Exports 1,629,000 lb.) Total deliveries (including Exports) 1889-90, to 30th June 1891, were 32,893,000 lb., or at the rate of 2,741,000 lb. per month. Total deliveries (including Exports) 1888-89, to 30th June 1891, were 24,904,000 lb., or at the rate of 2,075,400 lb. per month.

Total deliveries of India for Home Consumption from 1st July 1890, to 30th June 1891, were 96,456,000 lb., or at the rate of 8,038,000 lb. per month.

Total deliveries of Ceylon for Home Consumption from 1st July 1890, to 30th June 1891, were 42,853,000 lb., or at the rate of 3,571,000 lb. per month.

Total deliveries for Home Consumption of British Grown Tea from 1st July 1890, to 30th June 1891, were 139,309,000 lb., or at the rate of 11,609,000 lb. per month.

Total deliveries of China and Japan from 1st July 1890, to 30th June 1891, were 81,305,000 lb., or at the rate of 6,775,000 lb. per month. (Including Exports 28,371 000 lb.) Total deliveries (including Exports) 1889-90, to 30th June 1891, were 87,836,000 lb., or at the rate of 7,319,700 lb. per month. Total deliveries (including Exports) 1888-89, to 30th June 1891, were 103,123 000 lb., or at the rate of 8,593,600 lb. per month.

CEYLON EXPORTS AND DISTRIBUTION 1891

COUNTRIES	Coffee cwt.			Cinchona.	Tea.	Cocoa.	C'mons.	Cinnamon.		Coconut Oil.		P'bago.
	Plantation	N'tive	Total.	1891 B'nch &Trunk lb.	1891 lb.	cwt.	lb	Bales lb.	Chips lb.	1891 cwt.	1890 cwt.	1891 cwt.
To United Kingdom	33964	...	33964	2746377	3947517	12862	70969	579099	37071	87267	9030	87045
,, Austria	4645	41	4686	...	24383	...	500	21000	3870	9662	3490	...
,, Belgium	18	...	18	128435	85	...	...	11000	...	2095	304	3094
,, France	129	33	162	3362	9723	39	...	85700	16980	3002	...	...
,, Germany	300	21	321	...	59831	112	1598	166675	79520	12240	3362	18759
,, Holland	...	...	...	21438	...	...	...	...	...	...	10	...
,, Italy	...	53	53	...	704	...	...	86900	68800	5413	696	...
,, Russia	...	...	...	...	11230	...	...	...	...	1001	99	...
,, Spain	...	...	...	...	4825	...	...	35500	...	...	...	...
,, Sweden	...	...	...	...	300	...	...	...	...	...	...	...
,, Turkey	...	...	...	...	2961	...	89	...	...	57357	43235	216
,, India	1321	2389	4010	...	256897	...	107608	24272	8908	1855	1029	212
,, Australia	5470	705	6175	...	1885343	...	40	2700	...	45676	15028	105586
,, America	204	...	204	350038	115341	1742	4640	42000	...	10	...	...
,, Africa	35	...	35	...	28956	...	...	...	...	1061	35132	...
,, China	66	...	66	...	83338	...	...	50368	...	58	...	...
,, Singapore	15	...	15	...	2624	84	...	...	...	...	...	...
,, Mauritius	31	...	31	...	31533	...	...	...	...	...	...	...
Total Exports from 1st Jan. to 3rd August 1891	45972	3768	49470	3249853	4199499	14839	185444	1087314	204649	227310	...	215412
Do 1890	60373	2251	62624	4615062	4164755	10370	196059	895661	254150	117448	...	190668
Do 1889	42018	3749	45932	5173737	3003799	9873	165772	1362563	398565	152764	...	235058
Do 1888	91680	3793	94972	7244095	4183711	9790	172261	845934	365507	203314	...	146927

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current London, July 16th, 1891.)

EAST INDIA, Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry ...	£3 a £6 10s
Zanzibar & Hepatic	Common and good ...	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d a 1s
	Medium to fine Quill ...	4d a 9d
	Spoke shavings	2d a 4d
Red...	Branch	1d a 3d
	Renewed	2d a 1s
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8 10s
Yellow ...	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to good	£6 10s a £6 15s
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine...	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 9d
Ceylon, Malabar sort	Fair to good bold bleached	2s 6d a 4s
	,, ,, medium ,,	1s 6d a 2s 4d
	,, ,, small	1s a 1s 6d
Alleppee and	Small to bold brown ...	1s a 1s 6d
Mysore sort	Fair to fine bold ...	2s 6d a 4s 4d
	,, ,, medium ...	1s 6d a 1s 10d
	,, ,, small ...	1s a 1s 4d
Long wild Ceylon...	Common to good ...	6d a 2s 2d
CASTOR OIL, 1sts	White	4½d a 4¾d
2nds	Fair and good pale ...	3d a 3½d
3rds	Brown and brownish ...	2¾ a 3d
CHILLIES, Zanzibar ...	Fair to fine bright ...	5¾s a 62s 6d
CINNAMON, 1sts	Ord'y. and middling ...	40s a 50s
2nds	Ord'y. to fine pale quill...	7d a 1s 5d
3rds	,, ,, ,, ,, ...	7d a 1s 3d
4ths	,, ,, ,, ,, ...	6½d a 1s 1d
Chips	,, ,, ,, ,, ...	5½d a 10d
CLOVES, Zanzibar }	Fair to fine plant ...	2¾d a 7d
and Pemba. }	Fair to fine bright ...	3½d a 3¾d
,, STEMS	Common dull and mixed	3d a 3½d
COCULUS INDICUS ...	Common to good ...	5/8d a 1d
COLOMBO ROOT... ...	Fair sifted... ...	11s a 11s 6d
	Good to fine bright sound	22s 6d a 28s 6d
CROTON SEEDS, sifted...	Ordinary & middling ..	16s a 20s
CUTCH	Fair to fine fresh ...	20s a 30s
DRAGONS BLOOD,	Fair to fine dry ...	24s a 32s 6d
Zanzibar ...		
GALLS, Bussorah &	Ordinary to good drop ...	50s a 90s
Turkey ...		
	Fair to find dark blue ...	52s 6d a 57s 6d
GINGER, Cochin, Cut ...	Good white and green ...	40s a 50s
,, ...	Good to fine bold ...	65s a 75s
Rough...	Small and medium ...	40s a 52s
,, ...	Fair to fine bold ...	32s a 40s
Bengal, Rough ...	Small and medium ...	24s a 28s
GUM AMMONIACUM ...	Fair to good	19s
ANIMI, washed ...	Blocky to fine clean ...	50s a 90s
	Picked fine pale in sorts,	£11 a £13
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£10 a £12
scraped...	Medium & bold sorts ...	£6 10s a £11
ARABIC E.I. & Aden ..	Good to fine pale frosted	
	sifted	60s a 80s
	Sorts, dull red to fair ...	35s a 55s
Ghatti ...	Good to fine pale selected	45s a 55s
	Sorts middling to good...	23s a 33s
Amrad cha.	Good and fine pale ...	65s a 100s
	Reddish to pale brown ...	25s a 50s
Madras ...	Dark to fine pale ...	15s a 50s
ASSAFŒTIDA	Fair to fine pinky block	
	and drop	30s a 80s
	Ordinary stony to midling	15s a 25s
KINO	Fair to fine bright ...	55s a 57s 6d
MYRRH, picked	Fair to fine pale ...	£4 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 1d a 2s 2d
East African Ports, Zanzi-	White softish ditto ...	1s 8d a 1s 11d
bar and Mozambique Coast	Unripe root	1s 3d a 1s 9d
	Liver	1s 4d a 1s 10d
	Sausage, fair to fine ...	1s 8d a 1s 11d
Assam,	Good to fine ...	1s 10d a 2s 3d
	Common foul & middling	10d a 1s 8d
	Fair to good clean ...	1s 10d a 2s 1d
Rangoon	Good to fine pinky & white	2s a 2s 6d
Madagascar, Tamatave, }	Fair to good black ...	1s 4d a 1s 9d
Majunga and Nossibe }	{ good to fine pale ...	2s 3d a 3s
ISINGLASS or { Tongue,	{ dark to fair ...	1s a 2s
FISH MAWS { Bladder Pipe,	Clean thin to fine bold...	1s 6d a 3s 4d
Purse ...	Dark mixed to fine pale	6½d a 1s 6d
Arrachee Lead ...	Common to good pale ...	4s 6d a 8s

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet...	4s 4d a 5s 9d
	Ordinary to middling ...	3s 4d a 4s 2d
Kurpah	Fair to good reddish violt	3s 5d a 4s
	Ordinary and middling...	2s 2d a 3s 3d
Madras (Dry Leaf).	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 8d a 2s 4d
IVORY—Elephants' Teeth-	Soft slightly def. to sound	£48 a £77 10s
60 lb. & upwards ...	,, ,,	£55 a £73
over 30 & under 60 lb.	Hard ,, ,,	£47 a £59
40 a 100 lb. ...	Soft ,, ,,	£33 10s a £54 10s
Scrivelloes	Hard ,, ,,	£22 a £31 10s
,, ...	Sound	£31 a £95 10s
Billiard Ball Pieces 2¾ a 3¾ in	Sli. def. to fine sound ...	£67 10s a £82 10s
Bagatelle Points ...	Shaky to fine solid sd.	£51 a £70 10s
Cut Points for Balls	Defective, par'l rd	£32 10s a £56
Mixed Points & Tips...	Thin to thick sli. def to	
Cut Hollows ...	sound	£30 10s a £55
Sea Horse Teeth—		
⅝ a 4½ lb.	Crvd. crkd & close stght	1s a 3s 1d
MYRABOLANES, Bombay	Fhimlies I, good & fine	
	pale	13s a 15s
	,, II, fair pickings	8s 9d a 10s 6d
	Jubblepore I, good & fine	
	pale	12s 6d a 14s 6d
	,, II, fair re-	
	jections ...	8s 9d a 10s 6d
	Vingorlas, good and fine	10s 6d a 12s
Madras, Upper Godavery	Good to fine picked ...	12s a 13s
,, ...	Common to middling ...	10s a 11s
Coast	Fair	11s 3d a 11s 6d
Pickings ...	Burnt and defective ...	8s 6d a 10s
MACE, Bombay ...	Dark to good bold pale...	2s a 3s 2d
	W'd com. dark to fine bold	3d a 1s 2d
NUTMEGS, ,, ...	64's a 80's	2s 8d a 3s 1d
	83's a 180's	1s 6d a 2s 7d
NUX } Cochin, Madras	{ Fair to fine bold fresh	11s a 13s 6d
VOMICA { and Bombay	{ Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour...	4d a 5/8d
LEMONGRASS ...	,, ,, ,, ...	1¼d a 1½d
ORCHELLA } Ceylon ...	Mid. to fine, not woody	20s a 25s
WEED } Zanzibar ...	Picked clean flat leaf ...	10s a 20s
} Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy... }	4d a 4¼d
Alleppee & Tellicherry	,, good ,, ... }	
Tellicherry, White ...	,, ,, ,, ...	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 21s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 7s 6d
RED WOOD	Fair and fine bold ..	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	50s a 60s
	Ordinary to fair ...	28s a 45s
	Inferior and pickings ...	15s a 25s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs ..	Fair to fine flavour ...	£35 a £60
,, ,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	30s a 90s
SENNA, Tinnevelly ..	Good to fine bold green...	6d a 8d
	Medium to bold green...	4d a 6d
	Small and medium green	2d a 3d
	Common dark and small	1d a 1½d
Bombay ...	Ordinary to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—med. to large	87s 6d a 92s 6d
	small and medium,	
	oyster and chicken	75s a 92s 6d
large ...	BOMBAY—fine thick ...	80s a 100s
medium stout ...	bright fairly clean	100s a 105s
chicken part stout	,, ,, ,,	80s a 90s
oyster part thin	,, ,, ,,	75s a 80s
Mussel ..	medium to fine bold	48s a 55s
	small and m dium sorts	34s a 45s
Lingah Ceylon ...	Sorts...	2s a 10s
TAMARINDS ...	Mid. to fine blk not stony	12s 6d a 15s
	Stony and inferior ...	4s 6d
TORTOISESHELL ...	Fair & fine clean heavy	18s 6d a 21s
Zanzibar and Bombay	Low thin to mid. clean	7s a 17s 6d
TURMERIC, Bengal ...	Leanish to fine plump	
	finger ...	15s a 16s
Madras ..	Fin. fair to fine bold brgt	16s 6d a 18s 6a
,, ...	Mixed middling... ...	15s a 16s
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 20s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	7s a 12s
Seychelles, 3rds...	Lean & dry to mid. un-	
	der 6 in. ...	4s a 7s
Madagascar, 4ths...	Low, foxy, inferior and	
	pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for August :—

THE "CINGALEE" *V.* THE SINHALESE PLOUGH.

A good deal of discussion has resulted from Dr. Voelcker's commendation of the Indian and Sinhalese system of "scratching the ground;" and against this theoretical view the Madras papers have quoted the practical data given by Mr. Sewell, the Collector of Bellary, who is about to undertake a series of tests to prove the advantages of deep-ploughing. The *Times of Ceylon* in an article on "Deep *v.* Light Ploughing" asks: "What have Mr. Green and the various Agricultural Instructors to say to Dr. Voelcker's theory? We know that the experiments made by Mr. Green all went to prove the superiority of his methods, but this may have been due to other things than the deep ploughing with European ploughs, such as the methods of sowing, &c."

Now in the experiments referred to, there were a good many in which cultivation was carried on according to the native system in every detail, except that the improved plough was used in preparing the land—the method of sowing being the same as that adopted by the native cultivator. The results of experiments with the "Cingalee" plough have been embodied in a pamphlet which is a summary of reports from authentic sources. In this pamphlet the following experiments were carried out to test the advantage of using the improved instead of the native implement, no other change in the ordinary cultivation being made; no "transplanting" being done, and no manure used :—

At Minuwangoda, 32½ bushels an acre were got by using the improved plough against 17½ bushels by working with the native implement; at Mullaittivu, 28 bushels an acre against 14 bushels.

At Nikaweratiya, the Agricultural Instructor realised about 53 bushels per acre after using the improved plough—the neighbours getting 5 to 6 bushels per acre.

At Galle and Batticaloa, Mr. Elliott reports 28½ and 47 bushels per acre were taken in after the use of the improved plough.

At Toppur the Instructor took in about 23½ bushels after the use of the improved plough, only getting 14 bushels per acre with the native implement.

One another occasion the crop realised at Toppur after using the 'Cingalee' plough was 36½ bushels per acre.

Of course where "planting out" was practised in addition to the use of the improved plough the yields were much higher than where the seed was at once sown broadcast. Many of the results given in the pamphlet mentioned above, were obtained not only by Government Agricultural Instructors, but also by private cultivators; the reports being in every case perfectly reliable: so that the superiority of the improved method of ploughing over the "scratching of the ground" cannot but be acknowledged.

The deeper ploughing as well as the turning over of the soil results in the bringing to the surface of a part of the lower and inert soil which is not reached by the native implement. This turned-up soil, under the influence of the atmosphere, improves vastly in character; while after being moved and softened it becomes capable of retaining water and less liable to damage from a sudden deficiency of irrigation water. Though deep ploughing may not always give a great increase in produce the first year, it appreciably increases the outturn in succeeding years. There are of course soils that will not bear deep ploughing, such as those which have a sterile substratum below a few inches of good soil, a subsoil which under any circumstances it is not desirable to bring to the surface. Of course any one who knows anything of the character of soils will be able to use his judgment in

the matter of ploughing. The usual course adopted where the surface soil overlies one of extremely poor character is to use a subsoil stirrer which, while it moves and loosens and, through the agency of water, aerates the subsoil, does not at the same time bring it to the surface.

Dr. Voelcker hints that the result of the use of an English plough will be that the furrow slices will be baked as hard as brick. The rule adopted in ploughing up paddy land with the improved implement is to plough *when the land is dry*, about six weeks before the usual ploughing time. The dangers of putting a heavy implement on stiff wet land, and ploughing deep, are well known, but given that such land is well drained and dry, "baking" of the furrow-slices, or the "poaching" of the land need not be feared.

It is of the highest economic importance that the cultivator should improve and add to his soil by working to a proper depth and not merely scratching the surface of his land. While advantage is taken of silt brought on to the land by irrigation water, it is a palpably weak system which wilfully neglects the improvement of land, and solely depends upon irrigation waters (that are liable to fail) for a few inches of transported soil.

We shall look forward with interest to the official report of Dr. Voelcker, to see whether he will give any well-grounded reasons (which he has hitherto failed to do) for the statement he has made that there is no room for improvement in native agriculture in India and Ceylon in the matter of ploughing: for this statement is directly opposed to the results of experiments both in the Empire and the Island.

OCCASIONAL NOTES.

We have to acknowledge with thinks the receipt of the July number of the Richmond College Magazine. Among other interesting matter is a column of curosities, in which mention is made of the insectivorous Drosera, amphibious fish, and the phenomena known as "fish-rain." Drosera is not uncommon in the marshy portions of the Cinnamon Gardens of Colombo,—as is also the Pitcher, another insectivorous plant. Darwin has described both these, and noted experiments made to test their power of digesting animal matter, in his work on insectivorous plants; but the insectivorous nature of these plants has quite lately been questioned by some scientists. The fall of fishes, apparently from the clouds, is an instance of the "præter-natural rains" which have caused great consternation among ignorant races. Other examples of præter-natural rains are "blood rain" and "black rain," due to the solution of very fine desert or volcanic dust that has been carried into the upper regions of the atmosphere, "yellow rain" or "sulphur shower" due to the presence of the pollen of the Scotch fir, "wheat and manna falls" resulting from wheat or esculent lichens being carried away by hurricanes, which have also caused falls of fish, frogs and molluscs. It is recorded by Geikie that many thousands of herrings fell near Edinburgh in 1817; and that similar showers took place near Loch Leven in 1825, in Rossshire in 1828, and in Ulva in 1830. These are all due to the effect of strong winds. The fact that these hurricanes are generally accompanied by thunder and lightning may account for the fact mentioned by the writer of "a few curiosities" that some ignorant races connect these "fish-rains" with electric phenomena. By curious coincidences falls of manna are said to have taken place at Ooromiah during a famine in 1829, and again at Herat while that place was being beseiged.

In the *Nineteenth Century* for June, Prof. Huxley, in a postscript to his article entiled "Hasisadra's Adventure," refering to the "overthrow" of Darwin's theory as to the origin of coral-reefs, which, according to the Duke of Argyll was patent to every unprejudiced person, goes on to say that he has recently become acquainted with a work, in which Dr. Langenbach, a really competent authority, thoroughly acquainted with all the new lights which have been thrown upon the subject during the last ten years, pronounces the judgment; firstly, that some of the facts brought forward by Messrs. Murray and Guppy against Darwin's theory are not facts; secondly, that others are reconcilable with Darwin's theory; and, thirdly, that the theories of Messrs. Guppy and Murray "are contradicted by a series of important facts." In an early issue of this Magazine we noted the two theories of Darwin and Murray as to the origin of coral reefs and islands. Darwin has been thought by many to have assumed too much when he premised a general subsidence of the sea-floor: Mr. Murray's theory depended on facts elicited during the celebrated voyage of the *Challenger*,—facts which did not support the "general subsidence" of Darwin. When, however, so competent an authority as Langenbach avers that some of these facts were *not facts*, and that the theories of Murray and Guppy are *contradicted* by a series of important facts, it would seem likely that modern geologists will think of shifting back their belief to Darwin's theory.

Mr. T. B. Kehelpanala furnishes the following interesting notes regarding the well-known Muturajawela fields:—The name Muturajawela literally signifies royal-pearl-fields; and the place has been long associated with fertile paddy lands. Tradition says that the name owes its origin to the following incident. A Sinhalese king owned these fields in days of yore, and during his proprietorship, a cultivator—for reasons not very evident—sowed the land with the husks of paddy from the *Kalavita* or threshing-floor. Contrary to all experience and expectation, the ears of corn, instead of bearing at least paddy, carried strings of pearls on the panicles. The cultivator, overjoyed at the strange result of his experiment, went with all speed to his Sovereign and communicated the fact to his Majesty, who accompanied by his nobles lost no time in inspecting the field in question. All saw and were struck dumb with wonder at the sight. The late Mr. Advocate Muttiah gave me a very good explanation of this parable, which he thought was intended to show the extreme fertility of the Muturajawela fields, that were capable of producing, with a sowing of a quantity of seed that was hardly appreciable, a harvest as valuable as pearls. A part of these lands is now under paddy, and notable among the cultivators is Mr. Jacob de Mel. This enterpris-

ing gentleman has taken effectual measures to cope with the great difficulty in the way of cultivation, and that is the periodic influx of brackish water. During the Dutch Government dams were constructed to keep off the salt water from inundating the land. It is hoped that the long deferred project of draining these fields will result in the recultivation of the greater part of the land that has been lying fallow so long, and make it prove worthy the name it bears.

Mr. J. A. Kodippily writes:—Para-hera and Kekuna-dure are two villages about 7 miles from Matara, on the road to Hakmana and Dikwella. Their distance from the sea is about 2½ miles. The soil is a very good loam, mixed with a considerable quantity of gravel. Coconuts and Citronella grass thrive very well. There are estates belonging to Wellabadapattu Mudaliyar, the Mohotty Mudaliyar, Dr. Schokman, Mr. D. W. Gunaratna, and several others. Almost all are cultivated with coconut. One proprietor cultivated tea as an experiment, which proved unsuccessful: 5 out of 10 acres having been an utter failure. Cinnamon is also, I hear grown in one or two estates.

W. A. D. S. contributes the following note on Chaya Root *(Oldenlandia Umbellata)*:—The plant which produces the Chaya root of commerce grows wild over many parts of the Island, and is specially met with in Mannar, Jaffna, the Northern Islands and the Wanni Districts. The roots when bruised have a yellowish colour, and were valued as a good dye stuff by Indian dyers. Large quantities of Chaya root were exported to India some fifty years ago, but the quantity has continued to decrease of late years, till the last year's Customs returns showed no exports at all. Chaya is never cultivated, and it is believed that when it is cultivated the root loses to a great extent its value as a dye stuff: only an inferior dye being obtained from cultivated Chaya. The want of a demand at the present day for this dye, can only be supposed to have been brought about by the gradual displacement of the vegetable colours by the cheap aniline dyes prepared from coal tar. The quality of the Chaya depends to a great extent on the soils in which it grows: Chaya growing in the Island of Karativoe was considered to be superior in quality to that growing in Manaar or the Wanni. The digging for the root was carried on by a particular caste of Tamils.

INDUSTRIAL DEVELOPMENT.

The problem of Industrial Development is one that Ceylon has already had to face, and one that will increase in importance as year succeeds year, and the conditions of commercial life become harder and harder. It is a question the significance of which cannot be over-rated. How to develop the industries of the country, and thereby not only elevate its commercial status, but also add to the wealth of its people, and bring a comfortable livelihood to numbers that already find it hard to live,—these are problems which, if they are not pressing now, will become so at no distant period that these problems have already forced themselves on public attention is clear from the great interest excited over the Technical Institute about which so much was said some time ago. It may not be unfair to ask what has resulted from the excitement which promised so much.

The question being so interesting in itself, it is well worth observing what other countries are doing in regard to their own industrial development, as the experience of others may be profitable lessons for ourselves. A special interest attaches to the attempts made by our neighbours in India. To one of these it is the object of this paper to call attention. A lecture was given at Lahore early this year by Mr. J. C. Oman, F.C.S., F.L.S., the Professor of Natural Science in the Lahore Government College. This lecture is one so free from mere technicalities, that it may profitably be read by even that fastidious person known as the "general reader." Its aim is eminently practical. It abounds in useful suggestions, that are none the less useful for being quite obvious when plainly stated; and these suggestions are brought before us in simple and direct phrases that make the lecture a pleasant one to read. Besides, it is not the production of an ordinary theorist, such as Professors are commonly reputed to be. The present writer has personal knowledge of the earnest efforts made by Mr. Oman for the advancement of Science, and the spread of scientific habits in the Panjab. He has among other things established a society for the cultivation of Science. One result of this lecture may be seen in the fact that a meeting was held at Lahore last month to form an Association with the object of improving the material and industrial resources of the Panjab.

With these introductory remarks we may turn to the lecture itself, of which what follows is mainly a summary.

Mr. Oman holds that the "actual position in the scale of nations occupied by any country depends primarily upon the intellectual and moral condition of the people generally, *i.e.*, upon the intellectual status of *the average man* in the country, not of a mere class or section of the population; and not less so upon the *character* of the average man, as regards honesty and industry taken in their widest sense." Excluding, then, geographical and climatic peculiarities, the conditions necessary for advancement are these:—(1) a stable Government; (2) General Education or national culture, including the education of women; (3) Technical knowledge; (4) Industrial association and industrial literature; (5) A market for the industrial productions of the country; (6) Capital, co-operation, and the quick circulation of money. The present lecture confines itself to only three of these conditions, the second, third, and fourth.

And first as to *General Education.* The differences between England and India in this respect are brought out in a striking manner. With a population of 250 millions in India only about 3 per cent can read and write; in England the percentage is 87, and in Scotland 93! But the contrast is not in the figures only. If in a backward district of England only 15 per cent of the population can read, and in an advanced district of the Panjab the same proportion holds, the two peoples cannot yet be considered as being on the same intellectual level. For each possesses a different literature. The Englishman has it in his power to read all the latest and best ideas on

every subject of importance, whether Literature, or Science, or Art. He knows all about the most recent inventions, and has particulars of every important industry. But the Panjabi has nothing of this in his vernacular. He has "very little of any kind to read, still less that is good, and nothing at all of a *practical* character and conducive to *industrial* progress."

If it is easy to object that the educated Panjabi has also access to the Englishman's resources. But the educated Panjabi is not *the average man* of the district, and as a rule the educated Panjabi disdains industrial pursuits, or has no suitable opportunity of following them. Apart from that, the objection is based on a fallacy. In the first place, English is more or less a foreign language to the native of India; and in the second place, to say that the Englishman and the Panjabi have equal facilities in the way of procuring technical information is to exaggerate the capabilities of Indian booksellers.

Evidently, therefore, a national literature must be the first step to industrial advancement, and Mr. Oman appropriately proceeds to sketch the character of the literature best adapted to India. With little or no modification, it would be a literature extremely suitable for us in Ceylon.

1st. The best English works of the day should be locally procurable and at low prices. This is a subject important and considerable enough to require separate treatment. It is curious that in spite of all the concessions granted by the Government (in the way of reduced postage rates and the absence of customs charges) the cost of books should still be so excessive. Not many years ago, before the rise in exchange, native booksellers in India were able to sell most books at eight annas to the shilling. Even now they sell at nine, and the larger European firms at ten annas. But in Ceylon, we are charged 87 cents (=14 annas) for a little shilling primer, and for other books in much the same proportion! If these charges do not appear extravagant to the book-buying public of Ceylon, they certainly deserve to pay.

But even a charge of eight annas to the shilling has been recognized as too high for the natives of India and even for most Europeans. Hence it is we see special editions (like Macmillan's Colonial Library) being published for their benefit. An extension of this is what those interested in the national culture of India desire. There was lately some discussion on the subject, but nothing definite has apparently been decided.

2nd. Mr. Oman is not satisfied with cheap English books. He urges the importance of a *vernacular literature*. This vernacular literature may consist even of borrowed materials; but it must be national, and endowed with a healthy vitality." It must be broad and tolerant, including not only technical works, but works of imagination, history, and philosophy. Something yet is necessary,—illustrated books for the young. When we see magazines like the *Boy's Own Paper* and the *Girl's Own*, it seldom strikes us that those to whom English is a "foreign" tongue have no opportunity of enjoying or profiting by periodicals of that class. "The Indian school-boy, with nothing but his few meagre school-books to pore over, is certainly very much to be pitied, and though he may get through the examinations for which he is prepared by his teachers, he has undoubtedly lost, and lost irreparably, an important part of the education that European children enjoy, and he has certainly missed a deal of innocent pleasure which would have been his portion under happier circumstances."

3rd. The means of illustrating books and papers should be made available. For this, lithography, wood-engraving and photography should be encouraged. "When there is in Europe such a wealth of means, such a choice of beautiful processes for the illustration of books, it seems to me a SHAME that we in India are so utterly deficient in this respect."

Then there is *High Education*. In England, Chartered Colleges, Institutions, and Examining Bodies of the highest class exist quite distinct from the nine Universities. Besides these, the Government itself undertakes an extensive system of Examinations in Science and Art. To encourage these subjects it offers grants, and even pays the Teachers, on the results system. In 1887, there were 103,362 students under instruction in this way, and the grants paid amounted to £88,000. Then, there are *Night Schools*; *Learned Societies*, with their *journals*, *prizes*, and *medals*; and *Public Lectures*. These methods are fully treated in the lecture before us, and many practical suggestions are made, which may be referred to as occasion arises.

After General Education, the subject of Technical Instruction demands attention. There is one important feature to be noted in the agitation for special knowledge in England. There it is a spontaneous cry, a demand that has come from the working-men themselves and from employers of labour. Until this spontaneity is noted in India (let us add, Ceylon) no movement in that direction will be useful. Here is a passage from the lecture, which puts the case forcibly:—"It will not be enough for the advancement of Indian industries that a few workmen here and there should be taught certain more or less modern technical processes, processes which might be superseded any day by better and cheaper ones. For sound and permanent progress, it is essential that there should take place such a general raising of the entire intellectual level of the working classes as will place them in a position to appreciate and adopt new methods of work as they arise, and to understand the bearings of new inventions upon their own trades and crafts. They must have that living interest in scientific, mechanical, and other inventions and discoveries which characterise the employes of labour, and the better portion of the working-men of Europe and America to-day. A new class of educated masters, employers of skilled labour, must also come into existence here, before Indian industries can be developed to their fullest extent, and this will not take place until members of the better educated classes shall devote themselves to industrial pursuits, and shall not be ashamed to be the foremen of shops and the working heads of industrial undertakings, large or small."

India is mainly an agricultural country; hence agriculture is the department in which more technical knowledge is specially required. Mr. Oman does not sympathise with the European traveller who goes away with a favourable impression of the knowledge and skill possessed by

the India Balbus and Cains of the fields. Such a traveller, he says, "*loses his orientation*," and admires what he cannot understand. *Orientation* is a sufficiently good word for argumentative purposes, but Mr. Oman is quite clear as to the need for improvement in agricultural affairs. There must be more knowledge of the fundamental principles of agriculture. The farmers must be "set thinking along correct [*i.e.* scientific] lines," and "stimulated to work out improvements for themselves by learning what is done elsewhere," besides learning the "possibilities of science in its application to agriculture."

But agriculture is not all. Among other subjects which may usefully engage the attention of the educated community, there are: the introduction and acclimatization of foreign fruit trees and useful plants; dairy farming; bee-keeping; sericulture; and pisciculture. Mr. Oman has also a word to say on the need for *accurate finish* of workmanship in regard to pottery and work in metals. But it is time to bring this paper to a close. Surely in all these matters, there is a great deal that we in Ceylon may profitably take a note of. India is a vast country compared with Ceylon; yet even here there is room for industrial progress which shall be, as Mr. Oman quotes:—

"Built of furtherance, and pursuing;
Not of spent deeds, but of doing."

BEL.

AGRICULTURAL LITERATURE AMONG THE ANCIENT INDIANS.

(Concluded.)

By W. A. De Silva.

In the course of the chapter on Gardening in the Brihat-Samhita, referred to in my previous papers on the above subject, the author gives certain prescriptions and methods to induce cultivated plants to assume various forms which are abnormal to them. These instructions in other words intended to bring about certain monstrosities in plants, such as would make them more valuable as food products or ornamental shrubs. To quote the writer:—

"To produce fruits of a very large size which are devoid of seed, soak the seed of the pumpkin, or of the brinjal or of the snake-gourd &c. in the serum of the fish or hog and dry the seed. If the seed be then sown in good soil and watered, it will bear fruits of very large size and without seed."

Again:—"Make cakes of a mixture of sugar, rice flour, and Mahwa (*Bassia Latifolia*) flower buds, and cover with the cakes the roots of fruit trees throwing earth over the parts. The fruits will grow without seed."

It is a well-known fact that in most fruit trees fruits without seed and consisting wholly of pulp are met with. This end is sometimes gained by the process of high cultivation, when the edible cellular tissues in the fruits develop to an abnormal extent, while at the same time the seeds tend to diminish in number and size, and finally to disappear. From this, however, it is at least clear that as seedless fruits are naturally met with in trees, and especially when under high cultivation, it is not improbable that they could be produced by artificial means.

Among some rules for the cultivation of ornamental plants is found one which is said to cause the production of many-coloured flowers in the white waterlily. "Thrust the root of the *Kumuda* (white waterlily) into a solution of a variety of colours, soak the root of the plant in urine, rub over it ghee and honey, and sow the seeds that are produced. They will grow and bear flowers of the several colours in which the root of the original plant was soaked."

Now I shall proceed to give a few startling examples of rules we find in this ancient agricultural work.

To make trees grow like creepers: "Mix together the flour of rice, black gram, and of sesamum seeds, with the flour of barley, dead or decayed flesh, and a small quantity of water. Soak the seed of the Tamarind in the mixture and expose it to the smoke of the root of the turmeric. The seed when sown will grow as a creeper."

Again:—"Dig a pit in the ground a cubit square and two cubits deep, and fill it with a solution containing the extract of the flesh of the fish. Allow the pit to dry, helping it to get rid of the moisture by means of fire. Rub the sides and bottom with a mixture of honey, ghee and ashes; fill the pit with the flour of black gram, sesamum seed, and of barley mixed with earth; pour over the pit the 'fish-water,' and pound the mixture well till it becomes hard. Sow any seed at a depth of four inches and water it with the 'fish-water.' The seed will grow as a fine creeper, with tender leaves over terraces and the roofs of houses in a most wonderful manner."

"If the plaintain," we are next told, "be watered with a liquid mixture consisting of the flesh, and serum of man, the powdered tooth of the elephant and water, the tree will yield mango fruits."

The phenomenon of the change of taste in some cultivated vegetables and fruits by the application of certain manures is not quite new, as it has been found out by experience that when pig's dung is used in the growth of certain vegetables, it imparts a peculiar taste to them. So in all probability the special compost which is advocated above might give the plantains a flavour resembling that of the mango. But here is a recipe that beats all previous ones:—

"Soak any seed many times in human flesh and the oil of Ankola (*Alangium Hexapetalum.*) drying the seed each time. Take a quantity of earth in the hand, bury the seed in it, and pour water over it, the seed will grow that instant."

Now such curious prescriptions and recipes as have been quoted in this paper are by no means peculiar to the ancient Indians. Dr. A. M. Ross in the course of a paper on "Medical Delusions" in the "Journal of Hygeio-Therapy" says, that "one hundred and forty years ago Dr. Sydenham of England, called the 'English Hippocrates,' prescribed the following dainties in which he was followed by the medical profession of England: Hop lice, viper's flesh, dried human flesh, the heart of a mole, crab's eye, the excrement of sheep and dogs, powder of burnt owls and swallows, blood of black cats and white puppies, and spittle of reigning king."—(*Sydenham's Praxis Medica* pp. 151-154.)

So that if eastern pundits advised the use of peculiarly composed fertilizers for plants over a thousand years ago, western physicians have prescribed still more startling remedies for human beings less than two hundred years ago.

CEREMONIES OBSERVED BY THE KANDYANS IN PADDY CULTIVATION.

The time of ploughing is one of great solemnity to the Kandyan paddy cultivator. The *Nekatrala* is again consulted for the purpose of fixing a *nekata*.

Exactly at the time appointed the goiya puts into a large earthern vessel of water, the paddy that is to be sown. Having allowed the paddy to soak for a time, it is heaped on the cow-dunged floor in a pyramidal or conical shape. Dongomuva Bandar Ratemahatmaya of the Badulla district informed me that a peculiar preliminary ceremony was observed by the cultivators of that part in connection with the sowing of paddy:—Images of Buddha in recumbent, sedent, and erect postures are brought with every mark of solemnity to the place where the paddy to be sown is stored, and certain religious performances are gone through by the officiating Kapurala. Four days after the soaking referred to above, the ceremony of *yan karanawa* takes place, that is, the separating of the germinated seeds from the general mass. A part of the *pila* (verandah) or other convenient place is then rubbed over seven times with a thick solution of cowdung, and the paddy is placed on this prepared floor and covered over with leaves of the Habarala, Enduru or Maru. The field is then got ready for sowing and the goiya proceeds to the Astrologer to consult him as to a lucky hour and day for sowing. Very early in the morning on this day the cultivator anoints himself with sandalwood or other oil, and repairs to his field with the seed to be sown—the paddy being placed on plantain leaves and a mixture of cowdung and water poured over it. The goiya, as he sows the paddy, repeats to himself certain religious stanzas and meditates on the Hatarawaran Dewiyo, the gods of the four regions of the globe. Every precaution is taken to prevent trespass of all kinds on the field, and the goiya fences in his land with stones or sticks. Much of the time of the cultivator is now necessary for watching his field. When the paddy is about a month old weeding (*Wal Ederema*) is done. This part of the work is exclusively done by women, who are required to be thoroughly clean.

Thinning and planting or *Neluma* is done by the women when the paddy is about 3 months old. On a day which is not considered unlucky the women call upon the owner of the field for the *attankaiya*, and the owner, according to recognized custom, treats the women to *kaun* and *kiribat*, and directs them to commence work. The women, while transplanting, intone verses of poetry, making pleasant music. No one dare cross the ridges with open umbrella while the women are at work, unless there be urgent need for so doing, and permission be first obtained, otherwise mud &c. are thrown on the intruder whoever he be. The President of Uda-Bulatgama mentioned to me that it is recorded of a certain king of Kandy, that while crossing a field known as Gurudeniya, in Kundasalé, where some women were engaged in transplanting, he was bespattered with mud by them. The women proved themselves no respecters of person in the carrying out of their duty, while the king himself passed on without a word of censure against the treatment which no doubt he thought he deserved.

T. B. Pohath Kehelpanala.

Gampola, Angammana Adikaram Walauwa.

(To be continued.)

GENERAL ITEMS.

Mr. J. S. de Saram, late Assistant Master at the School of Agriculture, and still more lately Magistrate at Balapitya, has been provisionally appointed Assistant Superintendent of Police of the Western Province.

At a Committee Meeting of the Agri-Horticultural Society, it was decided that the December Show should be held at the Racket Court, Colombo.

We are anxiously looking forward to the conditions of the proposed settlement under Kalawewa tanks, for the success of the project will greatly depend on the nature of the conditions.

The following is an extract from the Administration Report of Mr. Price, Assistant Government Agent of Kegalla, and contains some excellent suggestions:—

"To encourage agriculture and to foster improvement in its methods are similarly part of good government. The institution of a Department of Agriculture or of Agricultural Boards, somewhat on the lines of the suggestions which have frequently been published in the local press, is a measure which is very desirable. Meanwhile progress, if it can be said to really exist, is spasmodic instead of being regulated under the guidance of experts. An Agricultural Show now and then, an occasional distribution of small rewards by the Assistant Government Agent on circuit, agricultural instruction—confined, owing to the wants of funds, which admit of the employment of only one instructor, to a restricted area—are the only efforts at present possible for local officers. More agricultural instructors are wanted, but the Assistant Government Agent has no money available for their salaries, and the movement in this direction is cramped for want of funds. Arrangements are now being made, with the assistance of the Director of Public Instruction, to station the one agricultural instructor, for whose remuneration it has been found possible to provide, at a new school close to the so-called experimental Garden of Kegalle. And it is hoped that the headmen and people who come in from all parts of the district to headquarters may profit by what they will see at this centre. But it is a mere drop in the ocean. Given a little money, and real advance would be feasible. Another thing to do is to undertake the systematic planting and careful rearing of fruit trees in public grounds, such as the premises of every resthouse and each Village Tribunal. Preparations are now being made for doing some work in this direction in earnest during 1891, and the Assistant Government Agent has secured promises of assistance from the Director of the Royal Botanic Gardens."

The Paris correspondent to the "Ceylon Patriot," gives the following as "useful to Dairymen:"—"Hot water for cows" is the maxim

of the French dairy farmers in the department of Finisterre. They claim to have proved by experiments that when cows drink hot water they yield one-third more milk than when they are refreshed with cold water only. Caution must of course be observed in adopting the new system. Avaricious dairymen must beware of scalding the throats of their cows in their haste to avail themselves of this discovery, which is vouched for by the Consul at Brest. The proportions, it is said, are half a pail of boiling water to half a pail of cold water.

A Commission appointed under the Scottish Universities Act have issued a draft Ordinance abolishing the degree of B. Sc. in Agriculture at the Edinburgh University. It was through the efforts of Prof. Wallace that this University instituted the degree, the first of its kind in the world; and following it the leading English Universities are founding similar degrees. Much dissatisfaction is felt in Scotland at the action of the Commissioners, and there is some prospect of an Agricultural College being founded to supply the University course that will before long be given up.

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THE CEYLON PLANTING ENTERPRISE: AREA UNDER TEA AND OTHER PRODUCTS IN AUGUST 1891.

WE are now in a position to give the main results of the planting returns which have been pouring into our office for the past month or six weeks, the same being separately verified as far as possible by the estate mercantile agents in Colombo. Out of a total of 687,832 acres returned as included in the plantations of tea, coffee, cacao, cardamoms and cinchona in the island, not quite one-half or 333,953 acres are given as under cultivation. Of this latter area, the total under tea alone is 237,310—*or an increase of 30,000 acres of tea in the twelve months*—apart from some 9,900 acres of tea planted along with coffee, cinchona or cacao,—soon we may be sure all to be tea. In round numbers therefore and allowing for clearings to be planted in the coming North-east monsoon, we may say that the close of 1891 will see 250,000 acres under tea in this island. Now considering the considerable proportion not yet in bearing, it is clear that if our total export of tea this season is to reach nearer to 70 than 60 million lb., the average yield for the districts will not be much less than 375 lb. per acre; while if the quarter million of acres are to give 100 million lb. of tea by 1894 or '5, the average will then have to be exactly 400 lb. per acre.

Turning to other products, poor old "Coffea Arabica" cultivated alone, only shews 28,899 acres for the island, apart from about 17,000 acres of coffee with tea, cinchona or cacao, and also apart from about 1,800 acres of Liberian coffee.

Cacao covers 10,597 acres alone, while over 4,000 acres more of it is interspersed with coffee or tea. Of Cardamoms about 5,000 acres are still cultivated, the same as last year. Of Cinchona, we have 5,062 acres and 2,588,000 trees separately returned, apart from cinchona interspersed between coffee and tea over 15,680 acres. Altogether we may estimate the equivalent of about 9,000 acres with cinchona or a falling-off in the past year of 6,000 acres which have been cleared and planted with tea. In June 1890, we put the number of cinchona trees over 2 years old growing in the island, at 19 677,000. Now the total can not exceed 12 million trees, and putting their average yield at 1 lb. dry bark per tree, that would show that Ceylon has no more than 12 million lb of "2 per cent bark" to contribute to the world's requirements, and if this is spread over say the next three or four years, the annual export is likely to fall to 3 or 4 million lb. If the statistical position of the Java cinchona industry could be made equally plain, we might expect to see a far more hopeful position established in the cinchona bark and quinine markets of London and the Continent of Europe.

FUEL CONSUMPTION OF INDIAN RAILWAYS.

According to the recently issued Administration Report of the Director-General of Indian Railways, the consumption of fuel on all railways during 1890 compares as follows with the consumption during 1889.

[We summarize the figures.]

English coal 224,776 tons in 1889 and 203,578 in 1890. Indian coal 583 923 and 641.443. Total coal 806.923 and 845,021. Coke 13,093 and 13,386. Patent fuel 24,560 and 18,594. Wood 331,617 and 318,731. A note to patent fuel and wood seems to indicate that the figures for 1890 are only approximate.—probably below the truth. On the above figures it is remarked :—

"The total consumption of coal during 1890 was greater by 4·72 per cent, but the quantity of English coal decreased by 9·43 per cent, while that of Indian coal rose by 10·18 per cent. The total consumption of coke increased by 2·23 per cent. and that of patent fuel and wood decreased by 24·29 and 3·88 per cent, respectively.

Australian coal seems to be mixed up with English. We need scarcely remind our readers that the working of railways in many parts of India has the advantage of local supplies of coal, which is not the case in Ceylon. With us only small quantities of coal are used, mainly on the steep gradients.

The total quantity of fuel consumed on Indian railways in 1890 was:—

Coal ..	..	.. 845 021 tons
Coke ..	..	.. 13 386 „
Patent fuel ..	..	.. 18 594 „
Wood ..	..	.. 318 731 „
Total		..1.195.722 „

A quantity which will increase year by year, unless science makes some grand discovery in the direction of the cheap application of electric force. Such a discovery would be of immense importance to Ceylon, by setting free for agricultural purposes large areas of forest now reserved for railway fuel.

The mileage for which nearly 1,200,000 tons of fuel were consumed was about 16,000. If, as it is hoped, petroleum in quantity is discovered in India there will be in the case of the adjacent empire a double advantage over Ceylon, in two better forms of fuel than wood being available. As our own railway system extends the drain on our forests will be very serious, apart from the inconvenience of the bulky nature of the fuel which has to be transported to and on the railway. For our railways and for our tea factories our hope is in the discovery in the near future of a cheap method of utilizing the all-pervading force called "electricity."

THE RICE FIELDS OF CAROLINA.

From the "Louisiana Planter and Manufacturer

Colonel John Screven, a distinguished rice planter of Savannah, some four years since, in a public address, referred to a rice plantation as a "great agricultural factory." Mr. Trenholm of Charleston, lately a prominent member of the United States civil service commission, a year or two afterward made use of nearly the same words, though evidently in ignorance of their previous employment. That authorities so high and entirely independent should mutually employ the same expression is most excellent *prima facie* evidence of its applicability and epigrammatic fitness.

And a factory truly a rice plantation is, in the fullest sense of the word; for Nature—passionless stepmother that she is—exerts so slight, and attentive art so complete and watchful a control over every process attending its production, that rice is substantially "manufactured," not cultivated.

But in this instance utilitarian art blends unconsciously a wondrous beauty with its practical economies. No fairer prospect exists in the whole realm of agriculture than the landscape of a well-appointed rice plantation, whether viewed in the early spring before planting, with the tawny seams of its embankments intersecting the checkered squares, the mellow mould still steaming from the plow, and the whole visible area apparently as cleanly swept and garnished as a parlor floor; or later, during the nursery reign of the fostering "stretch water," each square a lake, its wavelets rippling under the fresh sea breeze, with the tops of the young plants immersed, for forcing—in long, waving lines of tendrils floating on the water and the russet banks, separating lake from lake, now paths of emerald, their grassy carpet blowing in the April sun; or later still, during the "long water," the entire landscape one waving sea of green, broken only by the crystal ribbons of canals and quarter drains; or, finally, in the full noontide of harvest-time, the level fields, now lakes no more, but vast stretches of stubble, dotted with stacks of golden grain, as if an army tented there.

The wheat fields of Dakota are impressive, but their unbroken, unrelieved monotony is almost painful. The vine-clad hills of the Upper Ohio are novel and interesting, the velvety slopes of the valley of the Roanoke and Kentucky's blue-grass meadows pretty and attractive; but a study of the rice fields of the Atlantic deltas is simply fascinating.

In other agricultural pursuits man's efforts are the sport of the elements, and largely dependent upon the caprice of nature. In this man works with God, in the very shadow of his presence, with intelligence and judgment regulating the wayward freaks of nature, grafting chemical affinity and physical force, and directing both to an end, reasonably certain if properly compassed.

The high plane of thought necessarily traversed by the planter pursuing this avocation from generation to generation, naturally induced a broader intelligence, greater elevation of mind, superior refinement, and a more universal and thorough cosmopolitanism than has ever been attained either before or since in any other kindred employment.

Yet this incidental super-refinement was far removed from effeminacy. During the late war, whenever a caisson stuck fast in the mud the first volunteer shoulder under the wheel was that of the young rice-planter, who a month previous had daintily aired himself in his spotless white-duck suit; while Jake and Pat the stevedore and the ditcher, invariably "stood afar off" watching the performance, nor lent a helping hand except "under orders."

The word "rice" is evidently of eastern origin: Tamil, *arisi;* Arabic, *aruz:* Latin, *oryza;* Italian, *riso;* French, *riz.* It is only second in importance among the cereals to wheat, and forms the grain food of over one-third of the human race.

Its use by the inhabitants of China and India extends as far back as the earliest records of either country. A Chinese classic describes minutely the drainage and irrigation works constructed by the Emperor Yu on the Yangtse-kiang 4236 years ago. It was cultivated in Egypt fully fifty centuries ago, though not the principal food of the latter country. Frequent biblical references to rice are found. Herodotus fully describes it, as does Pliny in his treatise upon the food plants of India. While Gibbon considers that it was cultivated in Spain at the time of the Roman occupation, it certainly, as an industry, attained no prominence in Europe until comparatively modern times, and it is generally believed to have been introduced by the Moors into Andalusia during the eleventh century, and to have crossed from Spain into Italy about a century later.

Rice is now grown in nearly every portion of the globe—in Java, Brazil, Hawaii, America, Italy, Japan, India, but principally in China and Burmah. The Burmese crop is nearly all exported, the inhabitants subsisting on some cheaper food, as millet or dourrha; that of China is principally consumed at home, though a good deal finds its way into this country.

Rice varies as greatly in its appearance as it does in its cultivation and habits of growth. An English authority, H. B. Proctor, to whom acknowledgment is here made for much valuable information on this subject, says: "There are far more cultivated varieties of rice, differing more from each other than there are of wheat or any other of the grain foods. The Karens, a hill-race in British Burmah, have names for forty varieties. Dr. Moore mentions one hundred and sixty one varieties growing in Ceylon, besides which there are those grown in Africa, China, Japan, and other parts of the world. The colors of the grai

vary from coal black, dark red, pink, yellow, to ivory white. The shapes are various, and differ much from each other; some varieties are sweet, others bitter; some oily, others dry; some hard and translucent, others soft and chalky. Botanists have classified the varieties into four divisions: Early rice, common rice, clammy rice and mountain rice."

Clammy rice is little known to commerce. It is said to mature its seed in five months, and to have the advantage of growing on wet or dry land.

Mountain rice grows on the Himalayas and is very hardy. It does not require irrigation, and will stand severe cold, sometimes pushing its way through the snow.

Common rice is wholly an aquatic or marsh plant. It cannot exist without water, and soon withers away if the ground becomes dry before harvest time. To this division belongs Burmese rice, and the process of cultivation is highly peculiar.

A great portion of British Burmah, in the provinces of Pegu, Arracan and Tenasserim, especially in the delta lands of the Sutang and Irrawaddy, is very low and flat, and the rainfall excessive, amounting to 130 inches during the season. The result is that the country is flooded from one end to the other with from one to twelve feet of water. Locomotion can only be accomplished by boat, and the inhabitants are confined to their houses. There are only three seasons, the cold, the hot, and the rainy. At the commencement of the latter, or about the end of May, the fields are prepared by cleaning them of weeds and burning the stubble, and then ploughed by dragging a species of rake or harrow over them, oxen and men, as seen in the annexed *fac simile* of a Burmese drawing, sometimes sinking ankle-deep in the soft mud. This certainly would be an anomalous procedure in our own country!

The "paddy" or rough rice is sowed some time in June, after the rains have fully set in, *on the surface of the water*, to form nurseries. In September, when the young plants are a foot or more high, they are "drawn," tied in bundles and carted, or rather boated off to the fields prepared for their permanent reception, where they are transplanted by hand in rows, generally by women and children, who wade about in the mud and slush like so many pelicans.

No further attention is then given the crop. It is never ploughed or weeded. The only care taken is to stop the openings or sluices—corresponding in some measure to our "trunks"—in the embankments or "bunds" surrounding the fields, thus retaining the copious rainfall to nourish and protect the plant.

In some parts of India the land is cropped three times a year; in Burmah only once. No manure is used; rotation of crops is unknown. The heavy rains are all the land receives to bring forth an abundant harvest. Yet the average yield of the country is about thirty bushels per acre. In some instances it has reached sixty or seventy bushels. Still the success of the crop is very uncertain. Proctor says: "Where so much depends upon rainfall, it is no exaggeration to say that an inch or so of water, more or less, determines whether the receding flood shall leave a bright and fertile plain full of promise, or a ruined waste of drowned and rotted crops. With a late and heavy monsoon thousands of acres are sometimes submerged and the crop ruined. Should the floods, however, not be too late in the season the ground is replanted a second time and sometimes a third time, and the cultivator possibly saves his harvest. * * With an early and deficient monsoon, on the other hand, the plants are not nourished and they yield but a scanty return."

The Burmese method has been partially detailed on account of its distinctive difference from the American system and its essentially novel features. With the Burmese everything is adventitious. With us little is left to chance and only extraordinary cataclysms or other disastrous visitations of Providence affect the result; and yet these have, of recent years, occurred so frequently as to make even the American system, despite the safeguards with which science surrounds it, one of extreme hazard. Moreover, the price of labor and consequent cost of cultivation is now so great, compared with the Burmese happy-go-lucky methods, that the average cost of production per pound is greatly in favor of the latter, as will be shown hereafter.

Early rice is to us the most important of the four divisions, for it includes American rice or "Carolinas," as it is known to commerce, besides the varieties raised in China, Japan, India and Java. Japanese, however, is principally upland rice and grown by dry culture. Chinese rice, on the other hand, is generally irrigated.

And here an important distinction must be made. Common rice, or "Rangoon," as before stated, is essentially an aquatic plant; water is its life; without it, even temporarily, it withers and dies. It is sown in the water, transplanted in the water, and ripens in the water. Early rice, or "Carolina," has also generally been termed an aquatic plant, but most incorrectly. It is in reality amphibious, if a strictly zoölogical term may be applied to vegetation. Like its congener, the alligator, it thrives in two elements, demanding each at its proper time and interval, and perishing if confined unduly or excessively to either.

But both rice and alligator are hardy and tough, and can withstand considerable abuse. The latter can be removed from his swamp and manage to exist in discomfort and impaired vitality for quite a while with merely periodical supplies of his favorite element. And so may rice be subjected to dry culture in this country, and, watered only by the rains of heaven, exist and produce a moderate harvest.

Under dry culture from fifteen to twenty bushels per acre is an average crop, while under wet culture the yield has sometimes reached as high as ninety bushels.

But it is not with upland rice that we have to deal. Produced from the same seed as that of the deltas, or *vice versa*, its cultivation is uninteresting, and very similar to that of a dozen crops familiar to every one, as may be seen by the illustration.*

Wet culture, however, on the Atlantic seaboard, possesses features of unusual and striking interest and the remainder of this paper is devoted exclusively to its processes and incidentals.

The oldest staples of the South-Atlantic states were tobacco, rice and indigo. The two former still survive as important industries, although cotton has usurped the principal position; but the cultivation of indigo has long since fallen into "innocuous desuetude," and few are familiar with even its appearance.

Rice was introduced into Carolina about the year 1700, a planter by the name of Woodward having obtained a small amount of seed from a brigantine, just from Madagascar, that had touched at the port of Charleston. For a long time little was cultivated, as it is the most difficult of all the cereals to prepare for food. But gradually, as methods were devised for cleaning it, and as the number of slaves in the colonies increased, it sprang into prominence, and by the year 1724 the production had reached 10,800,000 pounds. This had increased to 187,167,032 pounds in 1860, and ninety-six cubic yards per acre.

*The illustrations are not reproduced.—ED. T.

But Carolina rice, like Orleans cotton, had, during this period, forced its way to the top of the European market, was considered the choicest variety, and commanded the highest price.

Then came war and the Federal gunboats and Monitors crawled up the creeks and shells sang over the deserted quarters. Lines of intrenchments bisected the fertile fields; embankments and canals were demolished; barns, dwellings and mills destroyed; the neglected squares soon choked with reeds and sedge and saplings; and when peace finally came it found a desolated wilderness, tenanted only by the marsh-hen and the moccasin, while as overseer the alligator basked in undisturbed serenity.

Add to this the then untried and still unsolved problem of free negro labor, a motor generated of indelirium and ending in paralysis, and it will be seen that the participle demoralized will but feebly describe the condition and prospects of the rice industry in 1865. The wonder is, not that it should have failed to make greater headway in the interval, but that it should have recovered at all.

In order to fully appreciate the wrecked state of affairs at this time it is necessary to understand the physical construction of a plantation. Two modes of irrigation are employed in America—the "tidal" and the reservoir of "back-water" system—the former on the Atlantic seaboard, the latter in Louisiana. The process of cultivation in each case is similar, and they differ only in the means by which the flow is obtained.

Of late years many of the old sugar plantations of Louisiana have been adapted to the culture of rice, and it is possible, in almost any portion of that state of innumerable bayous, to irrigate more or less successfully by establishing a reservoir of back-water, to be drawn upon at the proper intervals. But the supply must evidently be dependent upon the rainfall in the up-country, and this is capricious. Nevertheless, when the water is abundant, the Louisiana cultivator has the advantage of not being compelled to wait for spring tides, but can flow his land at pleasure. The North Carolina planter, on the Cape Fear and Waccamaw rivers, where the tides were less and the land levels relatively lower than on the Savannah and the rivers south of it, also enjoys this privileg to some extent.

The rice lands of the Atlantic seaboard occupy the deltas of the rivers from Pamlico Sound, in North Carolina, to the St. Mary's river, in Georgia. They are confined in every instance to the *fresh tide-water*, the tidal flow being necessary for inundation, and the water, of course, must be free from salt.

These narrow river strips consequently extend from the extreme limit of brackish water to the extreme limit of available tide-water, a distance varying with the volume and location of the rivers. They are pure alluvium in formation, and all very similar in character. The soil, in many cases, is ten, twenty, or even thirty feet in depth to the underlying stratum of sand. Often the remains of prostrate forests, the result of ancient hurricanes, with layers of ashes and Indian remains, lie buried in this alluvium, the logs and stumps frequently so near the surface as to present a serious obstacle to the ditcher, and greatly enhancing the cost of reclamation. This must have been excessive, and only under the thorough discipline and economy of slave labor was at all possible. As a proof of this, on the whole Atlantic coast not one new rice plantation has been established since the war; on the other hand, many have been abandoned.

Taking an illustrative plantation of six hundred and forty acres or one square mile for easy calculation, it will be found that the exterior embankment is four miles in length, and the interior embankments, along the canals and those used for roadways, as seen in the chart, about six miles more. The plantation is subdivided by lesser embankments, called "check banks," into fields or "squares," whose areas differ according to the character of the ground. Generally, the more irregular the surface the smaller the squares, some containing as many as thirty-five or forty acres, others as few as five or six. They will average, however seventeen or eighteen acres each. This adds in check banks a further length of eight miles, making the gross length of embankment eighteen miles, with gross solid contents of one hundred and eleven thousand and seventy-nine cubic yards, or one hundred and seventy-four cubic yards to the acre.

But the original cost of the embankment is greatly exceeded by that of the necessary drainage.

Colonel Screven, who is probably the best authority on rice in the south, says: "The drainage of the rice-fields and its annual maintenance is a servitude more burdensome than their embankments. It is, however, also true, that while the rice plant of the tidal lands is aquatic, or perhaps, more correctly, amphibious, it is paradoxical in demanding the most thorough drainage for its successful growth. * * The drains imperatively require to be not only thoroughly excavated in the origin, but to be constantly kept down to their original depth, and, as the land settles, to be lowered to the same depth.

"A properly arranged plantation of six hundred and forty acres, looking to the best control of flowing water and to thorough drainage, would require four parallel canals, each twenty feet in width and five feet in depth The total length of these would be three and one third miles. Each would require a flood-gate at its extremity on the river, so arranged as to admit or bar the tide-water at pleasure. Along these canals, one on each side of each field or two to the field, are laid small flood-gates commonly called 'trunks,' by which the watering and drainage of each field is independently regulated. The main flood-gates of the canals are frequently true locks, so that the canal and river navigation may be united. The four canals mentioned call for the excavation of forty-eight thousand eight hundred and eighty-nine cubic yards, or seventy-six cubic yards per acre.

"In addition to these canals, which are the great arteries of the rice fields, each square or field must be surrounded by a main or margin ditch cut six feet wide by four feet in depth"—generally about fifteen or twenty feet off from the check bank, leaving a cultivable margin between ditch and bank all around the square—"and parallel drains, called 'quarter drains,' must be sunk through the fields one and a half to two feet in width by three feet in depth, usually seventy-five feet apart, but, in some instances, still nearer. * * The lineal measurement of this drainage will be ninety-four miles and the excavation one hundred and fifty-seven thousand two hundred and twenty-six cubic yards, or two hundred and forty-six cubic yards per acre.

Summing up, the combined embankment and drainage on this illustrative plantation of six hundred and forty acres amounts to one hundred and fifteen and a third miles, or eighteen miles to the acre, and demands an excavation of three hundred and seventeen thousand two hundred and ninety-four cubic yards of earth, or four hundred.

Some commensurate idea may thus be obtained of the immense original cost of constructing a rice plantation, or even renovating a damaged one

and also of the attendant "servitudes," as Colonel Screven aptly styles them, constantly menacing the planter. Nor is it surprising that in 1860 some rice lands were held as high as two hundred dollars an acre, and paid an excellent per cent. on that figure. Today, owing to the difference in the price of labor and the corresponding profits, these lands could be purchased for much less, and in every instance at a figure greatly below the original cost of construction.

The equipment of a rice plantation varies with its size and location. From three hundred to five hundred acres is about the average size. It scarcely pays to cultivate less than one hundred acres. On a place of average size, sufficiently near a city or town, a rice mill is now a rare adjunct. Previous to the war nearly every large planter milled his own rice, doing toll work as well for his neighbors. Now it is found more convenient to carry the rough rice or paddy by boat to the big steam mills in the nearest city. A thresher, however, is necessary on every plantation of any size. In addition to the common laborers who are employed by the day, and engaged and discharged as convenience requires, a well-appointed plantation generally has an overseer, a trunk minder, who is always a carpenter, and a foreman or "leader" for the negroes, besides a few regular hands to care for the stock, all of whom are engaged by the month or year.

As many mules are necessary as on a cotton plantation of the same size; for although at times they have nothing to do and enjoy altogether an easy life, nevertheless, when they are wanted badly and in considerable numbers, as is the case during "rolling time" in sugar planting, in order to hurry through a certain process by a given time.

The planter's busy season commences with the new year. The squares are cleared of stubble, ploughed, and harrowed. The stubble is in some cases ploughed in, but is commonly burned on the land. The ditches are cleaned out annually, as they foul quite rapidly from abrasion, silt, and water vegetation; and the stuff so thrown out of the main ditches is laid on the banks. One would think that in course of time the latter would become considerably enlarged by the accumulation of vegetable matter and ditch mud thus piled on them year after year; but in many instances, so light and porous is the original soil of which they are composed, and so spongy and liable to rapid decay is the added trash, that the banks are annually shrinking and growing smaller under the process of gradual consolidation, so much so, indeed, that in even on a well-kept plantation it is frequently the case that two or more squares temporarily join their waters by portions of the bank giving way.

Single-horse plows are generally used in breaking up, but successful attempts have been made to introduce sulky and gang plows and screw pulverizers. The fields, however, are so cut up by the quarter drains that commonly light, portable bridges have to be employed in crossing the ditches, and heavy machinery, in consequence, is not always convenient. Besides, the soil, contrary to the necessity in sugar planting, does not require deep breaking.

As a rule the land is not fertilized, although it will not be long before the contrary will become the common practice. Many plantations that have been under constant culture since colonial times still yield good harvests; but the land is gradually, though fortunately very slowly, losing its native power. Usually the older fields produce rice of superior quality though less in quantity than the fresher lands.

Where a field has recently been "taken in," and is consequently composed of light, porous soil, it is not productive on account of the absence of mineral matter. On such a field phosphate and potash salts are used to advantage; on some of the older fields nitrogenous fertilizers are occasionally applied, but not with as satisfactory results as in other crops.

The paddy is sown from the second week in March to the middle or end of May. March sown rice will mature in about five months and fifteen days. Later plantings sometimes mature in advance of the earlier.

The principal motive of the planter, aside from important cultural objects in selecting the period of sowing, is to avoid harm upon the visitation of that vicious pest yet succulent dainty, the rice-bird. He comes in swarms twice a year—in the late spring and early fall—and the rice must be planted at such intervals as to be protected from his ravages. And here another factor comes in, available spring tides.

Both the early sowed rice and that planted later are protected by the "sprout" and "stretch" waters when the birds come in the spring. The former is harvested and safe from their visitation in September, and the latter is not fully ripened until after they have taken their flight further southward.

Should a mistake be made in regard to either of these conditions, the rice-bird to the unprotected crop is as disastrous and annihilating as the torch or a tornado. Therefore, if the planter misses one spring tide, he must wait and carefully make his calculations so as to be able to utilize another for flowing.

Before the war the variety commonly used on the coast for seed was known as "gold-seed." At that time white rice was planted almost exclusively in the interior. This has now generally superseded gold-seed, on account of its more certainly yielding a superior pearly luster, because it is more readily cleaned, and because of its earlier maturity. Bearded rice is sometimes used, but never on the tidal lands.

The process of seeding is very simple; grain drills, similar to those in use for wheat the country over, with a slight adaptation suiting them for rice, are employed. The drills are set fifteen inches apart, and the land is sowed a little more heavily than for wheat. It is a noted fact that the white rice of the uplands affords better seed for wet culture than tidal-raised seed, and is preferred by planters.

As soon as the rice is planted the "sprout water" is turned on to swell the grain and force germination. It is allowed to remain, according to temperature, from forty-eight hours to fifteen days and then drawn off.

Now comes a picnic for the birds. The grain is only slightly below the surface, soft and succulent; and crows, jackdaws, blackbirds, and sparrows know when the sprout water is off as well as does the overseer, and they flock to the fields like school-boys on a holiday.

Each square, according to size, is guarded by one or more dusky Nimrods, and from dawn to dark the constant popping of the old army musket sounds like a regular skirmish. It is nothing unusual for one planter to use eight or ten kegs of powder a year. Strange to say the negroes do not relish this employment. It keeps their attentive faculities on the alert all the time. Not for a moment can they relax their vigilance, for the birds will be down on the fields, and yonder is the overseer's horse on the canal bank, outlined against the sky, and detection will follow instantly. Your genuine darkey loves to plough; the occupation

suits him nobly; he can go "half to sleep" between the handles and yet manage to hold a pretty straight furrow. But put him at any work that requires the slightest mental exertion or is otherwise than absolutely mechanical, and he is at once out of his element and worried accordingly.

In from ten days to six weeks, according to the season and temperature, the "stretch water" is put on, and according to the exact stage in which the young sprout is at the time, is called either the "stretch from the point" or the "stretch from the fork."

The careful planter always endeavors to stretch from the point. It is well known that in all vegetation certain roots and sets of roots beneath correspond with certain leaves or other portions of the plant above, and this is especially true of rice, the greatest care being necessary in watching their relative developments.

As soon as the germ root pushes out underneath the grain in search for food, a minute point is visible above ground, reaching up for light and air. This is the embryo stalk, and [illegible] the germ root. The plant is [illegible] the proper stage for forcing, and the stretch water should be put on at once.

It sometimes happens, however, that the water, from tidal or other causes, is delayed, and the point, which is similar to that of barley or wheat, only sharper and more delicate, divides and assumes the "fork" stage, and the stretch that follows is from the fork instead of from the point. The contingency is undesirable, as the plant is thereby somewhat lessened in vitality.

The water is at first turned on deep, entirely covering the surface of the squares, and the young plant, drinking in the life-giving fluid, commences to rear its head aloft and reach up for light and air. The river water is seldom clean—always more or less tinged with mud—and the tender shoot battles manfully with its semi-translucent covering to bask in the comforting rays of the sun.

After the rice has become sufficiently stretched, or a few inches high—a period extending through from two to ten days—the water is slacked down to what is known as "slack water gauge," so as to show the tops of the plant and give it necessary air and sunshine. If the plant is longer than the water is deep, which is generally the case, it floats its upper leaves on the surface in long waving lines across the squares—a singularly attractive and beautiful picture.

It seldom happens, however, that the whole plantation is under the same treatment at the same time; for, with five or six hundred acres to sow, it is a difficult matter in early spring, with frequent interruptions from rains and bad weather, to seed down so large an acreage in time for utilizing any one spring tide for flowing. A large plantation will run five or six grain drills at once, and put in sometimes sixty-five or seventy acres daily; but even with as rapid work as this it is impossible to get all in contemporaneously. Consequently it is a common thing to see perhaps one fourth of the squares under the stretch water; another fourth under charge of the "gun squad," waiting for the tender point to shoot; another series under the sprout water, and the remainder in process of planting, all at once. This necessarily adds greater interest and diversity to the process and prospect.

Sometimes, too, the rice comes up mixed with "volunteer;" this is the product of the grain shaken out during the previous harvest and scattered broadcast over the land. This can generally be removed by the hoe, but where it is very thick it sometimes necessitates reploughing and seeding, thus throwing late a portion of the crop. This volunteer rice is hardy and prolific, and externally similar to white rice, but the objection to it is that the berry is *red*, and greatly reduces the grade of rice with which it is mixed, besides totally unfitting it for seed. To destroy this obnoxious tare, the fields are sometimes thrown into dry crops for a year or two, or kept under water for a like time.

It will be remembered that each square is under separate control, and except where two or more are temporarily united by the check banks washing through, can be flowed and drained independently at the pleasure of the planter.

A walk over the banks of a plantation at this period is replete with interest; at every step the "fiddlers," scurrying from under your feet and ducking into their holes, each one, as he disappears, waving aloft in defiance his disproportionate manicle. Yonder are small squads of negroes in twos and threes, dragging with long wooden rakes the floating trash and stubble blown by the wind in masses against the lee banks, and piling it on the pathways. Over there the rattle of the grain drills is heard seeding down the few belated squares. Here is the trunk-minder with his assistant hard at work repairing a leak. On the canal bank is the overseer in consultation with the planter on his daily visit to the fields, his little sail boat rocking at the wharf down by the quarter. Attention is called to a defective trunk or a dangerous bank; stretch water, to-morrow, must be turned on numeber six and number eight, and sprout water let off from seventeen and twenty-three. The long cord of the submerged thermometer is drawn in hand over hand, its reading carefully taken, and the mean temperature of the water for the month in the overseer's handy note-book is compared with that of last year, and dependent operations deduced and determined. From the high and dry squares on the further side comes the casual pop of the musket, while flocks of daws and hungry crows circle overhead, awaiting their opportunity to settle down on the sprouting grain. Everything works in its appropriate groove and little is left to chance.

The stretch water is held at the slack gauge from twenty to forty days, when the "dry roots" and the leaves corresponding to it have put out. The amphibious and pampered plant has now had enough of its stimulating though strictly temperance beverage, and is ready for a period of "prohibition," or dry growth.

The development of the dry root is manifested to the skilled planter by its accompanying and corresponding leaves. To one ignorant of the subject the external appearance of the plant would indicate nothing at all, but the close student is familiar with every shoot and joint, and reads their story as from a printed page. Generally, however the leaf alone is not depended on, but for certainty's sake the plant itself is pulled up and examined and if the dry root has attained a length of from one half to three fourths of an inch, the plant is considered ready for the change.

The stretch water is now taken off gradually thorough a period of two to three days. As soon as the ground is dry—and these rice lands are so thoroughly drained that they dry much more quickly than one would suppose—the plow and the hoe commence their work, sometimes the one preceding, sometimes the other, but always at proper intervals.

(To be continued.)

TEA VERSUS QUININE.—The growers of cinchona in South America are so disgusted at the prices realised that many of them are foolishly rooting up highly productive trees, and planting tea shrubs in their place.—*H. and C. Mail.*

BECHE-DE-MER AND PEARLSHELL FISHERIES OF QUEENSLAND.

In a voluminous report relating to the beche-de-mer and pearlshell fisheries of Northern Queensland, compiled in association with his recent tour, extending over four months, Mr. W. Saville-Kent, Commissioner of Fisheries, gives much interesting and valuable information. In May last Mr. Kent was a passenger by H.M.S. "Rambler" for Torres Straits, and opportunity was taken of the time occupied by the officers of that vessel in making a systematic survey of the neighbourhood of the "Quetta" wreck, to investigate the marine fauna generally of that area. The valuable commercial variety of beche-de-mer known as red-fish was observed in some numbers on the exposed reefs contiguous to the Mid Brother Rocks. Black-lipped pearlshell was also found there, and on the reefs of Adolphus Island. Specimens of these were collected, taken alive to Thursday Island, and laid down on the experimental reserve. A considerable collection of the fish of this district was likewise made, which will, it is anticipated, be found on critical examination to contain many species not previously known to inhabit Queensland waters. On arriving at Thursday Island his attention was specially directed towards obtaining complete information concerning the beche-de-mer fisheries, and towards acquiring a personal acquaintance with all of the more important commercial representatives of that peculiar group of the invertebrate sub-kingdom variously distinguished by the popular titles of trepang, beche-de-mer, or sea-slugs. To accomplish this he proceeded to Tud, or Warrior Island, at the north extremity of the Great Barrier coral reef, and within forty miles of the New Guinea coast. This island is the headquarters of a considerable section of the Torres Straits beche-de-mer fishing fleet. The species of beche-de-mer collected and examined at Warrior Island were what are distinguished in the market by the titles of black-fish, red-fish, teat-fish, prickly-fish, lolly-fish, and sand-fish. None of the literature accessible in Brisbane has enabled him to determine, with but one single exception, the technical identity of these commercial species, and it is a matter of some doubt as to whether they have as yet been scientifically described. The largest-sized commercial beche-de-mer observed in Queensland waters is the ordinary prickly-fish, or prickly-red, which, in its fully extended state, may measure 4ft. or more in length, with an accompanying diameter of 4in. or 5in.* Eighteen inches represents the more ordinary extended length of black, red, and teat fish. In all instances these organisms are capable of contracting to about one-half of their extended length, the body under such conditions being relatively thicker. Mr. Kent describes the process by which beche-de-mer are prepared for the market, and the means by which the fishery is carried on. A good average take for a fishing station working with only four boats, carrying twenty to twenty-four men, is one ton of cured beche-de-mer per month. The collection of the beche-de-mer is accomplished in association with the low tides that obtain during the new and full phases of the moon, and eight or ten days are thus left in each lunar month which are not profitably utilised. The greater portion of the beche-de-mer is simply picked off the reefs when the water has receded, but the finest red and black fish, and the prickly-fish almost exclusively, are obtained by diving during the same low tides to a depth of two or three fathoms.

Respecting the bathymetrical or vertical distribution of commercial beche-de-mer, red, black, and prickly fish are reported to occur at a depth of four or five fathoms, and lolly-fish to have been observed by divers as deep down as eighteen fathoms. The deep water examples of the red and black varieties, obtained by diving, are of the largest size, fetch a higher price, and are recognised by a distinct title in the market. The question has been discussed by certain of the boatowners as to whether beche-de-mer might be profitably collected with the aid of diving apparatus after the manner of pearlshell, and will probably be put to a practical test. The southernmost point at which the beche-de-mer fisheries have so far been profitably worked is eastward from Mackay. Many large-sized species not yet turned to practical account, however, abound throughout the Australian littoral. One feature peculiar to a number of the non-commercial varieties is the habit they possess, when handled, of ejecting from the vent ropelike masses of a white cottony substance that on its first emission adheres with extreme tenacity to every object with which it comes in contact. It would appear possible that a useful ingredient for cement, having somewhat the property of caoutchouc, might be manufactured from this substance. The money value of the total annual output closely corresponds with, but is somewhat in excess of, that of the oysters so extensively exported from the southern district of Queensland to the neighbouring colonies. China represents the market, which, with the exception of a few hundredweights, all the Australian beche-de-mer is consigned. Barrier fish enjoys a higher reputation and realises better prices than is obtained for the article derived from any other locality on the face of the globe. The most flourishing epoch of the Queensland beche-de-mer trade was experienced between the years 1881 and 1883, when the value of the total annual exports approximated or even exceeded £30,000. The most unremunerative point to the same industry was represented by the year 1887, when the total export value fell to £15,000. Since that date there has been an improving tendency, which is apparently still in progress the licenses for boats taken out for the current year being in excess of last year's number. The returns in this direction show that sixty-two boats are now licensed from Port Kennedy, in Thursday Island, and twenty-seven from Cooktown. To these are to be added some half-a-dozen which have taken out licenses at Townsville, Cairns, and Ingham. This gives a total of over 100 craft engaged in the fishery. The current prices for beche-de-mer, as recently quoted in the Cooktown market, were as follows:—Teat-fish, black and ordinary, £140 to £150; teat-fish, white, £40; red-fish, ordinary and deep water, £100 to £110; red-fish, surf, £80 to £90; black-fish, deep water, £110; black-fish, ordinary and Caledonian, £80 to £90; lolly-fish £35; prickly-fish, or prickly-red, £30 to £40; sand-fish, £20 to £30. The prickly-fish or prickly-red, now realising from £30 to £40 per ton only, stood eight years ago at the head of the list, and readily sold at from £140 to £150 per ton. The heavy depreciation in value arose from the circumstance that a consignment of this variety sent to China at about the time indicated had been boiled, previous to curing, in a copper vessel, with the result that a number of Chinese were poisoned. Poisonous properties were immediately attributed to this particular species of beche-de-mer, and it has never since recovered its original value in the market. A matter demanding serious attention with relation to the beche-de-mer fisheries of Northern Queensland is associated with the employment of native labourers. Of late years, and in the Torres Straits district more particularly, outrages committed by these labourers, in which the boatowners or their agents have been assaulted and lost their lives, or the boats with stores on board have been stolen, have become so frequent as to paralyse the industry to a very large extent. Not only have the originators of these outrages escaped punishment, but in many instances individuals known to have been associated with previous massacres and outrages have been re-engaged by other employers. Some essays at indiscriminate retribution on the native tribes, in which more often the innocent have suffered for the guilty, have been occasionally attempted; but until strict justice is administered, and the offending individuals only are made to pay the penalty of their actions, no amelioration of the existing unsatisfactory condition of this labour question can be anticipated. It has been pointed out to him that an efficient police station established on the Ducie River at the point where it is crossed by the telegraph line would accomplish much towards the suppression of these outrages, as such station would not only be on the line of route

* Have sea slugs of such enormous size ever been found in Ceylon?—ED. T. A.

traversed by the absconding natives, but would also be within a day's ride of either Cape Grenville on the east, and the Batavia River on the west, as the services of the police might be required. A more effectual remedy for the existing condition of affairs, and one that would conduce materially towards the establishment of the beche-de-mer industry on a more healthy and permanent basis, would be the appointment of a vigilant system of surveillance of the fisheries in association with the Government steamer stationed at Thursday Island. Mr. Kent advises that the inspector of fisheries, recently recommended for appointment with relation to the pearl and pearlshell fisheries of Torres Straits, should exercise similar functions with relation to that of the beche-de-mer, and, working in conjunction with the land and water police and Customs Department, be intrusted with full powers to supervise all transactions associated with the engagement and discharge of native labourers. Under such auspices a regular system of water patrol should be maintained, and all the beche-de-mer stations and fishing grounds be subject to visitation by the fisheries inspector at any and, preferably, unexpected intervals. The recommendations made with reference to the appointment of a system of patrol of the beche-de-mer fishing grounds of Torres Straits will apply with considerable if not equal force to the fisheries of a like nature that are prosecuted along the Great Barrier and mainland coast south of Cape York Peninsula. An important matter connected with the employment of native labourers for the collection of beche-de-mer was brought under Mr. Kent's notice by a deputation of the leading boatowners and beche-de-mer merchants in Cooktown. In accordance with the existing regulation it is requisite that all native labourers engaged for this industry should be brought to the nearest Custom-house or shipping office to the place at which they were recruited for the purpose of registration. The compliance with this regulation frequently entails a very serious loss of time and money to the boatowners, from which they are anxious to be relieved. A remedy for the disadvantages under which the beche-de-mer industry is carried on, owing to the circumstances described, was suggested by the Cooktown deputation. This was that the registration of the native labourers engaged should be permitted at any of the lightships or lighthouse stations along the coast, and that the official in charge of them should be vested with the necessary powers to witness and sanction such registration. The concession sought being so reasonable, Mr. Kent has no hesitation in recommending it for favourable entertainment. The appointment of a well-qualified inspector of fisheries for the Cooktown district is greatly needed. The duties of such an appointment might be both appropriately and economically undertaken, with a suitable increment of emolument, in conjunction with the functions discharged by the present harbour-master. In intimate association with the beche-de-mer fishery may be mentioned the collection of tortoiseshell. The trade in this material is not of sufficient extent to constitute an independent industry, the greater portion of that which is exported being obtained by those engaged in the collection of beche-de-mer. The average annual value of this material that has been exported from Queensland within the past ten years has slightly exceeded £400. The highest figure, and one that indicates that the trade in tortoiseshell is increasing, was reached last year, when it amounted to as much as £1705 The prices obtained for Queensland tortoiseshell vary considerably, according to quality. The best and most valuable description is obtained from the true tortoiseshell turtle, which, if of superior texture, may realise from £1 to £1 5s. per pound. The thin and inferior descriptions of tortoiseshell produced by the edible turtle will not obtain a higher price than 4s. or 5s. per pound. The plan adopted for the capture of turtle by the natives of the Torres Straits Islands is remarkable. For this purpose they make use of the sucking fish, which in these waters attains to a length of 3ft. or 4ft The fish caught for turtle fishing are kept alive in water in the bottom of the canoes, a thin line being secured to the tail and through its gill covers. When a turtle is seen in the water close to the canoe the sucking fish is thrown out towards it, and immediately swims for and fastens itself to the reptile's carapace. If the turtle is a small one it may be drawn to the boat's side by the attached line, without the sucking fish letting go its hold; but if of large dimensions the native plunges overboard and easily secures it. There are other marine products besides that of tortoiseshell by which those engaged in the beche-de-mer fisheries might augment their incomes and turn to profitable account the spare time intervening between the seasons most profitable for collecting the primary object of their attention. The edible turtle of the Pacific, if suitably prepared and dried, or otherwise preserved, would command a ready sale in the Chinese and other markets. The same may also be said of sharks' fins, which, at many stations on the Indian coastline, represent an extensive and highly valuable article of export. At one of the beche-de-mer curing stations in the Great Barrier district Mr Saville-Kent was informed that a curer had experimentally sent in some dried sharks' fin to Cooktown, which had readily realised among the Chinese residents a price of no less than 19d. per lb. This price represents £8 17s. 4d. per cwt; or, £177 per ton, and should encourage the establishment of a regular trade in the article. Sharks, and especially the smaller harmless species abound throughout the waters productive of beche-de-mer, and might, with a very trifling outlay, be made the object of a remunerative supplementary fishery. The livers of sharks and also of stingrays, which are exceedingly abundant in these same districts, yield a valuable oil, while their carcasses, in combination with the waste products from the beche-de-mer, would make excellent manure, akin to guano and particularly rich in phosphates. Another marine product to which attention might be profitably turned by those engaged in the beche-de-mer industry is that of sponge. Examples of sponges, some few being of excellent quality, and others, though less fine in texture, having an undoubted commercial value, have been submitted to the commissioner as collected from a variety of stations along the North Queensland coast. A thoroughly systematic exploration of the waters in the neighbourhood of the beche-de-mer curing stations would, there is good reason to anticipate, result in the discovery of extensive beds of this valuable commercial article. A substance produced in great variety and abundance throughout the beche-de-mer fishing grounds, but which has hitherto received but scant attention, is that of coral. The form known as "precious coral" has not as yet been obtained from Australian waters, though the conditions favourable for its growth apparently exist throughout extensive areas. The descriptions of coral here referred to are those which enter so extensively into the constitution of coral reefs, and are probably nowhere in the world developed on so large a scale and in such a multiplicity of varieties as are to be found in the Great Barrier system of the Queensland seaboard. Small consignments of this coral are occasionally exported as curiosities or for ornamental uses, the bulk so far, however, rarely exceeding in one year a declared value of £40. The trade, nevertheless, is one that would appear to be capable of considerable development. Some dozen or so of the most readily accessible varieties, out of over 100 species that exist to choose from, represent all that have, so far, been turned to commercial account. These, nevertheless, when well prepared, have obtained good prices; 30s. to 40s. per case, each case containing perhaps half a dozen specimens, and weighing, collectively, less than 1 cwt, being the ordinary charge. There is no doubt that well-selected collections of the Barrier Reef and Torres Straits corals, such as could be selected and prepared with the greatest facility at any of the beche-de-mer curing stations would command a ready sale as objects of intrinsic beauty at suitable depots in all of the larger Australian cities; the museums throughout the world would gladly utilise the opportunity of securing type collections of the innumerable corals of the Torres Straits and Great Barrier regions. A remarkable species that is not unfrequently obtained by the pearlshell divers in Torres Straits and throughout in the Barrier region is the black coral. This coral possesses a high commercial value in the Indian market

the supplies hitherto having been chiefly derived from the vicinity of Jeddah, in the Red Sea. The produce of the Jeddah fishery has greatly diminished within the last few years, and the discovery of any new sources of supply would be gladly welcomed. There is, Mr. Kent considers, every element in favour of the development of a profitable black coral fishery in North Queensland waters.

Mr. Kent reports the complete success of the experiments initiated last year at Thursday Island in the direction of transporting and artificially cultivating the mother-of-pearl shell. The specimens brought in from the outer fishing grounds and laid down on a selected reserve on Vivian Point, have thriven to a remarkable degree, and had added, on an average another inch to the diameter of their shells since their transportation to the reserve eight months previously. Attempts have already been made at several of the shelling stations to bring pearlshell in alive from the fishing grounds and to lay it down in the vicinity of the stations. These experiments have been attended with partial success, but are not likely to be prosecuted in a thoroughly systematic manner until the bill recently drafted is passed which will secure to those engaged in the trade the power of taking up portions of reefs and foreshores for pearlshell culture, and afford them legal protection for the shell laid down. I found on my arrival at Thursday Island that the opinion among those engaged in the pearl-shelling industry in favour of legislation to restrict the limit of the size of the shell taken by the divers had greatly increased. At a meeting of the trade representing seventy-three boats, held during my visit, a resolution was unanimously passed advocating the appointment of a defined limit. Since the submission of my last year's report, the commissioner has been further impressed with the conviction that pearl and pearlshell fisheries might be profitably worked or developed throughout the Southern in addition to the Northern moiety of the Queensland seaboard. Black-lipped shell, of large size, having a market value of £50 or £60 per ton, from which excellent pearls may be obtained, have been collected as far south as Moreton Bay. Confidence in this anticipation is shared to such an extent by one of the leading pioneers of the Torres Straits and West Australian pearlshelling industries that he is making arrangements to fully test the pearl and pearl-shell producing properties of the Southern coastline, and to establish thereon stations for the purpose of pearlshell cultivation so soon as the Act is passed that will accord the necessary protection and facilities for the development of this new industry. —*Queenslander.*

THE NEW CHLOROFORM DISCOVERY.

There is no reason, on the face of it, for doubting the reported discovery by M. Pictet of an improved method of manufacturing chloroform. The gentleman is a distinguished Geneva *savant*, who long ago won his scientific spurs by his well-known researches, carried out in 1877 simultaneously with those of M. Cailletet, on the condensation of oxygen, hydrogen, and other gases. Those researches were of a very important character and constituted a real step in our knowledge of gaseous bodies. There had previously been a distinction made between "permanent" and "non-permanent" gases—that is to say, between those which could be converted into liquids and those which could not. But MM. Cailletet and Pictet showed that no such distinction really existed, and that all gases could be reduced to the liquid, and even to the solid form. The method by which this is effected consists essentially in a combination of very high pressure with great cold, and apparently M. Pictet has made his new discovery by pursuing a similar line of investigation. He reduces chloroform to a very low temperature and is then able to separate the impurities.

With regard to the practical value of this achievement it would be rash to speak with any certainty. The idea is that the new chloroform will be much safer to administer than the old; but two things may be said on this head. It is quite true that at present it is difficult—perhaps impossible—to obtain the drug absolutely pure, and the variability of its composition is shown by the different specific gravities adopted as the standard in the pharmacopœias of different countries. But, in the first place, it has yet to be proved that chloroform, as manufactured in England—or rather, in Scotland—since the days of Simpson, is dangerous when properly administered. All the evidence, regarded with an unprejudiced mind, points very strongly to the conclusion that the danger is not in the drug—excepting in so far as every powerful drug is dangerous—but in the hand which administers it. And in the second place it has yet to be proved that the danger, if it exists, is due to impurities. If, as is alleged, chloroform has never been obtained pure, how on earth can it be known that the pure, which has never yet existed for practical purposes, is safer than the impure? It may be precisely the other way. We have recently had a lesson in this direction which should not be forgotten. We have learned that in this case of spirits chemical purity by no means implies wholesomeness. It has been shown that the "beautifully pure" product of the patent still gives you a violent headache, while the old-fashioned pot-still stuff, reeking with fusel-oil and other supposed abominations, is perfectly innocuous. The human interior, for reasons of its own, often takes a different view of these matters from that of the chemist; and it may be so in the present instance. At any rate, that has all got to be found out, and it would be foolish to jump to the conclusion that the new and improved chloroform—supposing it exists—will necessarily be a perfectly safe thing to administer just because the advertisements say so. Its real value can only be ascertained by prolonged trial. Of course the medical profession knows that, and will use the novelty with all due care. But unfortunately, as we know by experience, the public nowadays does not wait for an authorative verdict, but flings itself upon everything new if sufficiently advertised, and patients are quite likely to insist on being anæsthetized by M. Pictet's chloroform before anything is known about it.

The rumour that M. Pictet is negotiating with German manufacturers for the establishment of a monopoly should also be received with caution. Such a proceeding would certainly raise a tremendous storm in France; though to be sure, he may care nothing for that. Still it is unlikely; and surely things have not come to such a pass that every scientific discoverer must sell his brains to speculators in Berlin.—*St. James's Budget.*

BURMA RUBY MINES CO.

London, July 10th.

The report of the meeting of the Burma Ruby Mines Company which is enclosed with this (see page 175) must, in view of the kindred pursuits which several companies have been endeavouring to follow in Ceylon, be interesting reading to you. The Company does not seem to have met with any larger measure of success as yet than that which has attended the efforts made in Ceylon. Everything it is reported, promises fairly, but so did everything when the undertaking in Ceylon was embarked upon. There are several matters which were touched upon by the Chairman, Sir Lepel H. Griffin, which must seem mysterious to general readers. Why, for instance, is it to be only *anticipated* that good rubies may be found? It had always been our belief that the Burma Ruby Mines

had already given ample proof that stones of such a quality were abundant in Burma, and yet we are told that "they had not yet obtained stones of the quantity and quality which they hoped to get." This is pretty much the same thing as has caused so many similar enterprises in Ceylon to be abandoned.

Then, again, we have the statement as to the apprehension that the natives employed on the works obtained and secreted many, if not most of the really valuable stones which had been unearthed. This, as you know, was one of the chief obstacles foreseen as likely to militate against success in Ceylon which were stated to me by Mr. Streeter on the occasion of my interviewing him upon the subject when the question of systematic gemming in Ceylon was first mooted. As yet it is evident that the work which has been done during the several years since the Company commenced its operations at the mines has been almost entirely confined to preparation. It is very certain that, had this case of "hope deferred" been realized when the prospectus of the Company was issued, we should not have witnessed that excited rush after its shares which created so much astonishment at the time.

Although, of course, the Chairman has said the best that could be said for the prospect before his shareholders, we fear the latter are scarcely likely to have their hopes strongly revived by anything that fell from him. It is not to be doubted at all events that they will yet have to pay very heavily before they can obtain any appreciable results to their investments, and the fact will doubtless go far towards consoling those other speculators who have ventured their funds in a similar enterprise in Ceylon. "The misfortunes of our friends" are said currently to be always a source of concealed gratification to ourselves.—London *Cor.*

HOW OTHERS SEE CEYLON PLANTERS

will be gathered from the following letter:—

TO THE EDITOR, "INDIAN PLANTERS' GAZETTE."

Sir,—Having been on a visit to Ceylon and seen a few of the Ceylon tea estates, I send you my impressions on the subject as likely to interest your readers.

What has struck me chiefly is the vast amount of push and energy among the planters, and the vast area under tea point to a plentiful supply of capital.

Another point is institution of large central factories, where the leaf is either purchased from neighbouring gardens or manufactured for them.

Manufacturing charges, including all expenses of packing, and carriage *f. o. b.*, Colombo, are about 5 cents or 1d per lb. The labour here is Tamil, or South of India; this labour should answer for the Dooars, Assam, and Cachar, and on account of the cheapness of rice in those provinces, labour should be obtained at present rates, R5 per month, and recruiting expenses should not cost more than R15 per head to the different gardens.

Labour is paid for here at the rate of six annas per day for men, and four annas for women. Price of rice R6 per maund (no recruiting expenses); yet in spite of these enormous wages, Ceylon planters put down their tea *f. o. b.* Colombo from 25 cents (four annas) to 32 cents (five annas) per lb. respectively, low and hill country.

There are 230,000 acres under tea in Ceylon, the lowcountry yielding 500 to 1,000lb. tea per acre, and the hill country (at an elevation of 5,000 to 6,000 feet) 300 lb. tea per acre, the average of the whole area under tea in Ceylon will be about 400 to 500lb. per acre.

In machinery they are not behind hand, in fact ahead of India in drying machinery. I will note first the "Brittania," Jackson's latest invention, said to beat the Victoria, though each has its own lovers.

It costs about £300 and turns out 240 to 300lb. dry tea per hour, and the tea takes to dry 30 minutes for each tray, and dries at a temperature of 200 deg. (though this could easily be increased to 240 deg.), the Ceylon method being a vast quantity of low heated desiccated air.

It occupies a space of 30 feet × 10 feet, is a love machine, turns out good tea, and is automatic, being a series of trays on an endless chain, and self-disg charging.

Mr. Jackson will be over in India before the end of the year as soon as his roller injunction case is decided.

To those who prefer smaller machines there is the Brown's Patent Desiccator in two sizes, turning out respectively 80 to 120 lb. tea per hour. This is a combination of up-draft and down-draft, and dries tea at a temperature of 230 deg., or any other heat desirable, and cost for the larger size about R1,800 in Ceylon.

Both Jackson's 'Brittania" and Brown's "Desiccator" are machines new to India, and Indian planters should have a look at them, as they are well worth atttention and highly spoken of.

The sifters are Walker's and Brown and Rae's rolled leaf breaker and sifter, and dry tea sifters by the same manufacturers which do not grey the tea.

Unless Indian planters wake up, Ceylon will push them into the corner, and before another three years the export from Ceylon will be 92 millions, and the value of tea due to over production will fall to 6d. per lb.

This is the blight (over production) which both India and Ceylon will have to face; the tea bushes in Ceylon are healthy and not yet blighted, and there is no reason why tea should not last here for 25 years as in India. I know Indian planters will say "their lands will grow tea for a century," overlooking the fact of the enormous quantity of old tea land abandoned, and new tea planted to enable old estates to hold their own.

Ceylon estates are kept clear of weeds, and bungalow managers (however clever they may be) are at a discount, not wanted at any price.

A WANDERER.

THE PRICE OF QUININE.

(COMMUNICATED.)

The industry of Cinchona cultivation, the source of quinine, has reached a critical stage in its development and there are some facts connected with it which are of public interest, and which should be more generally known.

In 1860 the Cinchona tree was introduced into India by the Government, who employed Mr. Clements B. Markham to bring plants from South America which country was at that time the sole source of supply of the so-called Peruvian bark. Plantations were established on the Neilgherry Hills in the Madras Presidency, and at Hagkala in Ceylon; and in 1872 the first crop of bark was obtained. The cultivation of the tree spread to the Himalayas, Java, and other places, with the result that the importation of bark from the East into this country has averaged of late years about 14 million pounds, and it is estimated that the total exports from the East for the twelve months ending the 1st July next will amount to not less than 15 million pounds. If to this we add the exports from South America, which are, however, insignificant, we have a total of 16½ million pounds of bark (equivalent to about 8 million ounces of quinine), and representing one year's production for the use of the world.

The object which the Government of India had in view was the provision of an abundant and cheap supply of the febrifuge for the use of hospitals and troops in India, as well as for the people generally, in a country where fevers of a malarious type are exceedingly prevalent, a source of numerous secondary diseases and great mortality. It was also recognised that an increased supply of this unique and valuable drug could not fail to be a benefit to the world at large.

The effect of the successful cultivation of the Cinchona tree in the East on the wholesale prices of both bark and its derivative, sulphate of quinine, has been truly remarkable, both in this country and the Continent. Bark, which in 1880 realised seven shillings per pound, can at this date be purchased in London for fourpence-halfpenny per pound, and quinine, which then was sold for twelve shillings per ounce, can now be obtained from the most noted manufacturer for one shilling and fivepence per ounce, while the German article is priced at from tenpence to one shilling per ounce.

Taking the present normal consumption of the world at seven million ounces of quinine per annum—a figure which is accepted by the best authorities—the fall since 1880 in the value of the drug annually consumed is not less than 3¾ millions sterling at wholesale prices.

The trade in bark with South America has been practically destroyed, as it is no longer profitable to export it, and the wholesale prices obtainable in European markets for bark are so discouraging to planters, and the glut is so great, that the trees are being largely uprooted and replaced with tea shrubs.

The estimated number of Cinchona trees in Ceylon was, in 1882, 90 millions; in 1886, 70 millions: in 1888, 35 millions; and in 1890, 19 millions.

This glut and these low wholesale prices are not due to a supply in excess of the needs of the world, but mainly to the extraordinary fact that the retailers of the drug have generally declined to follow the wholesale market, and have practically succeeded, so far as the great mass of the public is concerned, in maintaining retail prices at an altogether artificial, and to many a prohibitory level. The price commonly put upon Howard's Quinine by retail druggists in various parts of London varies from 6s. to 8s. per ounce, when delivered in the condition in which it is received from the manufacturer; that is to say, without being compounded. In country districts it is often far more expensive, and to a great extent beyond the reach of the poor.

It is remarkable that these exorbitant prices are maintained notwithstanding the fact that a number of the co-operative stores retail quinine at present at 2s. per ounce, even then making a gross profit of over 40 per cent. on the wholesale price of 1s. 5d. per ounce.

Present circumstances lend additional importance to these facts from the point of view of the public interest. Quinine is a drug which is almost universally prescribed by medical men at some stage or other of every attack of influenza, and there is very good ground for considering it to be one of the very best prophylactics which can be taken during the prevalence of the epidemic. It is, therefore, the more desirable that the public should obtain the full benefit of the cheapness of quinine in the wholesale market. This end can only be attained by combined action on the part of the planters and importers of Cinchona bark, as well as manufacturers of quinine, with a view to the removal of any restrictions which may exist on the retail sale of the drug in whatever form it may be required.

The Government of Madras, in furtherance of the policy which originally led to the creation of their plantations of cinchona in India, have recently directed their revenue officers to keep a small stock of quinine for sale to the people, in order that the value of the drug may become known to them, and that a demand for it may be encouraged. This is a step entirely in the right direction. There are millions of people in Asia who have never heard of quinine, and who are totally unacquainted with its properties. Those however, who from contact with Europeans or otherwise have had experience of it, value it most highly. Mr. Colquhoun, the well-known traveller, in his work "Across Chrysé," writes: "Quinine is the best present any traveller in Yunnan can carry," and mentions also that it is considered to be a cure for the craving which those accustomed to opium-smoking suffer from.

It would be unfortunate if the existing want of harmony between the wholesale and the retail machinery of distribution which has been described should lead to a serious falling off in the cultivation of cinchona, and consequent scarcity of a valuable remedy, the use of which might obviously be extended in many countries with benefit to the inhabitants.—*Economist*,

BARK AND DRUG REPORT.

(From the *Chemist and Druggist*.)

LONDON, July 9th.

ANNATTO.—Two hundred and fourteen bags of seed were offered at the sales today, but only 27 bags bright, and clean Ceylon sold at 1½d, while the rest, fair to fine bright, is held at 1½d to 2¼d, a bid of 2d for the best having been refused.

CINNAMON.—Thirty-eight bales Ceylon partly sold at 7d to 9d.

EUCALYPTUS-LEAVES.—A parcel of very ordinary and old E. Globulus leaves could not find a purchaser.

ESSENTIAL OILS.—Citronella Oils: There was an attempt to sell 20 cases by one broker. He was prepared to take ⅝d, but could not get it. Nutmeg Oil: A new parcel of this oil sold at 3d. There were also offers of bay, bergamot, cinnamon, cinnamon-leaf, and Japanese peppermint oil, but none sold.

NEW GUINEA EXPLORERS.

Lying in the harbour of Singapore at the present moment is a small schooner whose only outward characteristic is that of a stump foremast and couple of deck houses above the ordinary size. Yet the "Envy" is no ordinary craft nor the Captain of her to be summarily dismissed from notice. Since the year 1874 has Captain Strachan devoted the greater part of his time to New Guinea, and of that little explored mass of land he knows probably more than any other man living. Part of the south-east is named after him and his explorations have extended for miles and miles of river. They will be found written in an interesting book compiled by the Captain while at home in 1888, which is better known down in Australia than in these parts. As the leader of the "Age" expedition, a profuse writer of New Guinea and other matters Captain Strachan has made for himself a name among the Australians as a sturdy independent man, with unbounded determination to do thoroughly whatever he turns his hand to. Like most independent men, he has made enemies as well as friends, and many and bitter things have been said against the explorer, but he has triumphantly vindicated himself from calumnies and is as ready as ever to attack what he deems the wrong.

The "Envy" coasts round New Guinea and the adjacent islands, through uncharted seas and in the midst of the treacherous natives, of whom her Captain says, although he has succeeded in establishing the most cordial relations with them, that they are emphatically not to be trusted. It is not to be wondered at, therefore that the armament of the vessel is a good one, including a number of swivel guns mounted on the bulwarks. The "Envy" is but a small boat, but she is eminently a serviceable craft and her Captain has every confidence in her. She has just lately come up from New Guinea and will stay here a short time for repairs, after which the Captain will resume his wanderings, going in the next intance to Melbourne "to interview the Victorian Government in connection with a scheme for the advancement of the interests of the commonwealth of Australia in Polynesia."

Mrs. Strachan, who is accompanying her husband, takes a great delight in natural history and has had experiences that fall to the lot of few ladies. The Brisbane *Boomerang*, under the heading "A Queen of the Sea" tells the kind of woman she is:—

"Of medium height, a slight but graceful figure, Mrs. Strachan possesses in a marked degree the oval face and regular features of the daughters of Tasmania, her native land, in which her progenitors yet bear a well-known name. Well educated, she is no mean naturalist, conchologist, and linguist, is now preparing for publication a book of her travels and adventures, and, what has more than once stood her in good stead, almost as unerring in aim with rifle and revolver as a crack shot among the backwoodsmen of America. As is well known in marine, mercantile, and other circles, Captain

Strachan has for some years past been opening up a trade in Dutch New Guinea, the Malay Archipelago, and other places, even now a *terra incognita* for other British traders than himself, with results that promise great things in the near future for the commerce of this colony. In the taut little brig 'Envy,' 90 tons burden, Mrs. Strachan was on the last three voyages her husband's helpmate and companion being in fact the only other 'white man' on board. A good sailor, a fair navigator, able to take her trick at the wheel, she was equal to any position, from supercargo to chief mate, and it was while acting in the latter capacity that she proved herself a brave woman, full of resources and equal to any emergency. On his last voyage Captain Strachan had for his crew a number of kanakas, a Malay as chief mate, and Mrs. Strachan, who was entered on the ship's papers as supercargo. After leaving Townsville the Malay began to show he was anything but a desirable member of the ship's crew. He became insolent and insubordinate, and, to add to these charms of demeanour, Captain Strachan heard at Somerset, Mr. Jardine's station in Albany Pass, that his first officer was anything but what he had represented himself to be on shipping. At Thursday Island he bore the reputation of a sullen, morose fellow, who, at certain phases of the moon, was given to enter upon an indiscriminate carving of his coloured compatriots, and a dark cloud hung over him in connection with the violent death of one of his countrymen at Townsville. As the voyage proceeded matters with the mate became worse, until one day they reached a crisis, and Captain Strachan calling the crew aft disrated the Malay, and duly installed Mrs. Strachan into the position of next in command to himself, the crew promising their allegiance to the new order of affairs. But the Malay at once commenced to attempt either to cajole or intimidate the crew into insubordination and revolt, and it became necessary to place him under arrest in irons. So the voyage proceeded. Island after island was visited and the vessel's hold began gradually to fill with nutmegs and mace, deers' horns and *beche-de-mer*, pearl-shell and valuable timber of beauteous grain; her decks became alive with rare birds and rarer beasts; and the ship everywhere showed signs of having entered upon a prosperous and profitable trade. But on all sides the captain heard tales of troublesome times. Here a party of Arab traders had been murdered in cold blood while partaking of the hospitality of their treacherous hosts; there came warnings of plots to cut off and seize the ship; everywhere the necessity for precaution existed, and the strain of anxiety became trying and severe, in the morning the vessel would be crowded with savages greedy for trade—more greedy for murder, spoliation and the subsequent cannibal feast—with an armed guard of kanakas at the hatchways, the captain and his wife, both with each hand on the butt end of their revolvers, carried on the perilous trade, and the holds of the ship each week reached nearer the desired complement until at last the trading was over, the hatches battened down, and the vessel's head pointed homeward. Then, as the ship slowly sailed past or lay becalmed at the different islands, constant watch had to be kept upon the numerous canoes, full of armed men which glided as noiselessly through the dark waters of the night, as does a snake through the grass. Through these anxious times Mrs. Strachan, the chief mate of the 'Envy,' was ever at her post. Her eye ever quick to see approaching danger—her hand ever ready to keep up the constant fusilade of cannon or musketry or to send heavenward the fiery rocket to scare away their cowardly foes. At length the ship reached more open waters and the heavy strain was removed; but with the relaxation came even more trying times for the brave woman who had passed through so much with dauntless courage. Upon Captain Strachan the constant anxiety for the safety of his wife and his ship, the incessant toil and exposure left their mark. Fight as he would against it, an enervating lassitude crept over him till at last he lay helpless in his cabin. The cook also fell ill, and upon Mrs. Strachan devolven the task of navigating the 'Envy' through an uncharted sea and acting as nurse to the invalids besides provisioning and keeping up the spirits of the remainder of the crew. Nobly she did her duty, but though her courage had been freely tried it had yet to undergo a more severe ordeal. Standing at the wheel one evening she saw the sun go down upon an angry sea and rising storm and all the unknown perils of the night to be confronted without her husband's aid. Hastily descending into the cabin she tried to arouse him sufficiently to obtain a few necessary instructions for her guidance during the storm then so fast approaching. But she tried in vain. As well try to arouse the dead as one so prostrate and unconscious as was her husband. The exhaustion following upon his long sustained exertions claimed him as its victim and Mrs. Strachan was cast upon her own resources. Soon the wind shrieked through the rigging with hurricane force, and the vessel rose and fell upon the stormlashed waters like a blind man pushed on by an irresistible force to an unknown destination. With stern set face and strained eyes Mrs. Strachan kept her post at the wheel, her voice, rising high above that of the storm king, ever and anon directing the labours of the crew. Then for a moment came a lull; the lightning's glare and the thunder's roar ceased and—then with redoubled force, the hurricane burst upon the vessel and all seemed lost. Careering over the tops of the masts met as though in a last embrace with the crests of the angry waves; the sails burst asunder with a noise as of the cannon's roar, and their shreds were scattered far and wide. Suddenly the scene was illuminated by an electric glare of more than ordinary duration, and by its lurid light Mrs. Strachan saw the mutinous Malay loosing with his hands or slashing with his knife every piece of rope or rigging with which he came in contact. Beckoning one of the kanaka crew to the wheel, she made her way towards the desperate mutineer, and when once again the darkness of the night was dispersed by the lightning's flash the woman and one madman were seen confronting each other. He with upraised knife and glaring eye, she with levelled revolver and undaunted look. The conflict was but momentary. He like a beaten cur crept back to his lair; she like the heroine she was, went steadily back to the wheel, and when morning dawned the ship was safe, and a few days after Captain Strachan was enabled to assume command and bring his vessel safely into port. As showing the sort of man Mrs. Strachan had to deal with, it may be stated that although the Malay was afterwards re-ironed he was able to throw them at the feet of the police officer who came aboard at Brisbane to arrest him and say, in so many words, no irons could hold him. In a few days the 'Envy' will once again steer her course to the scenes of her former perils and once again Mrs. Strachan will form portion of her crew. There has arisen a doubt in the minds of those in authority as to whether her husband can ship her, as he wishes to do, as his chief officer, but in whatever capacity she 'signs articles' Mrs. Strachan's many friends will wish her a prosperous pilgrimage among the isles of savagery and spices and a safe and speedy "return 'home.'"—*S. F. Press*, July 15th.

TASMANIAN APPLES.—During the month ending June 30th of the present year there were imported into the United Kingdom no less than 64,034 bushels of apples, of the value at £37,854, as against 8,798 bushels, valued at £6,237 in the corresponding month of 1890. This remarkable increase is entirely due to the large shipments received from Tasmania and New Zealand, which, arriving at a time when the supplies from America are almost over, have met with an eager demand at remunerative rates. So satisfied are the Australasian growers with the results achieved that preparations are being made for still larger supplies to be placed upon the English markets during the next season.—*Times Weekly Edition*, July 10th.

THE APPLICATION OF MANURES.

Mr. Pringle, on this occasion (see his paper below), deals with a practical subject of great interest to planters; and although his remarks apply primarily to coffee culture, the principles enunciated are equally applicable to the tea planters' pursuit. Mr. Pringle seems to have fixed on 4 cwt. (one-fifth of a ton) of artificial manure as the appropriate quantity for an acre (calculated to operate, we suppose, for the othodox period of three years); but he recommends that the artificial manure should be "diluted" by a larger quantity of cattle manure, or with at least its own bulk of burnt clay. The merits of this latter substance, especially its power of absorbing nitrogen, have been long acknowledged; and we suppose the reason why it is not more largely used is the expense of preparing it, especially where fuel is scarce. The necessary attention to a mass of brushwood and logs, which, under a covering of lumps of earth, must be kept smouldering for three weeks or a month, must in many cases act as a deterrent. But where clay is prepared as recommended and applied, especially to stiff, wet soils, the results will well repay all the trouble and expense. In the early days of our connection with the *Observer*, "Burnt Clay" was the familiar signature to a series of letters by old Mr. Hawke, who came to Ceylon from Mauritius with the Chermonts and others in "the forties." As an absorbent of ammoniacal matter in horse stables, cattle sheds, pigsties and poultry houses, its value can scarcely be over-rated. Mr. Pringle advises manuring only at the termination of the monsoon rains; he denounces mammoty digging; recommends the use of the alvanga instead; and advises the surface and broadcast application of manure after a slight forking, which will do the smallest possible injury to the feeding rootlets. We suppose no one thinks of applying manure in the heavy and almost constant rains of the monsoons; but we suspect that, in view of the generally raininess of our climate and the steepness of our gradients, few will venture to exchange the system of shallow trenches for the broadcoast surface process recommended by Mr. Pringle. Readers who are planters and who manure their fields will, however, judge for themselves. The kinds of artificial manure which Mr. Pringle favours have been already mentioned, but there are few if any better than the old Ceylon favourites: finely ground bones and white castor cake. If some fish can be added so much the better, especially if "dilution" with burnt clay is resorted to.

APPLICATION OF MANURES.

By William Pringle, M. S. C. I.,

late agricultural chemist to messrs. matheson & co. in coorg.

(Under special arrangement for publication in the "Ceylon Observer" and "Tropical Agriculturist.")

Having selected the manure or manures intended for use on the estate, the question is how to apply it so that the maximum results may be produced at the minimum cost.

First to ensure equable distribution it is necessary to dilute such concentrated manures as bones, fish, hindey* and other artificial manures with cattle manure or burnt earth. If cattle manure is procurable it may be used at the rate of two or more bandy loads mixed with the artificials, per acre. Where there is not sufficient, burnt earth will be found most useful.

The following analysis shows the change produced by burning a soil:—

	Parts per 100. A Natural,	B Burnt.
Original Matter and Combined Water*	7·572	·623
Oxides of Iron and Alumina	10·369	14·345
Lime	·253	·499
Magnesia	·161	·196
Potash	·070	·389
Soda	·026	·096
Phosphoric Acid	·159	·289
Sulphuric Acid	·023	·069
Insoluble Silicates (sand &c.)	81·367	83·494
	100 000	100.000
* Containing nitrogen	·180	·005

The burning has practically destroyed all the organic matter and nitrogen. (it is rather over burnt), but has rendered some of the insoluble silicates soluble; the increase of potash as shown by analysis B is partly due to that and partly to the wood used in burning. At least 1 cubic yard of burnt earth or 1 ton of cattle manure should be mixed with every 4 cwt. of artificials (the quantity of bones &c. necessary for one acre).

To prepare the burnt earth select good yellow clay, or peaty swamp soil, cut it into six to nine inch cubic clods, dry them in the sun. About six cubic yards should be cut for every ton of manure that is to be mixed.

The clods when dry are built up into a heap with layers of brushwood (coffee prunings and shade loppings will do); a little heavier wood should be used at the bottom to start the fires.

It is a mistake to use too much wood, or to allow the heap to burn too rapidly; instead of actually burning, it should smoulder gently. A heap ten yards long by two high and five broad should take about three weeks or a month to burn.

The earth should not be red when burnt, but just in part beginning to turn red; if of a nice warm brown color when finished it is excellent. If the fires are going too fast plaster the outside with mud. It is rather good than otherwise to have a fair percentage of charcoal left in the heap, especially if the manure is intended for poor sandy soils. When the heap has cooled down break up all the clods and pass them through a screen with four meshes per linear inch; better results will be got if a 16 mesh screen is used, but the cost of pulverizing will be considerably increased. It is now ready for mixing with the manure and the following plan will generally be found best.

Upon a clean dry floor or barbacue spread a layer of two inches of the prepared earth (or dry pulverized cattle manure); upon it spread ½ an inch of bone meal or other manure or manures, over this burnt earth, and so on earth, manure, earth, finishing with the latter. When the heap is about 12 to 15 inches thick, turn the whole over; first from one end then from the other, then from one side, then from the other; finally simultaneously from the four corners throw the stuff up into a heap in the centre, and carefully turn it over twice. Then pass it through the screen, and again turn it over. This is necessary to ensure an equal proportion of manure throughout the mass.

It is now ready to cart out to pits, which should be cut one for every five acres; a convenient size is 4½ feet deep, 6 feet wide and 7½ feet long.

When these are filled with the mixed manure they should be covered with about a foot of earth and thatched over, a gutter being cut round to run off the monsoon rain.

If raw bones are used it is sometimes advisable to sprinkle water over the manure as it is put into the pit to facilitate fermentation; just damp it. Having the manures in pits obviates the necessity for cartage when the roads are soft. The manure can be prepared and carted out in the dry weather.

* No doubt the local name for some oil-cake.—Ed. *T. A.*

It should be got out as soon after the heavy monsoon rain is past as possible. If put out just after crop it is exposed for months to a blistering sun, followed by 20 to 25 inches of rain in June and July. With a monsoon of 66 inches over 6,690 tons of water fall on an acre of land, sufficient, if all fell at once, to submerge the whole district to a depth of 5 ft. 6 inches. Of this enormous quantity of water about 1,000 to 2,000 tons fall in June and 1,500 to 2,000 in July. During these two months the rain is generally so continuous that only a very small proportion is evaporated, the temperature only varying from 60 deg. to 70 deg. Fh. the barometer almost steady at 26·5 inches, and only about 3 deg. between the wet and dry bulb thermometers. The bulk of the rain must therefore pass off by surface or subsoil drainage. In either case this heavy downpour will wash all the soluble salts down below the feeder roots or carry them off with the surface wash; at any rate a very large loss must occur, and this is probably the reason why such a small percentage of potash is found in tropical soils. The following experiment proves that such is the case:—

20 lb. cattle manure or rather pure dry gram-fed cattle dung was placed in a basket, which was buried in the ground up to the rim, in such a way that it was not subject to surface wash, but was as nearly as possible under the same conditions as the surrounding soil.

To preserve the basket it was carefully washed with a strong solution of arsenite of copper and then tarred.

It was left exposed for four months, namely, May, June, July, and August.

The dung taken out dried and weighed was found to have lost 22·5 per cent in weight and deteriorated in quality over 50 per cent.

The following analyses will help to make this clear:—

Pure Dung.

	Before Exposure.	After.
	Parts per 100	
(1) Organic Matter	65·86	62·51
Lime	1·87	1·49
Alkaline Salts	1·31	·48
Phosphoric Acid	·90	·83
Iron and Alumina	1·08	1·39
Insoluble Matter	28·60	33·03
Undetermined	·38	·27
	100·00	100 00
(1) Containing Nitrogen	·547	·212

Should these figures fail to convince anyone let him just look at the rush of water over and off the surface of a piece of flat land such as a tennis court, or a road, when a thunderstorm of an inch or more rain falls in an hour, or when there is a pucca burst of the monsoon, registering 4 to 6 inches in 24 hours, and I think he will agree with me that it is necessary to supply the tree with easily assimilable food as soon as possible after the heavy rains are past, to compensate for the monsoon loss.

I cannot too strongly urge the planters of Coorg to put out their manures during the first break at the end of July or in August. All other works should be subordinated to this, even supplying. It is the crop that pays for this and every other work. If labor is obtained there is plenty of time for supplying, but the time at which manure can be applied to obtain maximum results at the minimum cost is very limited.

The coffee tree is a surface feeder; and unless the land has been deeply cultivated from the beginning and is of loose and friable character few feeder roots are found below 6 inches in comparison with the number above that depth. This points to the necessity of surface, broadcast manuring, by which I mean that in good coffee free from blanks, that the manure should be evenly scattered over the surface up to within about a foot of the stem, and lightly forked in. An account of an interesting experiment first devised by Nobbe will I hope satisfy you of the necessity for-distributing the manure evenly round the tree.

Any planter can make the experiment and so satisfy himself of the correctness of the following statements. Take a good-sized tub say 2 feet in diameter by 2 ft. deep, bend a piece of tin (an old kerosine oil tin will do) at an angle of 90 deg. and place it on end in the tub fitting the edges to the tub sides, so that it is possible to fill the tub with well washed sand without encroaching on the enclosed fourth. Bore some holes in the bottom of the tub, fill in for three inches with clean washed pebbles or broken quartz, pieces ½ to 1 inch will do, fix the tin in position, fill with clean well washed sand outside the tin. And in the fourth enclosed fill with first-class soil; arranging in it three vertical tubes place about three inches or so apart and equidistant from the centre.

The tubes should not be over two inches in diameter; they may be of tin, copper, glass or any other material; stiff paper rolled round a rod and glued so as to form a tube will do. Compact the soil gently round the tubes, and fill one with bones, one with fish, and one with cattle manure, all in fine powder. Now withdraw the tubes, leaving the columns of manures standing in the soil, and then withdraw the angle tin, leaving the soil and sand in contact; if the work is well and carefully done the manure will not be mixed with the soil, nor the soil with the sand.

Having prepared the tub (or six of them to guard against accidents) plant a coffee seedling in each at the centre point of the junction of the sand and soil; the plant then has sand on three sides and soil on one.

At the end of twelve months take the plant that appears most vigorous, knock the hoops off the tub, and carefully wash all the soil and sand away from the roots. You will find very few feeder roots in the sand, while the manures are surrounded by a mass of them. As far as the roots go the plant is quite lopsided. Now if manures are put in alavanga holes, or in trenches cut a short distance from the tree, the roots are prepared to grow and develope in the soil enriched by them. But that terrible weapon the mamotie comes into play, and often cuts through the roots just when the demand for plant food is greatest, when the tree is ripening crop. I most unhesitatingly condemn all mamotie digging. I have taken clods of earth after a mamotie digging, carried them home and washed out the fine feeder roots, often finding the clod one mass of them. Needless to say that on many estates leaf disease followed the digging when the trees were carrying crop. Except a light fork over at the end of July or in the beginning of August when the manure is put out, there should be no digging from the time the blossom sets till crop is picked. Every planter should do all he can to preserve his surface soil and save his tree roots. When the soil is light and friable and has been deeply and well cultivated from the beginning, the feeder roots are found at a much greater depth than when it is stiff and hard a few inches from the surface.

Deep fork digging once a year just after crop sends the roots down, and they are less affected by the sun and drought.

When rain falls in the spring, if the feeder roots are just below the surface a light shower will start the blossom, but may not be sufficient to set it, and if no rain falls for a month or so to back the first shower up, the blossom runs a great risk of being burnt. With deep cultivation this seldom happens, as the rain which is sufficiently heavy to reach the roots and bring out the blossom will also serve to set it, the sun not having the power to evaporate the moisture which is well down into the soil.

Superficial cultivation and want of manure are the main causes of the failure of crops to come on after a good blossom; the rain has run off and been evaporated before the trees had time to gather it to themselves.

Cultivate deeply, but not excessively, manure systematically, do it at the right time, keep the surface soil up to the tree, do not humbug the roots by mamotie digging while crop is on the tree: in fact assist Nature, do not bully her, and good results may be depended on. WILLIAM PRINGLE, M.S.C.I.,

Agricultural Chemist.

Bangalore, July 31st,

THE SCHOOL OF AGRICULTURE AND VILLAGE CULTIVATION.

We have received a copy of the following circular :—

The value of circulating leaflets, embodying useful and practical advice, has been proved beyond doubt, and the adoption of this means for disseminating agricultural information has been forcibly urged by the daily press. The free distribution of papers containing useful and practical advice has been favoured by Agricultural Departments wherever they exist, and has been attended with good results. In view of these facts the Editors of the "*Govikam Sangarawa*" (the Sinhalese Agricultural Magazine, published in connection with the School of Agriculture) have, with the completion of the 2nd vol. of that periodical, decided on suppressing it for at least a time, with the view of testing the method referred to above, viz., of issuing monthly leaflets mainly intended for village cultivators, to be "sown broadcast" over the country. It is hoped that the minimum cost of 1 cent per copy made only to defray cost of printing, postage, and illustrations when necessary, will not be incurred by the cultivators themselves, but that those in authority who have the welfare of their several provinces and districts at heart, as well as influential, wealthy and philanthropic private land-owners, will give large orders for the leaflets and circulate them *gratis* among the villagers. In the absence of Itinerary Agricultural Inspectors, there seems to be no better means of presenting to the *goiyas* all such information as they may be in need of, and the better for, regarding every branch of the Agricultural Industry. It will greatly facilitate the carrying out of this project, if all those who are concerned in furthering the interests of native agriculture, as well as cultivators themselves, will communicate with the Editors at the School of Agriculture, and suggest such subjects as they think might advisedly be taken up and treated of in the leaflets, and upon what points information is desiderated.

We hope that this new experiment will prove a successful one. Many of the goiyas will not be able to read the leaflets, and many more may not understand or appreciate the information they contain. But we trust the educated young men being scattered over the country will help their less favoured countrymen by reading, explanation and advice to follow as far as possible the reformed methods of cultivation which will, of course, be indicated.

TERMITES AT HIGH ALTITUDES.

For long shared what we believe is the popular impression that white-ants cannot exist at altitudes beyond 2,000 or 3,000 feet above sea level. Tennent, indeed, wrote of their not being found above 4,000 or 5,000 feet; but until quite recently, we felt certain that at or above the latter elevation they did not and could not exist. To this effect we recently spoke unadvisedly to a visitor on Abbotsford. We were aware that Mr. E. E. Green had observed and described a species in Pundaluoya at an elevation of over 4,000 feet; but we had never seen any in the district of Dimbula except some imported from Colombo in a deal case; and we regarded Abbotsford (4,600 to 6,000 feet) as equally exempt from the presence of white-ants as of land leeches. We had forgotten that the more observant superintendent had noticed and told us of their existence. He writes:—

"I now send you a sample so that you may be satisfied on the subject. If you cut up the sticks you may find more in them, but you may as well burn the lot after inspection, as it would be a pity to encourage their propagation. There are fortunately very few about, but still there can be no doubt they are here. I got these on Knock Ferrol, and the last I saw there were altogether a much smaller variety."

Of the smaller variety referred to, no specimens have been sent, so that the question of their identity with the small white-ant of the lowcountry cannot be definitely settled. If, however, we are correct in supposing that no earth-formed nests have ever been found at the higher elevations, the probability is that the smaller mountain termes is a distinct insect. The larger sized species, of which specimens reached us, in the twigs, into which they had bored tunnels on Knock Ferrol (5,200 feet altitude), are certainly distinct from the lowcountry excavators and pyramid builders, and Mr. Staniforth Green is probably correct in concluding that the big Dimbula ant and that of Pundaluoya are identical. Mr. Green writes :—

"The Abbotsford 'white-ants' are of a different species to the common termites living underground in the lowcountry. The former are much larger and whiter. It is likely however that they are to be met with in the lowcountry in certain situations. They do not seem to use cover in their work, merely tunnelling the wood they attack, and in which they reside. There is a smaller species in the lowcountry that sometimes attacks furniture and other wood-work. This species does not seem to reside underground at any period of its life. It is of an ivory-white colour.

"I cannot find E. E. Green's paper on the Pundaluoya termites, but they are probably identical with the Abbotsford ones."

Tennent, on the authority of Thwaites of Peradeniya, describes a lowcountry termes (*T. monoceros*) which does not form earth nests but builds, in the hollows of old trees, nests which are of a black colour, resembling a mass of scoriæ; the insects themselves being of a pitchy brown. The question we should now like to have answered is, "Have termites been observed at a higher elevations than that of 5,200 feet?" As the creatures are, at certain stages in their existence, gifted with the power of flight, they may be able gradually to extend their zone upwards. Readers may remember the army of hornets which visited Dimbula and other high districts some years ago, just as tea was appreciably taking the place of coffee. They seem to have disappeared as rapidly as they came. The termites have no such powers of flight as the wasps.

BURMA RUBY MINES.

The third ordinary general meeting of the shareholders in the Burma Ruby Mines (Limited) was held yesterday at the City Terminus Hotel. Sir Lepel H. Griffin presided, and, in moving the adoption of the report, stated that it was accompanied by the report of a director (Mr. F. H. Kirby), who accompanied him (the chairman) to the mines a year before. Although they had no very brilliant results to show at present, he thought that their prospects were exceedingly satisfactory and reassuring, although they had not yet obtained stones of the quantity and quality which they hoped to get. Every month the returns were distinctly better, both in quality and quantity, and their chief engineer, Major Kunhardt, was exceedingly confident of the eventual success of the company. In his last report, received a fortnight ago, Major Kunhardt said :—"Briefly stated, I look upon our first year as having been one of exploration and experiment; the present, our second, year as one of development; and, as far as I can judge, our third and subsequent years will be years of success." He presented Major Kunhardt's opinion to them as one deserving of their fullest confidence. He then recapitulated what had been done in the last 18 months, pointing out that in all such undertakings

there must be some experiments which were futile, especially in a country like that in which they were carrying on operations, and in a class of mining never before tried. To show them the great difficulty of transport he might mention that one of their large washing machines had cost no less than 21,000 rupees to be conveyed 60 or 70 miles from the river to the place where it had to be put up. After referring to the telegram, dated Rangoon, July 2nd, from *The Times'* Correspondent—in which reference was made to the present season being an unhealthy one throughout Burmah—the chairman stated that during the last few months the information which they had received showed that the company's staff were perfectly well. In his last letter Major Kunhardt stated that he would require no money from England this year, and he felt quite sure that, unless any unforeseen expenditure occurred, this promise of their chief engineer's would be fulfilled. They had very largely increased the number of leases which they gave to native miners who did not interfere with the company's work, and the amount received under this head almost represented two lakhs of repees per annum. This would be sufficient to carry on their works at Burmah without trenching on their supplies at home. The only machinery now going out to Burmah was several miles of ropeway—iron wire—which would be used for carrying the ruby-bearing earth to their stations. When the aerial rope-way was completed, Major Kunhardt believed that their undertaking would be a success and a paying concern. It was his firm belief that the corner had at last been turned, and that an era of prosperity would shortly dawn for the company. Mr. George B. C. Leverson seconded the motion. At the request of the chairman, Mr. Kirby afterwards addressed the meeting, and spoke highly of the work which had been done by Major Kunhardt, and expressed his conviction that, with a little more patience, exploration, and assistance, the company would be able to produce the finest rubies in the world. Major Joseph thought the directors should do their utmost to obtain a modification of the arrangement with the Government under which they would have to pay a smaller amount for rent, the sum at present being, he considered, most oppressive. Mr. E. K. Burstal inquired what experience Major Kunhardt had had of mining, and whether any portion of his remuneration depended on results. He was sure that filching occurred if the ruby-bearing earth could be touched by the natives. Having regard to the position of the company, he considered that the directors should forego a portion of their fees. He intimated his intention of proposing the following resolution:—"That, considering the very unsatisfactory character of the accounts presented to the meeting, the shares holders are of opinion that it is advisable to reduce the number of directors and the amount of their fees." The chairman, in reply, stated that Mr. Burstal's resolution could be dealt with afterwards on the proposal for the re-election of the retired directors. Major Kunhardt was certainly not a mining engineer in the technical sense of the word, but the company's mines were not mines in the technical sense of the word. He was a man of all-round ability, and those who had been connected with the Government of India or public works there knew Major Kunhardt's reputation as a most economical worker. They were now negotiating with the Government of India to reduce the rent as much as they possibly could. The question of the term of the lease would be taken up directly the question of the rent was settled. There was no doubt that whether they had a formal extension of the term or not, they had the right of continuing work at the mines as against all other comers, and this right had been and would be accepted by the Government. They could work the mines as long as they liked for 99 years. With regard to the proposed road to the mines, the Government had put it off from month to month. About a fortnight ago there was a telegram in *The Times* stating that another five lakhs had been sanctioned for expenditure on the road. He only hoped that this money would be spent and not be swept into the Treasury at the close of the financial year, as had happened with other sums of money which had been sanctioned for the same purpose. With reference to the disposal of the rubies, the directors would be pleased to receive any suggestions from experts. It was a matter of great importance, but at present he was in favour of their being sold by public auction. It was not reasonable for the shareholders to expect the directors to work for nothing, but if they were dissatisfied they could at any time get rid of the directors. A shareholder observed that there were too many directors. The chairman, resuming, said that this was a point which was about to come before them. The number of the directors and their remuneration were set out in the articles of association. So far as they now understood from Major Kunhardt, all washing was done under the direct supervision of Englishmen. Mr. Lockhart, the late chief engineer, said he could not share altogether in the view which had been expressed by the chairman that the prospects of the company were satisfactory and reassuring. The question of centralization was this—the difference between working huge machinery at centres and small machinery distributed. He maintained that the better plan was to have smaller machines, and that had such machines been sent out they could have been at work long ago, and results might have been obtained from all of them. He did not think that a dividend could be looked for within a reasonable and short time. He did not desire to say anything hostile to the directors, but he did not think they understood the position, and he thought they should ask a small committee, chiefly composed of technical men, shareholders in the company, to confer with them in regard to the method of working. The chairman, in further reply, stated that the object of the centralization of the work, of bringing all the earth to large washers at central stations, was really to do away with minute supervision at a great number of detached and separate places, and to allow the supervision to be exercised at main places, where it could be more precise and certain. The resolution was then carried. On the motion for the re-election of the retiring directors—Sir J. H. Morris and Mr. F. A. Gillam—considerable discussion ensued, it being contended that the number of directors was too large and that their fees were too heavy. The re-election of Sir J. H. Morris was also objected to on the ground that he is a director of ten other companies. The solicitor read the clauses in the articles of association relating to the number and election of directors—one clause stating that they should be not less than three nor more than ten—and pointed out that if the directors were not re-elected, and no one else was appointed in their stead, the retiring directors would remain in office for a year; while, as regarded the election of new directors, seven days' notice ought to be given by the shareholders. This view was dissented from by Major Joseph and other speakers. The Chairman said he could not put a resolution which was illegal, but he would take an expression of opinion from the shareholders as to the re-election of the retiring directors. He then put the motion, which was lost on the show of hands by an overwhelming majority.—London *Times*, July 11th.

PLUMBAGO MINING IN THE BENTOTA DISTRICT.—We were shown on Saturday a magnificent piece of plumbago found in the newly sunk mines of the Ceylon Gemming and Mining Estates Syndicate in the Bentota district. The specimen in its entirety scaled some fifteen pounds, and was discovered at a depth of ten fathoms, the vein giving promise of yielding an abundant supply of the mineral. Mr. H. Bettison, the engineer of the mines, leaves for England on Monday, and on his return will bring with him several Cornish miners, who will take up positions as overseers. The local agents of the Syndicate are Messrs E. G. Harding and Co.—Local "Independent."

THE BRITISH NORTH BORNEO COMPANY.

The 17th half-yearly general meeting of the British North Borneo Company was held yesterday at the Cannon-street Hotel.

Sir RUTHERFORD ALCOCK presided, and, in moving the adoption of the report, said that there had been a very considerable and satisfactory increase for 1890 in almost every item of revenue proper, more especially under the heads of "farms" and "customs"—two permanent sources of great importance. The increase for 1890, in round figures, amounted to $106,859—namely, from $251,602, in 1889 to $358,461, in 1890. There had been an increase in the expenditure of $82,950. But the increase on both sides of the accounts was partly caused by the inclusion, for the first time, of the revenue and expenditure of Labuan, and partly also by a modification in their system of accounts as explained in the report. With this explanation, there was sufficient ground for congratulation that in 1890, within ten years of the formation of the company, the receipts amounted to a sum of £101,665, leaving a surplus over the total expenditure of £19,238, subject to an amount to be provided for depreciation, differences of exchange, &c., of £4,355; and if such a surplus was not very large it would readily be admitted that, with a similar surplus in 1889, it was a great improvement on the budgets of the preceding eight years, and was of good augury for the future. The other source of receipts, the land sales, again in 1890 produced the satisfatory sum of £39,242, or very nearly the same as in the three preceding years. But owing to the present depression in the financial and commercial world, considerable returns under this head could scarcely be counted upon. An increase was apparent under almost every head of the expenditure account, but more notably under that of police, the upkeep of steamers, the necessity for a large surveying staff, and a new item for pensions, amounting to £1,225, chargeable to the revenue of Labuan which the company had to pay, having taken over the government of the colony with its revenue and liabilities. It was, however, expected that the island would be administered without loss, so that the item would be covered by the receipts. Since the last accounts were presented, the deed of settlement, at the request of the court and shareholders, having been amended by the Privy Council, the court was now authorized to deal with the monies derived from the sale of land in connexion with funds received from other sources, such as the revenue proper, and the balance of cash, therefore, had been passed to the general account, with the result shown in the balance-sheet. Negotiations had been proceeding for some time with the Indian authorities to obtain facilities for the emigration of natives of India to Borneo, and terms had been arranged definitely, it was believed, with the Indian Government. Independent of any advantages that might be reaped from an accession of labour from India, there was every reason to hope that the free labour from China now coming in and the improved sanitary condition of the tobacco estates would very shortly remove most of the obstacles hitherto encountered in obtaining all the supply desired, and of a much better quality. But tobacco, as he had often impressed upon the shareholders, was not the one resource of Borneo, nor would the ultimate success of the island as a colony be dependent upon the cultivation of tobacco for its prosperity. It had been abundantly proved that its soil, climate, and other conditions were favourable to the growth of many of the most favourable products of tropical countries which formed the staple of a vast commerce. These were all sources of great wealth, only wanting European enterprise to be developed into a great trade in Borneo. Having referred to several syndicates already formed with the object of encouraging this new trade, he said that, in addition to these enterprises, important concessions had been recently made which might be fruitful of large results. The most important of these was one granted since the last meeting to a syndicate for the purpose of forming a railway company. There could be no doubt that the construction of a railway from the eastern to the western coast would confer a great benefit on the country and all concerned in its development. The administration of Labuan, under the company's management, was satisfactory, and the coal mines were being vigorously worked by the Central Borneo Company, which had put on a large steamer to trade between the island and Singapore.

Mr. R. B. Martin seconded the resolution.

A long discussion followed, in which Mr. Cohen, Mr. John Martin, Mr. Spurling, Mr. Hildyard, Mr. Blundell, and others took part, the principal point considered being as to whether the amount received from land sales should be regarded as revenue and divided amongst the shareholders, or used as capital in the development of the company's enterprise. An amendment was moved by Mr. John Martin, and seconded by Mr. Spurling, to the effect that the meeting should be adjourned, in order that the directors might furnish a balance-sheet accounting for theproceeds of land sales in conformity with Article 32 of the deed of settlement.

On a show of hands being taken, the amendment was lost by 24 to 21, and the resolution was then agreed to.—London *Times*, July 10th.

NETHERLANDS INDIA.

The *Sourabaya Courant* takes note that the demand for waste land in the S. E. portion of Netherlands Borneo has taken the form of mania. It finds that the concessions of large tracts of land there, without adequate security that the applicant can readily turn them to account within a reasonable time, runs counter to the interests of cultivation. So liberal are the conditions for securing concessions, that they tend to work in favour of speculators who look up the land in hope of high prices. So much has the course of events taken this direction that in those parts of the country suitable for tobacco-growing hardly any land can now be had, and yet scarcely any of it has been brought under cultivation. It is evident that pioneer planters in that quarter, should their experimental cultivation succeed, may find that they can only increase their holdings by buying the required land from neighbouring speculators at exorbitant prices, and few will care to run the risk. Some of the concessions are in the hands of persons who mean business in tobacco planting, but so far not much has been done in this line beyond testing the ground.

Cinchona planting in Java seems to have seen its best days, for the prices of bark so continue to fall that several planters intend to close their estates as further working would not pay expenses. —*Straits Times*, July 15th.

AN IMPORTANT SURVEY IN BORNEO.

THE BOUNDARIES OF DUTCH AND BRITISH BORNEO.

H. M. S. "Rattler," Captain Heugh, came into Singapore on Monday, after making a very important survey in parallel 4.10 N., in which territory, the limits and borders of the Dutch and British North Borneo Company's possessions have hitherto not been defined on a satisfactory basis. The "Rattler," just after returning from Wuhu, the scene of the recent riots, received instructions at Hongkong to proceed to Borneo in order to carry out the survey as ordered by the Lords of the Admiralty. She left Hongkong on the 16th May, and in company with the Dutch warship "Banda," Captain Von Owen, the survey of parallel 4.10 N. commenced on the Sibilik Island. The result of the survey proved

conclusively that the British North Borneo Company have acquired the whole of the St. Lucia Bay and the two rivers Sri Nengars and Sine Soldang. These rivers were surveyed from the mouth right up to the source which was found to be eighteen miles away. They are in point of fact nothing more or less than a variety of creeks, with an unusual abundance of mangroves that run out for a great distance in the waters. It was discovered that this part of Borneo consists of one great delta, which makes it feasible for a traveller to go from South to North, by using creeks only, for a distance of over fifteen miles from the coast. There is a prevailing idea that by the means of these rivers the forest products of British North Borneo have been drained and smuggled out of the territory, across or down the rivers into the land possessed by the Dutch. The "Banda" and the "Rattler' have removed all the discrepancies that existed with regard to the demarcation of the two borders and indeed, when a comparison came to be made, it was found that the surveys of both parties corresponded in nearly every detail. The parallel latitude of 4.10 N. has been beaconed off with large beacons, with the Dutch flag shewing to the Southward, and the English flag shewing to the Northward, in every direction over the eighteen miles as far as these rivers extend. The whole place has been completely and satisfactorly settled by observation; and owing to the immense mangrove swamps, great difficulty was experienced in finding an observatory spot. The country in the vicinity seems to be devoid of fruit but there seemed to be any number of pigs and wild boar. The people on board the "Rattler" managed to get no less than eight pigs in one day which averaged when dressed, about 80 lbs each. The entire survey was completed in the course of a month, and then the ships came to Singapore.—*Straits Times*, July 15th.

PLANTING AND MERCANTILE NEWS FROM WESTERN INDIA.

(*From a Correspondent*)

Crops in Coorg this year promise well, but without doubt leaf disease is slowly and surely doing its full work, although not with the rapidity it did in Ceylon; despite what Messrs. Elliot, Pringle and Hunt and others, who you sometimes quote in your columns, may say. Mr. F. Noone, late of Sabonadière's, has joined Messrs. Alston Low & Co., and is stationed at Mangalore in charge of the branch there. As a Mr. Chisholm, a large proprietor in Coorg, who was down here the other day, said on hearing the firm had engaged him: "You Ceylon people are the 'Yankees' of the East. You gradually shove yourselves in, and then you fill your billets with other Ceylon men." The reply no doubt was: "The fact is, Ceylon is an uncommon good training ground for anyone connected with estates, and the eccentricities and amenities connected with a planting community."

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, Jul 16th.

CINCHONA.—The supply of bark offered at the fortnightly sale on Tuesday was less than on the last occasion, but the sales were almost as large, as the following figures show:—

	Packages		Packages	
Ceylon cinchona	455	of which	414	were sold
East Indian cinchona	1,227	do	1,064	do
Java cinchona	25	do	25	do
South American cinchona	161	do	0	do
Cuprea bark	110	do	20	do
Total	1,981	do	1,523	do

At the previous sales 1,579 cases were sold, equivalent to 371,701 lb. of bark, whereas this week 343,611 lb were actually disposed of. There was no feature of special interest in the sales, and although bidding was at no time very animated, yet prices were on the whole firm. The unit is not quoteably higher than it was a fortnight ago—viz, 1¾d per lb for manufacturing-bark. Ceylon and East Indian barks sold readily, nearly all that were not sold being taken back by the brokers on account of the bidding not coming up to their expectations, but in most instances there was a tacit understanding between certain bidders and the brokers. There was a large supply of cultivated Bolivian Calisaya bark in firm large quills. Altogether there was 37,030 lb of it, mostly in good condition. The broker stayed scarcely 30 seconds in the pulpit over the lot, no higher bid than 6¾d being reached, then, with a knowing look to a bidder, he bought in the 161 packages at 8d. Bidding "for the pile" was somewhat brisker than usual, and was going on uninterruptedly until the sales were half done, when Mr. David Howard goodnaturedly said that "the room" must have some understanding as to how far that custom should go. It was not always a wise course to adopt; at any rate, they could not make a pile of one bale especially a bale so badly damaged that it could not stand by itself. The wisdom of these remarks was exemplified later when a broker was almost accepting a price for "a pile" some bales of which were afterwards sold at from ¼d to 1¼d higher than the price offered by the bidder for the lot.

THE LARGEST FLOWER IN THE WORLD.

In the farthest southeastern island of the Phillippine group, Mindinao, upon one of its mountains, Parag, in the neighbourhood of the highest peak on the island, the volcano, Apo, a party of botanical and ethnographical explorers found, recently, at the height of 2,500 feet above the sea level, a colossal flower. The discover, Dr. Alexander Schadenberg, could scarcely believe his eyes when he saw, amid the low growing bushes, the immense buds of this flower, like gigantic brown cabbage heads but he was still more astonished when he found a specimen in full bloom, a five-petaled flower nearly a yard in diameter—as large as a carriage wheel, in fact. This enormous blossom was borne on a sort of vine creeping on the ground. The native who accompanied Dr. Schadenberg called it bolo.

The party had no scale by which the weight of the flower could be ascertained, but they improvised a swinging scale, using their boxes and specimens as weights. Weighing these when opportunity served, it was found that a single flower, weighed 22 pounds. It was impossible to transport the fresh flower, so the travellers photographed it, and dried a number of its leaves by a fire. Dr. Schadenberg then sent the photographs and specimens to the Royal Botanical Gardens, Breslau, where the learned director immediatety recognized it as a species of Rafflesia, a plant formerly discovered in Sumatra, and named after the English Governor Sir Stamford Rafflesia. The new flower was accordingly named Rafflesia Schadenbergia.

The five petals of this immense flower are oval and creamy white, and grow around a center filled with countless long violet hued stamens, thicker and longer in the fertile flower than in the infertile.—*Gardener.*

DESICCATED COCONUTS.—In reply to your enquiry as to the number of nuts it takes to make up 100 lb. of the above, in case nobody has obliged you with the actual figures, you can I think reckon on 1000 nuts yeilding between 300 to 350 lb. of desiccated coconut according to the seasons. It takes 1000 good coconuts to give 560 lb. of well-dried copra. But nuts before being desiccated are shaved of the brown outer covering of the kernel, and are dried more than copra over is.—*Cor.*, local "Examiner."

NOTES ON POPULAR SCIENCE.

By Dr. J. E. Taylor, F.L.S., F.G.S., &c., Editor of "Science Gossip."

Sir Charles Mills and Dr. Edington have been visiting France for the purpose of inquiring into the best methods of guarding against and exterminating the phylloxera. South African vineyards are just now suffering grievously from this pest. Sir Charles has drawn up a report, in which he advises viticulturists to study French methods at Lyons, Montpellier, and Bordeaux. Dr. Edington describes the best methods of grafting and planting. He is about to return to the Cape, in order to be there before the grafting season begins. It is proposed to establish trial stations, in which the various kinds of American vines can be separately watched and tested. One kind, called riparia, is said to be absolutely free from and unassailable by the phylloxera. These Cape experiments should be keenly and carefully watched by Australian viticulturists.

M. Lesage, a French scientist, has just communicated the results of some very curious experiments he has been making on the influence of salt upon the quantity of starch contained in the tissues of the cress (Lepidium sativum). These show that when the plants were watered with solutions containing from twelve to fifteen grains of salt per litre the starch disappeared completely. The diminution of starch was proportional to the increase of salinity.

Mr. Storch, a German chemist, has been microscopically investigating the causes of "oily butter." He thought it might be due to some particular kind of bacteria, but if so he failed to find one. He discovered, however, that in all the butters he examined in which the "oiliness" was a marked feature there were always numerous fungi present, so Mr. Storch concludes they are injurious. A different organism was found in "tallowy butter." Another probable flavouring of butter is that of "turnips," although made from the milk of cows which have not fed on those plants. This also is believed to be due to a special organism. The aromatic odour peculiar to souring cream is caused by a bacterium, and it is thought that butter having the same flavour owes it to the same cause. These microscopic fungi, therefore, give the flavours to our butters as well as odours to our wines.

It is now proved that the power possessed by plants to store up mineral substances differs much both quantitively and qualitatively. The object of lime is to convert the poisonous potassium oxalate, which is found in considerable amount, into calcium oxalate. The assimilation of nitric acid takes place in the green cells of plants, and nitrogen migrates chiefly in the form of amides and amido-acids.

We have by no means learned all we can about ants, and we shall have to take Solomon's advice, and consider their ways a good deal more before we do, in spite of the researches of Huber, Lubbock, and M'Cook. The latest discovery concerning ants is that they are capable of parthenogenesis. This long word does not signify a crime—it only means that the female insect can breed for several generations without the aid of the male. It is a characteristic method of reproduction in the aphides, or plant lice. Several other orders of insects have members which occasionally or habitually adopt the habit, but nobody hitherto suspected ants. Professor Wasmann, however, has been enabled to induce two species of our common ants to become parthenogenetic by simply warming their nests in winter.—*Australasian.*

Planting in Perak.—The *Pinang Gazette* of 30th July says:—Negotiations are in progress for the purchase of five thousand acres of land from the Perak Government on terms as recently advertised. This large acreage of land will be brought into cultivation by the intending purchasers as quickly as possible, principally, we understand, with coffee and tea.

PLANTING IN TRAVANCORE.

We have had very complete returns sent to us by our Travancore friends for the plantations in the various planting divisions of the State. They are included in full detail in our Directory and the following summary made up thereupon indicates how tea is slowly but steadily superseding coffee and cinchona "over the ferry," as in Ceylon:—

Travancore:—Average of Plantations.

1890	Cinchona.	Tea.	Coffee.	Cultivated.	Total.
Peermade ...	501	2,160	2,023	4,486	9,066
North and Central	377	2,898	596	3,871	16,530
Assamboo... ...	216	1,020	1,378	2,800	7,918
Kannaadevan ...	1,961	270	160	2,231	4,017
	3,055	6,348	4,157	13,388	37,531
1891					
Peermade ...	310	3,321	1,356	4,987	8,589
North and Central	291	3,350	352	3,993	15,510
Assamboo.. ...	—	1,127	1,234	2,305	5,713
Kannaadevan ...	1,703	308	232	2,273	36,286
	2,304	8,106	3,204	13,558	66,098

Travancore has now 8,106 acres under tea, 3,204 of coffee, and 2,304 cinchona, making up a total of 13,558 cultivated acres out of 66,098 acres comprised in the properties.

The Chinese Tea-men are reported to maintain a sort of incredulous nonchalance, even in the face of that almost complete capture of the English market by the Indian and Ceylon teas that appears to be impending. Consul Hopkins tells us that, in spite of the gloomy forebodings of foreigners, it is certainly true that the tea-men have not yet had the alleged gravity of the situation confirmed by any general lightness of their pockets since the transitional period began. They see Russian buyers plunging at all the crack teas almost at any cost, and even buying up in London what they had not been able to secure at Hankow. Indian teas (adds Mr. Hopkins) are not indeed to the Russian taste, but the danger that threatens the teas of Central China comes from the rivalry of the Ceylon plant, the leaf of which gives a liquor, soft, pure, and delicate, suggestive of fine Ningchow, but preserving a character of its own.—*Indian*

Do Tools Grow Tired?—This seemingly absurd question is seriously answered in the affirmative by a correspondent in a technical contemporary. He says:—"I called the attention of a shopmate—a grizzled old veteran—to the peculiar behaviour of a chisel. He looked at it and handed it back to me, saying—'The tool is all right, only a little tired. Lay it aside and let it rest. It will come out all right again, just as a man that is tired will.' I did not believe the old fellow, and I really thought he was crazy, speaking of a tool getting tired; but, as there was no help for it, the tool was laid away. I do not remember how long it was left to 'rest,' but when it was again sharpened and used it appeared to hold its keenest edge as well as it did before it got tired. Barbers tell me their razors, in constant use, get tired in the same way; and wood-choppers say their axes seem to grow soft all at once. Possibly constant and hard usage may cause changes in crystallisation that would account satisfactorily for the peculiarityalluded to."—*British Quarterly Trade Review.*

THE GEOLOGY OF PUTTALAM.

The geology of Puttalam is of very considerable interest because of the undoubted accretion being made to the dry land by means of mud, sand, fragments of corals and shells and other substances swept by currents into the spacious lagoon known as "the Puttalam Lake." An observant correspondent writes to us on the subject as follows:—

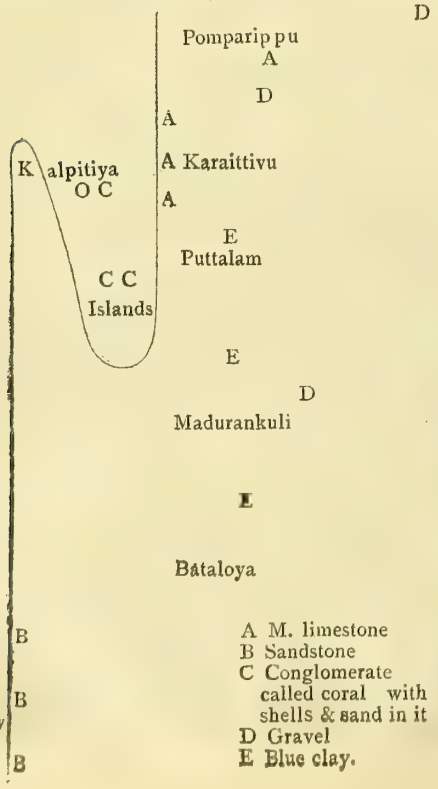
"I have been much interested in the geology of this part of the country, I understand no fossils to have been found previously in Ceylon, except as coral. I found in a hard sandstone at Chilaw several shells, most of them well embedded in the rock, and of present date.

"I have also found a perfect fossil shell in what I believe to be a magnesian limestone, and apparently very much older than the present time. I am sending these down to you for inspection, and would like you to have them shown to any really good geologist. In my humble opinion the rocks enclosed are of later date than the coal formation, and I see no reason to doubt coal being found down in the lowcountry round here. We have no hills within 40 miles of this: the oldest rock found similar to Aberdeen granite is found 4 miles inland from Puttalam, but not so near the sea, at Pomparippu. I append a sketch showing where the rocks are found, and hope it may interest you.

"Plumbago is I believe crystallized coal, and if the heat &c. were not sufficient here to form crystalline rocks, such as gneiss &c., but only enough to form sandstones and magnesian limestone, possibly we may get coal in the natural state.

"In England I understand the formations run somewhat as follows—magnesian limestone, sandstone, coal strata.

"Here we find blue clay all about Puttalam for some miles. North we find magnesian limestone? Beginning on the coast line about 8 miles N. and running up the coast for 10 miles or so and then again inland, this same stone is found 24 miles north; the hard sandstone being found down at Chilaw. I have not found it more than a mile or so north of Chilaw."



The speculations of our correspondent about coal are of exceeding interest; and it would be a grand day for Ceylon if this valuable fuel substance were found in quantity. We are not, however, prepared to agree that plumbago, which a German savant traces to gas or water, whence it was deposited, is crystallized coal: the best geologists have abandoned that idea. We submitted our correspondent's letter to Mr. George Armitage, who has kindly reported as follows:—

Re SPECIMENS OF ROCKS SENT FROM PUTTALAM.

One specimen is a recently formed sandstone containing a shell embedded in it. This formation is found in the neighbourhood of Colombo about Hendala on the sea coast. [The curious and useful breccia known as "Pamunagama stone," utilized to a considerable extent as a building material?—ED. *T. A.*]

The other specimens are magnesian limestones, with appearances of fossils. Particulars of analysis enclosed.

Your correspondent writes of sandstones and magnesian limestones as having been *formed* by heat. From his loose mode of expression it is rather difficult to understand his meaning. Sandstones and magnesian limestones are not formed by heat, but doubtless much of the Ceylon crystalline magnesian limestone has been *subjected* to heat. The specimen under examination has more of a cryptocrystalline appearance, and should be carefully examined for fossils if it is wished to fix the relative geological date of the formation. It is idle speculating as to what may or may not be found. The thing required is to work at the formations that one comes across and try and find the Geological boundary-lines, and dates when fossils can be found.

I shall send my theories of our plumbago formations when returning Mr. A. M. Ferguson's notes on the Geology of Nuwara Eliya.

Mr. Armitage's analysis of the magnesian limestone is as follows, and in quoting it we may say that this is the first time we have heard of dolomite, a much older rock than the ordinary coral limestone of the north of the island, existing close to the sea shore:—

ANALYSIS OF DOLOMITE FROM PUTTALAM.

Hardness 3-5.

H. Cl. in powder, soluble with eff. slight gelat. residue.

Filter. neutralized with Am. Liq. slight prec. Iron.

A Portion treated Ox. Am. sol. copious prec. white Oxalate of Lime.

A Portion treated Am. Phos. Soda Sol. copious white prec. Phos. Magnesia.

The mineral is a Magnesian Limestone, Dolomite.

THE TALGASWELLA TEA ESTATE.

MR. E. S. GRIGSON'S REPORT.

We recently mentioned that Mr. Edward S. Grigson was visiting the Talgaswella estate; and a very lengthy report has just been distributed amongst the shareholders. He states that the property is only a few feet above sea-level, the climate moist and steamy, and therefore well suited to the cultivation of the tea plant. The rainfall averages from 180 to 200 inches per annum and is well distributed over the 7 months of the year. Some of the rising features of the land are a little exposed to the influence of the S.-W., monsoon-and this year there has been more wind than usual, but it is nothing to speak of. The lay of land is perfect for tea, being easy and undulating throughout, with no abrupt features. The estate comprises 2,017 acres of which there are 485 acres of tea 3 years old and 196 acres 2 year old; and out of the balance it is estimated that from 500 to 600 acres are available for the furth

extension of the industry. The supply of timber and fuel is abundant and within reasonable distance of the cultivated area. Notwithstanding there is great irregularity in the growth and development of the tea, due to planting by village labour. Mr. Grigson says the yield next year should be about 180,000, lb. with a prospect of a little more if the season is a specially favorable one. This year the estimate is 90,000 lb., but the superintendent expects this to be exceeded. The average price obtained for such of the present crop as has been sold (37,490 lb.) is 46 per lb. nett. This, Mr. Grigson says, is a better result than would be expected from the low-country generally, and is therefore a feature of distinct promise. There has been nothing exceptional in the treatment of the bushes the desire being to get as much out of the tea, both old and young, as can legitimately be taken. The rate for transport of tea is 1¼ cent per lb. delivered at Colombo; and the continuation of the seaside railway will further facilitate the transport of supplies and produce, already easy and inexpensive. In regard to labour the V. A. states that Talgaswella enjoys exceptional advantages. Sinhalese village labour is abundant. The wages are exceedingly moderate, the rates being: For men about 25c. per diem against Tamil 33c. women and children 6c. to 12c. against 15c. to 25c.; the average of the check-roll being about 18c. The cost of plucking to date is a little under 8c. per lb. of made tea, which may be reduced in future years to 7 and perhaps 6 according to the yield.

The jât of tea is a good deal mixed; and for a lowcountry estate Mr. Grigson thinks a finer class of hybrid might, with advantage, have been selected. No bad seed, however, has been put in, the chief sources of supply being gardens of good local reputation. One field of the two year old tea was planted with transplanters, and being an excellent jat (Manipuri) is a clearing of distinct promise. Mr. Grigson concludes a very lengthy report by referring to the expenditure and receipts, and calculating the net value of next year's crop at 42c. says there should be a considerable surplus at the close of the 1892 season, but against this will have to appear the deficit of 1891, caused by the expenditure of about R13,000 for new machinery.

GRAIN CROPS IN CEYLON.

From the abstract of season reports for July 1891 published in the *Gazette* we learn that in the Western Province the paddy crop prospects were generally good, except in Kalutara and Panadura Totamunes, where there had been slight damage by floods, but fair crops were expected. In the Central Province also the prospects of the yala harvest were generally good, as well also those of kurakkan. The only exception was Udapalata, the report on which was:—"Yala fields where crop was ripening have been submerged or damaged by heavy floods on the 16th instant. Younger plants elsewhere have been damaged by insects." In the Northern Province the prospects and conditions of crops were generally fair. In the Kadagoda, Talpe, and Ahangama divisions of the Talpe pattu the paddy crop was bad owing to want of rain and destruction by flies. In portions of the Matara district the crops were partly damaged by rain, and in some parts of the Hambantota district flies as well as rain had caused damage. From the Batticaloa district of the Eastern Province the report was:—"Cultivation for ettalai nearly over; not quite so extensive as expected owing to long spell of dry weather and fear tank water will not last though ample for present requirements. Pinmari crops not yet threshed and brought to market. Price of paddy remains as in last month, viz., R1·45 in town market. Export of paddy coastwise over 56,000 bushels to date this year. Good sale of land for paddy under Chadayantalawa. Cattle hoof-and-mouth disease disappeared." From Trincomalee district the report was:—"Pinmari cultivation in progress, but condition precarious owing to short supply in tanks; as usual, rains have so far failed and weather very dry. Small cultivation in Kattukulam has failed. Cattle healthy; murrain disappeared; no foot-and-mouth disease. Price of paddy R1·50 per bushel." In the North Western Province the conditions and prospects of paddy and fine grain crops were good. In the North-Central Province the condition of the paddy crops was good, and that of fine grain fair. From the Province of Uva the report was:—"Crops throughout Udukinda, Yatikinda, and Wiyaluwa except tionally good, and weather for harvesting favourable. Crops in Wellassa and Butala promising. In Bintenna and Wellawaya the paddy crops damaged by flies." In the Province of Sabaragamuwa the paddy prospects were good or middling, except in Panawal Korale and Uduwepalata of Lower Bulatgama, where the prospects were poor, crops having been damaged by recent heavy rains.

THE ORIENTAL BANK ESTATES COMPANY.

The fifth annual ordinary general meeting of the above company was held at Winchester House, Old Broad-street, London, on the 22nd instant. Mr. Alex. William Crichton presided.

The Secretary (Mr. Henry Greey) having read the notice convening the meeting—

The CHAIRMAN said: Gentlemen, I presume, as usual, that it will be your pleasure that the report and balance-sheet be taken as read. In placing this report and balance-sheet before you at this the fifth annual meeting of the company, we have some satisfaction in being able thus to close a year which has in its course given us and our managers some anxiety. Now, as to the causes for this, we have thought it right in our report frankly to state you—as, indeed, has been done by the directors of many other companies interested in Eastern produce this year to their shareholders—the difficulties which we have had to encounter, and which, though they may have been temporary and incidental in their nature, have still been made very remarkable by their coincidence and their combination. In the first place, as to Mauritius. In most of the districts of that island the yield of the canes in sugar was fully 20 per cent. below the average; and while on the one hand the sugar was thus deficient, the prices, on the other, obtainable for it when brought to sale, were exceedingly low. Nor were the reasons for these low prices far to seek. The money market had been in a state of violent fluctuation from September for some months onwards, and, besides this, reports were current that large shipments of beet sugar had been made from Europe to Bombay and Calcutta; and hence the fear arose that these and other available markets would be swamped and glutted. It was, in fact the truth that these shipments had been made. The experiment was tried some years ago and failed, but a further trial was resolved upon, and was made last year on a larger scale. That also failed, but, nevertheless, in the meantime, the effect of these reports and these rumours in Mauritius was to check all competition for, and speculation in, the native sugars, which were then just being brought for sale to the market. So that at the very time when every factory in the island—devoted as it is to the manufacture of sugar—was working long days, and in some cases day and night

and at the time when produce was being brought by thousands of tons into Port Louis—that market was in a state of panic, and buyers, being cut off as they were by want of telegraphic communication with the rest of the world, and bewildered by the reports received by every fresh mail, completely lost all their spirit and confidence. This, therefore, was one set of difficulties with which we had to contend. And then, again, secondly as to Ceylon. The report itself explains to you how the expense of the maintenance of our estates there was increased by the high price of silver remittances from Europe to the east. The average cost of the rupee was much above that of late years, and, consequently, except for any provision we could make by financial management to counteract this source of loss, the cost of laying down the rupees to provide for the upkeep of the properties was enhanced. If any further explanation is required of these matters, I cannot do better than to read to you an extract from an able address lately delivered on the same subject:—"The year under review has been an exceptional year as far as the crop is concerned. It looked promising for a considerable period, and it was only when the crushings took place that the result was found to be not only below the estimate, but considerably below the average. That was one of the circumstances we had no absolute control over, and the next to combine with it was that at the particular juncture when our sugars were sent to the market, there were violent fluctuations and uncontrollable contortions of the silver market. This, gentlemen, coming exactly at the moment when our sugars were put upon the market, was of course most serious. I do not propose to go into the vast and wide questions connected with silver, but I will only point out to you that the effect of these fluctuations upon the result of the working of the year to us was this, that the expense in planting and maturing our crop and bringing it to the market was as though we had paid with half-crowns, and when we had to sell, we had to sell in florins.". That, gentlemen, expresses the situation very clearly, and in connection with this there are some points to which I may advert in the balance-sheet. In that account, after the statement of capital, which is the same as last year, come the acceptances which are less by some £4,000 or £5,000 than previously; but the accounts payable on the other hand are more. This, however, is amply accounted for by the slow realisations of sugar from our own estates and those estates with which we are connected. Money was everywhere going out, and very little is coming in; but, besides this, if you look at the assets side of the account, you will see that the liability is fully counterbalanced there by the value of the stocks of sugar, tea, cinchona, cocoa, coffee, and cardamoms in hand, amounting to about £49,000. With regard to this I may here mention that we have placed the values of the stocks of sugar, tea, cinchona, &c., together this year instead of separating them in order to compare at a glance the values with the values put in the profit and loss account below under the head of "Produce in hand." With regard, then, to the much larger stocks of produce unsold and in hand this year than at the corresponding date last year, the state of things in the market in Mauritius amply accounts for it. The surplus produce consisted of stocks of sugar which could not till after some delay be realised, except at a great sacrifice. By waiting, as our manager has done, a great part has been satisfactorily sold, and soon very little sugar will remain unsold in Mauritius. I may also inform you that these stocks have been taken at very low prices, so that there is no doubt whatever as to the most satisfactory realisation. Not to detain you longer, the account closes with a balance of £15,222, as against £13,800 last year. And out of this we recommend you to declare a dividend at the rate of 7 per cent on the preferred shares and 5 per cent on the ordinary shares, in proportion to the amount of capital paid up. Turning back for a moment to the report, it is satisfactory to notice that the increase in the company's tea has fully carried out the anticipations which were made in the forecast placed before you some years ago. And also it is satisfactory to note that the position of the company's tea with reference to the produce of other estates in Ceylon has been well maintained. We also mention improvements in manufacture. On our Britannia estate additional evaporating power has been added, and a large amount of canes can be treated other than the produce of the estate itself. The advantages of the system of the central factory are too well-known to need more reference. With regard to the other estates in which we are interested, you will be glad to learn that an exception to the common deficiency of the sugar crop, to which I have alluded, was presented in the case of the Beau Sejour Company's estate. That company usually makes a crop of something under seven and a-half million pounds of sugar per annum; but last year, that is, in the year under review, it made 8,800,000 lb. and it is expected that their crop will be a very good one this year. In closing these remarks upon sugar, gentlemen, I may point out to you the paragraph in which we mention that, after receiving the resignation of Mr. Macdonald, we elected Mr. James Shaw, lately connected with the firm of Messrs. Parry & Co., of Madras, to fill the place on our board. I have no doubt that his name is well known to many of you as that of a prominent member of the Indian financial world, and also of the firm to which I have alluded. As such he has been interested for many years in the management of Eastern estates, and he is also conversant with sugar manufacture and with the details of sugar machinery. We expect the company will derive great benefit from his advice and assistance. In conclusion, gentlemen, the reports which we have received from our estates show that they are all in excellent condition, and that the managers are very hopeful as to the yields during the coming season, and I trust that a year of fair prices and good crops is before us. I now beg to move that the directors' report and statement of accounts to March 31st 1891, be, and they are hereby adopted.

Mr. James Shaw seconded.

Mr. Field asked for some explanation with regard to the entry of £2,000 on the debit side of the profit and loss account put down as "Balance of suspense account (stamps on share warrants) written off."

The Chairman said the cost of the share warrants had been placed to a suspense account, which they had been gradually writing off. The item of £2,000 now showed the writing off of the whole balance of that suspense account. They would be longer troubled with it henceforward. They were now quite free from the charge.

Dr. Lloyd asked if the directors could give the shareholders a list of the estates and details of the profit and loss each year.

The Chairman said he did not think it would be desirable in the interests of the company to give such information which might be made use of by competing companies.

A shareholder wished to know in the interest of the preference shareholders how much remained to be carried forward after the payment of the 7 and 5 per cent dividends.

The Chairman: The amount carried forward is £2392.

Mr. Seton said the shareholders would be glad to have an expression of opinion from the chairman as to the future prospects of tea in Ceylon. Those interested in Indian tea were regarding with some uneasiness the enormous increasing production of tea in Ceylon. It would be interesting to the shareholders to know what the chairman thought about the question of over-production. He was quite aware that China tea was falling off, but the production of the Indian article was rapidly increasing and Ceylon was coming on, and it seemed to him that unless new markets were opened up the result of all this production would be to cause a heavy fall in prices. He invited the chairman to express his opinion on the subject.

The Chairman said he thought the invitation given him to say a words on this subject was one which he should not accept if he took the advice

of the American gentleman, who said "Never prophecy unless you know." He thought the question consisted very largely of price. He had already expressed on a former occasion an opinion at some length with regard to the production of tea. It was impossible, he thought, to make any accurate forecast. If four or five years ago anyone had said that the import of tea from China would have fallen to its present amount, he would not have been believed. He thought that the import of tea from China this year was not more than 60,000,000 lb., whereas some four years ago it was over 100,000,000 lb., and, notwithstanding the low prices, there was no reason why the whole of this or the greater portion of it should not, in the next three or four years, be discontinud altogether. Further, there was the fact that new markets were being opened. In America although the increase was perhaps not so very large, yet it was very promising. He thought from all the reports and information they could obtain that the increase would go on in several places in America. Besides this considerable progress was being made on the continent. The prices, of course, would depend entirely on the supply in the London market as compared to the demand, and it would entirely depend upon how much tea was taken for other places what these prices were to be. That was the reason why it was impossible for them to make a forecast. He thought that looking back at the past if they had been governed by these considerations, they might have said, "if the yield of tea is so much now, in a few years time there will be a visit over-production in the market?" That had not turned out to be the case. Notwithstanding the vast increase in production there was a very fair market. In all these things they had only to go on and endeavour to reduce their expenses as much as possible, and to produce the best article. That was the course they had adopted before, and which they must follow now and follow with courage, and trust in the future. He did not think in declaring the dividend they had, they had been rash or sanguine; on the countrary, there had been complaints that it had not been larger. But they were in a position, as he had shown them, to pay the dividend and to put by a substantial amount, and at the same time to write off the balance of the suspense account.

The Chairman then put the resolution for the adoption of the report and accounts, and it was carried unanimously.

The Chairman then formally moved the payment of a dividend in accordance with the recomendation in the report. Mr. Shaw seconded, and it was adopted unanimously.

The Chairman then proposed that the retiring director, Mr. G. H. Tod Heatly, be re-elected. Mr. Rohde seconded, and it was carried unanimously.

Dr. Lloyd proposed the re-election of the auditors, Messrs. Welton, Jones, and Co., at a remuneration of fifty guineas. Mr. Phillips seconded, and it was adopted unanimously.

Mr. Field proposed a vote of thanks to the chairman and directors. A satisfactory statement had been put before the shareholders, and, generally speaking, fair progress was being made. He hoped, however, they were approaching the time when a higher dividend than 5 per cent. would be paid on the ordinary shares. Mr. Lloyd seconded, and the resolution was carried with acclamation.

The Chairman suitably acknowledged the compliment, and the meeting terminased.—*L. and C. Express.*

A SUGAR ESTATE IN BARBADOS is graphically described in an article contributed to the *Gentleman's Magazine*, which will be reprinted in the *Tropical Agriculturst*. Although sugar has almost ceased to an industry of any consequence in Ceylon, yet our planters will be interested in a product and conditions so different from their own, while all who are engaged in sugar culture will read the article with pleasure and we trust with profit. Barbados, like the Jaffna Peninsula, consists of coral rock, and there as here, there is the curious phenomenon of rich red soil overlying the white limestone.

TEA IN DARJILING THREATENED BY LOCUSTS.—Such is the news given in a telegram quoted from an Indian paper in another column. We may be thankful that in Ceylon we have not the locust plague to spread destruction such as is now being experienced in Northern India and in Egypt.

TEA FACTORIES AND ELECTRIC LIGHTING.—The buildings on the New Peradeniya estate, which belongs to the New Peradeniya Estate Company, are to be lighted with electricity, permission having recently been given by the board of directors in London. Those in charge have also offered to light the new Peradeniya railway station which adjoins. The railway authorities, however, may consider that there is not sufficient business at this small station to agree to its being placed so far in advance of any other station on the line in the matter of illumination. Mr. R. Anderson is the resident superintendent on this splendid estate, and Messrs. Edwards & Co. are the agents of the company. There are already two, if not more estates in the island which have the electric light in their factories.

MR. W. H. TREACHER.—We had the pleasure of a visit today from Mr. W. H. Treacher, C. M. G., so well-known as Governor for several years of British North Borneo, and latterly as Secretary to the Governmeet of Perak. Mr. Treacher looks wonderfully well considering the number of years he has been in the Service, and purposes to return after a short leave of three months for a further spell of work. He tells us that the whole of the 10,000 acres of land offered on special terms to pioneers in Perak have been applied for, four or five of the lots being taken up by Ceylon men. The reports we have had of the steady progress made in Perak are fully confirmed by the Secretary to the Government, though mining operations are not particularly brisk. The progress of British North Borneo, which at one time was said to be the "new Ceylon," is naturally enough watched by Mr. Treacher with great interest, and his unexpectedly meeting with his old colleague, Mr. Henry Walker, now staying here on his way out, is one of those happy incidents which have made his brief stay at Colombo a pleasant one.

RETURN OF MR. SANDISON FROM JAVA.—Mr. W. G. Sandison, of Sana and of travelling fame, returned to Colombo in the "Calédonien" today from Java, whither he went on a business trip six weeks or so ago. Mr. Sandison, it will be remembered, had visited Java before—some time ago—but his trip then chiefly had reference to cinchona; and it would seem that the Dutch cultivators had not forgotten the call that he then made, for he says that, while individually they were very hospitable and seemed glad to see him, there was a sort of suspicion about them as much as to say, "what are you doing down here, now?" "You see," he adds, "my first visit was in connection with cinchona, and I didn't do them much good over that." The object of this Mr. Sandison's second visit was to dispose of some of his Sana tea-seed and to extend its sale among the planters there. With this object he visited Preanger, the most famous planting district in Java, and he says that at Tjisalak especially he found a Dutchman who seemed to be a go-ahead man and who took much interest in the Ceylon seed, while the lay of his land, Mr. Sandison says, was such that nothing in Ceylon could beat it. The Dutch cultivators, he believes, are beginning to slowly realize the advantages of high-class seed, such as Ceylon or Assam, as opposed to the tea they have hitherto been accustomed to plant, namely, the Chinese jat, and they are being forced to recognise it by having to keep the produce of the two jats distinct, which naturally involves much trouble and labour. However, the fruits of Mr. Sandison's visit have yet to be seen, as at present he has not succeeded in doing anything more with the Java planters than induce them to experiment with his seed, and on the result of certain experiments which Dr. Treub of the Botanical Gardens at Buitenzorg is going to carry out with some of the seed he took down, Mr. Sandison says a great deal depends. For the present, Liberian coffee is all the rage in Java; but *helopeltis*, he adds, is giving the planters just the same bother as before.

QUININE.

(From *C. F. Boehringer & Söhne's Report.*)

WALDHOF NEAR MANNHEIM, July 1st, 1891.

Quinine during the last month remained stagnant. Speculators retired from the market, while the consumption that for the first five months of the present year had been very large, showed some abatement. Secondhand holders are now again selling quinine at rates lower than it costs to manufacture at the present price of bark.

The London public sales of bark have considerably diminished in dimensions, and are likely to decrease still further for the next few months, the supplies from India which have formed the chief item of late always falling off in the second half of the year, while Ceylon in 1891 will hardly contribute more than 5,000,000 lb.

For the next Amsterdam sales of the 16th instant some 340,000 kilos with over 460,000 ounces of sulphate of quinine are catalogued. The following sales take place only on the 3rd September.

Export of Bark from Java

			Amst. lb.
from 1st July	1890 to 13th June	1891 about	6,550,000
,,	1889 to 31st May	1890	4,696,741
,,	1888 to ,,	1889	3,847,845
,, ,,	1887 to ,,	1888	2,639,196
,, ,,	1886 to ,,	1887	2,054,035

An association or trust of bark growers is again talked of. This time the Java planters are going to manage it themselves. Whether they will succeed remains to be seen, the movement however, seems to indicate very clearly that at present rates cinchona planting hardly pays even in Java, and if some few plantations have nevertheless made a dividend, it has been owing to quite exceptionally favourable circumstances.

MR J. E. CARNE, mineralogist to the Department of Mines, Sydney, has made a discovery of precious opal at a spot known as White Cliffs, about 50 miles north of Wilcannia, in the western part of New South Wales. The opal is found in crevices of sandstone and fossil wood, occurring in a formation resembling the Dessert Sandstone beds of Queensland. Sometimes, too, it is found disseminated in a kind of cement which has penetrated the mass of body of the sandstone.—*Colonies and India.*

THE PALM-OIL DISTRICTS OF AFRICA.—At the evening meeting of the Royal Geographical Society on Monday Mr. A. Millson read an interesting paper on a journey to the Yoruba country, in which most of the palm-oil shipped from Lagos is produced. "Of the future commercial development of so rich a country," said Mr. Millson, "much is to be expected. During my visit to Ibadan and Ikirun palm-oil was selling at the rate of 3*l* 15*s* a ton, and palm-kernels at 3*l* a ton, the prices in Lagos of these staple articles of West African commerce varying between 17*l* 10*s* and 23*l* a ton for oil, and 9*l* and 10*l* a ton for kernels. Small tusks of ivory were selling at Ikirun for 6*d* a lb. and large ivory could have been bought at very low rates had I been able to transport it in my baggage. The gravel ridges, which alternate with the richer lands, were covered with sheabutter trees, which yield a valuable vegetable oil, the water courses were shaded by gum-bearing acacias, ogea-gum trees, and camwood trees, while the forest-lands of Ijebu and Ijesha contain numerous valuable timber trees. In addition to the above products of the country, there are many minor articles of commerce, such as benniseed, groundnuts, and dyes, while the most important consideration of all, in my opinion, is the future development of good qualities of cotton, coffee, cocoa, and other valuable plants, which are rapidly being introduced among the natives. When I state that over 80,000 young plants—cocoa, coffee, kola, coconut, and other economic trees—have been distributed since the month of May, 1888, by the Botanic Centre of the colony of Lagos, and that over 60,000 of these were eagerly purchased by the natives, it will readily be understood that one is not in error in counting upon their keen interest in agriculture as a means of profit as well as of actual maintennnce." The lecturer proceeded to state that the principal use of palm-oil was in the soap and tinplate making industries. The mention of the latter industry as an outlet for palm-oil appeared to create some sceptical amusement, and inquiries were made, but could not altogether be answered by Mr. Millson, concerning the use to which palm-oil is put in tinplate-making. As a matter of fact Mr. Millson was perfectly correct. Huge quantities of palm-oil are annually consumed in the tinplate-works of South Wales and elsewhere, the heated iron being temporarily immersed in hot palm-oil prior to its coating with tin, in order to prevent it from oxidising. For this purpose the best soft "Lagos oil," which contains least impurities arising from its preparation from the rotten husk, &c., is, we believe, most frequently used. In 1880, when the British Pharmaceutical Conference met at Swansea, the members were taken over some large tinplate works, where they witnessed the use of oil in this manner, and they will probably have a similar opportunity of verifying the statement at their forthcoming reunion in Cardiff.—*Chemist and Druggits.*

SUGGESTED CITRON-CULTIVATION IN EAST AFRICA.—The island of Corsica has long been famous for the cellence of its "cedrats," or citrons, the superiority of which in size and aroma is attributed to the richness of the Corsican soil in ferruginous and other mineral onstituents and in certain salts. The cedrat-orchards, to yield a good crop, require to be situated at a low altitude, to be protected by hills from the cold winds, to be absolutely safe against frost, and to be properly watered twice daily during the dry seson. Cedrat-growing, to be remunerative, requires extreme care, and the trees are subject to many diseases which must be guarded against; but, if these conditions are fulfilled the industry—especially that part of it which consists in pickling the fruit for the market—is extremely profitable, the crop of a single matured tree being worth as much as 10*l.* to 12*l.* per annum. The fruit is prepared for the market by slicing it in halves and pickling it in brine—*i.e.*, salted sea-water. It is then sent to Leghorn to be candied in sugar, while the best fruit is pickled whole and used as a table delicacy all through the East. The Italian candying factories obtain so large a drawback of duty on the sugar which they use that it is equivalent to a bounty. Consul Malcolm Drummond, of Ajaccio, while guarding himself against the expression of a definite opinion, thinks that it would be well worth while to try the experiment of acclimatising the Corsican cedrat in our East African colonies, where the high lying valleys on the mountain slopes would, he thinks, form an excellent position for conducting a series of experiments in cedrat and lemon culture. No great outlay would be necessary for the establishment of an experimental plantation. —*Chemist and Druggist.*

BOGUS COFFEE.—The arrest of two men at Lille for manufacturing coffee has led to an investigation of their methods. Their plant, estimated to be worth 50,000*l.*, and a large stock, were seized. The following is briefly the method of manufacturing this coffee. The raw materials are composed of chicory flour, and sulphate of iron in powder, the latter giving the necessary colour. The paste made with the mixture of these materials is enclosed in a cylinder and then pressed with an hydraulic motor. Through five different openings it comes out in pieces measuring 30 to 35 centimètres in length by 4 millimètres in thickness and 18 centimètres in width. These are again powdered with flour and immediately placed between two metallic punching plates before cutting each piece in such a way as to give it an almost perfect resemblance to natural coffee. The two men employed in their manufactory eleven men and seven women, the latter having to separate the berries which were not properly moulded from the others. These producers have arrived at such perfection in France that some deputies have just laid a measure on the table of the French Chamber, respecting the article which runs as follows:—"It is forbidden to expose or place on sale, to import or export any manufactured product which, by its shape, colour, general aspect, is capable of being confounded or bought as coffee in green or torrefied berries." The other articles set forth the penalties:—50 francs to 3,000 francs, five and three months' to a year's imprisonment; penalties to be doubled if the product is recognised as baneful to health, or if it has been fraudulently mixed with natural coffee &c.—*Home & Colonial Mail,* July 3rd.

TROPICAL CULTIVATION IN THE NORTHERN TERRITORY OF SOUTH AUSTRALIA.

Mr. M. W. Holtze, who was appointed to succeed the late Dr. Schomburgk as Director of the Adelaide Botanic Gardens, arrived from the Northern Territory on Friday. Mr. Holtze has been in the Territory for eighteen years, and has had the direction of the Experimental and Botanical Gardens at Palmerston, and his views on tropical cultivation, from which his new appointment practically cuts him adrift, are interesting.

Mr. Holtze, who by-the-way is a cultivated, scholarly representative of the great country which had the credit of producing Dr. Schomburgk, gave one of our reporters some idea of the experiments he has carried on in the Territory. Experiments have been made with all sorts of tropical plants, and Mr. Holtze has proved incontestibly that under certain conditions these may be profitably cultivated in the Northern Territory.

Mr. Holtze regards it is as certain that with Asiatic labour rice, tobacco, sugar and coffee could be cultivated in the Northern Territory on a large scale, and profitably too. The public, however, are chary of investing capital because owing to various reasons so much money has been sunk in what has therefore been termed "Our white elephant." Now Mr. Holtze thinks the Government might carry on experiments to prove that the tropical plants mentioned can be profitably cultivated, and he avers his willingness to go back at once to manage a plantation if the Government would carry out such a scheme. It might, he thinks, be done on that of loan money, and not more than £25,000 or £30,000 would be required. It would undoubtedly pay handsomely, but beyond that the effect it would have in influencing capitalists to lay out their money would be incalculably great. The land laws of the Territory are now considered satisfactory—that is, of course, those contained in the Act passed last session. But Mr. Holtze has an idea which the Government might carry out. It is with regard to coconut-palms, which could be grown profitably in the Territory. If a man were given a fifty years' lease of land on good terms he could plant those palms to the number of seventy an acre. He ought to get the land at a nominal rental for ten years on condition that he planted a certain number of acres. At the end of ten years the rent ought to be increased, or the lessee might pay a royalty to the Government. Coconuts could be grown very profitably. In Ceylon each palm yields a profit of two shillings, so that an acre will give a profit of £7. There is an almost unlimited market. Ceylon annually exports a million pounds' worth of coconuts* besides consuming quite as many. The market too is increasing as excellent oleomargarine is now manufactured in Germany from the nuts. Mr. Holtze has planted 600 palms at Palmerston, and they are thriving excellently.

Mr. Holtze believes in the Territory as a field for small capitalists. They could do better than grow wheat. Let a married man, either with or without children, but if he had a couple of boys they would be helpful, and a capital of say £500, as many farmers have, go to the Territory. He could plant tobacco on say ten acres of land, which can be taken up on easy terms and could make a profit of £400 a year—that is with coolie labour. Then as he went on he might plant coffee and more tobacco, and before long would be well to do. Of course some knowledge of the cultivation of tropical products would be necessary. Now is an especially good time to push ahead the growth of these products there, because the Queenslanders are having trouble about labour.

"Coolie labour is absolutely necessary in the Northern Territory," says Mr. Holtze. "White men can work there. I have done every kind of work myself, and am none the worse for it. It would, however, be an insult to offer any white such wages as would make cultivation profitable to work there. No, we must have coolie labour. Chinese can work as well as coolies, but they are too cunning and too independent. As soon as they get a £5-note together they start on their own account, and we don't want that. Coolies, however, would suit our purposes better, and they could be obtained, and would work for wages that would make cultivation of tobacco, sugar, and coffee profitable. The Coolie Immigration Act, which is now on the Statute Book, is inoperative, because so much money is swamped in red tape. There are too many officials provided for. I see no reason why the Government Resident could not represent the Indian Government in the Territory, while we had a prominent lawyer or merchant to look after our interests in India. The immigration of coolies will never pay if officials are to receive £3,000 or £4,000 a year. And we must have coolies. They would not be any trouble either, and there would be no fear of them going South."

Tobacco, coffee, sugar, and rice could be profitably produced in the Territory. Rice, however, only by Chinese labour. That valuable article of diet, Mr. Holtze is positive is a native of the Territory, where it grows wild. He has visited Saigon, the great rice-producing district of China, and the soil and climatic condition of the country are exactly similar to those of Saigon. The tobacco already grown by Mr. Holtze is of superior quality, and cultivated on a large scale would be profitable. Mr. Otto Brandt has grown some. At first, owing to faulty cultivation, he was not successful, but experience taught him just as it does all those who settle in a new country, and now the tobacco plants are looking excellent. There is no doubt coffee and sugar can be profitably grown, although sugar is at such a low price. Besides these four largely consumed articles almost innumerable other tropical products not so much in demand could be grown. What the country wants are men with capital and intelligence.

The new Director has had a hurried look through the Botanic Gardens, and he quite anticipates having to make alterations. But, though he dares to tread in the footsteps of such an eminent botanist as his predecessor, it will be with care, and Mr. Holtze will not carry out any vital changes in the Gardens until he has thoroughly studied the circumstances. He expects some exceedingly hard work. One thing Mr. Holtze intends to do. It is to take pupils in gardening at the Gardens if the Board of Governors will allow him. He proposes in his own time to teach them enough of the elements of Latin, German, and French to assist them in their botanical work, and to instruct them in general work about the garden. They would have to study more or less by night. The boys who would be with him two or three years would receive a small salary, and in the end would be turned out fit to manage large private gardens with credit to themselves and satisfaction to the owners.—*Adelaide Observer.*

[The Northern Territory of South Australia and Northern Queensland ought to be made Crown Colonies and cultivated by cooly labour, if they are to advance. Happily, perhaps, for us, the whites will not permit the presence of black labour.—ED. *T. A.*]

* Nearly a million pounds worth of various products of the palm.—ED. *T. A.*

PLANTING NOTES FROM COORG.

MR. PRINGLE'S LETTERS.

COORG, July 18th.—The monsoon throughout June was extremely light for the time of year. The amount of rainfall for the month gauged at Mercara was 12 inches 83 cents, against 22 inches 6 cents during the corresponding period of last year—and last year's was a light monsoon. The total rainfall from the 1st January to the 30th June, 1891, was 25 inches 43 cents, against 32 inches 99 cents. for the same period of 1890, thus showing a deficiency of 7 inches 56 cents. which is much under the average for the past 10 years. Rain from the southwest quarter set in for the first time on the 2nd June in thin spray-like showers, which continued throughout the month at intervals during

she 24 hours every day, and as there was plenty of sunshine it was just the sort of weather to give rise to the steamy heat under shade which, according to Mr. Pringle, is so conducive to the inception of leaf disease. The ominous specks have shown themselves on trees weakened by heavy bearing last season and on others by the attacks of the borer grub. On the 30th ultimo the rain set in very heavily and continued uninterruptedly till the 10th instant, when there was a change, the amount registered for that day being only 46 cents. as compared with an average fall of 2 inches 31 cents. from the 1st to 9th instant, both inclusive. The heaviest fall was on the 5th, when 5 inches 86 cents. were registered. There was a small respite after the 10th, which continued till the 13th when the rain started heavily once more, only again to stop on the 16th, since when there has been a welcome break which promises to hold out for some little time. The total fall of rain gauged at Mercara from the 1st to the 10th instant, both days inclusive, was 21 inches 24 cents. All this heavy rain has come most opportunely for the paddy fields. The ryots were complaining that their nursery beds were drying up for want of water; but now they are quite satisfied, and ploughing operations are being prosecuted briskly. It is surprising what a difference every few miles inland east of the ghauts makes in the rainfall. The average rainfall for the past 10 years in Santacoopa District, only 9 miles east of Mercara, is about 65 inches, whereas in the latter place it is more than double that amount.

Labourers, have been slow in putting in an appearance from South Canara this season, owing to the rain having reached them late. Their presence on estates just now is very welcome as the latter are mostly in a very bad way, with weeds and grass hiding the trees from view, supply planting and the taking out of borer being at a standstill. New clearings especially are in a wretched state of weediness, and all that can be done now is to get the weeds under at any sacrifice, supplying, &c., being secondary considerations. There are a few fortunate places where labour is sufficiently abundant to carry on all branches of work that ought to be done at this time of year; but the majority of estates are badly off. It is owing to this constantly recurring failure of labour at the right time which retards such an all-important work as supplying up vacancies, and sometimes causes it to be neglected altogether with the results, seeing the losses sustained through borer, that they come to present a rather bare appearance in parts. What makes us especially sore on this question of labour is that heavy advances are given out to contractors who never hold to their contracts. It appears to have come to be an understood thing that Canarese labour from the Mysore country is not to be looked for till September, in spite of increased wages, registration of Maistries and what not. And in a few years I believe we shall have to depend mainly on South Canara and Malabar coolies for the working of our estates. These coolies, for the most part Woliars and Parleys, are in a state of abject slavery in their own country. The large landholders there exercise a proprietory right over them and merely provide their marriage and funeral expenses, food and a few rags at times in exchange for their labour. For such faults as evading or shirking work, shamming sick, &c., they are visited with the severest punishment, which usually consists in the delinquent being tied to a tree and having the chastening rod laid on him with very little regard to mercy. These people are allowed by their owners to come and earn a few rupees on coffee estates after all their paddy field work, &c., has been completed; but woe betide them if they are not back in time to reap the paddy. They know what would be in store for them, and hence it is almost impossible to keep them here even a few days after the end of September. Their usual time for coming in is from the middle of July to the middle of August, so that unless they come in swarms they can't be relied on for much. They are fairly good at weeding, digging and manuring, but for such works as handling, pruning, &c., which require skill, intelligence and the exercise of some judgment, they are next to useless. They do pretty well, however, when tutored by Canara coolies. They are such an apathetic, indolent, depraved lot that I am afraid any exertions on their behalf, like that inaugurated in Madras on behalf of the Pariah, would be utterly futile. They usually return again at the end of November and work on till the end of February, when they begin to be wanted once more to reap a second crop of paddy. There are other high class coolies who come from South Canara. They consist of Bhuntas, Moplahs and petty landholders, or Gowdas; but they generally follow in the wake of a contractor, who takes up work at so much per acre. It is really astonishing to see the amount of certain kinds of work these people are capable of doing; opening out pits, for instance. I have known some of them to do 2½ times as much as an ordinary cooly, working from early in the morning till evening, and they are paid accordingly. The Moplahs especially are fine specimens of men and very hard workers. From what I have seen of them, I believe they ought to furnish splendid fighting material, and it is to be hoped some notice will be taken of your advocacy of the scheme of raising regiments from them.

Circumstances over which I have had no control have prevented me being regular with my contributions of planting notes, and noticing the remarks of Mr. Pringle, which were the outcome of my notes of the 19th May last. He complained that I had not given him credit for the discovery of a remedy for leaf disease. The information that had reached me was to this effect—if it was wrong I owe Mr. Pringle an apology. I should have been the last person to have withheld the mede of praise that was his due had I known that his efforts in this line had been crowned with success. Not knowing, I should have held my peace; but my information has been startlingly corroborated by no less a person than Mr. Meynell, Messrs. Matheson & Co.'s representative here, in his letter to the *Mail* in which he quotes from Mr. Pringle's letters to himself to show that, according to his own confession, the results he had obtained were doubtful. Mr. Pringle replied to this letter, but it was noticeable that he did not explain away the somewhat damaging quotations from his own letters to Mr. Meynell. I can understand the difficulties under which Mr. Pringle laboured as he had not got a proper spray-diffusing machine till last February, and as leaf disease is not very prevalent during the hot months, he had not an opportunity before he left of testing his remedy on a large scale. I have no doubt that Mr. Pringle has every reason to believe in the efficacy of his remedy, but planters want to see the result of the experiments he has initiated on Messrs. Matheson & Co.'s places before they commit themselves to any line of action to secure his services for their especial benefit. Mr. Pringle has done inestimable service to the country in showing what uses burnt soil can be put to, and also in showing that manure is best put down broadcast so as to insure its equal distribution all over the land. The method in vogue not so many years ago was to scrape a saucer-like hollow from 3 to 6 inches above the trees, put in the manure and cover it over. I am not so sure that this is not practised even now on some places. It is needless to refer to the absurdity of the thing. Mr. Meynell's assertion that beyond keeping estates alive manure is of no use, has caused some amusement amongst planters, the large majority of whom can't agree with him. It is a fact there is no getting over that places which are systematically manured are paying a great deal better than those that are not. There are two pieces of coffee in Mercara on the poorest land imaginable, which were raised solely by manure. One of these has been for a long time old coffee. Mr. Meynell must be aware of its existence, and will he say that it would bear from 12 to 15 cwts. of crops as it does without manure?

Mr. Pringle does not agree with me that Liberian coffee in Coorg would prove a delusion and a snare, and asks me whether I have seen the trees on Mr. Hamilton's estate in the forest or those at Tanner-Haller (probably Thuniru Hulla Canarese, Coldwater Hollow, is meant) and say that if I did I would not speak 1 cwt. an acre being difficult to get. It is rather too much to ask Mr. Pringle to look up the file of the *Mail* and refer to my notes of the

19th, but if he did he would find that he has made a slight mistake; that what I did say was that Liberian coffee crops closer 1 cwt. an acre than 20 cwt. as some have asserted in print that it would. He simply corroborated what I said, in putting the yield at 5 cwt. an acre. I have had not the pleasure of seeing the trees referred to, so it would be interesting to know how many acres are under *Liberica* in both instances, as to frame a conclusion from a few trees carefully tended would be unsound. It is quite possible that there may be a few spots in Coorg where the necessary conditions for the successful cultivation of Liberian do exist, but it does not follow that success would attend its adoption on all the places now devoted to *Coffee arabica*, The latter, even now, in the face of leaf rust and the other ills that coffee is heir to, will with good work and manure, give its 5 cwt. on an average with ease and comfort, and so long as this is so evils that we wot not of are best left alone.

The rain has started again today.—*Madras Mail*, July 22nd.

NOTES ON POPULAR SCIENCE.

BY DR. J. E. TAYLOR, F.L.S.,&c., EDITOR OF "SCIENCE GOSSIP."

It is not an infrequent thing to be asked by farmers who do not know too much of agricultural chemistry whether the sun has any influence on "artificials." At first, one is disposed to answer—"Certainly not." But M. Laurent has recently demonstrated to the Brussels Academy of Science, that nitrates can be decomposed by the action of sunlight. He proved this by causing a beam of sunlight to fall upon solutions of nitrates placed in a vacuum, and found that after a certain time the space contained liberated oxygen, whilst the liquids possessed the characteristic reactions of nitrites. The blue end of the spectrum was found to possess the most powerful reducing action.

It is the function of economical science to recognise, no such thing as waste. Lord Palmerston defined dirt as being matter in the wrong place. What we call waste is something useful or valuable in the wrong place. Forty years ago the gas companies were steeped to the lips in law suits taken to prevent them throwing their "waste" into the rivers and canals. They were forced to utilise it. Out of that very waste chemical science has manipulated the most wonderful and diversified products—brilliant dyes, delightful perfumes, valuable drugs, and a minor host of other substances. The gas "waste" in Great Britain and the Continent is now worth five millions a year. Europe could afford to pay for a big war every year with the gas waste. The "waste" in paper manufacture was similarly a matter of legislation a few years ago; now it is nearly all recovered and turned to economical advantage. The districts of St. Helens, in Lancashire, and the banks of the Lyne are crowded with chemical works, all engaged in manufacturing something useful and profitable out of "waste."

Sometimes it is not merely an article in the wrong place that is wrested from being a nuisance and converted into something useful, but a something which for generations has had no value is suddenly endowed by the ingenuity of modern discovery into a variety of utilitarian objects. For thousands of years asbestos has had no value. A few oriental monarchs amused their surprised guests by having napkins woven out of its fibre, which were thrown into the fire to be cleaned. Its Greek name expresses this inconsumability. But within the last 20 years asbestos has assumed a wide usefulness, and the finder of a new seam of asbestos would do better than the discoverer of a gold mine. Most of us are only acquainted with this mineral in connection with our modern gas stoves, but it has a host of applications besides, Lamp wicks, boiler packing, incombustible felt ropes, mill board, stoppers for our huge guns, time fuses charge preservers for torpedo and dynamite shells, coating for ironclads, cloth for balloons, safety coverings for roofs and floors (commonly adopted in America), curtains and other properties for theatres, movable shields for preventing the advance of fire, clothing for firemen, filters, pipe joints, furnace linings, insulators, lamp shades, tobacco pipes, soles and linings for boots and shoes, soldering blocks for watchmakers, moulds for type founders, each and all of these multitudinous objects and operations are administered to by asbestos. The latest are an asbestos paper and compound tobacco asbestos mixture for cigarettes. Artifical asbestos can be made out of useless clay by steam-blowing the molten mass into thin hairs, resembling floss silk. Asbestos, natural and artificial, is capable of still further application, and perhaps the artificial kind is as yet only in its infancy. Waste only exists where ignorance exists. "For nought so vile upon the earth doth live, but to the earth some special good doth give."—*Australasian.*

AN INSECT ENEMY.—"E. B," writes from Matara:—"I send you under separate cover two worms. I am very much interested in knowing what they are. These worms especially the younger ones of the same species I believe; but green in colour are destroying my plants. I tried many remedies without success." Our entomological referee reports:—"Caterpillars of a common brown moth; one moth was found in the match-box, but so much damaged, that it was impossible to identify it."

THE CUT FLOWER TRADE IN FRANCE.—Three hundred and twenty-three tons of cut flowers, says the *Liverpool Mercury*, sounds an enormous amount, and so, without doubt, it is. Yet this was the weight of the quantity of cut flowers packed and sent out during the four months from November to February from Cannes alone. Their value would be estimated at £65,268. The trade is said to be increasing at an almost incredible rate, and within the past eighteen months no fewer than fifty-three new establishments have been started for the cultivation of flowers. From Nice, the report is that the flower trade has been much depressed owing to the severe frost of the winter. It is said, however, to have yielded—the whole district—15,000,000 francs during last year.—*Gardeners' Chronicle.*

THE JAPAN TEA EXPORT COMPANY.—The *Japan Weekly Mail* of 11th July says:—

It seems probable that the grant of two hundred thousand *yen*, made by the Department of Agriculture and Commerce to the Tea Company—the grant about which so much has been said in the press and the Diet—will never become available for the Company's purposes. The affair has lingered interminably, and statements are also in circulation to the effect that the terms on which the subsidy was given have been violated by the projectors. The *Shogyo Shimpo* says that, the matter having been brought to the Cabinet's notice, the latter decided on the 3rd instant, to re-pass into the Treasury the sum of two hundred thousand *yen*, which has hitherto been lying in a bank, for the purpose of being transferred to the Company so soon as the latter should have qualified to receive it.

The *Mail* of 18th July has the following:—

The rumour that the Minister of Agriculture and Commerce had determined to recall the grant of two hundred thousand *yen* made to the *Seicha Kaisha* or Tea-manufacturing Company, was well founded. On the 10th instant a notification was issued, over the signature of Mr. Mutsu, in the following terms:—"In-as-much as the Japan Tea-manufacturing Company has not fulfilled the conditions originally fixed by its charter, the subsidy of two hundred thousand *yen* granted to it is hereby recalled, and the said sum must be returned within thirty days from the present date."

The Directors of the Tea Export Company intend to raise an action against Mr. Mutsu, Minister of State for Agriculture and Commerce, on the ground that his administrative action in regard to the subsidy, granted by the Government to the company, is illegal.

THE APPROACHING REVOLUTION IN TEA FIRING.

A TEMPERATURE RECOMMENDED LOWER BY NEARLY 100° THAN THAT GENERALLY EMPLOYED!

We have had a visit from Mr. Davidson of "Sirocco" fame,—the patentee and manufacturer of many hundreds of updraught and downdraught tea driers, which are so largely in use in India and Ceylon. Mr. Davidson has been connected with tea, as planter, buyer and seller, and, latterly, in the useful and important capacity of machinist since 1864. He knows as much about the culture and manufacture of tea as any man living, perhaps; but like all truly scientific men he has not only not been ashamed of ever learning, but has had the courage fairly and fully to face and *unlearn* what seemed fixed principles in the pursuit. Until recently Mr. Davidson firmly believed in and taught the doctrine that a temperature of 240 degrees was the best in tea drying. A series of most interesting experiments in the laboratory and with his downdraught driers has convinced him that he has been mistaken; and while on estates in India he has doubled the average value of teas by preparing them on the new principle of drying at so low a temperature as 130°. This, he explains, means a temperature of 150° in the heat of the sirocco, the evaporation of moisture from the leaf keeping it down to 130°. Before getting so dry as to rise above that temperature, Mr. Davidson advises that the tea should, near the close of the drying process, be removed to and finished off in a separate sirocco, the heat of which should be only 130°. To our question whether this would not greatly extend the time required to dry quantities of tea, he replied that such an objection was obviated by power applied to the downdraught which would cause the air to pass through the tea at the rate of eighty miles an hour. The philosophy of the reformed process Mr. Davidson explains to be the preservation by the use of the reduced temperature of the volatile oil, on which, more than any other constituent, the fine flavour of tea depends. At the high temperatures of 240 deg. and even more formerly used, this oil was dissipated, and what Mr. Davidson deems the very poor substitute which is technically called "maltiness" took its place. We quite understood Mr. Davidson to add that the carrying on of the curing process at a low temperature would also put an end to the persistently repeated complaints of the non-keeping qualities of Ceylon tea. He ascertained in the course of his investigations that the better keeping qualities of the weaker China teas is due to the really low temperature at which they are fired.—All this is not only exceedingly interesting but very important, and it is a fortunate coincidence that Mr. Davidson should land at Colombo during the festivities which will draw so many leading planters to Colombo. To these Mr. Davidson can fully explain and with them he can discuss the principles on which the new process, which really amounts to a revolution in tea drying, are founded, with the various details of power, exhaust fans, &c. After a short time in Colombo (when appointments to meet him can be made through Messrs. Mackwood & Co.) Mr. Davidson, to whom Ceylon is new (he having only touched at Galle a score of years ago), means to take a tour through the tea estates, the results of which may be profitable to him in giving him additional information and leading to new connections, and fresh improvement in his machinery, while the information which he as scientist and machinist has to impart cannot but be advantageous to the planters and to their fast advancing enterprise, which, at this crisis in its history, needs all the help that experience, scientific research and improved appliances can afford. We have had abundant proof that we have greatly underrated the producing powers of our soil and climate; and while quantity is so rapidly increasing, it is of the utmost importance that quality should be kept up to the highest possible point. This is what Mr. Davidson is confident can be done by the adoption of the new method of drying the leaf, of which we have given the main principles, and which Mr. Davidson is ready and willing to explain in full detail.

In justice to Mr. Jackson we feel bound to recall the fact that he also has been addressing himself to the solution of the problem of drying tea at a lower temperature than has been usual. In the description of his new machine, the "Britannia," it is stated:—

At the present time, approximately two-thirds of the tea exported from Ceylon and India is being dried at a temperature of from 240 to 300 degrees. This high temperature is resorted to, simply to get the work out of the machines, the result being that brokers and dealers, have from time to time, and are at the present moment, commenting on teas being high-fired, scorched, and that they will not keep. In designing and experimenting with the Britannia Dryers, which has occupied Mr. Jackson's time for nearly two years, he has steadily kept in view the necessity of improving the tea, especially its keeping qualities, that the temperature at which the Britannia Dryers should work, must not be higher than the tea will bear even if left in the machine for an undue time, and Planters will at once realize the great importance of this. It will also be patent to all, that working at the reduced temperature is easy and practically obviates destruction of the air heating stove, which is built on an improved and durable principle, and should require no repairs for many years. Most Planters will be able to appreciate the principle under which Tea Rollers work, *i.e.* a charge of leaf is put in the machine, pressure is applied, and the machine is left to do the rest. The Britannia Dryers practically do the same:—The leaf is fed into the trays forming the endless web, fuel is put in the furnace, and the machines do the rest. This at once removes all tedious attention reuqired in Dryers using trays, and other drying surfaces requiring manipulation by hand, and all conversant with mechanism must know that automatic machines of all kinds are the best. The trays forming the endless web in the Britannia, are individually pivoted on the chains; they follow each other closely but do not come in contact with each other, or with any part of the machine whatever, consequently there can be no wear and tear on them. The Britannia Dryers have the nice arrangement, that the endless web comes continuously out of the drying chamber, which not only permits constant examination, but allowing the web to cool down, obviates any risk of scorching the tea by contact.

The fan of the Dryer is a very powerful one, is perfectly balanced, and so strongly built, that it is capable of having as much higher velocity imparted to it without danger. The bearings are on the self-adjusting principle, and a novel and neat arrangement prevents waste oil escaping at the ends of the bearing. The saving in first cost of one of these machines, in labour to work it, in space occupied, in fuel, &c., is great when compared with a number of small machines, but this is a secondary matter when compared with the far more important consideration of obtaining nice flavored, good keeping uniformly dried Tea.

PLANTING PROGRESS IN THE MATALE DISTRICT.

(*From Mr. G. S. Saxton's Administration Report for* 1890.)

Mr. Hugh Fraser, of Bandarapola estate, has kindly supplied me with the following information:—

Tea is prospering, and is being extended in Matale North, Matale East, Bandarapola, Ukkuwela, Laggala, and the Matale East end of Kelebokka. From 500 to 600 acres were added to the previous area in tea.

More expensive machinery, and more of it, is required for tea than for coffee; and it is pleasing, after one gets over the idea of the cost, to see the successful efforts made by engineers to provide tea planters with such suitable and good machinery.

Cotton and anatto have had a check in popular esteem and have not been much extended. Moisture and insects are the bane of the one, and low prices, consequent on limited demand, of the other. It is believed cotton would do better in a drier climate.

The south-west monsoon was comparatively a failure in the matter of rain, consequently the season was an unfavourable one for tobacco, and the large clearings in Matale are below expectations. This enterprise deserves better results and these I hope await further efforts.

Cacao continues to improve in favour, and there is the encouraging fact that prices have kept up. Small patches of native plantations of this product are to be seen here and there at long intervals in the villages, but a great deal more might be done in this direction, and further effort impressed on the villagers. Moormen traders are at present perambulating the district, paying 50 cents a pound, equal to R56 a cwt. or cacao cured in a very promitive fashion.

The European cultivation of cacao in various portions of Matale, as for instance Wariapola, Mr. Barber's Grove estate, Yatawatta, Sylvakanda, and many others, are equal to anything to be seen elsewhere in the Island.

Cardamoms do well in suitable situations at the higher elevations, but unfortunately there is not much suitable land left unopened, so the extension of this product is scarcely possible. The Mysore variety does better than the Malabar. The lowlands do not seem to be suitable for the successful cultivation of either variety.

In the neighbourhood of Matale town the rainfall for 1890 was:—January 1st to June 30th, 28·89 in.; July 1st to December 31st, 27·75 in.; making 56·64 in. for the year; more than 20 in. less than the usual fall, the deficiency being spread over the year, but more marked in October, November and December.

In a portion of Laggala, Matale East, 172 in. of rain fell during the year, and this, although ample for all useful purposes, was also short of the average fall.

An experiment on a limited scale has been made in the district with Coorg coffee, and the result of this clearing will doubtless be watched with interest.

INDIAN AND CEYLON TEA IN AUSTRALIA AND NEW ZEALAND.

Elsewhere we quote from the Melbourne *Argus* a review of the tea trade in the Australian colonies during the season ending 30th June of this year. Our readers will observe that in the important markets of the Southern lands Indian and Ceylon teas are rapidly superseding the China product, the sway of which until about ten years ago was undisputed and believed to be indisputable. The quantity of tea received from Foochow in the twelve months was 15¼ million of pounds, against 21 and 24 millions during the two preceding years. The decrease in three years was, therefore, no less than 8¾ millions of pounds, while the quality of some of the China tea received was so bad that the Customs authorities refused to admit it. Meantime Indian and especially Ceylon tea had continued to gain favour, the only objection offered being the non-keeping quality of the latter, an objection which we trust firing at a low temperature will remove. The shipments from India and Ceylon to Australia in the twelve months are stated in figures the aggregate of which very nearly compensates for the deficiency in China, thus:—

From	India,	.. ..	4,800,000 lb.
,,	Ceylon	.. ..	2,900,000 ,,
		Total..	7,700,000 lb.

The sudden spring upwards in last season is remarkable. It is distinctly stated that the public taste has taken rapidly to the more flavoury and softer teas of Ceylon, and that it only requires time to educate the public taste so as to secure a good demand for choice teas from both India and Ceylon. In Australia as in Britain our teas are taken in large proportion to our total production, and if only the United States and Russian markets could be conquered, as those of Australia have been, we should feel less concerned about the future and the danger of over-production and unremunerative prices than we now do. We trust that at least a million, if not two millions, of ounce packets of Ceylon tea will be distributed gratuitously, in addition to what may be sold at the great Chicago Exhibition.

THE EXPORT OF INDIAN TEA AS COMPARED IN VALUE WITH OTHER STAPLE EXPORTS, AND WITH A FEW LEADING IMPORTS.

Mr. J. E. O'Conor, the Under Secretary in the Indian Department of Finance and Commerce, whose able annual reviews of the trade of our great Eastern empire are widely known and as widely appreciated, has issued in advance the first chapter of the review of the imports and exports and navigation for the year ended March 31st, 1891. We quote the remarks devoted to Indian tea, which we preface by a notice of figures showing the position this product occupies amongst the leading staple exports of India. Ten are enumerated amongst which tea occupies seventh place, with a value, in 10-rupee pounds, represented by the symbol Rx, of Rx5,219,000. As exchange was high during a large portion of the year, the equivalent in sterling may have been not far below four millions of pounds. Mr. O'Conor separates "cotton, manufactured," from "cotton, raw," and so with jute, but the magnitude of the two great fibres in the trade of India is better shewn by giving the aggregate values of raw and manufactured. This we do in each case, altering the classification accordingly. The results are —

(1)	Cotton	Raw Rx16,502,000 Manufactured ,, 7,702,000	Rx24,204,000
(2)	Grain and pulse	... ...	,, 19,539,000
(3)	Jute	Raw Rx7,602,000 Manufactured ,, 2,482,000	,, 10,084,000
(4)	Seeds	... ...	,, 9,343,000
(5)	Opium	... ...	,, 9,261,000
(6)	Tea	... ...	,, 5,219,000
(7)	Hides and Skins	... ...	,, 4,695,000
(8)	Indigo	... ...	,, 3,073,000

Considering the high position occupied by indgo for a century before tea was even dreamed of, is it striking to notice how the new staple has taken rank before the old, and as food is of more value to the human race than the most beautiful of

dyes or the most potent of drugs, it requires no prophetical powers to anticipate the early period when opium also, which has decreased very considerably in quantity and value, will take rank below tea. That is, if over-production and the now formidable competition of Ceylon do not impede the advance of tea production in continental India. The large figure for grain and pulse, is, Mr. O'Conor explains, due to an exceptionally large export of rice from Lower Burma, in consequence of the failure of the rice crop in Japan. Burmah was drawn upon not only to supply places where Japan rice had previously gone, but to meet the wants of Japan itself. The results are the figure of nearly 20 millions of Rx. pounds as the value of food grains exported, and Rx900,000 collected as duty on rice, that grain, from the necessities of the revenue, being the only article amongst exports which is taxed. The statesmen and financiers of India feel the anomaly of this additional tax on an article of food which has already paid land tax, and they would gladly abolish it, if they could safely do so. But the Government must be carried on and the *Pax Britannica* preserved. All the imports liable to duty in a tariff as free trade as that of Britain gave a sum considerably below the export duty on rice, the total levied on liquors, salt, opium, petroleum, and arms and ammunition being only Rx774,000,—the aggregate customs duties being thus Rx1,674,000. Petroleum was subjected to duty on the same principles as those applied to rice: the necessities of Government and the ease with which appreciable revenue could be levied on an article of exceptional magnitude, which it was felt could fairly bear the burden. The consumption of this mineral oil in India is enormous, and the tins in which it is imported are in use by the people for the most varied purposes, from Cape Comorin to the border of Afghanistan. Mr. O'Conor states:—

Mineral oil has increased, and the vigour of Russian competition in this article with the United Stations is indicated by the fact that, though importations from Russia commenced only three or four years ago, last year 38 per cent of the total imports were from that country. It is perhaps not rash to anticipate that before long this proportion will be doubled. The oil is good, and as freights from the Black Sea are lower than freights from the United States, it can be sold more cheaply than American oil, and cheapness is what the native wants.

And if Russia is ousting an American product in the commerce of India, Germany is to a more serious extent superseding France. The combined effects of the bounties on beet root sugar and the extension of German steam navigation to India are, that in the one article of sugar, the imports into India had risen from a value of Rx550,000 average in the period 1874-75 to 1879 90, more than an equivalent quantity being exported, to Rx1,840,000 in 1886 87 to 1890-91, in which latter period the export was only R1,058,000. India, therefore, the original home, probably, of the sugarcane, and in which it ought specially to flourish, has her markets overwhelmed with refined beet sugar from Germany, the result of sugar bounties and steam subsidies; while the illegitimate attempts of the United States authorities artificially to raise the value of silver, have seriously and in many cases disatrously disturbed the money markets and commerce of the world. The Indian Government has benefited largely by the higher exchange, the increased value of the rupee, and especially the extensive investments in rupee paper. But individuals have been injured and speculation, both in silver and in gold has been wild and in many cases ruinous. But we must devote more detailed attention on a future occasion to Mr. O'Conor's able review of the almost anarchical position of exchange and the value of the precious metals, with the effects on commerce and industry, during 1890.

The notice of Indian tea exports is as follows:—

The export of tea has continued on an increasing scale over 107 million pounds having been exported; but the increase (about 3 per cent) has not been so great as in former years, and it would seem that the active competion of Ceylon—now that China has been beaten in the race—is beginning to tell. The United Kingdom imported in 1890 about 101¾ million pounds from India, while the imports of China tea had fallen to less than 74 million pounds. But from Ceylon, on the other hand, there were imported about 42½ million pounds, a remarkably large quantity considering the recent commencement of tea cultivation in that island. Ceylon has certainly great advantages in its greater nearness to England and to Australia than Calcutta and the consequent smaller freight that has to be paid, in the close proximity of the tea gardens to the port of shipment, in the abundant and cheap labour supplied to it from the adjacent ports of Southern India, in climatic conditions, and in the excellent quality of most of the tea produce. The planters of the island have also been able to profit by all the experience gained in India and to avoid the mistakes that were made here in the earlier days of the enterprise. It may be well for tea planters in India to recognise distinctly that the pushing competition of Ceylon must inevitably bring about in the near future a permanent fall in price unless we can largely widen our markets, the two largest markets in America and Australia being still practically held against us by Japan and China. What Mr. O'Conor says of the American market (including only the United States under this term, for the case of Canada is more hopeful) is quite true; but the review of the Australian tea market which we give elsewhere shows how rapidly Indian and Ceylon are gaining on China. Nearly 5,000,000 lb. of Indian tea and about half that quantity of the Ceylon product had been imported into Australia in the season, and these teas were fast advancing in favour.—A change this since 1880-81, when the representatives of India and Ceylon at the Melbourne Exhibition were subjected to virulent abuse for daring to speak or write in favour of products which threatened to disturb existing and very profitable monopolies in the import and sale of China, largely of the "post and rail" quality which was thought good enough for "the bush."

REVIEW OF THE AUSTRALASIAN TEA SEASON 1890-1.

(From the Melbourne *Argus*, July 24th.)

In following our usual custom of reviewing the tea season of the past 12 months, we find that important changes have taken place—changes that affect the various ports of shipment, the local mode of distribution, and the financial results.

CHINA TEA.

Under this heading we find Foochow sending to Australia and New Zealand only 15¼ million pounds, against 21 and 24 millions during the two preceding years; Hankow and Shanghai sending almost nothing; and Hong Kong and Canton rather an increasing quantity—principally shown in a much heavier weight of Canton kooloos for blenders and a diminution of low-grade Tayshan congous. With the shipments from Foochow there has been, besides a marked reduction in the quantity sent forward, a far greater change in the relative proportions of the usual grades. The stronger demand from London diverted all the clean, sweet, comon congous, leaving our requirements for "price" leaf to be badly filled with low, coarse

common, old tea—much of it many seasons old. The peculiar earthy flavour of this description attracted the attention of our Custom-house tea experts, who by their action in sending the first shipments back to the original port of shipment, caused the transhipment of the bulk of the shipments following, with the result that the adjoining colonies accepted leaf unsuitable for Melbourne to the extent of about 500,000lb. The net benefit to this colony was that, on the whole a somewhat purer tea reached the public at the expense of a diversion of trade to our neighbours. But if the rejected tea is good enough for Australians at large, why deprive Victorians of it? If however, the Victorian Customs officers were right it is to be regretted that the other colonies admitted it.

The inferior value shown at the commencement of the season for all low grade teas naturally reduced the export from Foochow, and so afterwards enabled a fairly remunerative trade to be done in them, but the absence of London demand for all better qualities, had such a depressing effect that quantities of these grades out of all proportion to requirements were sent forward because they were relatively cheap. The result has been that except within the first month after the opening sales—when fancy prices were paid for finest congous—it has been impossible for shippers to cover cost above 8½d.; and in some instances, towards the close of the season, heavy losses have had to be faced upon all good medium to fine teas. The excellent valaue thus obtained has certainly been of great assistnce to the blending trade, enabling them to more easily pay the higher prices ruling for the Indian, Ceylon, and scented requirements of their trade. Against the unfavourable results to importers of good quality congous, caused simply by over-supply, we find fancy lines, such as scented pekoes and capers, and also kaisow buds, commanding handsome profits, through shortage in supply, a shortage caused by the ruinous prices paid during the one or two preceding years curtailing manufacture.

INDIAN TEA.

From Calcutta we find a large increase in shipments, the respective figures being 4,800,000lb for the past season against 3,600,000lb and 2,880,000lb the two preceding years respectively. Large as this increase has been, it does not fairly indicate the increase in public favour of these full teas, because the bulk of our demand at present is confined to plain, strong, clean kinds, and these have also been so freely taken for London at high rates that our limited selection commanded almost equal prices to fair pekoes. To more clearly indicate the strength of the demand, we find that for over eight months of the year clean souchongs were selling within ½d per pound of strong thick pekoes, whereas, had we had a quiet market without disturbance in the lower grades, probably the extra trade in them would have added another 1,000,000lb, to our consumption. With a strong London demand for low cost leaf and with our local market over-supplied in good pekoes and fine teas, it would have been unreasonable to have expected this trade to have been satisfactory to shippers, and it is surprising that large quantities were taken at and over 9½d per pound, considering that the colonial markets were mainly created by equally valuable teas at 1d to 1½d per lb. less in souchongs and pekoe souchongs, and by far smaller quantities of pekoes and fine teas.

CEYLON TEA.

From Colombo we have even a more rapid development of the exportations of tea to the colonies to chronicle, the shipments running up to 2,500,000 lb. as against 1,500,000 lb. and 946,000 lb. for the two preceding years respectively. The public taste has certainly taken rapidly to the more flavoury and softer teas of Ceylon, and there can be no doubt that not only China, but also India, has much to fear from the competition from Ceylon. The well-cured Ceylon teas are certainly most attractive, being remarkably flavoury, with good strength. Ceylon teas, however, have one serious disadvantage, and that appears to be their inferior keeping qualities; and, judging from the present year's receipts, this trade is certainly "the jam tart trade" in tea—they are all better sold fresh than stale and flat, which, in many instances, from inferior manufacture, they soon become. There is, however, a somewhat better demand for choice Ceylon pekoes than for Indian pekoes, and it only requires time to educate the public taste for the demand to be good for choice teas from both Calcutta and Colombo. For this trade it is somewhat difficult to gauge the financial result, so much being sent upon garden account or upon speculative consignment that one becomes quite accustomed to disastrous losses upon invoice cost; but as far as we can gather the trade, as a whole, has yielded better results than that in Indians though in many instances very imperfectly cured leaf and poor nondescript breaks have been sent to this market because London did not take them freely.

DISTRIBUTION.

The marked change shown above in the demand for Indian and Ceylon teas as against China sorts has necessarily led to extensive changes in the distributing business, compelling distributors to add blending and packing to their existing tea departments. So rapidly has this trade increased, that even at this early stage it is not uncommon to hear salesmen complaining about the small volume of sales passing in "straight" teas. The complaints of distributors were both loud and deep upon discovery that the official returns of stocks in bond were understated, more especially as only 12 months since they were issued as correct, this error leading to unprofitable speculation based upon the apparent shortness of supplies.

STATISTICS.

We are indebted to the courtesy of the secretary of Customs for the following particulars (for Victoria only) regarding the imports, exports and home consumption of tea for the season July 1st, 1890, to June 30th, 1891. Imports were as follows:—

From—	Duty Paid, Ex Ship. Lb.	Warehoused. Lb.	Total. Lb.
Foochow ...	122,969	8 972,350	9,095,319
Hong Kong ...	127,678	502,442	630,120
Calcutta ...	43,074	2,826,231	2,869,305
Colombo ...	45,763	1,207,578	1,253,341
Other colonies, &c.	55,120	579,423	634,543
Total ...	394,604	14,088,024	14,482,628

Quarter by quarter the imports were as follows:—

	Lb.
September quarter, 1890 ...	5,480,427
December quarter, 1890 ...	5,280,643
March quarter, 1891	2,950,506
June quarter, 1891	771,052

Exports comprised 2,876,255 lb. under drawback, and 3,784698 lb. ex bond.

NOTES ON PRODUCE AND FINANCE.

NEW MARKETS FOR INDIAN TEA.—Our readers will be glad to learn that a really *bona fide* attempt is about to be made, under the auspices of influential and representative leaders of the Indian Tea Industry, to consolidate and place on a firm footing proposals for opening up new markets for Indian tea. Various laudable, but at the same time more or less isolated efforts have, during the past eight or ten years, been made to accomplish this end. But there has unfortunately been a great lack of continuity, an absence of that "shoulder-to-shoulder" movement, which is required, a want of the proverbial *unity of purpose*, which constitutes strength, and last but not least a dearth of *funds* sufficient to ensure sustained action. These faults of the past, it is confidently hoped, will no longer exist, and, on the partly-shattered, but still living, remains of the movements initiated at the Healtheries, at the Indian and Colonial Exhibition, by the Associated Planters (American scheme), and at the Paris Exhibition, a solid and enduring structure is, we believe, arising. A small company has been formed, which it is proposed should commence its operation

at first quietly, but which will be capable of expansion and extension in due time. Its first object will be to take up the work which has been going on in France since the Exhibition of 1889. It will probably next turn its attention to America, and endeavour to effect a foothold at the forthcoming Chicago Exhibition. Its future developments will depend on circumstances. The fact remains, however, that if properly supported by the Indian tea industry, a nucleus will be formed for extension in almost any direction, and there will be an organisation ready, with funds at its disposal, to take advantage of any and every favourable opening which may present itself for extending and pushing the use of Indian tea all over the world. The planting interest, we venture to believe—though at times a little slow to act—is not blind to its own self interest, and we cannot but think that, when the scheme is clearly laid before those who have their interests bound up withIndian tea, liberal support will be forthcoming. where is not a great deal of money wanted, and, if Tvery company and every individual possessing an enterest in tea growing will give his quota, the actual call on each will amount to a mere trifle. Particulars will shortly be made public, but we sound this note in advance, in order to prepare our numerous readers and invite them to be ready to play their part when the time comes. The prospectus of the Palais Indian Tea Houses Company we give elsewhere.

A TRADE OPINION.—Commenting on last week's sales of Indian and Ceylon tea, the *Produce Markets' Review* says:—With a continued good supply of new Indian tea at moderate prices more business has been transacted. The quality of the recent import is not up to the average of the earlier arrivals, but the decline in value has stimulated the enquiry for the lower grades. As these have now fallen to a point at which they can be freely used, and compare favourably with similar descriptions of Ceylon growths, an increased consumption may be looked for, with a further improved enquiry generally. The finer sorts are in unusually small supply, particularly Broken Pekoes with good appearance, consequently the market continues extremely firm, and probably will remain so until a more liberal quantity of the better class new tea is offering. Recent telegrams from Calcutta report the quality of the tea from Assam as good; if this is confirmed on arrival here it will be sure to meet with a good reception, and will sell readily. The quantity of Ceylon teas brought forward this week has been larger than that during the two preceding ones, but not so large, however, as was generally expected. Prices have, on the whole, rhown little alteration, for any tendency towards lower rates on Tuesday was fully compensated for by a decidedly stronger feeling again on Thursday. The absence of quality is still lamentably noticeable, and extravagant prices are in consequence being paid for a few Brokens, which have no claim whatever to be considered as fine teas.

SPRING VALLEY COFFEE COMPANY, LIMITED.

DIRECTORS.—John Brown, Esq. (Managing Director), Edward Conder, Esq., Leon Famin, Esq., Henry Hart Potts, Esq.

REPORT to be presented to the Twenty-sixth Ordinary General Meeting of the Company to be held at No. 5, Dowgate Hill, London, on Wednesday, the 29th day of July, 1891, at 12-30 o'clock p.m.

The following Annual Accounts are now presented to Shareholders, viz:—Profit and Loss Account for Crop 1889-90. Balance Sheet made up to 31st May, 1891.

CROP 1889-90.

In last year's report, shareholders were informed that the coffee crop of the above season was unsatisfactory, and it will be seen that the actual weight sold in London amounted to only 805 cwt. as against an original estimate of 1,200 cwt. This small crop, inclusive of inferior coffee sold in Ceylon, realised £4,345 7s 2d, the average selling price in London being 102s 4d, as compared with 96s 9d per cwt. obtained for crop 1888 89.

The yield of tea on Spring Valley amounted to 132,000 lb., the estimate in last Report being 113,000 lb. and this, together with 38,140 lb., bought from neighbouring estates and manufactured at Spring Valley, sold for £7,966 15s 2d, or an average of 11½d per lb., the average selling price last year being 10¾d per lb.

Oolanakande Estate produced 18,477 lb. of tea, including 5,700 lb. made from bought leaf, which realised £748 2s 2d, and brought an average of 9¾ per lb. as against 8¾d per lb. last year.

Cinchona bark to the extent of 30,226 lb. was also sold for £343 2s 9d, the average selling price being 2¾d per lb. or 1d per lb. under last year's average.

The total proceeds from the sale of produce amounted to £13,403 7s 3d, to which has to be added £120 14s 8d, derived from interest, making the total receipts £13,524 1s 11d.

The total expenditure in Ceylon and London, after allowing for profit on exchange, amounted to £13,541 6s 10d and deducting from this the amount of receipts, there remains a loss of £17 4s 11d on the year's working.

It will be remembered that a considerable sum, £2,475 17s 3d, was brought forward from last year, as the Directors had reason to anticipate some such result as the above, so that the amount now standing at the credit of Profit and Loss is therefore £2,458 12s 4d.

On the 12th January last, an interim dividend of 1½ per cent was paid on the capital of the Company, and the Directors recommend that a further dividend at the same rate be now declared, making 3 per cent for the year, and leaving £58 12s 4d to be carried forward to next account.

CROP 1890-91.

It is satisfactory to be able to report that the outlook for this season is very good. The coffee crop is expected to total 3,400 cwt. This marked improvement is due to the comparative absence of leaf disease and green bug, the pests which have for so long been persecuting the coffee bush. The nature of these pests is, however, so peculiar that it is impossible to say to what extent this immunity can be relied upon for any length of time. The weather has, no doubt, had much to do with checking the influence of these pests on the coffee bush during the present season, and although it is hoped that the diseases may only continue in a mitigated form, still, in view of past experience, it would rash to count too hopefully on these pests not putting themselves strongly in evidence again as, we have had similiar disappointments in the last few years. On the other hand the coffee is reported to be looking well for next season. There are 872 acres still remaining under coffee on Spring Valley, and it is not intended in the meantime to replace any of this area with tea.

The tea on Spring Valley continues to grow well and steadily improve in yeld, and the crop for the abvove season will probably be about 160,000 lb.

The prices ruling in the tea market just now are not satisfactory.

The area under tea is as follows:—

TEA.

		acres.
Planted Nov./Dec. 1884, on Spring Valley	...	271
„ May, 1885, on Oolanakande	...	143
„ Nov./Dec. 1885, on Spring Valley	...	230
„ May, 1886, on Oolanakande	...	7
„ Nov./Dec. 1888, on Spring Valley	...	20
„ Nov./Dec. 1890, on Spring Valley	...	96
Total area under tea	...	767

The price of silver ruled high during four months of the current season, so that it is not expected that the Profit of Exchange will be so large as last year.

Mr. Edward Conder, a Member of the Board, retires on this occasion, and being eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election. By order,

J. ALEC ROBERTS, Secretary.

July 20th, 1891,

OUVAH COFFEE COMPANY, LIMITED.

Capital £100,000, in 10,000 shares of £10 each.

DIRECTORS.

John Brown, Esq., Managing Director.
H. H. Potts, Esq., L. Famin, Esq., Edward Conder, Esq.

REPORT

To be presented to the Twenty-eighth Ordinary General meeting of the Company, to be held at No. 5, Dowgate Hill, London, on Wednesday, the 29th day of July, 1891, at 1 o'clock p. m.

The following Annual Accounts are now presented to Shareholders, viz. :—Profit and Loss Account for crop 1889-90, Balance Sheet made up to 31st May, 1891.

CROP 1889-90.

In the Directors' last Report the coffee crop of the above season was estimated at 1,400 cwt., and it will be seen that the actual weight sold in London amounted to 1,460 cwt. 2 qrs. 5 lb.

The total proceeds, inclusive of a small quantity sold in Ceylon, amounted to £7,719 7s 10d., giving an average of 102s 5d per cwt., against an average of 96s obtained for the previous crop.

The crop of tea was estimated at 250,000 lb. and the actual weight sold from the Company's own estates was 244,244 lb. Besides this 219,812 lb. of tea manufactured from leaf bought from neighbouring estates were sold.

The total value of all tea sold was £20,496 14s 1d, or an average of 10½d per lb. as compared with 11d for the previous season.

The weight of cinchona bark sold was 45,566 lb., and the value £753 14s 9d, or 3¾d per lb., against the former year's average of 4¼d per lb.

Cocoa weighing 57 cwt. 1 qr. 23 lb, realised £253 12s 9d, the average selling price being 88s 3d per cwt. against 84s for the former year's crop.

It will thus be seen that the total value of all produce sold amounted to £29,223 9s 5d.

The total Expenditure for the year in Ceylon and London, after allowing for Profit on Exchange, amounted to £24,625 4s 4d, and deducting this from the value of the Produce, a Profit is shown on the season's working of £4,598 5s 1d. To this has to be added the balance of £68 12s 8d, brought forward from last year, giving a total of £4,666 17s 9d at the credit of Profit and Loss Account.

An interim devidend of 1½ per cent. on the capital of the Company was paid on 12th January last, which absorbed £1,500 of the above named sum, and the Directors now recommend that £2,500 be applied to the payment of a further dividend of 2½ per cent, making 4 per cent. for the year, and that the sum of £614 9s 10d be written off Machinery Account, reducing it to £600, thus leaving £52 7s 11d at the credit of Profit and Loss to be carried forward to next account.

CROP 1890-91.

The Directors are able to report a favourable outlook for this season, and if the market prices of tea and coffee are fairly maintained, they have every hope of paying an increased dividend for the ensuing year.

The pests of green bug and leaf disease, which of late years have done so great injury to the coffee bush, have for the past season been somewhat in abeyance, and have thus allowed a fair crop to mature, the coffee crop for the season being now estimated at 2,500 cwt. The coffee on the estates is reported to be looking well for the next crop, but owing to the capricious nature of the pests referred to, it is impossible to say how long this comparative immunity from disease may continue or whether it is only due to favourable climatic influences. The area still under coffee is 967 acres, and it is not intended in the meantime to replace any of this coffee with tea.

All the tea on the Company's estates is growing and yielding well, and the estimated crop for the current season is 280,000 lb. which it is thought will be secured. At the present time, the prices ruling for tea are not satisfactory.

By the end of the year the Directors hope to have the Company's three Tea Factories fully equipped with machinery, &c.

The area now under tea is as follows :—

TEA.

Planted November/December	1883	9	acres.
"	1884	347	"
"	1885	448	"
"	1886	27	"
"	1887	17	"
"	1888	67	"
"	1889	12	"
"	1890	258	"
Total area under tea		1185	acres.

As the price of silver ruled high during four months of the current season, the profit on Exchange will not be so large as during season 1889-90.

Mr. H. H. Potts, a member of the Board, retires on this occasion, and, being eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election.

By order, J. ALEC ROBERTS, Secretary.

July 20th, 1891.

THE EFFECT OF PACKING HEATED TEA IN CHESTS.

Acoording to our last London Letter some misunderstanding appears to have arisen as to a subject of late dealt with in our columns, namely the tendency of tea boxes to absorb damp during their transit homewards in the sweating holds of steamers.

Probably an insufficient distinction was drawn during the discussion of this question between unseasoned woods and those unsuitable by their grain, or from other causes, for use in the making of tea boxes. It may, however, we think be concluded from the arguments formerly put forward that imperfectly seasoned woods are more especially liable to absorb damp during the passage homewards, while those completely seasoned would be free from such a liability. On the face of it it would seem apparent that the first class of these two, that in which dampness was naturally present at the time of weighing on the estate would be less likely to change weight on the journey homewards than the more completely dried and seasoned wood. Such would, it would seem, have already got its full burden of moisture, and would therefore be less likely to change in weight owing to possible taking up of more moisture in a ship's hold. *Per contra* it might perhaps be assumed that a perfectly dry seasoned chest would be likely to readily absorb such dampness as might be present in a vessel's hold. But on giving fuller consideration to all the conditions attending the packing of tea, and to those which constitute a thoroughly seasoned wood, these conclusions may, we think, very probably be reversed.

In the first place, what are the specialities of a perfectly seasoned wood, in the sense that is generally understood? We know perfectly well that seasoning cannot be produced by subjecting the green wood to artificial heat. By such means you may turn out stuff as dry as a chip; but it is not seasoned. Expose it to a damp atmosphere, and the cells of fibres of the wood commence at once to absorb damp and the last state of material so treated is worse than the first. But the essence of seasoning is the gradual method of its accomplishment. Time is required for the cellular tissue of the timber to contract as its sap and absorbed damp dry out. This fact is so well-known to

pianoforte manufactures, that the timber they work up into their instruments is weathered in their yards for many years before use; and only in such a way can material fully reliable for their delicate purpose be obtained. We should hold that the same conditions of necessity apply—though of course in a minor degree—to the seasoning of wood for less important purposes. What we have stated justifies the dictum that mere heat alone—though this may temporarily get rid of dampness—does not exhaust the sap or bring about that gradual closing of the cells which renders a perfectly seasoned wood unattackable by damp. All of us in Ceylon know perfectly well how completely thoroughly seasoned wood worked into pianofortes will remain uninjured, even in a climate so fully charged with moisture as that of Colombo.

These facts prefaced, let us see how the question we have raised may be affected by the conditions present during the packing of tea in chests. We know it to be the case that a great deal of the tea at the time of such packing is in a warm, and very often probably in a relatively hot state. We can readily imagine the effect of placing a bulk of this almost in contact with an imperfectly seasoned wood, the lead lining serving as a good conductor for its heat. The effect, we should think, must be to, to all appearance, dry the wood; but the sap would not be equally ejected, and the cells temporarily constricted, would open and reabsorb damp whenever they came into contact with it in the hold of a vessel. But the chest would have been weighed while there had been a temporary loss of weight due to the packing with the heated tea, and hence we can understand it might have acquired considerably increased weight when tared in the scales of the Home Customs. But wood that has been perfectly seasoned after the manner above pointed out is, by the constricted state of its cells and the binding together of its fibre due to the action of time and the gradual withering out of sap, in a condition of defence against the presence of damp in the atmosphere. It remains, therefore, unchanged by the damp air always more or less present in a steamer's hold, and with the result that its weight, when dealt with by the Home Customs, is very nearly identical with that ascertained respecting it on the estate. It has not, in fact, been affected by the presence in it of heated tea.

The conclusion we draw from this is, that although, as we have said, it would seem natural to suppose that a dry wood (such as is that exposed to thorough and gradual seasoning) would absorb damp more readily than green wood, and so be more liable to a change of weight, the exact reverse is the case under the conditions attending the packing of tea. A fictitious dryness—so to speak—is produced, the tendency of which with unseasoned wood is to render it specially liable to change weight when exposed to damp.

The moral is that all timber used for tea boxes should be thoroughly seasoned.

THE CEYLON TEA FUND.

COMMITTEE MEETING.

Minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Kandy on Friday, the 14th day of August, at four o'clock in the afternoon.

Present:—Messrs. Giles F. Walker, Chairman, Planters' Association of Ceylon; W. Sandys Thomas, Chairman, Dimbula Association; A. E. Wright, Maskeliya; J. Anderson, Kandy and Matale West; A. G. K. Borron, Kandy; John H. Starey, Kandy; A. T. Karslake, Kandy; W. D. Bosanquet, Kandy; W. D. Gibbon, Kandy; G. A. Talbot, Kandy and Dimbula; Wm. Forbes Laurie, Kandy and Kurunegala; A. W. Stopford Sackville, Chairman, Maskeliya Association; J. A. Spence, Medamahanuwara; A. Philip, Secretary, Planters' Association of Ceylon.

The notice calling the meeting was read.

The minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Nuwara Eliya on Saturday, the 18th day of June 1891, were taken as read and were confirmed.

Read letter from Messrs. Baker & Hall, Colombo.

Read letter from Messrs. Whittall & Co. intimating that the following estates will subscribe to the "Ceylon Tea Fund" from 1st July:—Dea Ella, Dammeria, Uda Radella, Gleneagles, Oonoongaloya, Aberdeen, Hayes, Battewatte, Calsay, Luccombe, and Deanstone.

Read letter from Mr. A. R. Lewis. Resolved:—"That the letter be acknowledged, and that it be pointed out that the Ceylon Tea Company, Limited, under the Patronage of the Planters' Association of Ceylon is not in connection with the Ceylon Tea Fund, and that the Standing Committee trusts that he will reconsider his decision."

Read letter from Messrs. Walker, Sons & Co., Limited. Resolved:—"That in conveying the thanks of the Committee for past liberal subscription to the Tea Fund the Committee hopes that Messrs. Walker, Sons & Co., Limited, will see their way to continuing their subscriptions as heretofore in view of the imperative necessity of steadily persisting in making known and pushing Ceylon tea throughout the world, and the fact that their interests are in large extent affected by the prosperity of the Ceylon tea enterprise."

Read letter from Mr. W. Mackenzie. Resolved:—"That Mr. Mackenzie be thanked for his letter and that he be asked kindly to obtain information as to what the law of Victoria is in reference and bearing on the prosecution indicated."

Read letter from Mr. E. de Frisch, vice Consul for Russia, acknowledging with best thanks a vote of thanks accorded to him, and intimating that he will always be most happy to further the undertakings of the Planters' Association of Ceylon. Resolved:—"That the letter be acknowledged."

GLASGOW INTERNATIONAL EXHIBITION.—Read letters from the Manager, Eastern Produce and Estate Company, Limited, and from Messrs. Aitken, Spence & Co. Resolved:—"That the requests made be complied with."

CEYLON TEA IN GERMANY.—Read letter from the Imperial German Consul enclosing letter from the Secretary of State for Foreign Affairs, Berlin, notifying that His Majesty the Emperor and Her Majesty the Empress Frederick have been graciously pleased to accept the presents of Ceylon tea, and have directed him (the Secretary of State for Foreign Affairs) to transmit to the Planters' Association of Ceylon their Majesties' sincerest thanks for this courteous attention. Resolved:—"That the letter from the Secretary of State for Foreign Affairs, Berlin, be sent to the newspapers for publication.

Read letter from Mr. Shelton Agar. Resolved:—"That Mr. Agar's letter be acknowledged, and that a copy of the rules for the Regulation of Grants of tea for free distribution be sent to him, and that Mr. Agar be requested to ask Mr. Schrader to give a detailed account of his proposed methods of working with particulars as to the duty payable upon tea in Germany and any other matters of interest for the consideration of the Standing Committee."

CEYLON TEA IN FRANCE.—Read letters from the Secretary, the Ceylon Association in London.

Read letter from Mr. H. Whitham with enclosure. Resolved:—"That it be pointed out to the Ceylon Association in London that there was no intention of judging their action in the matter referred to, but rather inviting a reconsideration in the light of the information received by the Standing Committee."

Read letter from Mr. H. Clayton Manisty regarding his scheme for pushing the sale of Ceylon tea in Paris &c. Resolved:—"That the letter be acknowledged

and forwarded to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon."

CEYLON TEA AT THE WORLD'S EXPOSITION AT CHICAGO IN 1893.—Read letters from the Secretary, the Ceylon Association in London.

Read letter from Mr. J. J. Grinlinton.
Read letter from Messrs. Darley, Butler & Co.
Read letter from Mr. R. J. Farquharson.

CEYLON TEA KIOSK IN COLOMBO.—The Chairman explained the present position of the Kiosk and submited resolutions passed by the Sub-Committee appointed for the purpose of establishing a Tea Kiosk in Colombo. Resolved:—(I) "That the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon be furnished with a copy of the resolutions of the Ceylon Tea Kiosk Sub-Committee of this day's date and be invited to state what guarantees they are prepared to offer to protect the interests of Ceylon tea growers as to the sale of tea in the event an agreement being mutually arrived at. (II) That failing satisfactory arrangements, in the opinion of the Tea Kiosk Sub-Committee, that the Sub-Committee be authorized to call for tenders. (III) That the Chairman be authorized to make such arrangements as he may deem advisable as regards leasing the basement of the Kiosk."

CEYLON TEA IN RUSSIA.—Read letter from the Secretary of the Ceylon Association in London. Resolved:—"That the letter be acknowledged."

NEW ZEALAND AND SOUTH SEAS EXHIBITION.—Submitted letter dated 2nd July to Mr. Wm. Watson, Dunedin, intimating that as the Manager of the Wharf and Warehouse Company, Limited, Colombo, wrote under date the 29th June 1891 that the package named in the shippers' receipt enclosed by him dated 12th March had not arrived it would be advisable to call for explanation from the Steamship Company of New Zealand.

PROSECUTIONS UNDER THE MERCHANDISE MARKS ACT.—Read letters from the Secretary, the Ceylon Association in London, enclosing parcel receipt for a box containing 31 packets of Ceylon blends of tea shipped and inviting attention to the legal position. Resolved:—"That the letters be acknowledged with thanks, but that in the opinion of the Standing Committee of the Tea Fund it is inadvisable at present to take further steps in this matter."

CEYLON TEA IN AUSTRALIA.—Read letter from Mr. S. W. Foulkes, acknowleding draft for £50 sterling, and conveying an expression of grateful appreciation of the liberalty of the Association which will stimulate him to further exertions.

CEYLON TEA IN ITALY.—Read letter from Mr. George Vanderspar. Resolved:—"That a specially made ornamental chest containing finest Ceylon tea be forwarded through the Royal Italian Consul for presentation to Her Majesty the Queen of Italy on behalf of the Planters' Association of Ceylon, and that Messrs. Whittall & Co. be asked to have the tea purchased and packed for shipment."

CEYLON TEA IN PERAK (MALAYA).—Submitted suggestions by Mr. C. R. Hanson. Resolved:—"That 40 lb. of Ceylon Pekoe tea made up in ½ lb. packets be granted to Mr. Hanson for free distribution in Perak, and that Messrs. Whittall & Co. be asked to purchase the tea."

CEYLON TEA IN WESTERN AUSTRALIA.—Read letter from Mr. W. E. Pye. Resolved:—"That the letter be referred to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon."

FINANCIAL POSISION OF THE TEA FUND.—Submitted statement of account of the Tea Fund as at 30th June 1891 and intimated that since 1st July a further sum of R8,950·14 had been collected to date. Resolved:—"That the statement of account as at 30th June 1891 be sent to the Newspapers for publication."

The Standing Committee of the Tea Fund then adjourned.

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

THE CEYLON TEA FUND ACCOUNT IN ACCOUNTANT WITH A. PHILIP AT 30TH JUNE 1891.

Dr.	R	c.
To paid on account Auditor	50	00
To paid on account Book of Proceedings being in payments of half costs of Book of Proceedings of Planters' Association for the year ending 17th February 1890 in terms of resolution of Committee	319	00
To paid on account Ceylon Tea in Russia paid to retire Mr. Wm. Martin Leake's draft per R2,485·06 on account of M. Roglvue's balance R5,000 voted by the Committee ...	*2,486	56
To paid on account Ceylon Tea in Kiosk ...	4,618	00
To paid on account Charges, Printing Advertising, &c.	620	50
To paid on account Chicago Exhibition paid into Fixed Deposit being first half-yearly instalments in terms of resolution of Committee	7,500	00
To paid on account Consolidated Allowance for expenses of the Chairman attending meetings in 1890	250	00
To paid on account Consolidated Accounts for expenses of the Secretary attending meetings in 1890	125	00
To paid on account S. W. Fowlkes for D. Draft per £50 paid him as a contribution towards his expenses in pushing Ceylon Tea in Australia	688	17
To paid on account His Imperial Highness the Czarewitch for presentation portfolio of photographs	126	50
To paid on account His Imperial Highness the Czarewitch, His Majesty the Emperor William and Her Majesty the Dowager Empress Frederick of Germany paid for presents of Ceylon Tea	764	62
To paid on account Lagalla estate for refund claimed as over remitted	150	75
To paid on account Prosecutions under the Merchandize Marks Act paid Wm. Martin Leake to retire draft per £40 8s 5d ...	532	47
To paid on account Postages and Petties ...	110	23
To Balance in N. O. B. C. Kandy at 30th June 1891	2.174	94
	R20.515	74

Cr.	R	c.
By Balance at 31st December 1890 as per previous statement	8,039	62
By New Zealand and South Seas Exhibition proceeds to demand Draft per £1 sterling per W. Watson on account of sale of Exhibit	14	02
By Subscriptions received during the six months ending 30th June 1891	12,362	06
By Interest from Bank	100	04
	R20,515	74

E. & O. E.
Kandy, 30th June 1891.

A. PHILIP,

* Ceylon Tea in Russia amcunt per previous statement 4,401 58
Amount paid at 30th June 1891 ... ... 2,485 56

R6,887 14

FOUNDATIONS UNDER WATER.—It is stated that a German military engineer has devised a new method for fixing a foundation under water. By means of a powerful jet of compressed air he drives dry cement down into the sand or mud at the bottom of a stream. The action of the water immediately fixes the cement, and it becomes like solid rock.—*Public Opinion.*

THE AGRICULTURAL COLLEGE recently established in Cairo is prospering very well. The Principal is Mr. Samuel Wallace, brother of Professor Wallace, of Edinburgh University, and he is heartily supported by the Egyptian Government. About 60 students have been admitted, many others having been excluded owing to lack of accommodation. A garden and farm of 300 acres is attached to the establishment, where experiments are carried out and the employment of Western tools and methods is demonstrated.—*Globe.*

MORE UPON THE SUBJECT OF MANA GRASS.

We are glad at length to learn that a very large measure of success has attended the experiments which have for so long been making at home with the mana grass which grows in such wild profusion on the mountain "patanas" of this island. Our anticipations previously expressed in these columns seem to have been for a very long time under a cloud consequent upon repeated failures of one kind and another, and the news that these have now been replaced by an, at all events partial, success, will be welcome no doubt to all who have the interests of the colony at heart.

Nevertheless we do not disguise from ourselves that much yet remains to be accomplished, and probably many as yet unforeseen difficulties remain to be overcome, before we can indulge in the expectation of seeing our formerly expressed anticipations realised. But at least we now know that mana grass pulp, when treated with 25 per cent of waste paper or of old gunny bags or other comparatively valueless material of that character, can be made into a stout and solid board, which has one advantage over that made from wheat straw, inasmuch as it is without that amount of silica which tends to make straw board a brittle and intractable material. We should have been glad to hear that our London correspondent had seen tea boxes formed in the solid from mana grass pulp; but although he has been promised that this can and shall be done, the required machinery had not when his last letter was written been completed. But he had seen two cylindrical casks or packing cases of considerable size made of the mana grass board, and he reports that these were as strong and as solid as could be desired. Very little ingenuity, he feels assured, is required to compress the pulp into the form of a box complete in itself in every respect save as regards the lid.

We trust that this assurance may be confirmed. Cylindrical packages such as have already been made would occupy too much space on shipboard to be likely to receive adoption by our planters, although in other respects they would appear to be admirably suited for the package of tea. It cannot be expected that the manufacture of jointless tea boxes could be carried on at home with mana grass pulp. In the first place, the freight homewards of the raw material would be prohibitory, and in the second, that of the empty square boxes outwards would not be less so. If, therefore, success is in the future to attend the manufacture, it is certain that this must be done locally, and in such positions as may ensure the cost of transport of the made boxes to estates being kept as low as may be practicable. As at present foreshadowed, it would appear that the Universal Barrel Company of Boxmoor which has conducted the latest experiments has it in contemplation to obtain from the Stanley-Wrightson Syndicate its patent rights as regards Ceylon, and possibly as regards other countries in which mana grass may be found in any abundance. These secured, a factory containing the required machinery would be erected out here and started with a properly qualified man in charge. We can do no more to aid in the accomplishment of this when the time comes for doing so—should this arrive—than to suggest the sites the most eligible for such a factory. Water power it must of course have; and it should be so situated that it can possess its own siding to the railway. It will further be a *sine qua non* that it be in tolerable proximity to lands growing mana grass in abundance. Should any of our readers be able to suggest sites fulfilling these several conditions, we shall take care that their suggestions are made known in the proper quarter at home, to which they would doubtless prove very valuable.

It may be a question whether, after a time, it would not be necessary to cultivate fields of mana grass; and we should think this could be easily and cheaply done, on the vast expanses of patana which stretch in all directions from Nuwara Eliya and which exist in other parts of the mountain region, on the western and eastern sides alike.

TEA-DRINKING.—A WARNING TO MOTHERS.

BY DR. ANDREW ROSS, MOLONG.

[An exaggerated and misleading article. Tea is, on the whole, the best and certainly the most easily prepared of the non-alcoholic stimulants. But, of course, there can be excess even in tea drinking, and there may occur occasional cases where constitutional peculiarities contra-indicate its use.—ED. *T. A.*]

The following remarkable case is published with a view of putting parents and heads of families on their guard as to the evil effects arising from the use of strong tea drinking—in other words, the too common and pernicious custom of allowing young children to drink tea at meal time. Some few months back I was consulted about the health of a young boy between 5 and 6 years of age belonging to Mr. K——, and who was in the habit at meal time of partaking freely of strong tea. The boy until within the last 12 months had always enjoyed good health, but lately had become somewhat dull and stupid, with palpitation at the least excitement or exertion, a tendency to convulsions—very restless at night, and sleep much disturbed, loss of memory, with at times a giddy feeling, and both eyes much turned inwards and made to squint with a peculiar tremour of the eyes, as if suffering from some internal affection of the brain. The boy for his age was well developed, and born of strong, healthy parents, but he had of late showed every symptom of falling into a bad state of health with great restlessness, marked squinting of both eyes, and which twitched most severely. I at once diagnosed the case as one arising from the poisonous or injurious effect of the excessive use of strong tea drinking—a too common habit, I regret to say, amongst families residing in the interior. I told the parents, what I thought of the case, and the cause from which the illness I believed proceeded. I told the parents, too, that I could do nothing in the matter unless the injurious and pernicious habit of strong tea drinking was at once discontinued and abandoned, otherwise the boy sooner or later must succumb to serious illness, nervous prostration, or softening of the brain—in other words, anæmia or blood-poisoning,* the result of strong tea drinking. The parents at once acquiesced in my remarks, and made a pledge that my instructions should be strictly carried out, and that the tea-drinking regime for the future should be entirely discontinued, and nothing but plain water, water and sugar, or milk and water allowed at meal time. The result was that two months after I had been consulted the boy had completely regained his former health—the bad memory, convulsions, giddiness, and palpitation had disappeared, rest at night undisturbed and refreshing, and the boy being able to return to school. The symptoms of poisoning arising from the injurious habit of strong tea drinking in one so young was most characteristic, and I have no hesitation in saying (after long experience of bush habits and life) that a more cruel, pitiful, sinful, and pernicious habit of parents allowing young children of tender years to partake of so much strong tea at meal time has only once for all to be mentioned and condemned, and for ever abandoned by all sensible, well-wishing parents who have any parental regard and value the lives and health of their families. The case is by no means an isolated or ex-

* A "confusion of epitaphs," with a vengeance!—ED. *T. A.*

aggerated one, for I believe there are hundreds of such cases transpiring in our midst every day; but the ill health and treatment may be attributable probably to quite a very different set of causes than the one herein illustrated. I have no hesitation in saying that the ever-watchful physician fails in the performance of his sacred duty to the public if he does not warn parents against the too common evil and injurious habit of tea-drinking, a habit, I regret to say, far too prevalent and painful nowadays among young children of tender years, more especially in country districts, where such a treacherous beverage is partaken of by young and old at every meal. Prevention of disease is as much an essential factor in medicine and in the hands of the physician to point out such serious evils as that of the treatment of disease when it does occur, and therefore I sincerely exhort the head of every family (especially mothers) to beware in time of the insidious and suicidal evils arising from this too common, prolific, and fertile source of ill-health, disease and heart affections among children in families. For years I have, as a resident in the bush, watched the evil effects arising from the use of strong tea drinking, especially amongst the young, and I can truthfully say that parents who are fool-hardy enough to follow this baneful and pernicious habit of tea-drinking have only themselves to blame for having sickness in their families—aye, or even diptheria, which in my belief, arises from this evil.* Over and over again I have endeavoured to warn parents against this evil custom, and have been pooh-poohed, and laughed at perhaps by senseless people, for my pains; but I have the consolation of knowing that I do so chiefly in the interest and for the protection of poor unfortunate innocent little children and sufferers who unfortunately know no better. The arterial blood in youth is simply, in my candid belief, destroyed and rendered dark and anæmic by the too common error and prejudicial habit of tea-drinking which contains so much tannin in the infusion. [When infused too long.—ED. *T. A.*]

Cocoa ought to be a much better and safer beverage for the young. Food and drink must exercise a therapeutical effect on the functions of the body, the constitution, and animal physiology for good or evil (however obscure their operation at times may be) as much as some of our potent medicine agents. The idiosyncrasy of the age is becoming so fastidious that some people are never satisfied unless the stomach is turned into a complete medicine chest, so careless are they to think or know the effects of medicine, food, and drink upon the system—in fact, swallow anything that bears the name of being a panacea for health, even the deadliest of poisons. In fact, medicine nowadays is nothing unless the most virulent and deadly agents are selected and prescribed wholesale. The days of preventive medicine are nowhere to be found in the category of the 19th century practitioner.†—*Sydney Mail*, July 25.

BAMBOOS.—It is pleasing to note that this beautiful genus of plant is gradually gaining popularity. Indeed, it is a wonder how it is they have kept in the background so long as they are much superior to a good many of the Palms in cultivation; for the conservatory and general decorative purposes, it is hard to find their equal, as their lax and graceful foliage renders them suitable for mixing with all kinds of plants. Most of the species are either hardy or half-hardy, and very easy of cultivation, their chief requirements being a rather rich soil and abundance of water in summer. The following are a few of those best suited for general purposes. Bambusa Fortunei var. variegata, a very pretty dwarf-growing variety well adapted for pot work; B. striata, B. aurea, B. violescens, and B. nana, the latter is rather a tender species, and does best when in a stove. The genus Phyllostachys, found in China and Japan, also contains many beautiful species, well deserving more attention from horticulturists; should the demand for them increase, many forms will doubtless be produced superior even to those existing at present.—*Gardeners' Chronicle.*

* Tea the cause of diphtheria!—ED. *T. A.*
† Which is utterly untrue.—ED. *T. A.*

CEYLON TEA IN AUSTRALIA.

The review of the Australasian tea trade for the year ended 30th June 1891, published by the Melbourne *Argus* and reprinted on another page, shows that India and Ceylon teas are rapidly superseding the China product in these important markets. The quantity of tea received from Foochow during the twelve months fell from 24 and 21 million lb. in 1888-9 and 1889-90 to 15¼ million lb.; while the quality showed a great falling-off,—so much so that the customs authorities in Melbourne refused to pass large quantities as unfit for consumption. On the other hand the shipments of Ceylon tea increased from 946,000 lb. in 1888-9 and 1½ million lb. in 1889-90 to 2,900,000 lb. in 1890-91, the soft and flavoury Ceylon teas being much in favour with the public. We hope that they will become increasingly so.

WEIGHING OF TEA.

The following letter has reached us by the mail:—

I think the grievances which your correspondents have so very barely connected with tea-weighing in London are somewhat exaggerated. I do not mean that the individual cases are not figuratively correct, but my experience and that of others in London is that after allowance for draft, the teas from many gardens invariably come out almost exactly to garden weights; other estates constantly show a heavy loss, which leads us to conclude either that those gardens which are habitually accurate weigh with greater liberality, or that by superiority of package, accuracy of weighing machines and careful supervision they prevent loss.

It not unfrequently happens that teas are sold in excess of garden weights, as you will see by enclosed account sales (which we sent back to Ceylon by last mail) after deducting the trade allowance.

When your correspondents write about a loss of 2 per cent or 3 per cent they include the draft or natural trade allowance, which they can minimise if they like, but which they will generally find it is their interest to increase.

The trade allowance is as all are aware one pound per package upon all packages grossing 28 lb. thus on a chest containing 150 lb. the grower allows the buyer ¾ per cent, but upon boxes of twenty pounds which may carry draft he allows the buyer five per cent. As but a small proportion of Indian tea comes in half-chests the Ceylon half chest seems to supply a special want both of the country and of the continent and we frequently advise our Ceylon friends to give their extra trade allowance and thereby probably secure a higher price for their teas.

I have referred to draft as a natural trade allowance because a very large proportion of the tea sold in the United Kingdom is retailed in very small quantities, from an ounce upwards and it is not possible honestly to make a chest of tea holding only 100 lb. weigh 400 quarter pounds. I think it has already been made clear to your readers that the trade allowance goes straight to the buyer and that the broker and merchant do not fatten upon it. The Board of Trade rules allow two pounds to be drawn from each bed, that is from each grade of a break, free of charge for sampling purposes, provided this sample is drawn after the tea is weighed up so even this small quantity comes out of the buyer's and not the grower's pocket.

Any further samples which are required, and they very often are required by merchant or broker, have to be returned in kind. But it does not yet seem to be quite clear to all that the Board of Customs collects duty upon the trade allowance.

For instance when an invoice is sent to a country dealer it is sent thus:—

To 20 ½ chests Ceylon Pekoe 1,000 lb. at 9d £37 10s
To duty and customs charges &c. 1,020 lb. at 4d £17 0s10d

There is not and I don't believe there ever will be any

getting rid of this trade allowance. It seems unreasonable that the buyer of a 25 lb. box of tea should have the same allowance made to him as the buyer of a hundred and fifty pound chest has, but if it were not so you get into fractions and the trade naturally abhors the introduction of fractions into book-keeping; besides things are cut so fine that the buyer seriously considers the draft when purchasing tea.

Dismissing the question of trade allowance which must not be looked upon as loss, my experience of actual loss comes very near that of Mr. John Hamilton. The following is the result of the last twenty sales for which we have rendered accounts to Ceylon:—

	lb.
Amount of tea invoiced ..	104,224
Sold	101,975
Draft on 1,478 packages ..	1,478
Loss	771
	104,224

There was a time when the Colombo Wharf, the holds of ships and the wagons or barges which conveyed tea from ships to warehouses would have accounted for a good deal of this loss, but packages have much improved and I do not think there is much loss in transit now, and the want of an even tare is the root of the evil.

Japanese chests as a rule tare more evenly than Ceylon-made chests, and there is consequently greater loss in the use of the latter.

One of your correspondents wants to know what we have to do with tare and why dealers cannot contentedly buy his chests said to contain 50 lb. of tea.

This simple system would work well by conveying a tin of biscuits from Abram Saibo's shop to your correspondent's bungalow, but in sending goods from a warehouse perhaps over several different railways to their destination, tare cannot be dispensed with. Even with the check of gross, tare and nett weighing we sometimes find that a hardy grocer in the north defies Her Majesty's Customs certified weights and declines to pay for more tea than his own weighing machine shows him to have received.

Fine teas of course show greater waste in bulking than coarser teas, not because they are high-priced, but because of the finer grain, and your correspondent will I think find there is greater loss or dust than on any other tea.

What it is most desirable we should get at is how the tare is affected by the voyage home.

Our London Association asked the Planters' Association to help us in a test case, but so far nothing has been done. If any planter will take this up and pack a break, say partly in Japanese and partly in Ceylon chests, weighing in beam scales, which is the most reliable weighing machine of all, and arrange that his agents should personally see the weighing done on this side, he would confer a benefit upon all interested in the growth of Ceylon teas.

My experience is that the preventable loss is far less than your correspondents calculate, but is still a very serious loss of about three-quarters per cent which an even tare and a careful system of weighing can do much to minimize.—Faithfully yours, J. L. SHAND.

OUR LOCAL TEA COMMITTEE AND THE CEYLON ASSOCIATION IN LONDON.

It is much to be regretted that there should have arisen any risk of friction between these two bodies. Let us, before discussing the position, submit to the minds of our readers the broad facts as originally existing. A Mr. Lough (see notice of his enterprise elsewhere in today's issue) has been foremost in the endeavor to introduce the practice of drinking tea among the Parisians. Desiring to extend the business he has created in the French capital, he asked for recognition—not be it observed for pecuniary help—by the Ceylon Association in London. The Tea Committee of the latter body met to discuss Mr. Lough's proposals, and with a single exception—that of Mr. Hutchison of the Ceylon Tea Growers Company—(Mr. Lough seems to be connected with the "Tower Tea Company,") accepted them in a limited degree. Mr. Hutchison stated Mr. Lough to be the vendor of packet blended tea labelled in a most deceptive way, one most injurious to the reputation of Ceylon tea, and he embodied his objection to the support promised to Mr. Lough in a letter, not intended to be made public, to an agent of his own company in Ceylon. This letter was submitted to the Tea Committee of the Planters' Association, and the *ex-parte* statements made by Mr. Hutchison were acted upon in a manner likely to give considerable annoyance to the Tea Committee of the Ceylon Association. The resolution passed was highly condemnatory of the course followed by the sister Committee sitting in London. The members of this body were summoned to consider the communication received, and the purport of the letter addressed by their Secretary to the Planters' Association was given in our London Letter by last mail. We cannot but think that the London Committee did wisely in refusing to either consider or pass any formal resolution on the subject. No doubt they felt much annoyed at the rebuke passed upon their action, and this feeling would probably have found strong expression had any formal resolution been agreed upon. As it is, although we can hardly consider that the home Committee can be altogether acquitted of some rashness in dealing with Mr. Lough's application for recognition, the letter addressed by their Secretary in reply to the imputation, made clear, at all events, that there exist two sides to the question, and that they felt bound to sink some very natural feeling of annoyance at acts committed by Mr. Lough, in order that they might avail themselves of his services, these being, according to all accounts, of an exceptionally valuable character. The letter referred to urges on behalf of Mr. Lough that he could plead personal ignorance of the act of false labelling which had been going on under his name; that when it was brought to his notice at the meeting referred to, he took immediate steps to put a stop to the course complained of and withdrew the objectionable advertisement relating to it which had up to that time appeared in the *Grocer*. He therefore made the *amende honorable* in the fullest degree, in accordance with a promise made by him. Thus purged of further offence, the actual work done by Mr. Lough might be weighed in the balance, and it received full acknowledgement of its value by the Home Committee. Mr. Lough has undertaken at very great personal cost and trouble the labour of creating a taste for tea drinking among the French, and his efforts have had some considerable amount of useful result, in which he asked that Ceylon tea might share. It would, perhaps, have been hypercritical to have refused to grant to him the small support he asked should be given him by the Ceylon Association in London. It cannot be denied, we think, that our own local Committee wrote in too strong terms solely upon the authority of Mr. Hutchison's private letter, which had not been written to be seen by the Committee. We cannot be surprised that the rejoinder from London, in addition to its other arguments, expresses regret that such condemnation as was passed should have been determined upon without prior reference of Mr. Hutchison's letter to the London Committee. We trust that the incident may pass over without further friction between the two committees, for that which has arisen is much to be regretted and its repetition deprecated.

Correspondence.

To the Editor.

JAVA REVISITED.

Sana Estate, Ratnapura, Ceylon, July 27th.

DEAR "OBSERVER,"—"The Ceylon Planter on the Prowl" has (I verily believe) good reason to thank Heaven that he is not as other men are, when he sees the want of "go" in other nations.

On revisiting, I find planting Java stands just about where it did, when I was there in the year of our Lord 1883. "General Funk" seems to prevent them going in for any bold stroke of planting enterprise. While, in the 8 years gone by, the whole face of Ceylon has been changed for the better:—our brothers in Java as a class are still crying over the low rate for the cinchona unit, and are inclined to growl at the Brunswick quinine manufacturer and at the former rival, the Ceylon planter.

Buitenzorg Botanical Gardens are as pretty and instructive as ever; and Dr. Treub is making experiments with my indigenous tea seed I took down with me. It only took 10 days from *Ratnapura* to *Buitenzorg*, and when the cases were opened they were found quite fresh, contrasting favorably, it was said, with what had been imported from Assam a month or 6 weeks or so *en route*. Further, Dr. Treub has kindly promised to keep careful 'count and reckoning' of germination &c. and to send me full details, 3 or 4 months hence, when the experiments are completed, and these I will send you on receipt for publication in your *Tropical Agriculturist*, a periodical I found as much appreciated in Java as in Ceylon:—even perhaps more thumbed and carefully *studied* there, than here.

My boss-kangani *Tirrimally* whom I took with me will have great yarns to spin in the lines when he gets back to the estate, about the volcanic wonders of *Papadaya* which we also visited. Judging from the copious samples of sulphur he secured, his thoughts were in Ceylon, like the Dying Gladiator. God bless the Duke!

It must not be imagined that the Dutch planters are not aware of the superior merits of a high class indigenous seed as compared with the original China jât which they planted first; recent high prices, from a few Java estates growing 'indigenous,' have accentuated the belief. In fact, I saw some leaves from Mr. Van Hengst's estate that equalled anything we can show in Ceylon, but their trees are mostly young, and not seed-bearing as yet, for a large demand.

What impresses one is the seeming *slowness* with which they act, and the want of boldness in going in for a "brand new stock, lock and barrel" policy, when the old musket is found, and *proven*, unfit. Since the events of A. D. 1870 even a Frenchman recognises *some* merits in Herr Krupp's manufacture

Individually, they are as hospitable and good-natured as ever. I was at *Soekaboemi* the day of their Planters' Association meet, and was invited to be present, but I did not think fit to go: it would not have been etiquette to have talked 'quina and its compounds";—a red rag to a bull, or a spark (however insignificant in itself) in a powder magazine.

To sum up the whole matter:—They need more new blood. If *Sumatra* (north of the equator) were annexed by the Straits Government, the *Atcheen* row would soon be settled; while if *Java* (say 108° E. Long. Greenwich) were partitioned (as a heritage for Young Australia), there would still be enough playground left our Dutch cousins between *Batavia* and *Walkoop* Bay, for them to romp around in.—Yours truly, WM. G. SANDISON.

KAPU, KAPOK, AND PULUN.

Colombo, July 28th.

DEAR SIR,—Could you or any of your numerous readers inform me and the general public through the medium of your journal, the correct meanings of "kapu," "kapok," and "pulun."

So far as I am aware the term "kapu" is applied by the Sinhalese to weaving cotton, and "pulun" is usually applied to what is known as tree cotton or silk cotton. But the proper meaning of "pulun" is any soft fibrous substance. Hence the Sinhalese speak of "kapu pulun," weaving cotton; "imbul pulun," the tree or silk cotton, and "wara pulun," the cottony substance found inside the pods of the *Calatropis gigantea*. The word "kapok" is a commercial term of recent introduction to designate the tree or silk cotton, the "imbul pulun" of the Sinhalese. There is a certain amount of confusion in the use of these terms especially among colonists; and it will be useful to know their proper meanings.—Yours truly,

KATU IMBUL.

[In our issue of the 11th we had on these words, to which we would refer our correspondent.—ED. *T. A.*]

AN ENEMY OF TEA.

Uva, July 31st.

DEAR SIR,—By today's post I am sending you some sort of caterpillar that I found devouring my tea; every leaf on one bush was perforated and they had begun on several others. Are we to consider them an enemy of our tea?—Yours truly,

INQUIRER.

[Our entomological authority writes:—"Caterpillars of a moth of the genus Psyche, living in a case constructed from fragments of leaves, and lined with silky threads. They can certainly be considered an enemy to the tea tree, while they themselves are well protected from enemies They are very common and widely distributed."—ED. *T. A.*]

THE COFFEE SEED FROM BURMA.

Diggings, Aug. 1st.

DEAR SIR,—The coffee seed sent me by my son from Rangoon came up in the nursery all well but I am sorry to say now, the small plants have not "enjoyed immunity from leaf disease," and I intend writing to tell him so.—Yours very truly,

JOHN STEPHENS.

ENGRAVING ON METAL.—A Russian electrician of the name of Kolomtarow is reported in the St. Petersburg papers to have devised a process of photographing and engraving on metals by means of electricity, rendering the etching method unnecessary. He is about to start for abroad to dispose of his invention.—*Electrical Review.*

PLANTING AND LABOUR IN SOUTHERN INDIA form the subject of an article in the *Madras Times* given elsewhere. It will be seen that the planters across the water are as badly off for labour as their Ceylon brethren, whom the *Madras Times* recommends to copy in forming a united Association like the Planters' Association of Ceylon.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Aug. 1st.

CINCHONA.—The periodical auctions held on Tuesday were of very moderate extent. They consisted of:—

	Pkgs.		Pkgs.	
Ceylon cinchona ...	926	of which	899	were sold
East Indian cinchona	352	do	327	do
Java cinchona ...	60	do	60	do
South American cinchona	349	do	82	do
W. C. African cinchona	60	do	60	do
Total	1,738	do	1,428	do

Of the Eastern barks very little was bought in, and throughout the sales competition was well maintained, becoming more lively towards the end. The quality of the bark offered was poor. The market may be described as firm, but without quotable advance in value. The unit remains at 1½d per lb.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Brunswick factory	90,392
Agents for the American and Italian work	59,643
Agents for the Mannheim and Amsterdam works	51,769
Agents for the Frankfort o/M. and Stuttgart works	49,521
Messrs. Howards & Sons	44,884
Agents for the Auerbach factory	30,650
Mr. Thomas Whiffen	5,350
Sundry druggists	12,977
Total quantity sold	345,186
Bought in or withdrawn	40,005
Total quantity offered	385,191

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it, firms who buy a small quantity of bark by weight frequently take the richest lots and *vice versa.*

NUX VOMICA.—The market remains firm. Arrivals from Coconada and Colombo this week amount to 296 cases.

QUININE.—The market was dull during the early part of the week, and 5,000 oz. Auerbach quinine changed hands at 10¾d per oz. Since Wednesday the market shows some inclination towards a recovery, and some 6,000 oz. German bulk (B & S or Brunswick) from second-hand holders have been sold at 10½d per oz. Howard's brand was reduced in price—1d per oz.—by he manufacturers on Wednesday, vials being now noted at 1s 3½d to 1s 4d per oz, according to quantity.

THE TEA EXPORT FROM JAPAN IN 1890 is thus referred to in the report of the British consul at Yokohama:—

Tea.—The increase in the quantity of tea exported amounted to 3,568,061 lb. over that of 1889, and was about equal to that of 1888. In consequence of the mildness of the winter the tea season began earlier than usual, the market opening about the middle of April. The quality of the leaf was below the average, owing mainly to excessive moisture in the spring. The demand on the American Continent has run, as heretofore, chiefly in the direction of low-priced grades. The result, as regards choice leaf, here is that but little of it is prepared for export; the prices offered do not pay the cost of production. The excessive fluctuations in exhange had their effect in this as in other departments of commerce; but the year may be considered on the whole to have been a fairly good one for exporters, who had, for one thing in their favour, the low rates of freight ruling. It should be noted that efforts are being made to introduce Japan Congous into Russia, but it is questionable if the quality of the article will be sufficiently good to ensure success in this. *Destinations of the tea.*—The following analysis of the destination of the tea export may be of interest:—To Chicago, 8,450,554 lb; Canada, 8043 707 lb.; New York, 6,363,466 lb.; California, 3858,864lb.; Europe, 303,064 lb.; and the balance, for the most part probably to China. The routes by which the tea has been carried are:—By Pacific Mail and Occidental and Oriental steamers, 10,933,042 lb.; Suez steamers to New York, 2,807,471 lb.; Canada, 3,254 268 lb.; Europe, 333,064 lb.; Sail and rail via Tacoma, 5,412,762 lb.; to San Francisco, 35,532 lb.; via the Cape to Canada, 59,102 lb. There has been an increase in the shipments by sail to Tacoma and the North Pacific Railway, and by the Canadian Pacific line. Suez Canal steamers the shipments have been about the same as in 1889.

THE CALCUTTA BOTANIC GARDENS.—We have received Dr. King's annual report for the year 1890-91, and quote the resolution of the Government of Bengal, as follows:—

The Report for the year shows that steady progress has been made in improving the Botanic Garden, not only as a scientific centre of the highest value to all botanical students, but also a pleasurable and instructive resort to the public. More than 20,000 specimens were added to the Herbarium, illustrating the Flora of regions so widely removed as Central Asia, Australia, Assam, Perak, the Shan States, the Khasi Hills, the Andaman Islands, and the Great Coco Island. To the contributors of these specimens, Messrs. Mann, Lace, Gamble, Curtis, Ridley, S. Peal, and L. Wray, Generals Collett and Gatacre and Baron von Muller, the thanks of Government are due. Arrangements were also made for continuing the work of collection in Assam, Upper Burma, and the Andamans. A third volume was added to the interesting series of garden annals, containing monographs by Dr. King and Dr. Prain on certain Indian and Indo-Malayan species. Unfortunately, however, owing to unavoidable delays, it was found impossible to publish the volume within the year. Both the Superintendent and the Curator of the Herbarium also contributed valuable papers on botanical subjects to the Journal of the Asiatic Society. The Lloyd Botanic Garden in Darjeeling, which is under Dr. King's supervision, is reported to be in good order. Under recent arrangements the Curatorof this garden is charged with the task of improving the station of Darjeeling by planting and looking after young trees. In course of time it is hoped that the damage done in past years by the wanton destruction of fine trees may be in some measure repaired. The thanks of the Lieutenant-Governor are due to Dr. King, the Superintendent, and Dr. Prain, the Curator of the Herbarium, for the successful administration of the garden during the year.

THE CHEMISTRY OF THE OCEAN.—The study of the 685 densities of the water of the sea made during the expedition of the "Challenger," and the report of 108 series, of which each extended from the bottom of the ocean to the surface, the discussion of the results of the deep soundings obtained by the "Pola" in 1890, the various theories relative to the chalk formations by chemical action with the necessary intervention of living creatures, and, finally, the different observations of oceanic analysis with which M. J. Thoulet has been occupied for several years past, relative to the existence at the bottom of the ocean of two belts of water, one in repose, and the other in motion are all in accordance with the following hypothesis:—The surface of the ocean, submitted to climacteric changes, is in a state of heating and evaporation more or less intense. The variations which result in the real density and in the chemical composition of the waters joined to the mechanical action exercised by the wind, give in the place of horizontal marine currents those more or less vertical, which cross between these where they overlie each other, with extreme quickness and in different directions. These together constitute oceanic circulation, which is effected almost entirely in a very shallow belt, about 500 fathoms in depth. The substances, only slightly soluble, contained in the waters of the seas, and brought to the ocean by the fresh waters which are far more dissolvent, attain, at a certain depth, their limit of solubility and form precipitates. Becoming solid, they descend vertically, peneterate into the still belt, and at last reach the soil at the bottom. Surrounded by immovable water, they dissolve and increase the proportion of salt contained in the deepest stratum of the water, and that immediately in contact with the soil. They then spread, and with the extreme slowness, increase the saline quality of the adjacent waters, and at the same time extend to the stratum next to the soil which is not saturated, and consequently continues to dissolve the new material which arrives without cessation. The submarine soil is then a kind of centre of chemical activity, fed by fresh material from the surface, and radiating slowly towards the surface.—*Revue Scientifique.*

THE SOUTH INDIAN PLANTING INDUSTRY AND THE LABOUR SUPPLY.

It appears to us that a serious crisis in the Planting Industry of Southern India can only be avoided by prompt action on the part of the different Associations. It is well within the cognisance of our Planting readers that during the year 1890 all estates, in addition to the terrible injury and loss of crop occasioned by leaf disease and an abnormal atmospheric disturbance, suffered very considerably from want of a sufficient labour supply. The reason of this we have not far to seek. All the estates in the Wynaad, Coorg and Mysore Districts have for years past looked to the Mysore country as the chief source from which they could draw the necessary labour to cultivate their estates and harvest their crops. Competition has been very keen and the Canarese cooly has been pampered to his heart's content. On each estate heavy advances have been given to the same maistries and for the same coolies year by year, advances never really recovered, but only tabled at the end of each working season, to be again immediately advanced, with an addition, more or less, on a fresh contract. Also it is not at all unusual for a dishonest maistry to take advances during a single season from two or more estates, and divide his labour-supplying powers in proportion. Under such a system both maistries and coolies have grown rich and independent, land has been taken up in Mysore, fields cultivated and houses built with the Planter's money; year by year the advent of the coolies to the estates has been postponed and, whilst formerly coolies used to return regularly to the estates by the end of May or early in June, last season it was well on in September before they made their appearance. We are aware that during the present season labour is more abundant, but what happened last year may recur during any year, and the estates will suffer. We would impress on our Planting friends that if they wish to secure a steady and sufficient supply of labour, other districts must be tapped; there are thousands of coolies in the southern districts, and a proper organisation is all that is needed to reap the benefits of their services. Mysore is played out, and can never again supply all the labour required for the existing coffee cinchona, and what we hope is the growing tea industry.

We are quite aware that we shall be met here with arguments that it is not the slightest use endeavouring to draw labour from the Tamil country under the existing condition of the labour laws of the country, and with especial reference to the working of Act XIII. of 1859, and we quite agree, but what we would urge is agitation. The Government ought to be fully aware of the immense importance to the country of the Planting industry, and we cannot but think that if reasonable representations are made to them by an united body, such representations will receive full consideration. By an united body we do not mean the communications of any one Association. We recognise the work that has been hitherto done by the various Associations, and more especially by the Wynaad Planters' Association, which has never ceased to be active since its original formation in 1856, but we say the time has come for the unification of all the various Associations in Wynaad, Travancore, Coorg and Mysore, with one common object—the welfare of the whole Planting community. There need be no jealousy; apart from small local interests, there will always be the one great question in common, an efficient labour supply, and other questions, such as cattle trespass, &c., are of equal interest to all Recently there has been an approach to a unification of interests amongst the different Associations as witness the united petitions as regards the Cattle Trespass Act, and the more recent one, now in course of consideration, concerning the working or rather the inoperativeness of the Contract Act XIII. of 1859, but our planting friends will pardon us if we argue that this is not enough. They must march with the times and follow the example of the Commercial and Trades Unions at Home, and so work together as to exert the utmost possible pressure on the Government of the day.

It cannot be denied that representations from a Central Association, composed of delegates from the different bodies and empowered to present a united front on all questions of general interests, would have far more power than the casual and intermittent complaints from Wynaad Travancore, Coorg and Mysore. The case of Ceylon is analogous. In that colony there was originally only one Association, the Ceylon Planters' Association; as the estates increased, and new districts were opened up, other and local Associations were formed, but in a few years it was found necessary to combine, and all the various bodies found it to their interest to affiliate with the Parent Associatien and present a united front on all questions of general interest. They did more than this; they never rested until their status was so far recognised as to lead to the appointment of a Planting Member of Council. It is almost unnecessary to point out the advantages that the Ceylon planters have gained by united action, and there is no reason why the planters of Southern India should not obtain similar benefits, or such as are suited to the different requirements of these districts, if they will unite into one central body which shall be the mouth-piece of the whole community. There can be no doubt but that the excellently organised institutions of Ceylon helped very considerably in enabling the planters in that colony to recover from the prostration caused by the comparative failure of, the coffee plantations, and to build up so quickly the successful tea industry to an extent that is the admiration of neighbouring countries.

With a well-conceived and established Central Association, formed by the planters of Southern India, officered by picked and experienced men from the different districts, and kept posted up by the branc, Associations with every necessary detail of information, the gain to every planter would, in our opinion, be directly or indirectly enormous; for whilst, there are thousands of acres, that are available for planting, remaining undeveloped, owing to the dread uncertainty of a sufficient lat our supply; whilst the courts of law in almost every district require considerable expansion and improvement; whilst the construction of necessary roads and bridges is delayed; and whilst railways are as yet in the womb of the future no fresh capital will be attracted to the country and its development is retarded. As regards rail communication we understand that a survey of an extension of the Southern Mahratta line from Nanjangode in Mysore to Gudalore in S. E. Wynaad has been sanctioned, if it has not already been commenced, and a further extension thence through the Wynaad to the Western Coast can be only a question of time. Other extensions from the existing lines to Coorg and the Mysore coffee districts are also talked about. These and other projects would be hastened if the countries were more settled and developed, and, to make such settlements possible, planters must combine to urge on Government the improvement and the perfecting of the labour laws. Immigration from the congested, and, at times, famine-stricken districts of Southern India, would benefit the coolies, the planters and Government, and whilst the latter give every encouragement in their power to the imigration of these coolies to Ceylon, Mauritius and other places, they ought surely to be equally ready to enact such laws as would enable the planters of Southern India to keep such of the labour as they require, at home, and thus develop the country they possess and increase its prosperity and revenues. We hope to return to this subject on another occasion, and shall be glad if its ventilation in our columns should lead eventually to the furtherance of the important interests of the Planting community.—*Madras Times.*

NOTES ON PRODUCE AND FINANCE.

COFFEE COMPANIES AND TEA CULTIVATION.—From the reports issued by two coffee companies, the Onvah and the Spring Valley, it will be seen that the cultivation of tea is a prominent feature in the operation of these concerns, whose titles might be altered with advantage now that they are tea as well as coffee companies.

LAST WEEK'S TEA SALES.—The demand for Indian tea, says the *Produce Markets' Review*, continues to improve, and a good business has been transacted. Although the recent imports are not of better quality, with few exceptions, than the previous shipments, the decline in values has imparted more confidence to buyers, who now appear disposed to replenish their greatly reduced stock at the comparatively low prices ruling. Most of the supply brought forward consisted of tea under 10d per lb, which has been readily taken, but as the quantity offered has been sufficiently large to meet the enquiry, prices have remained steady throughout. A few breaks of fine tea from the Assam district, although not of exceptional quality, were keenly bid for and fetched high prices, which indicates that good tea is wanted, and will meet with a brisk demand where attainable.

AMERICA AND THE CHINA TRADE.—A New York paper, under the head "Mutations of the China Trade," notices the failure and retirement from business of the American firm of Russell and Co., of Hong Kong. This event marks, it is said, a distinct change in the trade between the United States and China. The trade has not been extinguished. It has merely changed hands, and has gone from Americans to Englishmen and Chinese. The once splendid sailing vessels which traded between New York and China have disappeared, and many old firms which used to trade directly with China have gone out with them. The business is still going on, however, although indirectly. The failure of Messrs. Russell and Co. resulted simply from persistence in doing business upon old methods. The writer says nothing about the high Protectionist system of the United States, which has tended to destroy direct trade with all countries producing merchandise which is wanted in American markets, and to compel American buyers to receive it indirectly, at additional cost, through the intermediation of merchants in other countries.

THE PINE-APPLE INDUSTRY.—There are less profitable industries than the cultivation of pine-apples. The pine-apple crop in Bahamas last year realised £49,795, as compared with £25,558 in 1889. Of canned pine-apples there were exported 26,789 cases, valued at £6,126, and in 1889 the export was 21,683 cases, with a value of £4,500. The Governor of the Bahamas says steady progress continues to be made in fibre cultivation, with increasing faith in its value and permanence. The importance of pineapple leaf fibre is fast developing. Professor Edison has directed his attention to the matter of decortication and he hopes he has found an effective method which avoids waste. The treatment is by a solution of crude petroleum, and the Government of the Bahamas are now in communication with the professor. If the results meet our requirements, a most important end will be attained, which will have the further advantage of enabling small cultivators to dress their own leaves instead of being compelled to sell them at a loss to a large neighbouring planter, who is able to procure a machine. The process being enterprised by Professor Edison embraces other and most valuable interests in the colony. Many thousands of tons of pineapple leaves are now annually left to waste. The fibre commands a high price, from £60 to £80 a ton, for use in fine textiles. The small quantity now produced comes from China, where it is roughly and expensively prepared for want of a machine sufficiently delicate to extract the tender fibre without injury. The proposed mode would seem to meet this difficulty, and all strain or friction is avaided, and the result of pending enquiries is looked for with great interest. The immediate effect of successful experiment would be to turn a wasted product into an article of much value, adding substantially to the returns of pineapple cultivation, and this process may be applied to the growing crop. It is understood that the same solution may be used many times, and, if present hopes are realised, the petroleum will be admitted free of duty now imposed.—*H. and C. Mail*, July 31st.

TEA DEALERS IN COUNCIL.

At the annual meeting of the members of the London Wholesale Tea Dealers' Association, held last week, under the presidency of Mr. Francis Peek, the subject of the recent Customs order about weighing tea to the half-pound was referred to in the report as follows:—"An order was issued by the Customs authorities giving notice that tea would be weighed to the half-pound instead of the pound, which had been the rule since tea was first imported to this country. This alteration was so manifestly unjust to buyers, and would have involved such an immense amount of clerical work, that your committee opposed the change by all the means in their power, by representations to the Customs authorities and the Chancellor of the Exchequer; and also by convening public meetings upon the subject. The Customs at length received instructions to rescind the order, and although these meetings involved much labour and expense the successful result fully justified the course adopted." Nothing, said the chairman, showed the absolute importance of the wholesale trade holding and working together for their common interests more than that particular fight which they had with the Chancellor of the Exchequer. The change would have involved an immense amount of trouble and annoyance to the wholesale trade, and would have resulted in very considerable loss to their customers if it had been carried out, and had it not been for the prompt action taken by the association there was no doubt it would have been carried. The report then went on:—'Complaints have been made of the improper condition in which packages of tea are left in some bonded warehouses after inspection, and representations have been made to the Committee of the Tea Clearing-House, which it is hoped will lead to the chests being more promptly fastened up in future. An improved method of ascertaining the average tare of teas by always selecting an odd number of packages has been adopted, which will lead to a more just tare being fixed, particularly in the case of China teas." He thought they would have to keep careful watch over that matter, as well as upon another matter very nearly akin to it. There was no doubt that a great many teas were imperfectly bulked, and some of the warehouse keepers under pressure to get the teas forward, if they had not got the whole parcel in their bonded warehouse, would bulk what they got and take the chance of the rest. It was a very serious matter which involved them as wholesale dealers in a very great deal of trouble with their customers, and it was often an actual injustice to them. The committee had considered that matter a good deal, but as yet had not come to any definite conclusion as to what action to take with respect to it; but it was a question which must be carefully watched, and they thought it would be a good plan if some houses connected with the association would send in to the secretary any complaint of the sort they might have, with the name of the bonded warehouses where it occurred. By that means the warehouse where the bulking was bad would soon be brought to book. The secretary would be able to register all complaints he received, and then they would be able to say to the sinning warehouse, "Look at your record! there are forty cases of bad bulking against you as against an average of three or four in other warehouses." In that way he thought they would be able to put a stop to the practice.—*H. and C. Mail*, July 31st.

THE CEYLON TEA FUND.

THE GIFTS TO THE EMPEROR AND DOWAGER EMPRESS OF GERMANY.

Secretary's Office, No. 42, King Street, Kandy,
August 22nd, 1891.

The Editor, *Ceylon Observer*,

SIR,—I am requested by the Standing Committee of the "Tea Fund" to transmit to you for publication letter from the Secretary of State for Foreign Affairs, Berlin on the subject of the presents of Ceylon Tea sent to His Majesty the Emperor, and Her Majesty the Dowager Empress Frederick, together with the authorized translation thereof.—I am sir, yours faithfully,

A. PHILIP,

Secretary to the Planters' Association of Ceylon.

(*Translation.*)

Foreign Office, Berlin, 25th June 1891.

I have the honour to inform the Planters' Association that I have transmitted to His Majesty the Emperor and to Her Majesty the Empress Frederick the four chests of tea which have been sent here through the Imperial German Consul at Colombo.

His Majesty the Emperor and Her Majesty the Empress Frederick have been graciously pleased to accept these presents and to direct me to transmit to the Planters' Association their Majestys' sinceres thanks for this courteous attention.

It gives me much pleasure to bring this to the notice of the Planters' Association.

(Signed) MARSCHALL,
Secretary of State for Foreign Affairs.

The Planters' Association of Ceylon, Colombo.

BANANAS.

are thus noticed, in a report on the Trinidad Experimental Farm:—

Collectively there are 21 acres under "Gros Michel" banana. This has proved a capital nursery, furnishing during the past two years upwards of 100,000 plants for distribution, and as many more are ready for the same purpose. The bananas were planted 8′′ × 10′′, but this is too close for good fruit-bearing—12 feet square apart should be the distance; all suckers should be kept cut down to the bearing plant, and one only allowed to grow when the parent stem is showing sign of fruit. This will ensure a marketable ratoon bunch. Shipping bananas from here has not proved successful. Nearly 1,300 bunches were shipped to New York, and though a few bunches realized top prices, sufficient was not obtained for the whole to cover expenses; 12 bunches, packed in crates, were shipped to Covent Garden, London, also unsuccessfully, chiefly from want of knowledge in packing. From instructions since received in this matter, hopes are held out that bananas might reach London sound. Full particulars of this experiment were published in the *Record* for February, 1891. Attention has recently been turned to drying this fruit, at first in the open air; but owing to the damage by myriads of insects attracted by the sweet fruit, the dust, etc., a failure was anticipated. This has however been remedied by the Hot Air Fruit Drier, properly known as the "Ætna Pneumatic Fruit Drier," and I am happy to report in favour of the good work done by the machine. This is proved by the dried fruit being accepted in London, New York and Canada at remunerative prices. Orders are on hand for these places for more than two tons. Samples have been sent to Germany, Russia and France and other countries. In advocating drying bananas I by no means suggest that the export of the raw article should be given up—only that the drying affords a means of disposal to those whose means of inland transport prevents their profitably offering the fruit for shipment. The fruit can be dried within 24 hours at a temperature from 130° to 160°; higher than this the fruit hardens. The drying is done here in the daytime and the fire put out at night; any kind of fuel answers for firing, from patent fuel to cocoa wood chips. The fruit should be as large as possible and quite ripe, the skin to be removed and the fruit then lightly scraped. Whilst in the drier the fruit to be turned twice or three times carefully to ensure an even drying. The fruit may be seen undergoing the process any day, and a visit will furnish all information desired. I certainly am of opinion that a dried fruit trade would prove a profitable one, and it should receive the attention it deserves. No great amount of capital is required or even skill, and some of our smart young planters ought to take it up. An article in the *Record* for April, 1891, fully demonstrates the above. *Red Bananas.*—A field of this variety, about 5 acres, has been planted with a view principally of obtaining fibre from the stems. The red banana yields the finest fibre of our bananas, and would prove of value in connection with the manufacture of other fibres. In 1886 a sample of the fibre was submitted to His Excellency the Governor who obtained a report from Messrs. Ide & Christie on its value. The sample was considered to be worth £25 per ton. From the many advantages offered by this plant, doubtless, in the event of a fibre industry arising, it will receive the attention it deserves. A stem weighing 100 lb. will yield between one and two pounds of clean fibre. 700 plants to the acre would give an annual yield of more than half a ton of fibre = £12 10, less cost of production, freight, &c., and this ought to leave half profits to the producer. The fruit of the red bananas was used for cattle food. Cooked with a little salt they have proved to be an excellent feed, and being rich in starch and albumen they improve the food value of milk. The stock are exceedingly fond of it, and a herd fed with it, mixed with a proportion of cake, would afford manure of great value. Whilst on the subject of bananas I must mention the "Moko." Last mail a sample of 7 lb. of meal prepared from the Moko plantain was forwarded to London for which the correspondent offered sixpence per pound. Receipts were also supplied for preparation in cooking. Great attention has been drawn to banana meal by the observations made by Mr. H. M. Stanley in his book "Darkest Africa" and which as an advertisement should not be lost sight of. No banana gives such excellent meal as the "Moko," or so agreeable in flavour and taste. The preparation of the meal is as follows:—The green Moko was skinned, sliced thin and dried in the fruit drier; then ground fine in ordinary corn mill and afterwards sifted through a muslin sieve: this latter removes any fibre and leaves a delicate fine meal. The slices dry in two hours. A 15 lb. bunch will yield 3 lb. of prepared meal which at sixpence per pound 1/6 per bunch. Two women could prepare 56 lb. of meal per day. The cost of production, packing, &c., has to be considered, but the price obtained must be considered a satisfactory one; at least it is better than now obtained, which may be said to be nil.

NOTES BY "WANDERER."

Aug. 24th.

Colombo has seen more of the GARDEN PLANTER for the last fortnight than his factory has, which may in some measure account for the better class teas the factories are now turning out! However the true reason of the improvement is that there is plenty of withering room, and no hurry in the rolling and drying. Is it the case that the fine districts of Bogawantalawa, the Agras and Kandapolla are beginning to lose the flavoury character of their teas. Some planters are of opinion that the teas first taken off a new estate say for six months are distinguished for flavour, but that when the fields get older, the flavour goes off and strength of liquor takes its place. This is exactly what has taken place with tobacco wrapper leaf, Java at one time had a good time of it, Sumatra followed suit, and now the cigar manufacturer is at his wits' end for pastures new in the Straits and Borneo.

CACAO.—You don't seem to be sufficiently alarmed at the important information you chronicle in the *Observer* and now in the *Tropical Agriculturist* of August, page 93. You say that in ten months the exports of Java cacao have run to 10,000 cwts. This an increase of 8,600 cwts over the previous [illegible] Are you sure you are right, and if so what has become of this extra cacao? The cacao blossoms in Ceylon have set most irregularly. Even on neighbouring estates you see one with a plentiful supply, and the other with a beggarly show. Why is this thus? On the whole excessive moisture is blamed for the probability of a rather poor autumn crop.

COFFEE.—When you ask a friend who has any of this commodity on his estate how it is getting on, he generally asks you if you think tea is going down to 8d. Why he does so, I cannot say, unless he wishes to insinuate that Tea at that limit is about as good as the Best Ceylon Coffee selling at five guineas per cwt.

I hear that SUTTON in the Agras has been sold for something over £9,000—not so dusty a figure!

FOOT-AND-MOUTH DISEASE is prevalent in some districts. With careful disinfecting and segregation, this pest can be much minimised.

LABOUR is plentiful at present, because there is no flushing to speak of. Wait till October and then we will hear a howl. No time should be lost in sending some Government official and a planter of good standing to visit some of the districts suffering from food scarcity in districts probably adjoining the districts we at present get our labour from. Such a commission would cost little, and give us some data to work on.

THE MANUFACTURING INDUSTRIES OF MALABAR.

Malabar is one of the principal Districts where European enterprise is employed in the development of the country. The manufacturing industries there from year to year are increasing with the aid of European capital. During the past official year the Malabar Spinning and Weaving Company continued its operations, employing only 301 hands against 378 in the previous year. The out-turn was 1,183,741 lb. of yarn valued at R4,43,903 against an out-turn of 1,185,900 lb. at R4,87,790 in the preceding year. This is the only Factory which comes under the Factory Act, and is subject to the inspection of Government officers. The Basel Mission has weaving establishments at Cannanore, Calicut, Tellicherry and Churubala, which manufactured cotton fabrics to the valve of R1,40,737. Messrs Volkart Brothers, of Cochin, and Messrs. Henke & Co., of Calicut manufactured coir-matting to the value of R37,320. This industry is also carried out by Messrs. Pierce Leslie & Co., of Calicut. Coffee curing is carried on by seven European firms in Tellicherry and Calicut. The Basel Mission has a tile factory at Calicut with a branch at Kodacal, near Tirur, at which ten lakhs of tiles were made, of the aggregate value R40,000. Two hundred labourers are employed on these works daily. A Parsee firm, Messrs. Maneckji & Co., has a tile factory at the Ferok. Messrs. Henke & Co., are engaged in the manufacture of cigars at Calicut, and turned out cigars to the value of R3,000. Coir and cinchona baling, the preparation of bone manure and bleaching of ginger are also carried on to some extent. Calicut has three soda water manufactories at which 6,220 dozen bottles of water were made valued at R3,252 during the year, against 5,420 dozens in 1888-89.—*M. Mail*, Aug. 14th.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, Aug. 8th.

QUININE.—There is no alteration in the market. Several transactions of secondary importance—said to be mainly for consumption—are reported at 10½d per oz for Fabbrica Lombarda; and 10⅝d to 10½d per oz for B & S and Brunswick quinine in bulk. Messrs. Hartford, Schoellkopf, and McLagan, of New York, observe, with regard to the position of quinine in the United States:—"Everybody is willing to admit that the foreign statistical position of bark and the unit price paid for same does not warrant such low prices, 20c being the present New York quotation, but there is no large demand for quinine at present, and hence the decline, in the face of apparently favourable conditions. We take the following figures from the U. S. Government statistics just to hand:—

	Lbs.
Quinine barks imported for 11 months ended May 31st, 1891 ...	2,584,381
1890 ...	2,249,242
Increase	335,139

If we take 3 per cent as a fair average for the quinine contained in the bark, we get, say, 1,500,000 oz of sulphate quinine, but a considerable portion of this bark is used for druggists' purposes, so that we would consider 1,250,000 oz to be about the quantity produced in this country. Next we have

	Oz.
Quinine and its salts imported for 11 months ending May 31st, 1891 ...	3,202,960
" 1890 ...	2,826,138
Increase	376,822

It will be seen that importations of both bark and quinine are increasing. As cinchonidia and other salts of quinine play minor part now, we conclude that the great bulk of the importations were sulphate of quinine. It will, therefore, be noticed that the imports and production give at least 4,250,000 oz for eleven months, or, say 4,750 oz yearly, for consumption in this country. That there is considerable over-production of quinine we have no doubt, and perhaps this is the true reason why the market has taken a downward course."

ECHOES OF SCIENCE.

The mushroom has become a simile for vigorous growth, and a recent instance of its capacity for thriving in untoward circumstances comes to us from Stockton, California, where several fine specimens were found growing on the concrete floor of a stable. The floor had been laid for a year, and consisted of cement with a top coating of gravel and asphalte. The mushrooms germinated in the body of the concrete, breaking through the cement to reach the air. One grew to a height of one-and-a-half inches, and the diameter of its stem was three fourths of an inch, while its substance was beautifully white and firm. The conjecture is that some mushroom spawn had become mixed up with the concrete when the floor was laid. They were rooted about 1½in. below the surface, and one of them had cast a fragment of the superincumbent cement about a foot away.

The power of sunlight in promoting the fragrance of flowers has been investigated by Her Regell, who finds that when a plant is kept in the dark the flowers are scentless. If the flower-buds alone were kept in the dark, the flowers proved to be fragrant. Even flowers which bloom at night lost their scent when the plant was deprived of light. On restoring the light, however, the flowers recovered their scent. Respiration has also an influence on their fragrance. For example a plant of nycterinia enclosed, in a bell-jar, with oxygen gas, behaved as it would have done in air, whereas one enclosed with hydrogen did not open its flower-buds, and these had no scent.

M. Bouchon Brandèly has introduced a simple device for facilitating the growth of oysters in the French beds. It consists of a series of shallow trays of wire netting, about two feet, square and four inches deep. These are ranged in tiers on iron frames, which are either planted on the bottom or suspended from rafts to a suitable depth. The oysters, being placed in these trays, are easily collected, and are protected from unsuitable soils, or such enemies as borers and "five-fingers," while being exposed on all sides to the free circulation of the water. The apparatus might be useful in the Thames beds where a curious disease accompanied by rotting of the shell has made its appearance.

A new antiseptic called microcidine has been brought to the notice of the French Academy of Medicine by Professor Berlioz of Grenoble. It is a compound of napthol and soda, neither poisonous nor irritating, and is twenty times as active as boric acid, while being more soluble than carbolic acid, thymol, and others. Microcidine is a greyish powder, and a solution of three grammes in a litre of water does not stain the hands or bandages. It is particularly well adapted for family use.

M. Deherain, a French chemist, has devised an interesting way of showing that starch is the first stable product of the activity of light and chlorophyll in leaves. It is based on the fact that starch forms a blue colour when in contact with iodine. A growing leaf is covered above and below with black paper, which is quite opaque, by means of gum arabic, the upper foil, having been cut into a stencil plate with letters or figures. This should be done in the early morning, when the leaf is free of starch, that made the day before having

migrated in the night to the internal parts of the plant. After a few hours of exposure to the light the leaf is plucked, the foils removed with warm water, the chlorophyll dissolved out by boiling alcohol, and the bleached leaf steeped in tincture of iodine. The iodine uniting with the starch develops the letters or figures which have been stencilled by the daylight.

VICTORIA COUNTY, NATAL, TEA ESTATES.

"Spectemur Agendo" writes:—Having time to take a stroll round the country, I availed myself of the oft-repeated kind invitations of Mr. W. Hindson to pay a visit to his tea plantations at Nonoti Peak and Clifton, which adjoin, and are within easy ride from Stanger. After passing the Kearnsey estate one soon arrives at the Nonoti Peak estate, so called from being situated on the Nonoti River, under the shadow of a hill, the highest in this division, and for this reason selected by the trigonometrical survey party as suitable for fixing a beacon thereon. One cannot help feeling the difference in atmosphere as one leaves the depressing air of Stanger—a most ill-chosen spot for a township—and approachs the salubrious climate of Nonoti Peak, a well-selected spot, facing the sea, and deriving the full benefit of the sea breeze. Our old friend Tom Peachey, the former owner, knew what he was about when he pitched upon this spot to settle down upon. All the surroundings bear evidence of the business-like and methodical manner in which the management of this estate is conducted; and if tea planting does not succeed under it, the cause of failure must be looked for elsewhere. Judging from what I saw on this estate and others in the district, I can see no reason why it should not turn out a success. Doubtless, the pioneers in this, as in all other industries, will meet with checks and drawbacks, and will find that methods which suit in other climes may not exactly suit in Natal; but so far things look very promising.—*Natal Mercury*.

THE TEA TRADE OF MACAO is thus reported on by Mr. Consul Joly. It is curious to hear of Chinese tea makers studying the taste of their own countrymen for "highly flavoured" tea:—

Though the quality of the teas during the past season was good—in fact, it is said that they were even better than they have been for some time—there has been again a marked decline in what was once an important staple of export. But what else can be expected when other countries can export a good clean tea at a low cost and no duties? It is, however, gratifying to hear that though small, comparatively, has been the export, the teas of this district have fetched fairly remunerative prices. The total number of chests exported last year seems to have been 157,505, as against 178,220 chests of the previous season. The reduction is striking; in fact, the Chinese themselves find tea business with foreigners so much on the decrease that it suits their interests to make the tea of this district into Pao-shang, a highly-flavoured tea, which is in great demand wherever Chinese settle, in lieu of Congou for foreign countries. Macao teas have, therefore taken their share in the general disaster; but be the causes of the deterioration of the tea trade whatever they may be, it is evident that the reduction of duty at home has not given any impetus to the tea trade in Macao, exposed as that trade is still to careless production, faulty preparation, and last but not least, to the levy of exorbitant duties and *lekin* charges.

CEYLON CACAO.

Ceylon Cacao has taken the place proper to all the products in general of our planters in the London market. It realizes the highest prices there and has distanced most of its rivals. When the first shipments of Ceylon cacao went into Mincing Lane, and met with the favourable reception which our readers will remember, a West Indian Cacao planter happened to be visiting the Island, and we had the pleasure of meeting him at a bungalow upcountry. The conversation turning upon the subject of cacao, and the prices the Ceylon article was then obtaining, the stranger inquired, with a somewhat sardonic tone, how long we supposed that sort of thing would last. Failing entirely to understand what he meant, we had to ask what sort of thing he referred to. He, evidently supposing our question to be evasive, said: "Well! to speak plainly, I want to know how long you can afford to ship picked samples and what you mean to do with the bulk of your cacao?" In vain we endeavoured to satisfy him that the shipments were fair, and comprised all the merchantable cacao produced on the estate. He firmly believed and plainly said we could not continue to obtain such prices, and that Ceylon cacao, when fairly exported, would certainly come down to the prices he and others in the West were realizing. We have reasod to believe that he retained his scepticism to the eno of his short visit. But, happily, Ceylon caca retains the character and realizees the high prices in which he could not believe.

The secret of the success of the Ceylon product cannot, we think, be attributed to any specal virtue in the soils or climates of the estastes, but to the care which our abundance of cheap labour enables the planters to observe in the gathering and curing of the beans. The superiority of Ceylon coffee likewise consists in the beautiful hue of the bean, when cured with the skill and care bestowed upon it in the processes of harvesting and curing. Colour, as an indication of the preservaton of the best inherent qualities of the Coffee, was always a special criterion of its market value, and justly so, as that characteristic can only be retained by the most careful and skilful treatment in preparation. In like manner, the bright brick-red colour of the cacao bean, we presume must have been found in practice to indicate certain inherent qualities that have been carefully retained in the process of curing. It will be remembered, by some at least of our Ceylon cacao planters, that they were taught by instructions from their elders in the West to impart that test colour artificially. The practice there, we were told, is to give the colour by means of a kind of clay, but that sort of expedient was not approved by planters here, and fortunately it has not been found necessary. According to the letter we published yesterday, from a cacao planter who writes from London, the colour of the beans is still held as a criterion of the quantity of the article, and largely influences its value. This being so, it is probable that the brightness of the colour outside of the skin may indicate a richness of the chocolate colour and quality of the beans within.

The cultivation of cacao has not progressed so rapidly here as might have been expected of a new product, undertaken as it was, at a time when planters were urgently in need of a substitute for the old staple, that had just shown unmistakeably that its decline was beyond redemption. Cacao had, almost at its outset, to contend against Helopeltis, which had a gained a destructive force before the cause of damage had been discovered. Thrips also attacked the enterprize, and it therefore made its debut in the face of very inimical forces. Nevertheless, the cultivation is reviving, and will continue to extend wherever suitable soil and climate favour its growth. We fully expect that it will accompany the new enterprize in Tobacco, which requires soil of a character similar to that in which cacao thrives best. Tobacco will not succeed on the same ground, year after year, without some rest, or rotation, and it will therefore need to have adjuncts such as cotton and cacao, which require similar conditions, and are less exacting in the matter of soil.—Local "Independent."

TOBACCO CULTIVATION IN BATTICALOA.

Sir,—Tobacco cultivation was introduced into this district, in the time of the Dutch Government, by some people from Jaffna belonging to the "Tannakara" class. At that time small gardens only were cultivated, but later on, in the time of the English more gardens were opened. During the administration of this district, by the late Messrs. Bone and Atherton, large numbers of tobacco cultivators came from Jaffna, belonging to the class referred to, and settled in the North and South of Batticaloa, and carried on tobacco cultivation; but it was until the time of the late Mr. Birch that tobacco was more extensively cultivated here. Crown lands were surveyed and sold in small lots, thus bringing within the reach of every one the possession of a few acres of land. These lots were bought up, and the higher portions of it were planted with tobacco and the lower portions converted into paddy fields. Ever since that period up to the present it has been cultivated very largely, and those people, who are deprived of chenas, betake themselves to this industry, as it is paying well; better than paddy cultivation in these hard times. We hope that the day is not far distant when tobacco and other products such as betel leaves, pepper, arecanuts &c. will supersede paddy.

Jaffna tobacco is preferred to what Batticaloa produces, on account of its flavour, which is deficient in the latter. The growers of the weed say, that the different kinds of manure used in the gardens make all the difference. For in Jaffna goat and sheep manure is used, as a rule; but, here the plantation is manured by black cattle and buffaloes owing to the want of an abundance of goat and sheep for the purpose, which are rather scanty in the district. At present, the best tobacco is grown at Cheukel-addy and Maraodey, in the north; and at Chenget-padde and Torendlamedo, in the south Batticaloa. If small patches of Crown land, not suitable for other products, are given to the inhabitants on easier terms, than what is now the case, much more land will be converted into tobacco gardens which will ultimately give the means of living and lodging to many a poor man. This will, in fact, form a new colony of settlers.

For instance, here in Batticaloa, a poor man not a "Pody," with his small savings buys ¼ of an acre of land, at the Government sale, cuts, clears and improves it by planting a few coconut plants, and after some years of toil and labor, this, once a jungle, now serves as the house and hearth of himself and his family. It will be so, if the Government will hold out sufficient encouragement to tobacco growers.

In connection with this subject, I should mention that a scion of the family of tobacco cultivators, who first settled in Batticaloa, in the time of the Dutch, died to-day in his ninety-first year, leaving behind a large number of relatives. He was known as "Counter Benjamin Motto." He was employed in the Kachcheri, as treasury watcher, for many years, and retired lately on a well-earned pension.

J. W. DE NIESE.

—Local "Independent"

A VICTORIAN ORANGERY.

BY BRUNI.

Over thirty years ago there journeyed out into the wild forest that then covered a wide expanse to the westward of the town of Wangaratta a man hailing from the Parramatta district of New South Wales, who was looking for a piece of land on which he might form a home. It was a singular journey to take, for the appearance of the country was anything but inviting, the soil being cold and poor, and the surface was covered with forest of indifferent timber, below which was a heavy undergrowth. At that time there were large areas of fertile land open for selection in almost every part of the north-east district. This man, by name James Brien, halted not till he reached a small watercourse close to where the northern end of the Warby Range sinks into the plain. At the present day the spot where Mr. Brien fixed his camp, and where his house now stands, has little to attract either the grazier or the agriculturist, but when he made his selection he had some trouble in clearing away the saplings so that he might use the cover of his waggon as a tent. Coming from a land where orange-growing was extensively practised, and where he has many relations still engaged in the industry, he naturally cast about for a spot that was suitable for an orangery, and he found it. Close to his first camp he discovered a little plot of land (not more than eight acres) lying in a dell at the foot of the range which, in his opinion, was admirably suited for an orangery. As soon as he got the land prepared he commenced planting oranges, and at the present day that little nook at the foot of those ranges of evil repute is worth more money and will give a much better return than many a half-section farm of fertile soil in what are regarded as more favoured localities.

The road out from Wangaratta to Mr. J. Brien's orangery is none of the best in summer, and in winter it must be anything but a pleasant drive. For some distance out from the town the soil is excellent either for pasture or agriculture, a chocolate soil of great depth, and capable of being worked at almost any time of the year. I have often thought the soil would prove well adapted for growing lucerne but not a plot of this fodder plant could I see. On making inquiry I was shown a field that was sown with lucerne about ten or a dozen years ago, and my informant said that it grew remarkably well. It was gradually got out of the land by growing a succession of grain crops. After journeying about two miles the surface began to show a very slight rise towards the hills, and with this rise in the surface there came a falling-off in the quality of the soil. The nearer we got to the foot of the range the more pronounced became the rise, and the more indifferent the soil. At last, when near the hills, we met with patches of almost pure sand, and that sure indication of a cold, poor soil—the grass tree was plentiful. It was what bushmen call sour, hungry country, that is generally regarded as useless for either the husbandman or the agriculturist. About Mr. Brien's steading there was a slight improvement in the character of the soil.

There was nothing about the homestead to distinguish it from many hundreds of other old Victorian farm-houses—a rambling collection of buildings, many of which appeared to be suffering from the decrepitude of old age. The house "did keep itself;" so, after admiring the handsome pea-fowl and flocks of Guinea fowl, we made our way to the orangery. For sometime we saw nothing but the melancholy aspect of a poor-soil farm, with the dreary forest on three sides and steep range on the other. Where a small watercourse runs down from the hills there is a little valley, almost hemmed in by the foot of the range, and looking towards this recess I saw the dark-green foliage of the orange trees, that appeared almost black in comparison with the dull green of the surrounding gum trees. As we drew nearer I could see the more advanced fruit just beginning to take a tinge of yellow. The main crop is, however, still of a deep green colour, and will not be ready for picking till about July.

This orangery contains about eight hundred trees, of which three hundred are of large size and bear immense crops. I have often heard instances of the wonderful fecundity of the orange tree, but even after going through the ground and taking a good look at the finest trees, I was greatly surprised to learn what immense crops of fruit they yield. On asking Mr. Brien what would be a good crop from one of his old trees, he told me that it would be between six and seven hundred dozen oranges. The fruit is of excellent quality, and finds ready purchasers in the district and in the metropolis. For many years the market price was 1s. per dozen, but now it is about 9d. per dozen, a price at which the grower makes a very handsome profit. A great many varieties of the fruit are grown, and, as a rule, they give excellent yields. The navel orange is, however, an

exception, and the blood orange is not a favourite with Mr. Brien. They produce very fine fruit, but they are not heavy croppers in this district. One of the greatest peculiarities in this orangery is a tree that yields fruit which has the appearance of having had the quarters split open when small, and over the whole there is the ordinary rind. This tree always produces some fruit thus curiously misshapen, but this year there are an unusual number of distorted oranges. The tree is large, handsome, and healthy, and the normal fruit is plentiful and of good size and flavour.

Experts who have more or less experience of the Californian orangeries say that irrigation is necessary for the successful culivation of the orange, but in Mr. Brein's orangery one may see large and handsome trees growing heavy crops of excellent fruit, and yet, they never receive any water but the rainfall. Mr. Brien has a great objection to irrigating his trees, being of opinion that the result would be a loss. By irrigation he says the trees would make a luxuriant growth, and the fruit would be coarse and flavourless. So far from irrigation being required, he points out that his best trees are in the driest spots. The difference is very marked in the young trees. Along the small water-course, which has cut a channel fully 10ft. deep, there is a small bank from which the surface falls away from the creek, and near this bank the orange trees have made excellent progress, while those situated in the lower ground are scarcely half the size. The soil does not give the idea that it would hold wet sufficiently to be harmful, being a free, deep loam, but in a few of the lowest spots the trees are evidently decaying. This Mr. Brien attributes entirely to the influence of damp. The orange is, apparently, a capricious tree, and in spot where one fades away it is almost useless to attempt to grow another. Mr. Brien is an enthusiastic cultivator of the orange, and every year he takes a trip through the orange groves of Parramatta to keep himself posted up in all that relates to the advancement of the industry.

Outside the orange grove the soil alters rapidly, but it is evidently well adapted for growing fruit trees. There is a good-seized belt of orchard on two sides of the orangery, and already the trees, though young, are producing large quantities of excellent fruit. The peaches grown in this orchard command high prices, and the sample I saw of the apples was highly creditable. The orchard and orangery are admirabiy cultivated, and not a weed is to be seen anywhere. The fruit trees are well cared for, but the orange trees are, as they deserve to be, first in Mr. Brien's thoughts. To him they are more than trees, and he speaks of them as living, sentient beings, having affections and antipathies, while the fruit trees, though worthy of being carefully tended, are merely trees. Mr. Brien has a good-sized holding; he keeps a flock of about 1,400 sheep, and does some farming, but the whole interest of the place is centred in a little plot of land scarcely as large as many a Toorak property, which is probably more valuable than the rest of the farm twice told. It was a strange chance that led the wanderer's steps through forest and scrub to this priceless gem of land, and that he should have the skill and enterprise to develop its utmost capabilities.—*Australasian.*

THE COILE COLLE—A FERN USED AS FOOD BY THE CEYLON VILLAGER.

By the margins of many water gullies, tanks and canals in Ceylon, grows a sort of graceful tall fern, the extreme tops of which are of an amereld green tint, while lower down they become coarse, rank and of a bluish green or in some cases olive hue The whole stalk looks very like a large stalk of celery, and the foliage is of the same curly or wrinkled nature. It does not grow only on wet or marshy soil: but it is necessary to its well doing and growth, that its roots should literally stand in water. It grows very vigourously under these conditions in large tufts, like "Tussock" grass, and the thickest of the stalks are of the same size as a Malacca cane. It grows equally well in running or standing water, and is called by the Natives of the Northern part of the Eastern province, "*The Coile Colle.*" The taste is rather plain and insipid, but in admixture with condiments of various kinds it makes a very passable curry. I once tried it plain boiled with pepper and salt as vegetable to accompany meat; but did not much care to repeat the experiment! Made into what Tamils call "chundel" (a dry curry) it is not at all bad, and is said to be good in fevers and sometimes in stomach complaints. It is brought to market in prettily tied bundles—just as celery is tried up for the markets in England—and is eagerly bought up by the frequenters of the bazaars in town where it is a rarity, and even a luxury. It cannot be had nearer than 12 or 15 miles from town, where it grows in great profusion on the banks of the old Dutch canal at a village called Vandaramulle. I believe it is well known in all Sinhalese districts near the sea, such as Negombo and towards Puttalam, whereas at Batticaloa it grows on the borders of the canal, and the estuaries or marshes near the canal between Negombo and Puttalam. There are one or two Sinhalese men who have established themselves as traders or boutique-keepers in the villages of the Northern part of the Eastern Province, and when either business or inclination leads them into town they rarely fail to bring in a large supply of coile colle. The gathering of it is now and then attended with danger, as on one occasion a poor old Sinhalese man was caught and dragged into the sluggish waters of the canal by a crocodile, and nothing more was ever seen or heard of him.

Coile colle is said to be plentiful at Bentota, Kalutara, Tangalla and Matara, as well as at Ratnapura; but in all my wanderings over the Island, I have seen it exposed for sale only at Batticaloa.

REGINALD ARMOUR.

—Local "Examiner."

CINNAMON SALES.

Fuller information, to hand by the last Mail, of the Quarterly Sales of Cinnamon in May, does not materially affect the conclusions we had drawn from the Telegraphic Summary which came to hand on the 26th ultimo. Little more than one-third of the moderate quantity of spice offered—1,328 bales against 1,582 in February, and 1,351 in May 1890—found buyers. The attendance of bidders was small, competition was slack, and prices generally ruled in favour of the buyers. The commoner qualities sold at a slight advance, but the demand even for those was indifferent, and all parcels offered were not taken up. The extent to which the finer qualities were neglected, cannot be realised without a careful study of the Sale Lists. Not only had lower prices to be accepted for them, but, as we surmised had been the case when we wrote on the subject last month, the demand even at these reduced prices was not sufficient to clear the offerings. Thus, of 101 Bales of F. S. W. S., only three Bales found buyers at a fall of ½d. to ¼d. Of 78 bales F. S. K. not one found a buyer. So with J. D. S. R. of which there were 40 bales offered. Of 96 Bales S. D. A. R. Cinnamon, only 10 Bales of the coarsest were sold. Of 23 bales F. B. Franklands, only 8 bales were sold. No less than 305 Bales of G. De C. were offered, but only 31 of the coarsest sorts sold. These are some of the more prominent brands, whose shipments were neglected. It was the same with other well-known marks whose make is of medium qualities. Only a fraction found buyers, resulting, as we said, in little more than one-third of the total quantity of all grades offered at the sale passing the hammer. The only mark for which there was anything like competition, and which sold at or about previous prices, was the leading brand

A. S. G. P. The Cinnamon from the Goluapokuna Estate has long topped the market; and the explanation of the demand for it having continued, while the trade generally was averse from the first qualities of Spice, is that it has been a favourite in Spain, and that a large buyer always laid in a heavy stock for the Spanish Market. Taking advantage of the fall in prices, another, generally small buyer, wished to possess himself of a large quantity of the finely prepared spice. The old buyer —fearing that the effect of such a purchase would be that he would be undersold, and that his constituents would have their favourite spice at less than the price which they had always been ready to pay—thus resulting in a loss to himself on the large stocks we had already secured at advanced prices —entered keenly into the competition. Hence the realisation of old prices. Whatever the cause, the result is satisfactory to the proprietors of Goluapokuna. At least, they have fared better than the owners of other Estates whose spice found no buyers.

It is very clear that the principal buyers have set their faces against the more expensive makes of Cinnamon, and that the manufacturers of the finer qualities must be prepared to accept even lowes rates than had obtained during the past few years. But how is this change to be accounted for? It has been said, and no doubt with truth, that consumers have probably found that the coarser qualities would serve sufficiently well for most purposes; but how has this feeling been brought about? Chiefly, we think, through the direct importations of the coarsest qualities into the Continental markets, since the opening of the Suez Canal. So long as the Cape route was inevitable. London maintained its supremacy as the emporium of the world, without question. It doubtless holds the same position yet; but with this difference—that other centres attract a far larger volume of trade than they had hitherto done. Thus, even so late as 1883-84 of 1,796,372 lb. of cinnamon in Bales exported hence, no less than 1,510,879 lb. reached London, the remainder or less than one-sixth, having been distributed throughout the world. Last year, of 1,894,514 lb. exported, only 1,084,837 lb. found their way to London, the rest, or nearly a half, having been shipped direct to other markets, chiefly Continental. This year, up to date, of 779,848 lb. shipped, 442,093 went to the United Kingdom, the rest, or nearly a half, having gone to other ports. Now, the effect of this redistribution of produce has been to place within the reach of consumers the coarser qualities of bark at the cheapest rates at which Continental Firms established here could supply them. London Buyers would thus be at a disadvantage; and the really finer quality of spice —which is all shipped to the United Kingdom, and which they secure for their constituents elsewhere —is not held to be sufficient to explain the difference in price between purchases on the spot, and purchases through London. We believe it is the demand for lower prices from their consituents which has led to the drop which we are now considering, and which has compelled London Firms to advise their Ceylon Principals to devote themselves chiefly to medium makes at a reduced cost of manufacture. And this view of the influence of the shifting of markets, as explaining both the fall in price and the slack demand for all qualities, is confirmed by the good statistical position of Cinnamon in London which Agents report. If the shipments are not disposed of as fast as they arrive, there should be an accumulation of stocks—assuming the imports to remain the same—instead of favourable stocks as at present reported. It is greatly to be feared that the advice, at least as regards reduced rates, will fall on deaf ears, as Cinnamon Planters, depending as they do on men of a particular caste to harvest their bark, do not find themselves strong enough to combine to reduce rates. The only remedy we can see is to ship the best qualities to the chief Continental markets. Who will inaugurate a Cinnamon Fund Committee, on the lines of the Tea Fund Committee?—Local "Examiner."

THE ORANGE BLOSSOM is one of the most delicate of flowers; its very mission is of a tender nature, and yet its great helpmate in exportation is the potato. Since the exportation of the flowers from California has become a large trade, it has been found that the best method of preserviug the orange blossom is to push the stem into a potato. This method might be employed for flowers in table decoration, but if considered more artistic, the potato should be hidden from the vulgar gaze. —*Port-of-Spain Gazette.*

EARLY TEA DRINKING is thus noticed in the *American Grocer:*—

In the early days of New England, tea and coffee checked the use of alcoholic drinks. Weeden, in his economic history of New England, in alluding to tea, says that "in this little Chinese leaf was folded the gem which enlarged into American independence." As early as May, 1714, one Edward Mill, Sudbury street, Boston, advertised, "very fine green tea, the best for color and taste." In 1718 the historians at Lynn state that it was "little used." When the fair dames went for a gossip and drinking, each carried her own tea cup—very small—with saucer and spoon. The following old English letter shows that tea drinking was a matter of comment as late as 1740. "They are not much esteemed now that will not treat high and gossip about. Tea has now become the darling of our women. Almost every little tradesman's wife must sit sipping tea for an hour or more in a morning, and it may be again in the afternoon, if they can get it and nothing will please them to sip it out of but chinaware, if they can get it. They talk of bestowing 30 or 40 shillings upon a tea equipage, as they call it. There is the silver sprons, silver tongs, and many other trinkets that I cannot name."

Tea-parties gradually established themselves after this. It is related of a bachelor tutor at Harvard, that when his hostess asked him if he would have tea strong or weak, he answered: "*Strong* of the *tea*, *strong* of the *sugar*, and *strong* of the *cream*."

TIMBER FOR TEA ESTATES.—On this subject Mr. Le Mesurier has the following remarks in his official diary for 1890:—

Government must, I think, supply the wood, or the tea enterprise would be seriously crippled in many places; and the best method to adopt, is I think (1) to have central depôts to supply estates that are at a distance from any Government forest, and to issue firewood at rates that will give a good profit, sufficient, that is, to cover all expenses of cutting, transport, supervision &c. and a royalty of say R1 per yard. (2) To survey all the Crown forests, bordering estates, into small blocks of say, five acres each; to calculate the value of all the firewood—*i. e.*, all the timber that is not fit for timber purposes—in each block, say R1 per cubic foot, and to sell the right to cut this firewood at the estimated value to such estates in the neighbourhood as wish to take it, no estate being allowed more than one block at a time, and only a certain acreage per annum proportionate to the extent of its own cultivated acreage; each block to be completely cleared of all but the timber trees, which should be carefully marked by the Forest Department and left untouched (except by themselves, should they require timber), before any new block is taken up; and as each block is cleared it should be replanted by the Forest Department. Any infringement of the conditions of the permit to cut to be liable to a cancellation of the permit and a refusal to allow any more to be cut. Government would thus get the value of the wood and the planter his firewood with the smallest amount of interference, which is the great thing to aim at in this matter; and there would be little danger of cheating. The withdrawal of a permit would be such a serious matter to him that the planter would take care that the conditions of the license were carefully observed. The blocks being replanted by the Forest Department as soon as they were cleared would provide year by year a reserve of wood to replace what was taken away.

LONDON TEA RETURNS FOR SEVEN MONTHS.

The imports of China tea between January 1st and July 31st was 27,654,000 lb. against 29,050 in the similar period of 1890. Java showed 2,693,000 against 2,371,000. Ceylon indicated the large increase of 35,707,000 against 24,941. Ceylon imports for the seven months of this year, indeed, ran India very close with its import of only 37,793 against 38,126,000 the previous year. But when we come to deliveries, Ceylon is left very far behind India. The figures for our tea are 28,642,000, a good increase on 20,324,000 in the seven months of 1890. But in the case of India, although there was a falling off from 59,731,000 in 1890 to 55,578 000, yet of this latter quantity a large proportion was taken from stocks which shewed only 18,594,000 against so much as 16,283,000 for Ceylon. Indian stocks had gone up only 2½ millions from 16,000,000 in 1890, while Ceylon had increased from 10,880,000 or nearly 5½ millions. We can only hope that stocks of Ceylon will soon be worked off. The brokers' reports are impartial in recognizing the poor quality of Indian as well as Ceylon tea. The deliveries of China were 43,875,000 against 50,647,000, while stocks of this kind had gone down from 36,218,000, to 28,592,000.

The deliveries of Java tea had increased from 2,014,000 to 2,580,000 lb., and stocks of this kind were reduced from 903,000 to 877,000. An increase of 2 millions of pounds in the stock of Indian teas, has little significance, but an increase of 5½ millions in stocks of Ceylon is calculated to give our planters concern. The imports of the four kinds were 103,847,000 against 94,488,000, while deliveries were only 130,675,000 against 132,716,000 in the seven months of 1890. The deliveries of Ceylon tea for the seven months had been on an average a little over 4 millions per mensem. The same rate for the rest of the year would make a total of only 48 millions, while our total exports are estimated at 60 millions up to 70. Let us hope that an increased demand not only in the British but in other markets may come to the aid of our enterprise. We can, we suppose, calculate on the Australian and other markets taking 5 millions of pounds. But the Tea Fund Committee, clearly, must not relax its efforts.

REDUCTION OF THE EXPORT DUTY ON CINCHONA BARK.

A proclamation in today's *Gazette* states that the Governor, with the advice of the Executive Council, for the purposes of the "Medical Wants Ordinance, 1880, Amendments Ordinance, 1882," reduces the duty upon cinchona of twenty cents per cwt. to a duty of five cents per cwt., which last-mentioned duty is imposed as the duty upon all cinchona entered for exportation at any port in this Colony as from and after the first day of September 1891.

AN INDIAN TODDY PALM—PHŒNIX SYLVESTRIS.

A familiar and perhaps, to some people, a monotonous feature in Indian scenery, particularly along the coast regions of Western India, are the groves of Phœnix sylvestris, one of the toddy Palms, the commonest of the wild Palms of the country, but a most valuable one to the natives. It is frequently seen in company with another noble Palm, Borassus flabelliformis, the Palmyra, and these, together with the Cocoanut Palm, which, in the neighbourhood of Bombay, is cultivated in extensive plantations, comprise the chief elements of that striking tropical scenery which always impresses travellers from northern regions when they first see it. This Phœnix does not differ materially in aspect from the Date Palm of Egypt, P. dactylifera, which one sees on the way out; and my impression that the Date Palm, as well as such Phœnixes as P. rupicola, tenuis, acaulis, canariensis, and possibly others, are but geographical forms of a widely distributed species, having a range almost as extensive as that of the Cocoanut Palm. Be this as it may, they all seem to me very much alike, and from my point of view produce the same effect, for in a natural grove of P. sylvestris one could select forms that to all appearances are identical with the species named. The Palm now illustrated is not the only one that yields toddy, as there are several in India from which the enticing juice can be drawn, notably the Palmyra, Cocoanut and Wine Palm (Caryota urens), but in Guzerat the Phœnix yields the bulk of the enormous quantity of toddy that is consumed by the natives. Toddy drawing is, in fact, an important industry, and moreover a source of revenue to the Government, as a tax is imposed upon every tree in full yield, and to which an official number is attached. A large plantation of Phœnix is a valuable property, for the owners assess their value at from five to fifteen rupees a tree. If a plantation is near a town or group of villages, or near a frequented highway, the drawing and distribution of toddy is always active, and keeps several people busy. The mode of drawing is admirably shown in the picture. The toddy man is in the act of fixing a "chattie" at the mouth of a notch that has previously been made in the succulent part of the stem, the incision being made so that the descending sap trickles into the vessel, a few strips of reed being placed so as to conduct the juice more readily. The chatties are emptied morning and evening, and as they hold a quart or more, a great quantity of sap is extracted from each tree during the season; and the loss tells materially on the health of the tree, so much so that if the extraction were to continue year after year, the tree would soon die from exhaustion. After a tree has been tapped for a full season, it is allowed to rest for two or three seasons, and that accounts for the intervals of the scars on the trunk, as may be seen in the picture where the man has his left foot and the scar lower down. The toddy drawer is possessed of surprising agility in climbing the perpendicular stems, which he does with the utmost ease the only support being the rope he has fastened round his waist, which leaves his hands free. The fluid thus obtained is of the consistence of watered milk, and has a sweetish, and to some Europeans an agreeable taste, while to others it is nauseating. When freshly drawn it is most refreshing, and to quaff a bowl of it when excessively thirsty is one of the pleasantest incidents in Indian life. When, however, it is allowed to ferment, which it quickly does, it is sour and unpleasant, and becomes as intoxicating as Scotch nectar but in this state it obviously finds more favour with the natives. As a garden plant, the wild Phœnix is of great value for landscape effect when it occurs in natural groups, for in these you see all gradations of size, from the small seedling to the decrepit old trees, that have reached the length of their days, and lean leewards in a most picturesque way. The bluish-grey-green tint of a grove of Phœnix is perhaps too sombre, but in a garden one can always introduce variety as a foreground, or intermixed in the group. It is a singular fact that the Date-bearing Palms does not thrive successfully in India, so as to produce edible fruit, and that of P. Sylvestris is valueless as food, though the leaves and stems, and the fibre and bark thereof, are of value to the natives in various ways. The engraving (fig. 14) is an admirable reproduction of a photograph by Messrs. Johnson & Hoffman, of Calcutta. W. GOLDRING.—*Gardeners' Chronicle.* [In the case of all the toddy plants of Ceylon,—coconut palm, kitul and palmyra, the juice is obtained from the unopened flower spathe,—never from the stem.—ED. *T. A.*]

CACAO: JAVA GOING AHEAD?

A correspondent writes:—

"In case you may not have seen it I enclose a special cacao report, suited for the West Indian mail, for your perusal and return. You will notice how Ceylon kinds stand out in the price list, but I hear from home that Javas are to run us very close for both quality and cure."

From the report, which is dated August 4th, we quote as follows:—

LEWIS & NOYES' SPECIAL COCOA REPORT FOR THE WEST INDIES &C.

London, 14, Mincing Lane, Aug. 4th, 1891.

The official figures of the United Kingdom and France for the first six months of the year shew a steady and satisfactory increase in the consumption of the article. Other European countries, and the United States, although official data are not available, seem to be moving in the right direction, judging from the out-put of their manufacturers.

So far as supplies are concerned, advices point to satisfactory crops from Trinidad, Grenada, and other West India Islands, although the shipments from the former place are short for the first six months of this year. Guayaquil will undoubtedly furnish less than last year, that crop having been exceptionally heavy. Bahia promises a full crop. The quantity of African shipped is continually increasing and owing to the financial crises in Portugal, which has hitherto received the bulk of the crop, it will be largely diverted to this country.

The increase in the French stock seems chiefly due to the quantity of British West India sent there, whence having prevented orders coming to this market, to compete with our manufacturers, a large proportion is ultimately sent here to be disposed of, this being the chief consuming country for West India kinds. We are of opinion that were the whole of the Trinidad, Grenada, &c. shipped to Europe, sent to this port, instead of being divided as at present, a much higher range of prices would be obtained for shippers account. The exceptionally high prices paid for Ceylon Cocoa, which have existed so long, are largely attributable to the fact that the crop is almost entirely sent to this market where it creates keen competition from all consuming countries as well as our own manufacturers.

The stock in France notwithstanding the short shipments from Trinidad and Guayaquil to date is 1,700 tons larger than last year, the reduction of 300 tons in the United Kingdom stocks making the excess for the two countries 1,400 tons. The advance of 2s to 3s in prices during the early part of the season in Trinidad, Grenada and similar kinds, was largely due to speculative buying, but the fact that stocks shew no diminution, and that future supplies are unlikely to fall off, have had the effect of causing the improvemnts to be lost. With regard to prices of Guayaquil, the increased demand especially for Arriba, and the shorter supply, have caused prices to advance rapidly, and they are now relatively much above the prices of other descriptions.

	1891 Tons.	1890 Tons.	1889 Tons.	1888 Tons.	1887 Tons.
Consumption in U. K. first 6 months	5,370	4,780	4,340	4,410	3,900
Consumption in France first 6 months	6,910	6,710	4,500	5,900	6,070
Stock in U. K. 30th June	5,280	5,610	6,860	6,170	4,970
Stock in France 30th June	12,110	10,410	9,040	9,780	6,800

Comparative prices:—

	1891 per cwt.	1890 per cwt.	1889 per cwt.	1888 per cwt.	1887 per cwt
	s. s.	s. s.	s. s.	s. s.	s. s.
Trinidad Good Red	66 to 70	65 to 69	65 to 70	70 to 75	80 to 84
Grenada Good	59 to 63	60 to 63 6d	59 to 64	60 to 66	69 to 73
Ceylon Good Red	119 to 125	95 to 105	86 to 96	90 to 95	90 to 100
Guayaquil Arriba	90 to 97 6d	80 to 85	75 to 80	70 to 78	75 to 80

PRUNING CACAO.—There is an article on this subject in the *Trinidad Agricultural Record* which we have marked for the *Tropical Agriculturist*. The concluding paragraph runs thus:—"Good maxims for the cultivator are,—'prune little, but prune often; prune carefully, but prune with decision. Prune for leaves and a crop must come.'"

LONDON TEA SALE PRICES AND THE RATE OF EXCHANGE.

From the local "Times" we quote the following:—

At the request of a correspondent, we have compiled a table showing the weekly averages obtained for Ceylon tea this year and last year, together with the rates of exchange ruling at each period. The table will bear very close and careful examination, as many curious facts can be elucidated from it. For instance, it is plain that the lower rate of exchange which has ruled this year has almost entirely compensated for the fall which has taken place in the tea average:—

LONDON TEA SALE AVERGES AND EXCHANGE.

1890. Date.	Reuter's Average.	Wilson Smithett's Average.	Rate of Exchange.	1891. Date.	Reuter's Averages.	Wilson Smithett's Average.	Rate of Exchange.
	January				January		
	s. d.	d.	s. d.				
3rd	1 0	11¾	1 4 15-16	9th	11½	11½	1 6 7-16
10th		11¾	1 5 1-8	16th	11½	11¾	1 6 7-16
17th		11½	1 5 7-16	23rd	11⅝	1 0	1 6 5-16
24th		11¾	1 5 5-16	30th	1 0	1 0	1 6 3-16
31st		11¼	1 5 5-16		February		
	February			6th	1 0½	1 0½	1 5 7-8
7th	11	11	1 5 3-32	13th	1 0¼	1 0¼	1 5 9-16
14th	10¾	10¾	1 4 13-16	20th	1 0¼	1 0	1 5¼
21st	10¼	10¼	1 4¾	27th	11⅜	11⅜	1 5
28th	10½	10¼	1 5		March		
	March			5th	11⅛	11	1 5 1-8
7th	10	9¾	1 5 3-32	12th	11¼	11	1 5 5-16
14th	10	10½	1 4 15-16	19th	11	10¾	1 5¼
21st	10	10¼	1 4 29-32	26th	10¾	10¼	1 5 1-16
28th	10¼	10¾	1 4 31-32		April		
	April			4th	10¾	10½	1 5 1-16
4th	10½	10½	1 5 1-32	10th	10¾	10½	1 5 1-16
11th	—	—	—	17th	10¾	10⅝	1 5
18th	10½	10½	1 5⅜	24th	10¾	11	1 4 13-16
25th	10¾	10½	1 5 23-32	30th	10¾	10¾	1 4 13-16
—	—	—			May		
	May			7th	10½	10	1 5
2nd	10	10¼	1 5-8	14th	9¾	9½	1 4 7-8
9th	10	10⅜	1 5 5-8	—	—	—	—
16th	10⅜	10¼	1 5 7-8	28th	9½	9¼	1 4¾
23rd	10½	10½	1 5 15-16		June		
30th	10¾	10	1 5 29-32	4th	9¾	9½	1 4 27-32
	June			11th	9½	9½	1 4 27-32
6th	10¼	10¼	1 6	18th	9¼	9¼	1 4 29-32
13th	10½	10½	1 6 5-16	25th	9½	9¼	1 5¼
20th	11	11¼	1 5½		July		
27th	10¾	11	1 6 3-8	2nd	9½	9¼	1 5 5-8
	July			9th	9½	9½	1 5 5-8
4th	10⅜	10⅜	1 6 5-16	16th	9½	9¼	1 5 9-16
11th	10¾	10¼	1 6 17-32	23rd	9	8¾	1 5 15-32
18th	10½	10¼	1 7 3-16	30th	8¾	9	1 5½
25th	10½	10½	1 7 1-8		August		
	August			7th	8¾	9	1 5 5-16
1st	10¼	10½	1 7½	14th	9	9	1 5 5-16
8th	10¼	10¼	1 7 9-16	21st	9¼	9¼	1 5 3-16
15th	10¼	10½	1 7 13-16				
22nd	10¼	10½	1 8 13-16				

TEA TOPICS.

The report of the Committee of the London Wholesale Teadealers' Association, which will be found in another column, is, according to the *Grocer*, of importance to grocers, as a glance at the subjects dealt with during the past year will prove. In the first place, the attempt made by the Customs authorities to have tea weighed to the half-pound, instead of the pound, was successfully resisted by the prompt and energetic action of the Committee, who must have experienced great trouble and given much labour in connection with the various public meetings which were convened at the time the subject was under consideration. If the Customs had gained their point, it would have entailed a serious loss to grocers, for, taking chests, half-chests, and boxes of tea as averaging 50 lb. each with a loss of half-pound on the gross, and a further loss on the tare, making a pound in each package, it would have amounted to 2 per cent in all which our readers can ill afford to lose in these days of extreme competition. Another important subject is the improper-

condition in which some packages of tea have been left after inspection. This, no doubt, is owing to the pressure of work consequent upon the anxiety of merchants to put their teas on the market too soon after arrival, not leaving the warehouse properties sufficient time to finish up one parcel before the next is put on show; and, as the merchant's interest ceases directly tea is sold, he can hardly be expected to look very carefully after the condition of the packages when the ownership has passed out of his hands. At the same time, the warehouse proprietor—who is paid for the careful storage of the tea—ought to be careful to see that this being a sensitive article, should not be exposed to the air and fog a moment longer than absolutely necessary.

The question of railway rates has properly engaged the attention of the Committee, and the Honorary Secretary of the Association has been in almost daily attendance at the House of Commons, waiting to give evidence, in conjunction with Mr. Rogers (to whom the trade are much indebted for the immense amount of time and thought he has bestowed upon this subject.) To us it is a matter of surprise to find so much apathy shown by traders, and the very little resistance they have made against the proposed charges of the railway companies. As regards tea, there can be no reason why it should be placed in a higher class than coffee; and in reference to small consignments the proposal of the railway companies is most unjust. and if it becomes law the carriage accounts of grocers will be enormously increased without any reason, It is not too late to oppose the Bills in the House of Commons, and we would again urge our readers to stir themselves and take a more lively interest in resisting the railway companies' proposals. The thanks of the trade are due to the Committee of the London Wholesale Teadealers' Association for their successful labours during the past year, and we are glad to have this opportunity of expressing, on behalf of grocers, their appreciation of the efforts the Committee have taken to protect their interests in respect to the subjects we have indicated.—*Indian Planters' Gazette.*

LONDON TEA LETTER.

The highest price realized during the week by any Indian Tea was 1s 11½d for 13 chests Broken Orange Pekoe from The Assam Frontier Tea Co. The highest price realized by any Ceylon Tea (bar the two little fancy lots referred to below) was 1s 8¾d for 18 half-chests Broken Pekoe from Glassaugh. The two fancy lots, were:—

Two Boxes, Silver Tip, containing 5lb each, net, from Beaumont, one Package, Golden Tip, containing three boxes, of 5lb. each, net, from Salawe. The former was "taken out," at 4s 6d the latter was also withdrawn, at 5s per lb.

Ceylon, not content with touching one extreme of the scale of prices, has this week touched the other; not with a few lb. of accidentally spoiled Tea, but with no less than 80 half-chests of Pekoe Fannings, which realized 2¼d per lb. This triumph has not yet been signalised by the usual Illustrated Advertisements.

Overheard this week. *Scene*, a Merchant's Office. *Personæ*, A Ceylon Planter—An ex Indian Planter, but unknown to the former as being an old Indian. A merchant. *Ceylon Planter loq.* after a night of fireworks illustrating Ceylon Planters' methods of manufacture: "But then you know Ceylon Planters are a long way ahead of Indian Planters."

Merchant, "In what way?"

Ceylon Planter, "Why in intelligence, and everything else. It stands to reason." Then confidently "They had all the Indian planters' experience, and now have their own, plus superior intelligence. Began, where Indian planters left off; dont you know?"

Merchant, "Oh! yes, of course; I see."

Ex-Indian Planter, quietly, "I have always heard that the proof of the pudding is in the eating: it always struck me as strange that such adepts at advertising as the Ceylon planters, should leave the world in the dark as to the dividends their estates pay, as compared with Indian Companies. But a few days ago I was informed that if anyone went to Ceylon and advertised that they were about to form a new Company, and requested offers of tea estates for incorporation therein, they would receive by return of post, offers of 90 per cent of the estates on the island! Indian planters have a partiality in favour of dividends. Any little vanity they may possess, finds its vent in comparisons of dividends, rather than in *profitless* comparisons of *profitless* intelligence. Good afternoon."

I hear that Ceylon planters, as a rule, still perpetuate the old custom, which was once the practice on some gardens in India, of partially rolling first, and then completing the roll, after other batches of leaf have been partially rolled. It would be interesting to get at the truth of the origin, and the cause of the continuance of this practice in Ceylon. I understood from my informant, that it is quite a regulation proceeding, and he spoke of it as though to change it, and roll each charge straight off, were not to be thought of. So presumably they think it desirable in the interest of quality! So far as I know, it arose in *India*, not with any idea of its being necessary at all, but because, many gardens in those days had rollers of different types, and one roller produced a better twist than the other; but not being able to do all the work by itself, the other roller was employed to partially roll the leaf, which was then finished in the one which produced the better twist. Can it be that those Indian planters who went to Ceylon, (may it be said—to instruct the Ceylon men—) took the custom with them, and that it is now in consequence the orthodox thing to do in Ceylon? It is about as risky a proceeding—especially to leave to a native—as one could invent, and as it cannot of itself *improve* the *quality* of the liquor, upon any known theory, it seems to be a superfluous amount of trouble and anxiety, and risk, for some merely imaginary gain. Without great care and attention it spells—"dull in the cup."

PERIPATETIC PLANTER.

—*Indian Planters' Gazette.*

[If may do Ceylon planters good to study such hostile criticism as the above. But who did our enterprise the bad turn of sending the 2½d fannings to the London Market?—ED, *T. A.*]

THE MOON AND THE WEATHER.

(*By an Astronomical Correspondent.*)

The folk-lore of old times comes down to us from a simple people who but rarely moved away from the place in which they were born, and who, as regards this subject, scarcely suspected that "other parts" simultaneously experienced other weather than that which the convenient moon provided for themselves. It is, therefore, very marvellous, that, in these days of constant movement and easy means of travel, that old moon-lore should have survived, and be still so deep-rooted amongst all classes of the people, and not alone with the simple peasantry of every country. But so it is. So much so, indeed, that even among philosophers one now and then springs up to do battle for the moon, unabashed by the almost silent scepticism of the leading scientific teachers of the present time. Except in occasional passing notes, the "moon and the weather" is seldom referred to at all by the present generation of scientific men, who, so far as they are concerned, consider the subject sufficiently settled by their predecessors. The "Meteorological Society" of our day, too, would not ignore so large a following if it could find reliable data to feed them with; but not only does this Society fail to make use of the moon for prognosticating the weather, but as a writer in *Knowledge* said, not long ago: "On my complaining to the Society that not one in twenty of the forecasts is

correct, as applied to us, the Secretary replied: 'If I could tell how to cast the weather for every subdivision of the kingdom I should be very clever, as, of course, the climates vary in different districts from local causes.' As *you* sir, say [*i. e.*, R. A. Proctor], 'these daily forecasts are not to be depended upon, and are apparently only a matter of guess work, and so had better be dropped, as, for reference and utility, they are proved to be utterly worthless.'" To this another writer (Captain Noble, a leading astronomer of our day), adds: "If we are satisfied with the return which the British nation receives for the annual sum of £15,000 expended on so called 'Meteorology,' we must—like the Scotchman in the parable,—be vera thankfu' for sma' maircies." The Society's forecasts were deduced from daily telegraphic reports received from all parts of England and the Continent—data which no private individual could ever hope to collect, and yet, their labour was all in vain!

Notwithstanding all this, however, the popular belief in the moon's control of the weather dies hard, and now and then an effort is made by a competent authority to instruct the public on this abiding superstition. Such a paper has only just fallen into my hands, though published, I believe, a year or two ago. It is written by Mr. John Westwood Oliver, who deals with the subject in all its bearings in a true spirit of science, seeking not only to destroy error, but, wherever possible, to uphold truth as found in popular sayings. For this purpose he divides his arguments into: "(1) Lunar notions that are utterly absurd; and (2) those that are explicable by the aid of physical principles, and are therefore rational and useful in practice." I shall scarcely do more, in this short paper, than summarize these "notions," adding the cream of his remarks, and a few observations of my own. To merely enumerate all the popular sayings regarding the "moon," would require a volume to itself; but here we have to do only with moon-myths attributing lunar influence to the weather. Nearly all weather sayings are of the nature of predictions, otherwise of what use are they? Such as are to be found in "Herschel's Weather Tables."

J. W. Oliver says: "To the *first class* belongs the idea, in its various forms, of a direct lunar influence. The weather will be such and such, not because the moon's reflection of light is greater or smaller, not because her radiation of heat is more for less, nor because her position with respect to the earth is nearer or farther away, but simply because she 'changes' between certain arbitrary hours." Upon this Mr. Oliver remarks: "The lunar influence assumed here must be of an occult nature, as there is no pretence of physical agency (which Science demands) in the matter. The principle involved must be an astrological one, for in reality the moon is 'changing' every instant of time from new to full, and from full to new again, the 'quarters' being only stages in the process specially marked for the sake of convenience. But we are asked to believe that only these conventional 'changes' rule the weather." To this he adds: "Need the British public be assured that no such convenient orderliness in weather phenomena exists, and that the 'changes' of the moon are not confined to England, nor to any one country"—nor, I would add, to any one locality. The "changes" take place simultaneously all the world over. Who, may I ask, has not brain power enough to reason out the consequences of this great truth? Notwithstanding Mr. Oliver's anxiety to be fair and moderate, he cannot help using strong language occasionally, as when he says: "As an example of *elaborate nonsense* I know of nothing better than a table showing the probabilities of a change of weather at, or after, each of the moon's stations throughout an entire revolution in her orbit, *which received the honor of recognition* and approval in an a cyclopædia of not very ancient date." He then proceeds to demolish this "table" as he had demolished the so-called "Herschel's Tables." He says, "taking the ten specified points in each lunation, and calling a lunation roughly thirty days, and then averaging the probabilities, we discover that this table, which for all the world looks as if it might be the condensed result of years of observation and much laborious calculation, merely expresses (or conceals) the simple fact that, in every three days there are three chances to one that the weather will undergo a change!—which in England is only too true!

As to another popular saying: "If Christmas comes during a waxing moon we shall have a very good year; but if during a waning moon, a hard year." Here the agency is again not physical (scientific) but religious." He adds: "The moon is always either waxing or waning; it is her nature to do so. But that of itself signifies nothing: it is when *Christmas* (a religious festival) happens upon a waxing or waning period that certain conditions are to follow!" He next discusses the popular sayings regarding the moon's appearance in the sky: whether "lying on her back" or otherwise, and points out that in Scotland when the moon "lies sair on her back" it is a sure presage of *bad* weather (Jamieson), while in England the belief is exactly reversed. In this connection he indulges in a joke, and says, "the moon might lie sair on her back" were it she herself that was "bad," but scarcely on account of an approaching disturbance of the weather! This attitude, too, he says is a gradual one, like the "changes," and ought to exercise its influence through all the stages of its progress, instead of only when a weather-wise person happens to notice it! I may here add what he omits, namely, the conditions under which the crescent moon is tilted forward or backward. The sun itself (whose shine upon the moon causes us to see more or less of her face according to her position) is, of course, always on the ecliptic; but the moon sways to 5° on each side of the ecliptic. When, just after "new," she, too, is on the ecliptic, she necessarily must be setting straight over the same place as the sun, and be on her back, but when she is 5° south or north of the ecliptic, she necessarily receives the sun's light sideways, and is tilted accordingly. It would be easy to make a table of these attitudes, if any "use" could be found for them, and of course they would be useful "if" they had any connection with the "weather."

Mr. Oliver next proceeds to discuss one of the most wide-spread of all weather beliefs, the "Saturday moon." "The notion is that when the new moon falls on a Saturday it is invariably followed by a period of wet and unsettled weather. This even had the support of a Dr. Forster before the Royal Astronomical Society in 1848. But the Saturday moon is not sufficiently periodical. In 1881 not a single new moon fell on a Saturday. In 1883 there were three, in this year two conjunctions so distinguished. What sort of *weather* period can we imagine guilty of such eccentricities? So we are obliged to include this much respected saying in the category of idle superstitions." With this Mr. Oliver concludes the class of weather notions he distinguishes as "utterly absurd." With regards to class 2, or those sayings which have a real physical basis, we need not occupy much space, as they scarcely belong to the list in popular use. Whether the full moon emits "heat rays most of the dark sort" which tend to make full-moon nights less cloudy han other nights (over of course a whole hemisphere,

and not merely locally) is going beyond the object of this paper, viz., the moon's influence on local weather. More to the point (but still quite outside any "*influence*" exerted by the moon on the weather), is the belief that when the old moon is very visible in the new moon's arms bad weather may be looked for. The visibility (at time of new moons) of that part of the moon's face unilluminated by the sun is caused by its being illuminated by the earth, *i.e.*, by reflected sunshine from the earth. Vast masses of clouds to the west, hanging on the earth's surface, reflect more sunlight on to the moon than the earth's unclouded surface would do, hence the *inference* that to the west of us are huge rain clouds.

Finally, he throws a sop to those who *will* have some sort of theory left them. "A moon's quarter," he says, "is roughly equivalent to a week, and So-and-So once told me that he had very frequently noticed a tendency in the weather to change and repeat itself every seven days. A similar seven-day periodicity has been observed in the United States. The meteorological conditions of a large Continent, it must be remembered, are simpler than those of our little islands, and hence it is possible that a cycle almost completely masked here, might disclose itself there!" But he is careful to add: "It is not to be supposed that I am contending for a cycle due to the moon, only that there seems to be some evidence of the existence of a seven-day weather period which may sometimes *happen* to be coincident with the lunar phases." Well, on this I have to remark, that some sort of weather must be co-incident with the lunar phases; and as regards "a moon's quarter being roughly equivalent to a week," so is a week roughly equivalent to a moon's quarter; and in a very short time (for observations) they both get too much mixed,—any given phase of the moon being absolutely non-synchronous with any day, except once in nineteen years as discovered by Meton, hence called the "Metonic cycle." One more quotation from J. W. Oliver, and then we will leave him: "The moon exerts no influence upon our atmosphere strong enough, by comparison with the other influences at work, to produce a marked correspondence between the lunar and atmospheric phenomena. Of that we are certain. Let us therefore belabour the false doctrine upon which these notions are founded with all our might." (J. W. O.)

I will conclude with a few arguments which from time to time have suggested themselves to me. (1.) If the earth rolled in her orbit on an axis horizontial to the sun, we might possibly expect that some perceptible influence over the "weather" of a climate so monotonous would be exercised by the moon. But the earth's seasons, the polar ice, and the heat of the tropics are caused by the inclination of the earth's axis to the plane of her revolution round the sun, and the phenomena resulting from this are so varied and potent as to obliterate all traces of the moon's more feeble influence in any locality. (2.) In obedience to the *sun's* action upon oceans, and seas, and deserts, and mountain-ranges, and rivers, and swamps, tornados, cyclones and storms are constantly tearing here and there through our atmosphere, destroying all approach to equilibrium over immense surfaces, so that anything like regularity or constancy of mere weather conditions are rendered impossible; and no amount of reliable observations have been made to fix recurrences in the least degree. (3.) In spite of the moon's attraction, pulling in any directions she may, the tropical atmospheric currents change from north-east to south-west in obedience to the "*sun's*" north and south declination, and these changes—the most constant and recurring of any—are more or less accompanied by storms and rain, and cloud, as hot deserts, ocean-currents, the polar snows, the surface of the ocean itself, and the highest mountain-ranges &c., have been exposed to,—or hidden by cloud-banks from the sun's action upon them. And as these occur over all the earth's surface, all parts are constantly subject to different degrees of exposure, resulting in chaos as regards "weather" in any particular place. (4.) The "seasons" are necessarily constant, as such, from the great regularity of the sun's annual journey south to north and back; but "the inconstant moon, that monthly (daily, hourly, every minute) changes in her circled orb," would produce just as inconstant weather. It is the revolution of the earth on its axis that causes the constancy of the diurnal tides, which otherwise, would be lunar—monthly. As it is, the moon has no influence over the "weather" of the ocean, but only over her mean level. (5.) Yet, if the infinitessimal extent to which the moon *does affect* the atmosphere, as a whole hemisphere, (and not any minute portion over any particular locality) could be measured, it would be found, doubtless, to be greater than her influence over the *weather of the ocean*, that is, its currents, temperature, calms and storms. This fact should not be forgotten when it is claimed that the moon's influence over the *height of the waters* of our globe is analogous to the influence, it is assumed, she ought to exercise over the mere "weather" of our atmosphere. *There is no analogy* over the level of water of one element, and the meteorological conditions of another element in ten thousand times ten thousand different places. (6.) In a scientific paper just to hand I find the following paragraph, which, as showing how differently the "moon" behaves in different places, I copy and close with:—"As an instance of the comparative uselessness of generalisations from records of rainfall, it may be noted that, according to an observer at Caversham, Oxfordshire, the rainfall there, during April amounted to ·70 in., while in April 1890 it was recorded at 1·87. At Shifnal, Staffordshire, the amounts were reversed, for 1·96 fell during last April, while the rainfall of April 1890 was recorded as only ·83. The records bear out what is well known to all close observers that rainfall varies considerably within comparatively smallareas." (*English Mechanic.*) So that a moon gazer must unlearn his old lore and study new whenever he changes his habitat. And then, if he is wise, he will no larger consult the moon, but the local conditions that surround him.

[After all is said, some may have lingering doubts whether the moon may not have some influence on local conditions. The sunspot cycle theory is met by the same objection of varying weather in different parts of the earth, and yet a good many scientists, including Blanford, believe to some extent in sunspot weather cycles.—ED. *T. A.*]

A NEW WORK ON CACAO; PROPOSED ANALYSES OF CEYLON TEA BY MR. HUGHES; RAG MANURE FOR TEA.

LONDON, Aug. 14th

It may serve a useful purpose just to draw the attention of your planters to the fact that a new work on cacao, by Mr. J. H. Hart, of the Botanical Gardens, Trinidad, is now in the press and will shortly be issued. Mr. Hart undertook the work with the sanction and full approval of the Governor of the cacao island; and there is every reason to believe that his experience will have enabled him to lay some ver

novel and useful information before the cacao planters of Ceylon.

Some months back my letters told you of a negotiation which had been going on between Mr. John Hughes, the well-known agricultural chemist, and your Planters' Association, as to his undertaking certain analyses of tea with the view of determining fully the characteristics of such kinds as might appear to be most in demand in the home markets. Somehow or other no determination seems to have followed on this negotiation, and nothing further had been heard as to it until the matter was brought—as I believe, by Mr. Borron, to the notice of the tea committee of the London-Ceylon Association. Influenced by the representations made to it, that committee passed a resolution stating its opinion that such an analysis as had been suggested by Mr Hughes should be carried out, though I believe the recommendation was accompanied by a rather narrow limitation of the amount to be expended upon it of £15. Hearing of this action of the committee, I sought an interview with Mr. Hughes during the present week to learn if he could communicate to me anything further beyond what I was enabled to write you when the question was first mooted. Certainly one thing that Mr. Hughes remarked to me on this subject was a novelty to me, as we suspect it will be to a good many of your readers in the colony. Mr. Hughes told me that he had come to the conclusion, from his experience with the tea-tasting fraternity in London and elsewhere, that it was the presence of a greater or lesser degree of tannin in the tea that determined the valuation put upon it. These experts looked in a very large degree to strength as governing the prices which can now be obtained for teas, and they state that it is the proportion of tannin which determines this strength and therefore the market value. No doubt this view applies more fully only to those teas which we drink by the classes to whom economy is a necessity, but there is no doubt that these form the bulk of tea consumers and that it is their taste or requirements which have mainly to be considered. Anyway, if Mr. Hughes has rightly concluded, it appears to be a fact that the more tannin there is in your teas the better prices they fetch, and of course, as this must govern the action of your planters, they will doubtless try and produce teas in which a high proportion of tannin is to be found. Now according to all my experience, it has always been reccommended to us tea drinkers at home to purchase such teas as are possessed of the least amount of tannin, and delicate flavored teas at high prices have been sought for. If what Mr. Hughes tells me prove to be correct, we are therefore on the eve of a revolution as to the highest qualifications of tea, so far as the price it may fetch is concerned.

During my conversation with Mr. Hughes the topic of the rag manure sent out by him for the Mariawatte estate come up once again. He told me with reference to this that he had heard nothing further as to the results obtained with this new fertilizer on the estate mentioned; but he remarked that he felt the most entire confidence that sooner or later its beneficial effect must become evident "Indeed," he said, "having seen the effect of its application myself to the olive bushes both in France and Italy, I do not for an instant doubt that similar good results must follow its application to the tea bush. There is only one point on which there is any doubt in my mind, and that is that no opportunity was given me for testing a sample after the consignment had been put on board ship. It was most desirable that this should have been done, because, of course, it is impossible for me to say whether the manure sent out really contained all the constituents on which I relied when recommending it. It is only within the last few days that I saw a shipment of manures just starting for Ceylon, and it is evident, therefore, that the planters there are commencing to use fertilizers prepared at home. You cannot too strongly urge on your friends in the colony the desirability of learning, before their orders leave England, that they have been executed in exact accordance with their instructions or the advice of any expert they may have consulted. If this be attended to, manures sent out from home ought to be just as reliable as to their results as is the application here of farmyard manure. We *know* that the last *must* produce certain results. We do not think twice about it, and indeed, if failure as to this does occur, we may be quite certain that it has either been badly applied or that there has not been the rainfall sufficient to soak the ground with its constituents. For a similar reason, therefore, I say that the manure sent out for Mariawatte must if it was manufactured in accordance with the specification of its constituents yield sooner or later all that had been anticipated of it by me."—London *Cor*,

NOTES ON PRODUCE AND FINANCE.

THE "LANCET" ON TEA DRINKING.—The *Lancet* although never weary in suggesting new sources of danger to the community, finds it necessary occasionally, to fall back on an old one: It varies the monotony of the situation by dividing its favours between alcohol and tea. In commenting upon the examination at the Waltham Abbey Petty Sessions of a woman who is charged with the wilful murder of her two children, it says "that a statement of some importance was made by the divisional surgeon of police, Dr. G. Fulcher, with reference to the habits of the prisoner. On being interrogated with regard to tea-drinking, she said she had been in the habit of taking a large quantity, that she had given it up, but had recently resumed the habit in consequence of her troubles. Dr. Fulcher was of opinion that the prisoner was the subject of melancholia, and he expressed the belief that the taking of tea in excess tended to undermine the constitution. The powerful effect of alcohol in excess as a nerve poison is a matter of daily experience. That many of the ailments from which women suffer are at least aggravated if not excited by excessive indulgence in tea—not as an infusion, as it ought to be, but as a decoction—is equally well-known; and although we are not prepared to admit that this habit would actually induce a condition of melancholia, there is little doubt that in a woman of neurotic temperament, especially if her food were deficient in quantity and of poor quality, the use of this beverage in excess would be one of the factors in producing and perpetuating a condition of mental instability. It would be well if those to whom the frequent cup of tea from the pot—which has a permament place at so many firesides, and has become almost a necessity, as they think—recognised fully the pernicious effects of this over-indulgence, effects which are only surpassed in importance by those of the occasional 'drop of gin,' of which so much is heard in the out-patient departments of our hospitals." The evils of stewed tea taken in large quantities have been pointed out again and again in the *Lancet* and other medical papers. It is not the tea that is at fault, it is the ignorance of the people who prepare it. If people will persist in making soup of tea instead of infusing the leaves, the blame is not attributable either to the tea or to those who grow it.

THE IMPORT OF TEA AND WHEAT.—According to the Board of Trade Returns for July, the quantity of tea received from China is nearly £3,000,000 greater than in the corresponding month of last year, but the consumption here of that kind of tea again shows a decline, Ceylon tea being more and more in demand. As to wheat, Russia sent only 673,303 cwt. against 2,406,055 cwt. In July 1890, but British India sent nearly as much again last year, the quantities being 1,555,556 cwt. and 888,975 cwt. respectively.

TEA IN BURMAH.—Tea planting operations in Burmah do not thrive so well as they should. There were five tea plantations in the Province at the end of last year; but the area under the tea plant was only seventy-eight acres against 172 acres in 1889, the falling off being attributed to the want of sufficient labor for one or two of the plantations. The out-turn of manufactured tea also dropped from 12,250 lb. in 1889 to 5,710 lb. in 1890.

FOOCHOW NOTES.—Teamen are not, we understand, grumbling at the result of their ventures this year, indeed they are well satisfied with the out-turn of common teas and second crops, but it makes them wince to find that their profits are simply carried to their credit in account to meet the heavy looses of the past two years, instead of having them to put into their pockets.—*Daily Echo.* Aug. 1.

PLANTING IN NORTH BORNEO.—The *Singapore Free Press* of 13th Aug. in an article on North Borneo says :—

A favourable feature is the way in which the Chinese coolies are taking up land for themselves, and settling down permanently on North Bornean soil. One particularly interesting instance is that of a party of Hakkas, a tribe of Chinese who are, as a rule, really good agriculturists, now engaged in the cultivation of Liberian coffee on their own account. They took up some land in 1883 and planted coffee, cultivating also vegetables, ground nuts and other produce, which they were able to dispose of readily and thus keep themselves going. That little community, nearly all Wesleyan converts, it may be stated, have year by year added to the area of land under coffee, until they have now no less than one hundred and seventy acres bearing Liberian coffee, and, it is reported on good authority, will by the end of 1892 have actually four hundred acres devoted to growing coffee. This single instance, a very promising one, indicates that the Chinese are readily and spontaneously taking to settlement and cultivation in North Borneo. It also shows that, independent of the bad luck or the mal-administration of Europe ventures, coffee may before long become an important article of export from North Borneo. That these Chinese labourers, without capital, and living from hand to mouth, should devote themselves to an agricultural experiment in coffee on so large a scale ought to be taken as an encouraging sign by planters proceeding to Borneo who have capital to back their enterprise and carry them through all the initial difficulties. Coffee prices are very encouraging just now, and the production in several important fields has falleu away, so that the future of coffee cultivation in this part of the world seems to be full of promise. In Ceylon there is little or no suitable virgin soil in the hands of the Government, and Ceylon investors who are turning their minds to coffee are beginning to look abroad for some promising region where they may utilise their capital in planting. It is to the Straits and Borneo that attention is now being turned. The ten agricultural land grants, which the Perak Government offered on specially liberal terms, have all been applied for, chiefly by Ceylon men, we hear. And North Borneo is also apparently about to profit by this increased attention given to the opening up of new areas to coffee cultivation, for we are informed that there are prospects of the early investment of capital, from Ceylon and elsewhere, in the raising of Liberian coffee there on a considerable scale. If North Borneo has, through circumstances avoidable and otherwise, not attained any distinct success yet in tobacco, it may find its reputation, as a field for enterprise, vindicated before long in the direction of coffee.

INFERIOR CEYLON TEA.—The *Madras Mail* of 18th August has the following :—

The following passage is from a London tea-agent's letter :—"Some mess from Ceylon, which they call tea, has been sold at 1d and and 2½d per pound, and we are to have, they say, continuous supplies." Whereupon a contemporary remarks :—"Ceylon is about to kill tea as it has killed coffee. Not having a particularly fine soil, but an exhausting climate, the growers give the plant no rest, with the result that the value of their tea is falling yearly, and, unfortunately, in forcing down prices it brings down with it for the time being all other classes of tea."

The contemporary referred to is we believe the *Englishman*. The *Madras Times* in quoting the extract says :—

This policy of flooding the markets with worthless leaf is most shortsighted, and we wonder that the Ceylon Planters' Association do not at once take the question up.

We think that there can be no doubt that a good deal of very inferior tea has been sent home lately from Ceylon, as proved by the brokers' reports and low prices; but that the pessimistic forebodings of the Calcutta paper (representing the Bengal tea planters) are likely to come true we certainly do not believe. However, our tea planters should be careful not to give their enemies an excuse for ill-natured remarks.

CEYLON EXPORTS AND DISTRIBUTION, 1891.

COUNTRIES.	Coffee cwt.			Cinchona	Tea.	Cocoa.	C'moms.	Cinnamon.		Coconut Oil.		Ptago.
	Plantation	N'tive	Total.	1891 B'nch &Trunklb.	1891 lb.	cwt.	lb.	Bales lb.	Chips lb.	1891 cwt.	1890 cwt.	1891 cwt.
To United Kingdom	41564	...	41564	3106915	43475211	14077	77452	636439	128690	96971	25583	105360
" Austria	4664	41	4705	...	50159	...	500	2100	3370	10998	10695	...
" Belgium	18	...	18	128435	85	...	...	26000	...	2507	304	3906
" France	129	33	162	3362	9793	82	...	85700	16980	3002	...	...
" Germany	113	300	413	...	69317	158	1598	260165	93520	15162	10255	22000
" Holland	...	...	...	21438	...	...	...	...	...	...	10	...
" Italy	53	...	53	...	710	...	...	86800	58800	5413	696	...
" Russia	...	...	...	...	11230	...	...	...	...	1001	700	...
" Spain	...	...	...	...	12675	...	...	61000	...	...	...	...
" Sweden	...	...	...	...	300	...	...	...	...	...	...	...
" Turkey	...	50	50	...	2961	...	89	...	...	61040	54419	221
" India	1407	2689	4096	...	270048	...	111367	24972	...	1355	1170	331
" Australia	6395	705	7103	...	2146446	...	40	2700	8908	53785	20024	121193
" America	204	...	204	350038	139017	1947	4640	42000	...	10	...	...
" Africa	35	...	35	...	54106	...	...	...	...	1400 (	...	...
" China	76	...	76	...	84751	...	...	60368	...	58)	35319	...
" Singapore	15	...	15	...	3124	84	...	...	...	...	...	...
" Mauritius	155	...	155	...	34333	...	...	...	...	...	...	...
Total Exports from 1st Jan. to 31st August 1891	54820	3818	58646	3612221	46563266	16345	195686	1293544	310268	252702		253014
Do 1890	64331	2456	66787	5800551	32109351	11039	218527	1074753	262030	163405		215203
Do 1889	53499	3969	57486	6544243	22304762	11537	190188	1563313	338555	180183		277074
Do 1888	101134	3891	105165	8305924	15036522	10271	189197	1042320	368621	225636		150630

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current London, August 13th, 1891.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry ...	£3 a £6 10s
Zanzibar & Hepatic	Common and good ...	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d a 1s
	Medium to fine Quill ...	4d a 9d
	Spoke shavings	2d a 4d
Red...	Branch	1d a 3d
	Renewed	2d a 1s
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow ...	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to good	£6 a £6 15s
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine..	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 9d
Ceylon, Malabar sort	Fair to good bold bleached	2s 6d a 3s 6d
	,, ,, medium ,,	1s 6d a 2s 4d
	,, ,, small	1s a 1s 6d
Alleppee and Mysore sort	Small to bold brown ...	1s a 1s 6d
	Fair to fine bold ...	2s 6d a 4s
	,, ,, medium ...	1s 6d a 1s 10d
	,, ,, small ...	1s a 1s 4d
Long wild Ceylon...	Common to good ...	6d a 2s
CASTOR OIL, 1sts	White	4½d a 4¾d
2nds	Fair and good pale ...	3d a 3¾d
3rds	Brown and brownish ...	2¾d a 3d
CHILLIES, Zanzibar ...	Fair to fine bright ...	51s a 55s
CINNAMON, 1sts	Ord'y. and middling ..	35s a 42s 6d
2nds	Ord'y. to fine pale quill...	7d a 1s 5d
3rds	,, ,, ,, ,, ...	7d a 1s 3d
4ths	,, ,, ,, ,, ...	6½d a 1s 1d
Chips	,, ,, ,, ,, ...	5½d a 10d
CLOVES, Zanzibar }	Fair to fine plant ...	2½d a 7d
and Pemba. }	Fair to fine bright ...	3½d a 3¾d
,, STEMS	Common dull and mixed	2¾d a 3¾d
COCULUS INDICUS ...	Common to good ...	¾d a 1d
COLOMBO ROOT... ...	Fair sifted...	11s a 11s 6d
	Good to fine bright sound	22s 6d a 28s 6d
CROTON SEEDS, sifted...	Ordinary & middling ..	16s a 20s
CUTCH	Fair to fine fresh ...	15s a 20s
DRAGONS BLOOD,	Fair to fine dry ...	24s a 32s 6d
Zanzibar ...	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah &		
Turkey ...	Fair to find dark blue ...	52s 6d a 60s
	Good white and green ...	40s a 50s
GINGER, Cochin, Cut ...	Good to fine bold ...	65s a 75s
,, ...	Small and medium ...	40s a 52s
Rough...	Fair to fine bold ...	32s a 40s
,, ...	Small and medium ...	24s a 28s
Bengal, Rough	Fair to good	19s
GUM AMMONIACUM ...	Blocky to fine clean ...	50s a 90s
ANIMI, washed ...	Picked fine pale in sorts,	£11 a £12;10s
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£10 a £12
	Medium & bold sorts ...	£6 10s a £11
scraped...	Good to fine pale frosted	
ARABIC E.I. & Aden ..	sifted	60s a 80s
	Sorts, dull red to fair ...	35s a 55s
Ghatti ...	Good to fine pale selected	45s a 55s
	Sorts middling to good...	23s a 33s
Amrad cha.	Good and fine pale ...	65s a 100s
	Reddish to pale brown ...	25s a 50s
Madras ...	Dark to fine pale ...	15s a 50s
ASSAFŒTIDA	Fair to fine pinky block and drop	30s a 80s
	Ordinary stony to midling	15s a 25s
KINO	Fair to fine bright ...	55s a 60s
MYRRH, picked ...	Fair to fine pale ...	£4 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 10d a 2s 2d
East African Ports, Zanzi-	White softish ditto ...	1s 8d a 1s 11d
bar and Mozambique Coast	Unripe root	1s a 1s 7d
	Liver	1s 4d a 1s 10d
	Sausage, fair to fine ...	1s 7d a 1s 9d
Assam,	Good to fine	1s 8d a 2s 2d
	Common foul & middling	9d a 1s 6d
Rangoon	Fair to good clean ...	1s 8d a 1s 11d
Madagascar, Tamatave, }	Good to fine pinky & white	2s a 2s 4d
Majunga and Nossibe }	Fair to good black ...	1s 8d a 1s 11d
ISINGLASS or }	{ good to fine pale ...	2s 2d a 3s
FISH MAWS } Tongue.	{ dark to fair ...	1s a 2s
Bladder Pipe...	Clean thin to fine bold...	1s 6d a 3s 4d
Purse ...	Dark mixed to fine pale	6½d a 1s 6d
Kurrachee Leaf ...	Common to good pale ...	1s 8d a 3s

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet ...	4s 4d a 5s 9d
	Ordinary to middling ...	3s 4d a 4s 2d
Kurpah	Fair to good reddish violt	3s 5d a 4s
	Ordinary and middling...	2s 2d a 3s 3d
Madras (Dry Leaf).	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 8d a 2s 4d
IVORY—Elephants' Teeth-		
60 lb. & upwards ...	Soft slightly def. to sound	£66 10s a £7
over 30 & under 60 lb.	,, ,,	£55 a £69
40 a 100 lb. ...	Hard ,, ,,	£48 a £59
Scrivelloes	Soft ,, ,,	£30 a £48 10
,, ...	Hard ,, ,,	£23 10s a £2
Billiard Ball Pieces 2¼ a 3¼ in	Sound	£80 10s a £90
Bagatelle Points ...	Sli. def. to fine sound ...	£70 a £81
Cut Points for Balls	Shaky to fine solid sd...	£55 a £68
Mixed Points & Tips...	Defective, part hard ...	£34 10s a £53
Cut Hollows ...	Thin to thick sli, def to sound	£30 a £55
Sea Horse Teeth—		
⅜ a 4½ lb.	Crvd. crkd & close stght	1s a 3s 9d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	13s a 15s
	,, II, fair picking	8s 6d a 10s
	Jubblepore I, good & fine pale	12s 6d a 13s
	,, II, fair rejections ...	9s 6d a 10s
	Vingorlas, good and fine	10s 6d a 11s
Madras, Upper Godavery	Good to fine picked ...	11s 6d a 12s
,, ,, ...	Common to middling ...	9s a 10s 6d
Coast	Fair	11s 3d a 11s
Pickings ...	Burnt and defective ...	8s 6d a 10s
MACE, Bombay ...	Dark to good bold pale...	2s a 3s 2d
	W'd com. dark to fine bold	3d a 1s 2d
NUTMEGS, ,, ...	65's a 80's	2s 8d a 3s 1
	83's a 180's	1s 6d a 2s 7
NUX } Cochin, Madras	{ Fair to fine bold fresh	11s a 13s 6d
VOMICA { and Bombay	{ Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour..	½d a ¾d
LEMONGRASS ...	,, ,, ...	1½d a 1¾d
ORCHELLA } Ceylon ...	Mid. to fine, not woody	20s a 25s
WEED } Zanzibar ...	Picked clean flat leaf ...	10s a 20s
} Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy... }	4d a 4½d
Alleppee & Tellicherry	,, good ,, ... }	
Tellicherry, White ...	,, ,, ,, ...	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 22s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 8s
RED WOOD	Fair and fine bold ..	£3 a £3 10
SAFFLOWER, Bengal	Good to fine pinky nominal	50s a 60s
	Ordinary to fair ...	28s a 45s
	Inferior and pickings ...	15s a 25s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs...	Fair to fine flavour ...	£35 a £60
,, ,, Chips.	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	80s a 90s
SENNA, Tinnevelly ...	Good to fine bold green...	6d a 8d
	Medium to bold green...	4d a 6d
	Small and medium green	2d a 3d
	Common dark and small	1d a 1½d
Bombay ...	Ordinary to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—med. to large	85s a 97s 6d
	small and medium oyster and chicken	70s a 85s
large	BOMBAY—fine thick ..	90s a 100s
medium stout ...	bright fairly clean	97s 6d a 105
chicken part stout	,, ,, ,,	80s a 102s 6
oyster part thin ...	,, ,, ,,	72s 6d a 80s
Mussel ...	medium to fine bold	48s a 55s
	small and medium sorts	34s a 45s
Lingah Ceylon ...	Sorts...	2s a 10s
TAMARINDS	Mid. to fine blk not stony	12s 6d a 15s
	Stony and inferior ...	4s 6s
TORTOISESHELL ...	Fair & fine clean heavy	19s a 22s
Zanzibar and Bombay	Low thin to mid. clean	8s a 17s 6d
TURMERIC, Bengal ...	Leanish to fine plump finger	15s a 16s
Madras ...	Fin. fair to fine bold brgt	17s a 20s
,, ...	Mixed middling... ...	15s a 16s
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 16s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	7s a 12s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	4s a 7s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for September :—

PLANTS AND WATER.

PLANTS may, in a general way, be said to be composed of water and solid material. The amount of water in plants is very variable—ripe seed containing about 13 per cent; stems and leaves of ordinary herbaceous plants, on an average, 70 per cent; many water plants as well as some fruits and roots, 90 per cent; fungi up to 95 per cent.

According to Nægeli's theory every molecule or ultimate solid particle of the plant is surrounded by a film or sheath of water; when the molecules are large, the proportion of water is small, while when the molecules are small, the proportion of water is large. The quantity of water, according to this theory, varies only within certain limits. If it be present beyond these limits, *i.e.*, if there be too much or too little water, the texture of the plant will be destroyed. Loss of water causes a contraction, gain or absorption of water an increase or swelling of the plant body. The proportion of water in a plant depends partly on the season of the year; and when growth is going on vigorously there is always an increase of water.

Nearly all the water in plants is taken in by the roots, though, according to Warrington, when rain occurs after severe drought, water may be taken up to some extent through the leaves.

Apart from the necessity for water in the plant to meet the evaporation which goes on through the leaves, and thus prevent what is popularly spoken of as the drooping of the plant, water is very necessary as a medium by which plant food in the soil enters the plant. All the plant food which is derived from the soil is taken in as solutions by the process of osmose. It is a common fallacy that plant food is also taken into the plant as solid matter. The solutions which are taken in by the roots are either of substances found ready dissolved, or of substances which have been dissolved through the action of the acid sap in the roots. A tolerably large amount of water is required to dissolve and carry a small amount of plant food from the soil into the plant, as the solutions which enter are very weak ones. Owing to the rapid evaporation of water through the leaves, these weak solutions are concentrated in the upper parts of the plant, and the required ingredients are appropriated by the plant for the formation of new tissue, while those not required are got rid of as incrustations on the older tissues.

A little time ago we heard artesian wells objected to on the ground that the water they supplied was practically pure water, that is water without silt (so it was put to us); it being maintained that the water of artesian wells was perfectly useless for cultivation purposes. Now water available by a plant may have silt in suspension, plant food in solution, or neither, but only certain substances which help water to act upon insoluble plant food in the soil and render it soluble. While irrigation water (as irrigation is carried out in Ceylon) carries silt in suspension, it is not to be supposed that it is of value solely as a carrier of silt, for besides carrying substances in mechanical suspension, it would also hold substances in solution, as well as act as the medium for conveying soluble plant food, however derived, into the plant. To say that the supplying of water, without plant food in suspension or solution, to a plant is of no value to it, is to deprecate all "dry cultivation," to say that rain is a superfluity in agriculture, that watering by the hand in Horticulture is a waste of labour.

Let it however be remembered that water in addition to being a carrier of silt may contain up

to 50 per cent of dissolved matter in solution, and is of the greatest importance in the plant economy as a medium through which plant food is taken up from the soil as solutions into the plant (a function which even chemically pure water—which is never found in nature—may perform), while it is also necessary to meet the evaporation that goes on through the leaves, and the full value of water will be better understood.

OCCASIONAL NOTES.

We are glad to be able to mention that the Circular regarding the project of issuing Sinhalese leaflets on practical agricultural matters, has elicited replies of an encouraging nature, not only from Government officials but also from private agriculturists. Among the latter are Mr. Gunaratne, Athapattu Mudaliyar of Galle, who has before now showed the active interest he takes in the welfare of his countrymen, and Mr. H. D. Gunesekera, whose promise of support is very encouraging.

While Mr. Gunasekere sets a good example to our old boys by promising to take a large number of leaflets to be distributed among the villagers about his own home, Mr. J. A. G. Rodrigo, the energetic Agricultural Instructor at Bandaragama, who orders 350 copies, and hopes to take in 150 more, sets an admirable example to his brother Instructors. Among others who have promised to support the Sinhalese leaflet project is Mr. Jayasuriya, the Mudaliyar of Rayigam Korale.

We have much pleasure in notifying that the Government have sanctioned the purchase of a stud bull for the School of Agriculture. It is expected that the animal, which is one of the Saidapet farm stock, will be brought over from Madras very shortly. It has been also decreed that a block of land, 43 acres in extent, adjoining the School of Agriculture shall be handed over to that institution. The action of the Government in these two instances leads us to infer that the welfare of native agriculturists, in whose interests the School of Agriculture was founded, will not be lost sight of during H. E. Sir Arthur Havelock's reign, and to expect that the few liberal measures which have been reserved for an energetic Governor to pass in favour of Agriculture will be *fait accompli* before the end of that reign.

There seems a fair prospect of a good trade in dried bananas being opened out with England and Germany. An endeavour is being made by the Guild of Co-operators of Queensland to deal directly with the great Co-operative Undersale Stores in England. It is expected that the bananas, which are merely dried on wire-netting, besides being used like dried figs as dessert, will be stewed like prunes, cut to the size of raisins and used in puddings. Once the export of the dried fruit is established, there will be another opening for native cultivators, who, if they cannot be expected to dry their own fruit, might send in their supplies of fresh fruit to some enterprising man who owns a fruit-drying apparatus. We have not yet heard the opinion of the English grocers on the specimens of jams and jellies made of Ceylon fruit, which Mr. Baumgartner is said to have taken with him to England.

According to Australian experiments, one pound of dried bananas soaked in water and stewed for half an hour has been found to swell up to 5 lb in weight, besides a sweet syrup being produced without the addition of any sugar. A shipment of dried fruit sold in London at 6d. per lb, and if the nett profit shows 3d. a pound, the industry should pay very well. It is even thought that a company *on a large scale* could make bananas pay well at 2d. per lb.

The "passion fruit" is the product of the common passion vine, *Passiflora edulis*. The *Agricultural Gazette* of New South Wales for May gives notes regarding the cultivation of the vine, and distinguishes three other species which are recommended for cultivation. The first is *Passiflora macrocarpa*, the large granadilla; second, the *P. maliformis*, or sweet calabash; and third, the *P quadrangularis*, the common granadilla. The soil best suited to the growth of the passion-vine is said to be one of a rather loamy nature, and that is fairly rich in humus, though the vine is so hardy that it will grow in almost any soil and situation. Fences for trailing the vine should run as due north and south as possible, so that the vines may receive sunshine on both sides of the fence. The vine can be propagated by cuttings, layers and seeds. The latter produces the most vigorous plants, and the seeds should be collected from the earliest ripened fruits.

Prof. Church's analysis of the ground-nut (*Arachis hypogœa*) shows that it contains of water 7·5, albuminoids 24·5, starch 11·7, oil 50·0, fibre 4·5, ash 1·8. The oil which forms so large a proportion of the ground-nut is of a clear, pale, straw colour; it will not become rancid and improves with age. It is known in commerce as "nut oil," and is not only adulterated with, but is substituted for olive oil. It is valuable as a lubricant for delicate machinery. The residue or cake after extraction of the oil is a very fattening cattle food, as well as a valuable fertilizer. "Chocolate cakes" are said to be manufactured to a large extent out of ground-nuts alone in the United States. The stems of the plant, after removal of the crop, form a most useful fodder which cattle are very fond of.

Mr. T. B. Kehelpanala writes:—"Gampolawela, as the name indicates, is a row of fields situated in the vicinity of the town of Gampola. These fields have an historical reputation. One of the late Kandyan Kings dedicated the fields to the Dalada Maligawa (the tooth relic palace at Kandy) with a view to gaining merit, and they are still held in undisturbed possession by the temple. The fields in the Kandyan Provinces are generally irrigated by *amunams* or streams. The *amunam* which flows to Gampolawela takes its rise from Dolosbage—a distance of about 8 miles. It is said that in former times the breadth and the depth of the amunam in question was so great, that the king used to row about in it, hence it was afterwards known as *Raja Ela* or

the *King's Stream*. This stream is now considerably reduced in breadth owing to, I suppose, the deposit of sediment. The fields are about 250 amunams in paddy sowing extent; and a panoramic view of them could be got from the *Mariawatte Tea Factory*. An *atuva* or granary with carved collossal pillars for the storing of paddy was constructed by one of the later kings. The wooden part of the structure is massive and grotesque, and yet ornamental. This *atuva* was capable of holding about 20,000 bushels. The late Martyn Mohandiram of Gampola, a Kandyan Chief reputed for his riches, repaired the structure, taking care to preserve its former shape and style. This *atuva* is at present known as the *Gampola Atuva*, and belongs to Kehelpanala Pohath Walauwa. The fertility of these fields has been reduced to an appreciable degree, as may be proved from a comparison of present crops with the produce of former times. The fields being Maligawa property are exempted from all taxes."

A correspondent writes:—"One cannot but admire the excellent arrangements made by the Agricultural Department of Madras for gathering information regarding the condition of all branches of agriculture. Men qualified for the work of inspecting and reporting on such subjects as crops, cultivation, cattle, &c., are sent about the country to enquire into these matters, with a view to rendering such timely aid as it is possible to give, when assistance is needed. Here in Ceylon it is only after the lapse of much time (and it is during such time that any action, if necessary, should be taken) that the existence of any abnormal circumstances connected with any branch of agriculture is made known by a casual reference to the fact in the report of a revenue officer. As might be expected the reference itself is too vague to be of any practical value, no details, reliable facts and correct figures being given. While in the Madras Presidency information is gathered firsthand by Agricultural Inspectors who travel about with this object in view, in Ceylon similar information is commonly gathered by some illiterate unpaid minor headman, who so far from possessing a special knowledge of agricultural matters, is sometimes poorer in his general attainments than an ordinary village schoolboy. The information gathered by these minor headmen is passed over to others, who though higher in station are not more intelligent than they; in due course the information reaches the Mudaliyar, through whom it reaches headquarters. I am able to give an instance of how 'reports' are made from my own personal experience. A village headman casually enquired of me what weight of arrowroot tubers would be sufficient to produce one pound of flour. Having had no experience of the preparation of arrowroot flour at the time, I answered that I was not in a position to give a definite answer, but that I thought about 10 or 12 lb. would be necessary. Some time afterwards it came to my knowledge that the headman who questioned me had to furnish a report on arrowroot, and had mentioned in his report that 12 lb. of tubers were necessary to produce one pound of flour. Fortunately the headman not wishing to let it be known that he had got this information secondhand, did not mention the name of his authority. This report passed through several hands, appearing no doubt as the outcome of the personal experience of the individual who last submitted it. In the end the figures of the Wewita Agricultural Instructor, which were obtained as the result of numerous experiments, and which were published for general information, were called in question on the authority of the report, whose history I have narrated!" [We cannot but think, as we earnestly hope, that this is only an exceptional case.—Ed.]

KAPOK OR THE SILK COTTON TREE.

(Eriodendron Anfractuosum.)

By W. A. De Silva.

There are several species of plants which supply a silky down, known by the popular name of Silk Cotton. In different countries this name is applied to the product of different species of plants; but most of these products have had hardly any commercial value, as silk cotton is totally unfit for spinning purposes. The staple obtained from some of the species has now got a certain economic value, as it is used as stuffing material for pillows and cushions, and sometimes for adulterating with genuine cotton and wool. There are two species of trees in Ceylon which produce the silk cotton—commercially known as Kapok. Among these the most important one is the *Eriodendron anfractuosum*, the Sinhalese Imbul, and the Tamil Elavum. This tree thrives well in the warmer parts of the Island.

It generally grows wild, but is at present cultivated to some extent in certain localities. It must not, however, be understood by this that the tree producing the Kapok is ever systematically cultivated, but it is only planted here and there in plantations.

The tree attains to very large dimensions, often growing to the height of eighty feet. The trunk is straight and the branches are borne on the top of the tree. The bark in the lower part of the mature trunk is covered sparsely with thick prickles, which form into small knobs as the tree grows older. The timber of this tree is very light, and hence is only adapted for the purposes of fuel, but of late, after being sawn into planks, it has been used in the manufacture of tea boxes, &c.

The plant begins to bear in its third year. The flowers which are of a pretty large size with a thick whitish corolla and a cup-shaped green clayx are borne once a year in February-March, and the fruits which are formed very soon after are ready for plucking in April, May and June. During the flowering time flying foxes frequent the trees, as they are very fond of the young blossoms. The fruits are long and cylindrical, about five inches in length and three in circumference, and are filled with a downy cotton—staple very short and curled—interspersed with black seeds. This down forms the 'Kapok' of commerce. The productive power of the trees differ much according to size and age. For instance, a fully-grown tree with numerous branches might yield about half a hundredweight or even more of Kapok, while a young tree with a few branches might yield not more than a pound or two.

The export trade in Kapok in Ceylon is of very recent origin, probably not older than ten years. Previous to this the product had only a local demand for the purposes of stuffing pillows, cushions, &c., and this demand was so small, that it did not even encourage the collection of the Kapok found on the trees which were growing wild.

Since an export trade began, the demand has increased so much, that not only is Kapok carefully collected from the trees growing wild, but great care is taken to preserve it and plant new trees wherever the opportunity occurs.

There is a large demand for the article in Australia, where it is used in the manufacture of pillows and cushions, and it is also exported to Holland and Fiji, where it is said to be used for mixing with cotton and wool in the manufacture of cloth.

Ceylon is not the only country where this article is produced, for Java, Sumatra and the adjacent Island are also exporting it largely.

The cultivation of the Kapok-producing tree in Ceylon could be very much extended, not by growing it as a separate product, for then it would not pay, but by planting the trees at intervals in the lowcountry plantations as shade and boundary trees.

The other species of silk cotton found in Ceylon is the *Bombax Malabaricum*, the Katu Imbul of the Sinhalese. It is not so commonly met with, and may be said to be never cultivated. The plant is characterized by the sharp prickles which are found abundantly on the stem. Its leaves are smaller and greener than those of the Eriodendron, and the flowers bear scarlet corollas. The fruits are smaller in size, but contain silky down of rather a slightly better quality.

Among the other less known varieties of silk cotton, which are not utilized commercially, the giant bombax of South America may be given as an example. This plant is known as *Bombax cieba*, and is found of very large dimensions. Waterton in his "Travels in South America" gives a graphic description of the tree, and says that the staple is very short and is of a yellowish colour, and that no use has been found for it, except for packing the arrows of the South American Indians and stuffing pillows

THE CULTIVATION OF THE COCONUT PALM. No. 1.

The cultivation and nurture of the Coconut Palm (*Cocos nucifera*) has been for many years past the subject of much speculation, and especially during the last half century, in the first part of which Europeans in Ceylon first opened out large estates of this valuable tree, notably in the Eastern Province, and more particularly in the District of Batticaloa. Before this time of course many large plantations and village plots were cultivated by the natives of the country, but no scientific method of planting and manuring was before this attempted, nor was the making of '*Copra*,' with care and attention to details, the speciality that it is at the present time.

Of the native method of cultivation I will say but little—only one system being universally followed. The ripe nut is placed upright in the ground, the 'eye' or sprouting end appearing about one to two inches above the surface. This is carelessly and irregularly watered, and the plant, transplanted in due time, is ill-attended to during its tender years, and then left to its own devices till the fruit, when matured, is picked for use or sale, or is plucked immature for the purpose of drinking the coconut water.

On the first planted estates the European proprietors—following the native custom as far as the *planting* of the nut in nurseries was concerned—made no selection of nuts, and planted them vertically, that is, as they hang on the tree. The main difference however between the European and native methods consisted in a careful watering, and in the regular manuring of the plant from time to time A few proprietors imported nuts for planting from the Galle and Matara or the southern sea borde—the habitat of some of the finest trees in the Island, but strange to say, many of the estates so planted, suffered in comparison with those planted with local seed—the nuts becoming smaller and smaller every year, the trees failing in power of production, and finally dwindling away, till within the last few years whole acres—indeed large portions of estates—have died out, and many estates abandoned in consequence.

Of very late years a new method of planting the nut in nurseries has been followed, the results being up to date eminently satisfactory.

The methods followed by Dame Nature in the propagation of seeds—of whatever kind they may be—are infallible, and he who departs from the rules she lays down, travels out of the circle or sphere of success: ; and when we see whole continents and islands clothed with great forests where the trees have been self-propagated, must accept the axiom that Nature is right, and that they only wrong who depart from her unchanging rules.

In the case of coconuts it will be found by the most careless observer that the nut, in falling from the tree, always lies on the ground horizontally or on its side, in which position it is best fitted for sprouting, growing, and successfully arriving at maturity, as I shall now proceed to demonstrate.

The young or tender nut is found to be full of a liquid or coconut water as it is called—so excellent a drink—which not only keeps the nut moist but helps to bring to perfection that portion of the nut which hardens by degrees till it reaches the useful or '*Copra*' stage, and holds not only a rich milk but a valuable oil in its tissues. This coconut water is absorbed by degrees by the maturing nut which will be found to contain a less amount, probably only a half, the original quantity.

The coconut being rather of an elongated shape the sprouting portion lies at one end, so that if planted in a vertical or upright position, the water only filling half its cavity and the sprouting eye being at the top,—the eye remains dry and unmoistened, and though the seed sprouts from the dampness of the soil, the sprout does not attain the full vigour that it would do under other conditions.

But if the nut is planted horizontally,—or in the natural position it lies on the ground as it falls from the tree,—the sprout or eye never dries, and it receives constant nourishment from the water within which keeps it moist even though the cavity of the nut be half filled.

In the same way a bottle of wine half filled and corked, and laid on its side will always have the cork moist. I think it may be safely assumed that a nut planted in its natural or horizontal position, will in course of time germinate more successfully and produce a better and more vigorous plant than one which is planted vertically or in an unnatural position.

So much for the position of the coconut when planted in the ground.

It will be found that the selection of large vigorous nuts for the formation of a nursery requires great consideration. The nut should be well matured, but not too much withered or shrivelled up.

Nuts which have remained long in store should not be selected, and the best should be chosen from large quantities freshly picked. If possible those nuts should be taken to gradually form a nursery, which have fallen of themselves and have not been picked. On an estate of 300 or 350 acres, from 2 to 300 nuts will drop from the trees in 24 hours, or in one day and one night, and 250 nuts will be quite sufficient to plant out one large nursery bed, and this process may be repeated till 10,000 nuts have been laid down.

The nurseries should be well watered, about twice or three times a week. The soil should be kept moist but not flooded or drenched with water, particularly when the sprouts begin to appear, as water lodges in the eye which is somewhat hollow and sometimes rots the young sprout. It is well to keep the nursery clean, as dirt attracts worms and beetles, which not only attack the sprout, but the tissues of the nut as well.

R. ATHERTON.

(To be continued.)

NOTES FROM A TRAVELLER'S DIARY.

I had lately the pleasure of visiting the Happy Valley Industrial and Reformatory Schools. It is too soon yet I think to judge how far such Institutions as this will be a success and benefit to the Island. They certainly deserve to succeed, for the work of reforming juvenile offenders is in itself a most noble and bold undertaking. A great many of the boys who are taught here are, I believe, orphans, and they are therefore at the sole disposal of the Wesleyan Mission, under whose auspices the Institution is conducted.

Opinions differ as to what are the best industries that should be taught in our Industrial Schools. Some people think that local industries should be taken up and encouraged, while others think that foreign industries should be introduced and adapted to local circumstances. This question will no doubt be soon settled, as the Colombo Technical School, which is likely to be opened at no distant date, is expected to teach just those industries which our boys should learn.

Carpentry, Shoeing, Printing, Blacksmith's work, and Agriculture are some of the industries at present taught at Happy Valley. Everybody will agree that a knowledge of agriculture in all its branches will be of much practical benefit to the youth of Ceylon. Sheep-rearing, dairy-farming, and horticulture are some of the branches of agriculture to which attention is paid at Haputale, while experiments have been made in vitituculture, cotton, tobacco, paddy cultivation, &c. Cotton, I am afraid, is not likely to be of any success in this part of the Island. Speaking of cotton, I must repeat here my advice that it should be grown together with some other crops. There are many practical planters who agree with me in this view. The so-called success of cotton has been the case in only one out of a dozen experiments. Whether the failures recorded are due to bad seed, bad cultivation, or climate, has yet to be ascertained. Until then it will always be safe to grow cotton with some other crops.

The Agricultural Instructor attached to the Happy Valley Industrial School is, I believe, paid by Government. The question is where will the boys of the Institution go when they become men, and what will they do? As I have said before, a great many of them, if I am not mistaken, are at the sole disposal of the Wesleyan Mission, and the authorities of this institution will therefore, I believe, see that the young men are placed in good situations. We may reasonably expect that some of them will be sent out to colonize, and when this has been accomplished, and when the lands which have been lying idle for hundreds of years under some of the best tanks in the Island are brought under cultivation by trained boys from Happy Valley, we could then say that this institution has been of real benefit to the Island.

RICE CULTIVATION.

The Madras Agricultural Department has published the more interesting and useful parts of a monograph on rice cultivation in Italy, where, though the traveller never expects to see fields of waving paddy, a good deal of attention seems to be given to the growth of the crop.

Rice is supposed to have come out of Orissa, and hence its name *Oryza Sativa*. The earliest mention of rice is found in the tragedies of Sophocles, and it is supposed to have been first introduced into Europe by the Greeks of Alexandria. The Museum of Agriculture at Rome is said to contain 347 varieties of rice collected from all parts of the world.

There is a good deal in this Italian monograph said in praise of deep ploughing, and among its advantages are mentioned increase in feeding area, destruction of weeds, increase in retentive power for water, and minimising of danger from drought. It is further stated that deep ploughing increases the outturn by about 9 bushels of paddy per acre, that is of course where the substratum is not of a sterile nature.

The section on soils and manures contains much useful matter. Rice is said to require soils rich in potash and nitrogen, not wanting in phosphoric acid and not rich in lime. It is stated, however, that different varieties affect some rich and some comparatively poor soils. As

to depth, the plant has superficial roots and can adapt itself to a very thin stratum of fertile soil, but, *if it can send its roots deeper, it will, like all cereals, give a better crop.* Generally the best soil is clayey with a moderate dose of lime, and a little silica and humus; afterwards follow clayey calcareous, then calcareous, and lastly silicious, but few soils are absolutely unsuited. An interesting table of analysis gives the composition of paddy, rice, &c., taken from an acre.

The composition of the 23·7 cwt. of paddy got from the acre was found to be 21·3 lb. of nitrogen, 133·5 of ash, 14·1 of phosphoric acid, 10 of potash and 5·3 of lime. The composition of the rice (11 cwt.) was 13·5 of nitrogen, 17·4 of ash, 5·7 of phosphoric acid, 3·6 of potash, 1·2 of lime.

With regard to manures we read: It is usual not to give any manure on good soil and in succession to meadow for 2 years and for 1 year on average soil or in succession to cereals. In any case, some manure is spread the third year. This however would not answer on perennial rice-fields when there is no rotation. In these, yearly manuring is essential to maintain the quality of the produce constant, and here it is particularly advisable to use alternately manures of different kinds such that one shall correct the defects of another. The manures used in Italy are lupin seeds, roots of monks' grass or *Rumen paticutia*, meadow truf when ploughed in, stable manure, stable drainage, waste of hemp, flax, &c., ashes of various plants, also bones treated with sulphuric acid or calcined. This last is of great value, and the same is said of normal and phosphatic guanos. Green crops are also ploughed in, for which those most used are red clovers, rye, vetches, oats, &c.

The practice of alternating rice with other crops dates from the time of the introduction of rice into Italy, but it has become much more common of late years, since it has been found to increase the outturn. The principal crops with which rice is grown in rotation in Italy are oats, wheat, grasses, maize, flax, clover and various fodder plants.

With regard to the question of irrigation we are told that it is impossible to establish any universal rule as to the quantity of water required as it depends upon too many causes, such as porosity of soil, quality of rice-field, that is whether permanent or in rotation. According to the engineer Cantalupi, in Lombardy 1·23 cub. feet per second suffices for about 64 acres of not very porous land; this is equivalent to 1 c. ft. per second to 54 acres or ·02 c. ft. per second per acre. In Verona and Montova ·085 and ·048 c. ft. per second are considered sufficient. Berti-Pichat put down the quantity required per second per acre generally at ·0143 c. feet, while Cantoni and De Regis fixed the average quantity at ·02 c. feet per second per acre for rice in rotation, and ·016 for permanent fields. Paolo Angiolini, another engineer, gives ·036 c. feet for stiff soil, ·071 for less stiff soil, and ·14 for very porous land. The Societa d'Irrigazione Vercellese, a large association of proprietors who irrigate their own lands with Government water consumes on an average over several thousand acres, ·038 c. ft. per sec. per acre. On their clayey lands they use barely ·019.

The sources of supply of irrigation water in Italy are:—Canals, in 63 per cent of the total area, rivers and streams, in 24 per cent, springs, in 10 per cent, artificial reservoris in 2 per cent, and lakes and ponds 1 per cent.

The water from canals has to be paid for.

The paddy crop in Italy is said to vary from 22 bushels to 100 bushels per acre, or an average of about 61 bushels for rotation rice-fields and 50 bushels per acre for permanent rice-fields.

The above résumé we think should not only prove interesting, as it would from merely comparing the system of cultivation in Italy and Ceylon, but should furnish a few practical hints as regards the question of irrigation, manures, and rotation.

GENERAL ITEMS.

When one cites examples of practices carried on in the West; and advices their adoption in the East, the remark is made that "it is all very well in the West, but people of the East will never be made to take to it," or "the thing is not practicable here," such have been the customs that have met the proposal that town sewage should be made use of for agricultural purposes in Eastern towns, as it is in Western cities. Before saying anything further let me quote the following from the *Indian Agriculturist* of the 18th July:—"The Municipal towns in the Punjab are realizing a steadily growing income from the sale of town sweepings and manure. From the several annual sanitary reports it is to be gathered that the sums realized have increased from R89,483 in 1886 to R1,20,790 in 1890, and the field must still be a remunerative one; for it is reported that in many places a strong prejudice exists on the part of agriculturists against utilizing sewage as a manure. The sooner this prejudice disappears the better for both the municipal coffers and the agriculturist as a common gain must fall to both. At Umritsur, for instance, there was once a prejudice: now practical experience having shown the cultivator the value of sewage as a manure, there is eagerness to obtain it, and last year the Muncipality realized R3,468 from this source. At Peshawur, too, there is a demand, and other Muncipalities would do well to create one. In this connexion it may be remarked that the exportation from the country of animal bones in large quantities has attracted attention, and an endeavour is to be made to restrict this exportation by inducing the zemindar to use this valuable fertilizing substance which lies at his very door in the cultivation of his own land.

The *North British Agriculturist* in reviewing Warrington's Chemistry of the Farm—the textbook in agricultural Chemistry for the senior class of the School of Agriculture, says:—"Warrington's chemistry of the farm is one of the most useful and most popular handbooks on agricultural science that have been issued, and any one who makes himself master of all the facts in this half-crown manual of agricultural chemistry, will then have as accurate and complete a knowledge of the scientific principles of agriculture as would be acquired by attending a complete course of lectures on the subject by many a professor in our universities and colleges. The fact that 27,000 copies of this handbook have

already been sold is the best possible proof of the usefulness and popularity of Mr. Warrington's manual."

Panebutano is the name of the shrub, the extract from the root of which has been found a good substitute for quinine.

"The Rural Economy and Agriculture of Australia and New Zealand" is the title of Professor Wallace's new book which is just out. The volume consisting of four or five hundred pages, is furnished with ten maps, 90 full-page plates, and 24 text illustrations, and is priced at one guinea. The publishers are Messrs. Sampson Low, Marston & Co., London.

Following the experiments of Fetchner in applying electricity to vegetation, a Russian agriculturist, M. Spechneff, is reported to have made a trial of seeds, which he electrified for two minutes by means of a current and repeated the operation ten times upon peas, beans, rye, &c. He found that, as a rule, the electrilisation of seeds nearly doubled the rapidity of their growth. He then tried to electrilise the earth, and the effect of the continuous current upon the vegetation is said to have been very marked. A radish grew 17·3 inches in length, with a diameter of $5\frac{1}{2}$ inches, and carrot 10·6 inches in diameter weighed 6 6 lbs. The harvest was in all four times superior to the ordinary for roots, and two or three times for plants, and the extra growth did not appear to affect the quality of the roots or plants in any way.

Our thanks are due to the Editors of the following publications for copies of their latest issues:—St. Thomas' College Magazine, Richmond College Magazine, Jaffna College Miscellany, Hindu Organ, Jaffna Patriot, and Catholic Messenger.

We have also to acknowledge with thanks copies of the Journal of the Society of Arts, the Agricultural Gazette of New South Wales, the Agricultural Journal of Cape Colony, and Bulletin No. 21 of the Agricultural Department of Madras, and Kew Bulletin No. 43.

The husks of maize or Indian corn are now being used in the making of some kinds of paper in the United States. They are first made to yield a glutinous substance by treatment with boiling caustic soda, and this paste is separated from the fibres of the husk by a hydraulic press working over a finely perforated bed plate. The glutinous matter is passed through the machines in the usual way and made into paper, while the fibres are sold for use in other industries.

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MR. DAVIDSON OF BELFAST ON CEYLON TEA.

THE great sirocco manufacturer and advocate of low temperature combined with powerful downdraught of air in the manufacture of tea has returned to Colombo and is about to leave the island, after a visit to our principal tea districts, during hich he saw the leaders of the tea enterprise and xplained to them the principles of his low temperature method. This method, it must ever be remembered, requires the existence in connection with a factory, of ample power to produce a strong down-draught of air. Without this down-draught where low temperature has been adopted, the result of which some have complained, of the tea being "stewed" is inevitable. Some have talked of having adopted low temperature, instancing 180°. Mr. Davidson refuses to regard a heat of 180° as low temperature. His figures are 150° for the furnace heat and 130° for the evaporating tea, the leaf, as we indicated in our previous article, being finished off in a separate drier. In an early number of the *Indian Planters' Gazette*, Mr. Davidson's views, as reported by an interviewer and corrected by Mr. Davidson himself, will appear in a detailed and authenticated form, and we shall not fail to submit the report to our readers.

Meantime we may mention that Mr. Davidson has somewhat startled us by stating that one result of his visit to the Ceylon tea districts is, the conviction in his mind that ALL our teas may be classed for quality as "high-grown." He adduced the case of the Kalutara district, where the tea is generally planted amongst rocks up the sides of more or less steep hills. To our natural remark that the heat reflected from the faces of the rocks ought, by increasing the temperature, to give the teas thus grown a more than usually low (which means hot) country character, his answer was that the cooling down of the rocks during the night and of the temperature generally was, probably, in proportion to the excessive heat during the hours when the sun gave out his heat as well as his light rays. In any case, as an experienced tea expert, his judgment is, as we have stated, that, on the whole, the Ceylon teas, from sea-level to 7,000 feet altitude, with degrees of difference of course, have all of them the properties attributed to high-grown teas.

TANNIN IN TEA.

If our London correspondent has rightly understood what was remarked to him upon the above subject by Mr. John Hughes, the well-known agricultural chemist, the ideas which many persons have entertained on the subject of an excess of tannin in teas must be somewhat modified. Of course we do not mean to say in this respect that a very large amount of tannin in tea contributes to its wholesomeness, but that it seems now to be contended that the higher the percentage of it that certain teas contain, the higher will be the price that they will bring in the London market. Mr. Hughes is reported to have said to our London correspondent that he felt satisfied from what he had observed of the practice of London tea-tasters that the judgment of these latter gentlemen was almost invariably founded upon the relative presence or absence of tannin in the teas submitted to them. It seems according to them that tannin is the source of *strength* in tea, and that motives of economy lead the home public to purchase teas warranted to possess that strength in preference to those which are described as weak, solely because, according to Mr. Hughes' judgment, they are deficient in tannin.

Many persons will regard this view, which confirms that of the Madras Government quinologist, Mr. Hooper, founded on analyses of Indian and Ceylon teas, compared with selling prices, as a novel one, and one which if it can be supported must materially modify the principles hitherto ruling in the selection of tea. With regard to this probability we shall look forward with some anxiety to the decision of the Committee of our Planters' Association with respect to the offer made by Mr. Hughes to prepare a set of analyses of different teas. That offer has for a long time been held in abeyance by our local body; it has been actually supposed that the disinclination to accept it and act upon it

has been caused to some extent by a doubt upon the special subject of tannin in tea and how far local interests might be affected by the publication of full information respecting it in regard to Ceylon teas. But we are now informed that the Tea Committee of the Ceylon Association in London has passed a resolution requesting our Planters' Association to act upon Mr. Hughes' advice and have the analyses proposed by him made. It seems certainly desirable that this matter should be examined into as closely as possible. The view adopted by Mr. Hughes, that the higher the proportion of tannin in tea the more it is valued in the London market, may tend towards considerably modifying the opposition said to have been heretofore felt to make public the exact proportion contained in the teas of our island growth, if such opposition has really existed.

Now, however great may be the proportion of tannin in some of our teas, it by no means follows that it is necessary that the drinkers of these to whom it might be injurious or disagreeable should imbibe it. Tannin is said to be scarcely ever present to any extent in the first cup of infusion obtained from tea if the time allowed for the tea to stand be limited to some three minutes or so only. It is the second cup, after the leaf had been subjected to the influence of the boiling water probably for some ten minutes or so, that contains the tannin extract. This fact is commonly recognised by tea drinkers, and a larger proportion of milk is given to this second cup than is supplied with that of the first infusion drawn off. By a few persons, perhaps, the second cup is that most appreciated, but these bear, we should say, but a small proportion to the whole army of tea drinkers. We do not ourselves pretend to say whether Mr. Hughes' view is right or wrong; but if it be the former (as we incline to believe) it is desirable that we should know it, as it might most materially affect the question of demand for our teas in European countries.

There is another point which seems to have been stated by Mr. Hughes that will obviously call for consideration. He deems it to be desirable that the samples he may be called upon to analyse should be selected on the estates, and fresh from the curing operations, to be at once packed in hermetically sealed tins and sent home to him. We should naturally conclude from this that Mr. Hughes regards it to be a fact that our teas as now packed, transported and bulked in London undergo a certain modification of their characteristics during those operations. But what are we specially seeking as the result to the proposed analyses? Is it not to obtain a guide as to what teas are best suited to the varied tastes of home consumers? If so, and in that case, it would seem to us to be desirable that the analyses should be made of teas as they are delivered to those consumers, and not as they come fresh from the operation of curing on the estate? However, as to this we must leave decision to those of more experience than ourselves; though unless good reason can be given, it would seem as if any result to be obtained must be fallacious, if the tea as submitted to analysis and the tea as delivered, in London, is to be tea possessed of different characteristics. Double analyses would seem desirable indeed, of the teas as freshly manufactured and specimens of the same teas when they reach the London market. Now that the question has assumed the important phases we have described, the clearing up of the points now in dispute must be more than ever desirable.

NEW FODDER PLANT.

Mr. Hart (at the meeting of the Trinidad Central Agricultural Board,) said Mr. Henry Warner had given notice of a question between this and last meeting. It was:—"To ask the Government Botanist whether the new fodder plant spoken of so highly in the *Tropical Agriculturist*, of 1st January, 1891, and called therein the *Lathyrus Sylvestris* is known to him, and whether he is aware of the existence of these plants in Trinidad or not. If not growing in Trinidad at the present time does the Government Botanist intend to introduce into the colony or has he already taken steps to this end?"

Dr. de Verteuil: Is it a grass?

Mr. Hart: No. *Lathyrus Sylvestris* is the plant in question, it is nearly allied to *Vicia* or vetch. It is dispersed all over the globe chiefly in temperate climes or the mountains of the tropics. A variety of *Lathyrus Sylvestris* is the "everlasting pea," which is cultivated in European gardens for the sake of its flowers. It appears that in Ceylon they have been planting a variety of species, and some one has been writing about it in the *Tropical Agriculturist*. I have not had an opportunity of seeing this article or looking it up, as the question was only to put to me this morning; but I may say this that I do not think a European plant would be likely to thrive in the tropics. Some years ago the vetch which thrives in European countries was introduced into Jamaica, and had now become acclimatised there. It was naturalised on the hills but it would not grow on the plains. It ought to be known whether such plants would thrive here, and we might procure seed and try it, but I don't think the trial will be attended with any amount of success. Sir Joseph Hooker gives *Lathyrus Sylvestris* as a native of Great Britain and South Europe.

Dr. de Verteuil: I think it will do better in Southern Europe than in this climate.—Trinidad *Agricultural Record*.

RICE IN JAPAN.

The absence of trustworthy statistics showing the progress of sericulture, tea production, and rice-growing since the restoration, is often lamented by persons interested in the trade of this country. Some general facts are known, but it appears to be exceedingly difficult to obtain exact returns. Recently the *Fiyu* published an interesting statement giving a rude idea of the development of rice culture since the close of the sixteenth century. In 1598 (third year of *Keicho*), we read the area of land under rice was 1,311,000 *cho* (3,277,000 acres), the produce of which aggregated 8,500,000 *koku* (94,905,000 bushels), being at the rate of a little over 29 bushels an acre. Out of this amount our contemporary asserts that no less than 12,000,000 *koku* had to be paid as taxes, namely, two-thirds of the whole produce—but we can scarcely credit this figure. A century later 1690, when the country had enjoyed peace for a hundred years and the Tokugawa dynasty was firmly established, the yield of rice had increased to 25,800,000 *koku*, a difference of nearly 40 per cent. Thenceforth until 1832 no statistics are given, but in April of the latter year we are told that accurate returns gave the total produce of rice as 30,558,917.84 *koku*, from which it appears that the increase between 1690 and 1832—a period of 142 years—had been only 18 per cent., against an increase of 40 per cent in the previous 100 years. Fifty-six years later, 1888, the area under rice cultivation was 2,685,886 *cho* (6,714,715 acres) and the aggregate produce was 38,645,583 *koku* (198,251,840 bushels), or a little over 29 bushels an acre. Thus the increase in this period was 26 per cent., a fact bearing significant testimony to the prosperous condition of the country during the past half century. It was natural that in the decades immediately succeeding the termination of the long era of internecine war which the *Taiko* and the *Shogun* Iyeyasu brought to an end, a great impetus

should have been given to agriculture and industry Yet we find that in the first century of the Tokugawa rule the relative increase of the rice crop was only 40 per cent., and the actual increase 7,300,000 *koku*; while in the period of fifty-six years from 1832 to 1888, the relative increase was 26 per cent., and the actual increase 8,086,666 *koku*. It is interesting also to note that these figure furnish an apparently trustworthy estimate of the productiveness of Japanese soil for purposes of rice culture, the average yield over the whole country in 1598 and in 1888 alike having been 29 bushels per acre. Perhaps we may add that the figures show also how uniform have been the methods of the Japanese farmer during the past three centuries.—*Japan Weekly Mail.*

NOTES OF A TRIP TO THE LAND OF THE INCAS.

Panama, 19th June, 1891.

My dear ——,—There is no doubt good Bishop Heber unwittingly libelled Ceylon,* but his lines—

Where every prospect pleases,
And only man is vile,

might most appropriately be applied to Panama. I do not believe it would be possible to find on the face of this earth a more repulsive lot of cutthroats than the people who at present inhabit this isthmus—a legacy left to it by Lesseps. Ten years ago the degenerate scum of all nations seemed to flock here to help to spend the Frenchmen's money. Never before was such gigantic corruption, depravity, and swindling heard of. The sequel we now see in palatial buildings abandoned, thousands of ponderous machines, tens of thousands of trucks and barrows, iron bridges, and stupendous dredges all rusting in the malarious jungle. Acres of iron cottages now tenanted only by vermin or the hungry-looking ghosts of canal labourers. One spot I visited also told its sad tale—the cemetery situated near Panama, an ample acreage, but crowded to overflowing. On the right as we drove along were the remains of the common herd, the little wooden crosses being simply numbered and dated, chiefly 1883-4; on the other side a smaller enclosure contained mould of an apparently more select kind, the marble and Aberdeen granite headstones testifying to the goodness, greatness, or prowess of the departed.

But a considerable number of the old canal employés still remain, some of the Europeans being employed on the railway, the nondescripts—heaven knows how! though doubtless the robbing of passengers forms their most lucrative occupation. On the arrival of every boat down rush the motley crowd, and let them but once point a finger to your luggage and down must go the dollars or a bowie-knife fight ensues. No obliging porters here; no policemen visible; even the stationmaster has to be bribed to let you have your ticket in time for the train. The worst loafers at Eastern ports are angelic creatures compared with the dreadful ruffians who swarm in this country. And yet it is a very lovely country; the more I look at it the more interested and enchanted I am, though its deplorably bad name is enough to frighten anyone. Over and over again we were warned not to stay a night here, but it does not take long to find out other causes for its deadliness than the climate—chief among which are dirt and bad drink. Their drinking wells are a perfect "scunner": not a drop of decently pure water to be had. And yet about 100 inches of rain per annum—the purest distilled water—is poured upon this favoured land from the Atlantic and Pacific—five times as much as Australia gets, and four times as much as on the East of Scotland. And yet they have nothing to drink! You remember that for two years the purest and best water we ever had was distilled water from the Pacific. As to the climate, as far as I can judge or learn from the more intelligent of the inhabitants, it is neither better nor worse than that of Colombo, though such is its repute that we may not say so in Ceylon! The soil is infinitely better than the average of Ceylon, and the vegetation proportionately good. The curious thing is the number of plants common to both countries, many of which must, of course, have been introduced here, the Mangoe tree, for instance, growing so luxuriously and bearing so enormously, the Coconut, the Breadfruit, Plantain, and Papaw, the Oleander, Shoeflower, and all the variedly beautiful Crotons, &c., &c. Coffee I saw none of but feel sure it would grow and bear well. There is an impression abroad that this Central America is a barren, insalubrious strip of land—lashed and blown by both monsoons. It is nothing of the kind, and, other things being equal, I should not hesitate about forming a home on yonder hill's sheer rise to 3000 feet above sea level.

Panama, in short, unlike some other places I have visited, is, as regards the climate, soil, and productiveness, better that it was painted. If such be the case—and I believe it is—generally on this isthmus, how, it may be asked, came our countrymen to such utter grief with their Darien scheme? There were various causes for this failure beside the fact that they were unsuited for labouring in the tropics—the chief reason being the hordes of ruffianly Spaniards that periodically attacked the unprotected colonists—dastardly attacks, which, we fear, were only winked at by our English friends of that day, who were really jealous of the ambitious Scot. They have come to know us better now, but I have never been able to quite forgive our southern friends for this perfidy. The same drawback may be said to exist still, viz, the want of protection and a civilised Government; but the day must soon come when, situated as it is, Central America will prove itself one of the most valuable and productive spots on earth, and poor Paterson to have been 100 years ahead of his day. The bay in which I now write is indeed a thing of beauty, the deep blue, still water being literally studded with little gems of green islands from one to 150 acres in extent. Within 100 yards of where the "Santiago" is anchored is an isle exactly resembling Helen's Isle in size and shape, but the jungle is more dense and the creepers hang down in richer festoons, kissing the rising tide. If my Kodak tells the truth you will see it for yourselves some day.

The tide rises here about 23, some say 30 feet; on the Atlantic side about 3 feet. This formed one of the difficulties which Lesseps had to face, but by no means the chief.

The one insuperable difficulty seemed, after all, the impossibility of obtaining honest men as sub-contractors. The extent of deliberate swindling that seems to have taken place is shocking to hear of. Hundreds of adventurers made stupendous fortunes out of the savings of the frugal but misguided French investors.

This letter is posted in Guayaquil, the chief port of Equador, some description of which you will find in my next.

* Even our friend A. S. can make a slip Heber did justice to Ceylon; and recent developments of murderous crime gives us pause in supposing that he libelled its people when he characterized them as vile.—Ed. *T. A.*

Guayaquil, 23rd June, 1891,

My dear ——,—Guayaquil, from which I now write, is the chief commercial city of Ecuador—so called, of course, because it is on the Equator. The city, which is on the west bank of the river of the same name (properly, the Guay), is sixty miles up from the sea, so that we have had an opportunity of seeing a good deal of this very beautiful and interesting country. The Guay is a noble river about four miles broad up to this point, by far the largest river falling into the Pacific from South America. It rises at the base of Chimborazo (21,420 feet high), which mountain, being only about fifty miles from here, is seen clearly when there is no mist. This, I am sorry to say, hangs thickly over its conical top to-day. A grand sight it must be to see a snow-topped mountain in the tropics. The town looks exceedingly well from the river, the houses being exactly like the better style of buildings in Colombo, only rather higher and brighter and either white or marble coloured. Trams ply constantly along the streets, and hundreds of telephone wires indicate that it is no mean place of business.

We no sooner landed, however, than my friend and I were sadly disenchanted, the buildings being, as a rule, mere "wattle and dab," plastered and painted according to taste. The streets are too horrible to describe, The manure of half a century seems to have accumulated on them. No macadamising, the rails being simply laid amongst muck and weeds. No other vehicle can be used. The public wells are in the middle of the street, on a level with the gutter, and this in one of the hottest places in the world! How the people live at all is a mystery to me.

The population may be about 50,000, and though they do not look a very noble or healthy race I am bound to say I have seen much worse, and rarely seen quieter people. No one spoke to us as we dawdled leisurely along the socalled streets; not a single beggar asked for alms, nor a newspaper boy pestered us with the "latest edition."

The country around is very luxuriant; every acre on every hill as far as the eye can reach is clothed in dense forests. From the top of a conical little hill at the upper end of the town there is a charming view of the river and surrounding country. We met with one cacao planter, who has estates eight miles up the river. His returns are, he says, 15 cwts. per 1000 trees—says 5 cwts. per acre. He seems well satisfied with this result. The language is altogether Spanish, and we already feel somewhat at a loss for an interpreter.

The chief exports from here appear to be cacao, coffee, sugar, rubber, plantains, cattle, hides, &c. The chief officer tells me they take on the ship an average of 7000 bags cacao (210 lb. each) every fortnight, and about 2000 bags of coffee. My interpreter made one curious slip in speaking to the hardy looking planter before alluded to. I was anxious to obtain some information regarding their system or mode of planting, "The *donkeys* plant nearly all the coffee and cacao in this country!" he said. He evidently thought I looked somewhat scoptical—and it was unfeigned. "Yes, yes," he continued, "those human-being-like beasts you call donkeys, they eat the fruit, drop the seeds, and there they grow." "Ah, I see: monkeys he means!" We took the address of this prosperous proprietor, and mean to visit him and his estates on our return. He has just had a trip home to Europe after a spell of forty years' work here, and he looks quite good for other thirty.

The more I look at this land the more forcibly does it strike me that, as regards the tropics, the Briton has by no means got the best of it. Apart from India proper, what are all our Sierra Leones, Guianas,* West India Islands or North Australia compared with this magnificent and salubrious, though sadly-mismanaged country?

We saw some very excellent coffee in the market—a fine, long, close bean, fairly well cured. Just before leaving, Chimborazo very obligingly showed his sugar-loaf-like head. It was only for a few minutes, and we left duly grateful. But a greater joy awaited us. While sailing down the river just before sunset the clouds cleared away from the snow-capped crown of the Andes, and lo! mountains piled upon mountains to the skies; my first peep of Peru, before which I fall dumb! Any mere words of mine would be sheer mockery. I can only ejaculate with Carlyle when he looked on the starry heavens, "It's a sair sicht!"† or with the Turk, "God is great!"

—*Aberdeen Free Press.* ARTHUR SINCLAIR.

THE WORLD'S INDEBTEDNESS TO CHRISTOPHER COLUMBUS.

The great international exposition which is to open at Chicago in the spring of 1893, in commemoration of the discovery of America, will undoubtedly be the greatest exposition of the achievements of genius and industry the world has yet seen. Within its extensive area will be found an epitome of the industrial progress of four centuries. In its catalogues and other records, in its reports and in the learned dissertations of the science congresses which will be held during the time it is open, will be formed the materials for a history of the material progress of mankind; of the manner in which the great discoveries of modern science have contributed to the prosperity of nations and to the comfort and happiness of the people. Time and history and progress are continuous, but we may divide them into periods. We now approach the end of the first great period of intelligent advancement. Out of the ignorance and superstitions of past ages has grown the sure knowledge of this closing century. So, the wisdom of today may possibly be the foolishness of centuries to come. But we think we build now on more solid ground. The four centuries that have passed have recorded their full share of ignorance, surviving from past ages, and the great advances upon which we pride ourselves are, with scarcely an exception, less than a hundred years old. Therefore, the coming celebration appropriately marks a point in the history of civilisation, from which we may date a new era, of even more rapid discovery and advancement.

The genius of the American people fostered by the new conditions of life and the stern necessities of their pioneer ancestors, has contributed much to the comfort and prosperity of the civilised world. But apart from this, the discovery of the American continent has had a greater influence upon the world at large than most people imagine. The indigenous products of the soil alone, have proved of immense value to the people of every clime, and in at least one instance have provided what is now the staple food of a distant country.

* Guiana is part of South America and from what we have read about it, unsurpassed for fertility.—ED. *T. A.*

† The version we have seen is that Leigh Hunt discanting on the cheerful look of twinkling stars and shining constellations, Carlyle's, response was, "Eh! man, but is a *sad* sicht."—ED, *T. A.*

It may be questioned whether the introduction of the potato into Ireland has been an unmixed blessing to the Irish people, but there can be no question as to its popularity among them. The "Irish potato," however, is really the American potato. When America was discovered, the *solanum tuberosum* was under cultivation in South America from Chile to New Granada. The Virginia potato came from Peru or Chile. In 1585 6 Thomas Herriott, a companion of Sir Walter Raleigh, carried the potato from Virginia to Ireland. It was introduced into Europe by the Spaniards in 1585.

The sweet potato, now such an important production in Japan and China, is supposed to have originated in South America. In the year 1610 the *batata*, by which name it is known to the Malays and Portuguese, reached China from Luzon. From here it was introduced into the Liukiu Islands, and thence, in 1698, the King of those islands sent a basket full to the Daimio of Satsuma, who caused them to be planted on Tanega-shima. Thus the culture was established in Japan, where the familiar name *Satsuma-imo* recalls the place of its introduction.

The history of the many varieties of beans grown in the Far East is scarcely known. The common haricot bean, now found almost everywhere, the lima bean, and the sugar bean, are all of American origin. The haricot bean is of very ancient growth. It was used by the Peruvians in prehistoric times. Specimens have been found preserved in their ancient graves. More recently Dr. Wittmarck, of Berlin, identified this bean among some specimens obtained from prehistoric tombs in Alaska, specimens which the writer of these lines saw in Dr. Wittmarck's hands, while the investigation was in progress.

Indian corn is another product for which the old world is indebted to the new. The oldest specimen of corn known was discovered by Darwin, in the soil of the Peruvian coast, at an elevation of 85 feet above the level of the sea. How old that is may be a matter of mere speculation. It was preserved in the dry soil for ages.

The tomato is also a native of Peru.

Tapioca is obtained from the starchy manioc shrub, indigenous to Brazil and the West Indies. The flour, known as cassava meal, had long been in use before the coming of the Spanish and Portuguese. The true West Indian arrowroot had also been long under cultivation in tropical America at that time. The squash and pumpkin also appear to be strictly American productions.

The cocoa tree which furnishes cocoa and chocolate was highly prized by the natives when America was discovered. It was under most careful cultivation, and already naturalised in Central America and Yucatan. It was probably introduced from New Granada. The Spaniards found the custom of drinking chocolate quite general in those countries. When the seeds were sent to the Mexican highlands, the people valued them so greatly that they used them as money. The cocoa and chocolate production of Central America and Mexico is now of great commercial importance. the sweet cacao butter, so highly prized in pharmacy because it never becomes rancid, is obtained from the seeds, being partly removed in the preparation of cocoa.

One might extend this list of food products to include many others, principally productions of tropical regions, which are not so commonly known. There are numerous nuts and fruits which are delicious, either fresh or preserved. The guava is one of these; but there are more important products to be mentioned. Coffee is not distinctively an American product, but two-thirds of the world's supply comes from South and Central America and the West Indies.

Caoutchouc or Indiarubber was first discovered in South America. Some specimens were taken to Europe about the beginning of the 18th century, when its valuable qualities were soon recognised, but for a long time the secret of its origin was not revealed. South America still furnishes one-half the world's supply, the greater part of the remaining half coming from Java.

The coca or cuca of Peru is a most valuable tonic, known and used very largely in Europe and America. It is said that the natives chew the cuca leaves to give them strength and endurance. They can then perform long journeys without food or rest.

The benefits derived by the world from the alkaloids of cinchona or Peruvian bark, can scarcely be overestimated. What would we do without quinine? We buy it in quarter-ounce bottles, but it is manufactured by the ton! The cinchona bark was first brought from South America in 1639.

America has been a large contributor to the commerce of the world in other productions not peculiarly her own. There are immense forests which yield an inexhaustible supply of valuable timber, there are cochineal and other dyes, vanilla beans, and innumerable bananas, pineapples, oranges, and other fruits. The fine, long staple cotton of the Sea Islands, which fringe the coasts of Carolina and Georgia, is produced nowhere else in equal perfection. The first bale of that cotton was shipped to England from St. Simon's Island in 1788.

The resources of South and Tropical America in textile fibres are by no means developed. Pita and henequen are produced in Mexico, sisal in Yucatan, and nobody can tell what importance these, and other fibrous products from the great variety of agaves—a type of which is the common century plant—may soon attain. The West Indies furnish enormous quantities of textile fibres—more than can be at present untilised. South America is rich in possibilities of the same kind. Some of its palm fibres are of great strength and value; as those from the tucum for example, of which the natives of Bahia make their fish-nets. The streets of London are daily swept with brooms of the piassaba palm, a product of Brazil.

Thus we see how the discovery of America has led to results of worldwide importance. Not only has it increased and cheapened the food supply of the world, and added to our resources in many ways, but, by opening new territory for settlement it has also relieved the countries of Europe from the perils of over-population. The increasing struggles of a close and growing populace for the necessaries of life, inevitably lead to grave social difficulties; finally to wars and revolutions. Is it too much to say that emigration has preserved Europe as it is?

It is therefore appropriate that the American people should celebrate the great discovery of Columbus, in 1893, and that they should invite all nations to participate in an international exposition of arts and industries, which shall represent the highest ideals of our civilisation, and the course of their development.—*N.-C. Herald.*

HORTICULTURE AND LANDSCAPE GARDENING

Haputale.

Gardening is steadily and surely progressing. The horticulture of the present is no more like the horticulture of the past, than the Post Office service of our own day, or means of communication or locomotion generally, are like to what either of them was thirty years ago. There is a general activity pervading the immense hive of human industry. Even

those of an indolent turn of mind, are pressed onward in the ceaseless hum. Commercial transactions are entered into and accepted now, thousands of miles apart, with as much promptness and celerity as they were between districts not tens of miles apart, only some few years ago. Opposition in trade, rivalry in production, and facility of despatch have indeed quickened the *genus homo*, and wealth and affluence have consequently been the outcome. The "good old times" about which we have heard so much have given place to better; luxury and social comforts have increased to a degree, and to such an universality, as furnish the most convincing and eloquent proofs of the progressive developments of mental endowments. Like Voltaire, we are thankful that we have the good fortune to live in this age, independently of the consideration that it is better to be still alive than to have lived. As regards the progress of horticulture, there is a marked change, and we are in a position to say, that each year will see its progress by rapid strides. Horticulture is wealth the wide, wide, world over. It is not a treasure hid under a bushel, but gives abundant riches, and there is still some more to follow. Wealth has grown, so has horticulture. Every cottager has his bit of garden wherein he grows his herbs for his soups, and his vegetables for the table. It is one of the "good things" of this life which a good God has given to the use, joy, and benefit of man. The proper croping of a garden, with little expense, will supply a whole household, of all classes and of every grade. Horticulture is enlisting into her army hundreds of volunteers every year. Her dominions being large, with such a diversity of subjects, that persons of every grade, white or black, is induced to take a greater or a lesser interest, in a less or greater number of these subjects. Time is even now, when certain classes of the people will not part with a few rupees, two or three at most, to buy a few vegetable seeds to crop a two-acre plot of good land, and command a good selection of choice vegetables, they are afraid they might overrun themselves, and incur an expenditure beyond the annual income of their means. A gentleman with an income say £150 per annum and upwards might have a good garden and enjoy the luxuries of plant life. If even they take the responsibility of doing the light labour, it is wonderful what an amount of gay flowers, and tempting fruit, and rich vegetables they could command, without incurring an awful large expense, than they can well afford. As to the quality of vegetables they are no better now than in the time of our forefathers. What we excel in, in our own days, is that we draw largely from our own resources, and provide a longer season of fruits, vegetables, and flowers. The demand for Nature's productions are great, and consequently, as in other branches of human industry, we have done all that is possible to be equal to the occasion. Our gardens and our fields have been enriched by collections of fruits, vegetables, and flowers from every region of the known earth. Hybridists and cross-breeders have been at work to improve the form aud alter the character of everything likely to take the market. If there is an introduction of anything new, that is likely to weigh well, there is a rush for that one thing, and the consequence has been it has overrun the market, the boards have been overstocked, and the whole thing has almost been a smash up. If it were desirable to prolong the season of anything that the garden is capable of producing, what pains, what attention, is manifested, and in course of time, probably after a series of reproductions the article is forthcoming. If anything new is imported of an almost abnormal kind, if it were of a little more than ordinary prominence, which if it is likely to take the market, the rapidity with which it is propagated would startle and surprise a practitioner living in the first quarter of this present century, it would have caused them to scratch their heads with astonishment. To be backward with anything now in the way of horticulture is a thing of the past; much could be said as regards the things of the past, how they were done, and how they look now, but I will keep off that subject at present; at any rate suffice it for me to say we can laud past operations. Business in horticultural matters is like business in other matters, it gives quite a different tone in these days. There is no apathy, no rest during business hours, no hoping, no dreaming, no sleeping; but all is enthusiasm, ingenuity, and push, as greatly different in character as the railway is to the uncomfortable, clattering, noisy old stage coach. Horticulturists of the right nature are animated by the same feelings, and are carried along in the onward march of progress. As Shakespeare says "all the world's a stage," and each man in his turn plays some particular part," and the horticulturist performs his own part well. First of all let us see what has been done and is being done in landscape gardening—we might ask where does it begin? and where does it end? All depends upon the scenery at disposal—the site—the climate—and the character of the mansion. With the material placed at our commands within the last quarter of a century, it would be a pity indeed if we could not leave some very distinct examples of high taste, as an heirloom to posterity. We have a grand and wonderful variety of form and colour in our nurseries to assist us in laying out and clothing our landscapes with all that is beautiful and interesting in tree life. This leaf-growing country which is rightly named, which is fanned by gentle and "spicy breezes" which breathe out spicy odours, and embalm the air with delightful perfumes, how the estates of this colony could be made effective and interesting, as well as producing good returns. What is more advantageous to the tea and coffee shrubs than good wind-belts, as a screen against rough and disastrous winds? Trees of a coniferous nature will produce a good effect wherever placed. Our forefathers had a limited catalogue to select from, but now there is no end to the species presented to us. They are almost compelled to hold hard and fast by a natural size, for the numbers of formal evergreen tree and bush life were very limited. We are compelled now, out of the collections of trees and shrubs found in our nurseries, to put on as fascinating appearance in our parks, pleasure grounds. and public gardens, particularly about the foreground where the highest art is centred, so as to reach a high degree. We can well imagine Knight, Price, and Gilpin, and others of the same school, crying aloud for the picturesque and the things natural in themselves. If they had lived in our own times, it is highly probable that the quantity of materials presented for landscape work of all kinds, and the variety of form and feature which these materials assume, would have brought a considerable change in their views. Their great aim was to create a landscape about which a painter would get into an ecstacy.

In the first place, what is most beautiful in nature is not always capable of being most represented, most advantageously by painting; the instance of an extensive prospect, the most effecting sight the eye can bring before us, is quite conclusive. I do not know anything that does, and naturally should, so strongly effect the mind as the sudden transition. from such a portion of space as commonly have in our minds, to such a view as the habitable globe as may be exhibited in the case of some extensive prospects. But in the ext- place, the beauties of nature itself, and which pannting can exhibit, are many, and most of them probably of a sort which have nothing to do with the purposes of habitation, and are even wholly inconsistent with them. A scene of a cavern with banditti sitting by it, is the favourite subject of Salvator Rosa; but are we therefore to live in caves, or encourage the neighbourhood of banditti?—Gainsborough's country girl is a more picturesque object than a child neatly dressed in a white frock; but is that a reason why our children are to go in rags? This is just the proposition which some maintain in the contrast which they exhibit of the same place, dressed in the modern style, and left as he thinks it ought to be. We are not living in caves, and rocks, and dens of the earth; but in God's beautiful universe. To me there is nothing more appalling than the walls, fountain basins, clipped trees, and long canals as in Versailles, not only because they utterly fail to satisfy in themselves, but inasmuch as they are ever

accompanied by a day-ghost of wasted effort, of riches worse than lost. If basins, and fountains, and statuary are not "in keeping" with the grand and spacious grounds of our Crystal Palace, or the beautiful and lovely gardens of Versailles, of which the Parisians are justly proud, then where are we to find a place for them? Are these Grecian piles of architecture, with their noble array, of Doric or Ionic, or Corinthian columns, to be surrounded with natural scenery without even one attempt to produce a groundwork more in accordance with the character of the pile? Are terraces and a mixture of statuary and fountains, in conection with geometric designs for flowers, not the very things that give a charm, a character, and a framework to such beautiful habitations of men?—Is "Paxton" on the one hand, or "Le Notre" on the other, to be condemned because their works bear witness to an appreciation of much of the elaborate style of ornamentation, of desire for scope of grass, and gravel, and riches of statuary, and squirting fountains? Certainly not! Their genius and their work was appreciated, and will be in the time to come. Places are not to be laid out with a view to their appearance in a picture, but to the uses and the enjoyment of them in real life; and their conformity to those purposes is that which constitutes their beauty. With this view walks of crushed stones and white pebbles, gravel, and ashphalt, are all well in their places. And neat lawns, straight cut alleys, fountains, terraces, and for aught I know, parterres and cut hedges, are in perfect good taste, and infinitely more conformable to the principles which form the basis of our pleasure in these instances, than the docks, and thistles, rampant weed, and litter and disorder that may make a much better figure in a picture. Have your own taste of course, but let it merge a little towards woodland scenery, and form the connecting between one and the other. Your house must be the centre of observation, whether it be constructed in the Grecian or the Gothic, or the Scotch barsinal, or any other style of architecture. Your earthwork designs must be planned, and laid out accordingly, let there be nothing done which will be a laughing-stock to the true landscape gardener. We have grand pictorial trees, such as those you see in "Peradeniya Gardens," beautiful in their individuality, and beautiful for the purposes of grouping and contrast; but they must all be placed in the right situation. The selection must be choice and suitable, according to the configurations and accessories of the place to be clothed. Where the grounds are limited, and shelter and privacy are an object of first consideration, our ideas as to fitness, proportion, and unity are considerably modified. We design and plant more in accordance with comfort than with the view of holding fast to a pet system. If you still desire being "hedged in," in this case, a living, thick, belt of trees of whatever sort is absolutely necessary; but at the same time the forefront of the house being the principal outlook, I think should always be one of far-seeing grandeur and beauty.

In accordance with the fashion of the times, the grounds in the immediate contact with the mansion or villa must have somewhat of a stylish aspect. You must have the best style of groundwork for showing off your fashionable and decorative flowers. You must have a good scope of grass, a portion of which must be invariably set apart for the game of croquet, and also a portion set apart for the bouncing tennis ball. In addition to all this (with a view to perfection) you must have a great variety of dwarf decorations—suffruticose and herbaceous plants, and a rockery or a rootery in some quiet nook for Ferns and alpines; in short, to be up to the times, you have to aim at a sort of "microcosm" of what is to be had in all the largest demesnes of our country and her colonies.

Should this letter fall into the hands of any lady or gentleman, desirous of laying out their pleasure grounds in a small or large scale, any valuable suggestion which is found therein and is made use of, and which are put into practice, the writer of the letter will be much benefited.

Haputale. WILLIAM METCALFE.

SAMPLING IMPORTED MANURES.

It is no uncommon thing to hear of complaints being made that the results obtained on our tea and coffee estates from manures imported from Europe differ very considerably from those prophesied of them by chemical experts. We believe that as the rule it is a very easy matter for a man trained in special knowledge as to such a subject to foretell with accuracy what the effect of certain chemical combinations will prove to be on soils the natural constituents of which, with their physical condition, are known to him. When, therefore, we hear that the *prognosis*—to quote, perhaps not inaptly, a term usually confined to medical science—of such an expert has not been realized, we may assume it to be only fair that the cause of failure must be sought in another direction.

There is some probability that in these days of competition, and of a laxness of principle attending it, the chemical manure manufacturer may not in all cases carry out what he professes to do. He may advertise a special fertilizer to contain such and such ingredients, but it may not be always the case that his shipments to a far-off country may be always up to the standard he proclaims. Or even supposing that as regards this he acts in full good faith, it may yet be that the manure he ships has been manufactured for some considerable time, and that, should its preparation include some particularly volatile ingredient, the fertilizing qualities of the manure may have undergone considerable deterioration. The only way in which, as it seems to us, this can be in any degree guarded against is by the purchaser insisting that a competent chemist employed by him should select samples from the bulk after the manure has been put on board ship, and that on the report made after analysis by him of such samples should depend the acceptance or rejection of the shipment, or the price to be paid for it. A case has recently been under our notice in which this precaution seems to have been neglected; and although there is no proof that neglect of this precaution is to be held alone answerable for the disappointment which followed, there may be a fair presumption that it had something to do with it. For, as we have above written, an experienced chemist versed in such matters could hardly miscalculate the resulting effect to certain chemical combinations; and if these had been fully provided for, and the fact ascertained by sampling on shipment, there could be no reason why disappointment should have arisen.

We do not suppose that among the ranks of chemical manure manufacturers the proportion of honourable or dishonourable men is greater or less than among other manufacturing agencies; but as we know that the second class are unfortunately to be found in no inconsiderable measure in every rank or walk in life, it would be quite as well if our planters were to consider the necessity when ordering a shipment of manure to provide against dishonesty or carelessness by insisting upon provision of the nature we have indicated being made. For if this be not done we cannot be surprised if the not unfrequent failures that we have heard of should recur, and fertilizers which might be of most useful effect earn a bad name thereby. And it is the more important that such a precaution should be taken because disparaging comparison is often made between the effect of imported manures and that of cattle, poonac, and other native fertilizers. The latter we know are always to be relied upon, but it does not follow that they

would yield the same efficient result as would a carefully selected chemical manure, if only this could be guaranteed as possessed of all the qualifications promised for it. The attention of our planting friends may well be drawn to a subject which cannot but be of much importance to them. Whatever question there may be as to improving the natural qualities of tea by the process of manufacture, there can, we suppose be no doubt that quality even more than quantity of leaf can be greatly enhanced by the liberal and judicious application of suitable manures.

COFFEE IN COORG.

The following is a forecast of the coffee crop in Coorg for 1891-92 which is given by the *Bangalore Spectator* :—

Forecast of yield as obtained from Planters' Returns... ...	Europeans Native do	2,198
Forecast estimated for area for which no returns have been furnished...	Europeans Natives	927 1,319
Total Forest for 1891-92...		4,444
Estimated average yield per acre of ordinary well cultivated coffee in full bearing for 1891-92.. ...	4 cwt.	
Return of export of coffee from Coorg last year 1890-91, taken from the Toll gate returns... ..	2,235	
Return of export of coffee for 10 previous years...	38,397 tons or 3,839 tons annual average.	

Taking the average or one Rupee crop at 3,839 tons per annum, the forecast of 4,444 tons for the coming season represents an 18-anna crop, the anna equivalent being 4444/18 or 247 tons; but taking the average yield at 4,000 tons it comes to a 17-anna crop, which is a crop somewhat above the average, and that is what is expected this year in Coorg, a full average, but not a bumper crop.

The amount of export of coffee is put down from the toll gate returns. These are not accurate as the toll contractors, in view of the renewal of their licenses at cheap rates no doubt manipulate the returns. The annual average ought not to be less than 4,000 tons.

FRESH discoveries of tin are reported from Tasmania, and no little excitement has been created in the colony by the large number as well as the richness of the new "finds." Some new lodes of a valuable character have been unearthed at Mount Mitchell, in the Blue Tier district, and also at a place known as Nuggety Gully, north of the Wellington mine. On the whole, the tin-mining industry in the prospering colony appears to have even a much brighter future before it than was anticipated a few years since, and both men and capital are now pouring into Tasmania from all parts of Australia.—*Colonies and India.*

SUBSTITUTE FOR INDIARUBBER.—Those who are financially interested in the Para rubber trade will watch with no little interest the progress of Blandy's Patent Syndicate recently formed on this side. The statutory meeting of the syndicate was recently held, under the presidency of Mr. D. W. Wales, who stated that the object of the company was to work a patent for the use of a substitute of indiarubber. At the present moment they were in negotiation with regard to the sale of certain of the continental patents, and they were producing samples upon a large scale. The tests that the material had been subjected to had proved in every way satisfactory, and they had received testimonials as to its value. Dr. Blandy was, at the present time, deciding upon the best place for the works. Mr. Wales expressed his opinion that the syndicate would prove a very profitable investment to all concerned in it.—*E. Mail.*

A REVIVAL OF COFFEE is thus noticed in a letter from a planter:—

'It almost seems as if there were going to be—on *a very small scale*—a revival of coffee. When I came down here from Dimbula in February I had no idea that there was a tree left on this Estate, not a berry having been picked for at least 3 years. But I find that the few trees which have escaped in the cutting out process are all bearing heavily, and I shall get a bushel or two for Bungalow use.

"Riding up the Kadugannawa Pass the other day I saw what I have not seen for years—*i.e.* coffee, green, ripe spread out to dry by the road side."

COFFEE AND TEA IN PERAK.—Besides coffee cultivation, which is now in full swing and yields the most satisfactory results to the planters, the Perak Government have lately made some very successful experiments in tea planting. We already had occasion to refer to that source of Perak's future revenue, and to mention that wherever it was tried, the Perak tea leaf was highly appreciated, both here and in London. Since then an enterprising Chinaman has taken over the gardens from Government, and engaged an experienced Darjeeling planter, under whose direction he is now extending the same. We tasted some of this tea a few days ago, and must say that we found it very good; it is not so dark in liquor as the Ceylon tea, but has a very nice and pleasant flavour and good strength. Local industry always deserves to be encouraged, and we feel sure that the inhabitants of Penang will soon come to appreciate the undoubted qualities of this tea. As will be seen from an advertisement in another column, Perak tea may now be procured from Messrs. Maynard and Co., Limited, and all the leading shopkeepers of the town.—*Straits Independent*, Aug. 19th.

TEA IN CHINA.—We have the following tea news from Foochow, under date 25th July:—The calling steamers during the fortnight have been the "Ajax," "Pingsuey," "Glenavon" and "Agamemnon." They took between them 2 million lb. bringing up the export to Europe to date to 9 millions, against 8½ millions at the same date last year. The "Benalder" is loading. The tone of the market has been quiet. The settlements of Congou are reported at 34,000 chests, a very moderate business for the time of year. The attention of buyers has again been directed chiefly to common up to good medium grades, although the teamen have been trying to make their fine teas tempting by inviting offers to be made for them. The tendency of prices generally has been downwards, excepting for common grades, which remain firm. Amongst teas which show a decline are first crop Saryunes and Sueykuts, and second crop Sueykuts, also good medium Panyongs at Tls. 46½ to 18; all may be quoted Tl. 1 cheaper. On fine and finest Payongs a decline of fully Tls. 3 may be quoted. Souchongs are dearer. Looking at the question of total supply, the prospects, so far, are not altered, although the arrivals during the fortnight have reduced the present deficiency by some 24,000 chests. The second crop happens lately to have come in in bulk, but as it is almost finished, and is short, the large deficit shown at the beginning of the month should reappear in another week or two. The prevailing opinion amongst foreigners is, that the quotation for common must bring down large quantities from the present time, but the Chinese affirm that it will not be so, as the tea cannot be got. The arrivals of Congou to date are 259,000 chests against 317,000 chests, the settlements are 163,000 chests against 143,000 chests, and the stock is 96,000 chests against 174,000 chests at corresponding date last year.—*N.-C. Herald*, Aug. 7.

"SIROCCO DAVIDSON" AND HIS NEWEST IDEAS AND INVENTIONS IN TEA MANUFACTURE.

The receipt of an early copy of the Indian *Tea Planters' Gazette* enables us now to quote the full and detailed account, which received Mr. Davidson's *imprimatur*, of his system of manufacturing tea at a low temperature by means of a powerful down draught so as to preserve the volatile oil on which flavour depends, and to impart what is said to be so much needed,—keeping qualities. Our planting readers will see that our own article in which we gave the results of our interview with Mr. Davidson embodied all that was essential in the improved process, as Mr. Davidson indeed cordially conceded. Mr. Davidson's verdict that all the Ceylon teas have the quality of high grown means that they are distinguished by delicate flavour. The more important, therefore, is it that we should omit no effort to preserve a quality, without which, Mr. Davidson's experience shows our product cannot make headway in the Continental and American markets. In the portrait which accompanies the notice of the distinguished planter and machinist, justice is done to his fine aquiline features and intellectual head. It is a noteworthy circumstance that Mr. Jackson, whose rollers are the most popular in the world, and Mr. Davidson, whose driers are equally, popular, should both be of Scotch origin. The difference is that Mr. Jackson is a *pucka* Scotchman (to use the Hindustani word which occurs in the article), hailing from "Aberdeen awa'," while Mr. Davidson is a *cutcha* Scotsman, having been, born in Ireland. But he can claim, like another man so born, that it was 'because he happened to be there at the time." He is in truth a member of the Scotch colony in the north of the emerald isle who by their intelligent enterprise, and steady industry have proved what a different country Ireland might be, if she were relieved from the *incubi* of ecclesiastical thraldom leading to ignorance, on the one hand, and unscrupulous agitators on the other. To us it was interesting and amusing to listen to able scientific disquisitions in language rendered piquant by the delicate combination in it of a Scotch foundation accent with refined Irish brogue. It will be the pleasing duty now, we cannot doubt, of the *Indian Planters' Gazette* to include in its portrait gallery and series of memoirs as good a likeness and as appreciative a notice of the other greater benefactor of tea planters and manufacturers, Mr. Jackson, as have been given of Mr. Davidson. For Mr. Jackson it is claimed that his improved driers, specially the *Britannia*, if rightly worked, will secure all the improvement in quality which Mr. Davidson's processes are calculated to effect.

MR. S. C. DAVIDSON.

(From the *Indian Tea Planters' Gazette.*)

Most of our tea planting friends are doubtless aware of the fact that Mr. S. C. Davidson, the clever inventor and manufacturer of the now thoroughly well known Sirocco Tea Dryers, has been on a visit to the Indian Tea District since last November, and as we considered it only right that the portrait of a gentleman to whom the tea industry owes so much should be produced in the columns of the planters' only journal, we took the opportunity of calling upon Mr. Davidson when he was passing through Calcutta on his way home and just before leaving, and he very good naturedly acceded to our request, went to Messrs. Bourne and Shepherd's and faced the camera with the satisfactory result which we print on the opposite page. We further had the pleasure, in interviewing Mr. Davidson, of gathering the following interesting particulars of his career:—Besides being an inventor of manufacturing machinery he is also a tea planter of long experience, having begun his career as a planter on his own estate in Cachar in 1864 when only seventeen, and although he retired from active management of his tea property some fourteen years ago, with the object of starting a manufacturing business at home for the several machines which he had even then invented and patented in connection with tea manufacture, yet he still continued to direct the management of his concern out here, and kept himself thoroughly in touch with all the progressive improvements and details of tea estate work in general and manufacture in particular, as he sensibly considers that an inventor and manufacturer of machinery for any special industry must, to keep abreast of the times, have the growing requirements of that industry always perfectly clear to his mind; and he also holds that to excel in the manufacture of any special article a knowledge of what both purchaser and consumer look for in that article is equally necessary—hence with this view and while carrying on his machinery business, he opened up what has now developed into a large business in Tea in the United Kingdom, and had branch establishments for the same in Paris, Berlin, Munich and St. Petersburgh, and on a more extensive scale in New York. He found however, that the public taste in these places was strongly wedded to China and Japan teas, and that the cultivation of a taste for teas of Indian and Ceylon growth was a matter of such slow and gradual development, that the sales were as a rule, insufficient to support a business exclusively devoted to these teas, so last year he reluctantly decided to discontinue these branches. He however, feels sure that the experience gained by him through this foreign trade and the investigations which it became necessary to make to ascertain the special peculiarities of the public taste in tea of such different nationalities, gave him more information as to the true value of flavour, considered altogether apart from the matter of strength, than if he had confined his operations exclusively to the United Kingdom, and as a broad rule he ascertained that it is flavour and not strength that Continental and American tea drinkers look for and place most value upon. Accordingly about to years ago he began a series of preliminary experiments with some of the very finest flavored teas that he could procure of China and Darjeeling growth, to ascertain if their beautiful flavor could be enhanced by the application of any special degree of temperature in the drying process; these experiments were carried out in his laboratory, but somewhat to his surprise he found that instead of getting an enhancement of flavour from the action of any high temperatures, the reverse was the case, and that when the tea was raised above 130 deg. the very delicate flavour gradually diminished; until at 160 deg. to 180 deg. it almost entirely disappeard but so long as the tea was kept below 130 deg. it did not suffer in the least, though no improvement was effected by the heat applied; it was thus evident that the avouring matter of the leaf gradually became volatile when the temperature of the tea itself was raised to over 130 deg. and that what has got to be done in the manufacture of tea is to so dry it that these volatile constituents may not be lost. If they are lost by the employment of too high a temperature, he then found it necessary to go as far as 240 deg., at which temperature an artificial flavour known as "malty" is produced which to some extent compensates for the loss of the original pure tea flavour, but the great objection to the malty flavour is its tendency to, what the trade calls, "go off" in two or three months and hence the complaint which the home trade have of late years raised as to the non-keeping qualities of Indian teas. It thus became perfectly evident to Mr. Davidson that in the first place the flavour must be a matter of the development due to climate effects on the growing leaf and its treatment in manufacture prior to the drying process,

while the object of the drying process must be confined to the desiccating of the leaf without driving off the flavour already developed. He thereupon got some experiments carried out for him with sample lots of leaf by some of his numerous planter friends, and the information which he gleaned from these experiments has proved so important that its outcome is the introduction now by Mr. Davidson of what promises to be a revolution in many of the established ideas and principles concerning the manufacture of our teas. One part of the system which he has evolved is for the enhancement of flavour and quality of the tea prior to the drying process and is the subject of one of his later patents. Two of the very largest of our Indian Tea Companies were so satisfied with the probabilities of the results that would likely ensue by working this special process that they arranged with him for its use, with the several patented machines which are necessary for its proper working being exclusively confined to themselves, so that we understand they are well satisfied with the results they are obtaining therefrom, yet in-as-much as this part of the process is to be confined to these companies, we cannot further refer to it; but the remainder of Mr. Davidson's investigations as above indicated we are at liberty to submit to the consideration of our planting friends, as the improvement effected by attention to the directions he gives as to the temperatures for drying have, in some instances that we are informed of, given a most wonderful improvement in the quality of the tea produced. Mr. Davidson points out that it is essential while using low temperatures that either the leaf be spread extremely thin upon the sieves upon which it is exhibited to the heat, or that if spread thick, the air draught through it should be very rapid to carry off the moisture quickly without involving any risk of the tea being "stewed." For this purpose and to meet these desirable ends Mr. Davidson has greatly increased the power of the air current through his new Down Draught Sirocco, which he now recommends being used at 150 deg. temperature for cutcha* battie and withdrawing the leaf before it is quite crip dried, so that its temperature when tested by thermometer should not indicate more than 130 deg., and that the final drying or pucca† battie of this should be worked at a temperature of 130 deg. Some hill teas made on these lines have a very delicious and exceptional flavour. Of course leaf grown in the plains cannot be expected to have as much flavour as hill tea, nevertheless such as it does possess Mr. Davidson says can be fully retained by following the above directions.

We understand that Mr. Davidson hopes to arrive back at his Works in Belfast about the latter end of September and although these are already extensive premises (notwithstanding their recent inauguration some 10 years ago) yet we predict that if he continues to give the same detailed and scientific attention to the improvement of tea in its general manufacture that he has hitherto bestowed upon it, their growth will be still more rapid and that a great and prosperous future is in store for him, as it is only by improving the quality of the Indian teas that the death-blow can be dealt to those of China which are still much sought for on account of the delicacy of their flavour in the high class qualities, these being still the favourite teas both on the Continent and in America.

We are indebted to the sailing of the S.S. "Golconda" having been unexpectedly postponed from the 4th to 5th instant for the above particulars and Mr. Davidson's photograph, but unfortunately we omitted to obtain from him any particulars of his private history, and we have now only to conclude by wishing him *bon voyage* to ould Ireland for which he leaves Ceylon early next month.

TEA SHARES AND INVESTORS.

When the claim of less substantial but more freely advertised companies are in abeyance, the financial press occasionally calls attention to the financial position of the tea industry. In its issue of yesterday, the *Financial News* had a long article on the subject, and the writer, while dealing with the position fairly, has nothing to reproach himself with on the score of undue optimism. He says: One of the features of the financial year, so far as it has gone, is the stability of Indian and Ceylon tea shares amid all the fluctuations of the other markets. For one thing, they remain outside the range of the ordinary speculator, and, for another, there are few of them quoted in the Stock Exchange list. One may hear occasionally of a movement in Jokais, which for the last seven years have been paying 10 per cent., and sometimes of a transaction in Dooars, or Darjeelings, or Jorehauts. The investor, however, who believes that he has a grip of a good security does not usually carry his heart exposed for daws to peck at; and, on the other hand, the unfortunate persons who have dropped money on the strength of deceptive prospectuses usually maintain a cynical silence as long as they think that there is a chance of transferring their white elephant to someone else. Indian tea shares, and particularly those of the new Ceylon plantations, have been so little known, indeed, that in certain quarters the value of a new discovery was attributed to the article in the *Financial News* of February, which discussed and explained the subject from an investor's point of view. The question then was, why tea, as a commodity, should have attained so high a price as it then held, and why tea company shares should continue to be so disproportionately low. Our answer was, substantially, that many of the companies—and we were referring particularly to the Indian companies—had been over capitalised, and many others extravagantly and unscientifically managed. There were too many of them, also, which seemed to regard quantity rather than quality as the Alpha and Omega of their policy. On the whole, nevertheless, we felt free to say that, in view of the increasing demand for the "cup that cheers," there should be good prospects for investors in well conducted tea gardens, whether in Assam, or Cachar, or Ceylon. Since we dealt with the question six months ago tea shares of one description have appreciably improved, nearly all have held their own, and, at the same time, a larger number of companies have earned good dividends. Yet, even when so much is said of the past half-year's business, it continues to be the fact that tea shares are not in active demand, and are, as a rule, quoted lower than recent dividends would appear to warrant or explain.

The *Financial News* bases its calculations on the statistical report by Mr. A. W. Martin:—

Name of Company	Paid-up Capital £,	Dividend per cent 1889	Dividend per cent 1890	Return per cent on July share prices £ s
Assam	187160 ..	10	10	5 19
Assam Frontier	110,000 Perf. ..	10	9	6 0
	110,000 Ord. ..	12½	11	7 6
Borelli	78,170 ..	10	7	7 15
Borokai	43,560 ..	9	7½	7 10
Bramapootra	114,500 ..	18	20	10 0
British India	60,825 ..	—	¾	6 0
Chargola	18,000 7 p.c. Pref	8	8	8 0
	73,500 Ord. ..	7	7	7 15
Chubwa	36,140 ..	—	—	—
Darjeeling	135,420 ..	6	6	5 14
Dooars	29,360 7 p.c. Pref	7	7	5 0
	106,000 Ord. ..	10	10	8 3
	25,648 Ord. ..	—	—	—
Doom Dooma	25,000 "A" ..	8	8	5 14
	75,000 "B" ..	16	15	10 4
	16,100 Ord. ..	14	13¼	9 16
	14,500 New ..	—	—	—
Indian of Cachar	94,060 ..	6	7	7 15
Jhanzie	56,000 ..	8	10	8 6
Jokai (Asam)	200,000 ..	10	10	6 9
Jorehaut	100,000 ..	10	10	6 1
Lebong	82,070 ..	6	6	5 9

* Temporary or preliminary: the primary idea is the reverse of solid and termanent.—ED. *T. A.*

† Permanent, solid, or final.—*T. A.*

Luckimpore	76,852	..	6	5	10 0
North Sylhet.....	400,000	..	12	14	14 0
Scottish Assam....	79,590	..	5½	5	6 13
South Assam.... ..	400,000	..	12	15	14 0
Tiphook..... ..	26,000	..	5	6	5 10

"These results," it remarks, "are taken from a list of fifty companies, some of them unknown by name outside the circle of their limited proprietaries. Of the fifty, twelve paid no dividend for 1890, and among the dozen are four or five which were born to a condition of impecuniosity, and, like Mr. Micawber, survive upon their hopes rather than their income; but when deductions are made on this account, and for sundry frauds or failures to which Mr. Martin makes no refereuce, there is a solid foundation left for the belief that tea companies are well worth looking into as investments. Meanwhile, the output of Indian and Ceylon teas has been rapidly increasing, while our import of the China leaf is continually declining. The total imports from India for the year ending with June last were 100,984,000lb. against 100,685,000lb. in 1889-90, and 94 381,000lb. in 1888-89. The Ceylon imports were 50,191,000lb. for the twelve months ending June last, as compared with 34 290,000lb. in the preceding year and 27,890,000lb. the year before. The supply from China and Japan fell from 92,519,000lb. in 1888-89 to 90,050,000lb. 1889-90 and 69,742,000lb in the year ending in June. Tea imports from Java amounted to 4,120,000lb. in 1890-91, a considerable improvement over the 3,094,000lb. of the previous year but a decrease on the 4,297,000lb. in 1888-89. But, the most noticeable circumstance in this connection is the growth of the tea industry in Ceylon. The deliveries in the port of London have swolle. from 24 904,800lb. three years ago, to 44 682,000lb. between July 1st, 1890, and June 30th, 1891, or from the rate of 2,075,400lb. to 3,706,900lb. per month. Last month (July) the import was, in round terms, 5,750,000lb and the deliveries about 5,500,000lb. It is on these remarkable evidences of development that Ceylon tea planters base their estimate that in ten years time the output of the island will reach 100,000,000lb. per annum, or as much as the import from all India today. The accounts for the last half-year have not yet been made up, and Mr. Martin's table includes only four Ceylon undertakings, of which one is the Eastern Produce and Estates Company, whose history is not exactly encouraging. Of these, however, it may be noted that the Ceylon Plantations paid 15 per cent on its ordinary shares, the Lanka Plantations 6 per cent and we may add that the Land and Produce declared a January dividend of 10 per cent.* There are, no doubt, rocks ahead of the British tea planter, and one of them is indicated in the figures we have quoted with regard to the increase in the volume of imports, both from India and Ceylon. Mincing Lane rates are not what they were six months ago, and prices have approached nearer to the narrow margin which represents profit on the cost of production. The general consumption does not seem to have diminished. The home demands for the eleven months up to May last was estimated at 100,000,000 lb. Indian and 40,000,000 lb. Ceylon, against deliveries during the twelve months ending June of 96,456,000 lb. Indian and 42,853,000 lb. Ceylon. But it it a moot point whether the output of British-grown tea, encouraged by a demand which was stimulated by low prices, and fostered at the tea gardens by the competitive efforts of rival managers, is not overtaking the requirements of the consumer. Another problem before the Ceylon tea planter is, perhaps, even more perplexing than that of preventing a glut in the market. He has yet to discover some method of cultivating the plant or curing the leaf which will give Ceylon tea the enduring qualities of the growths of the Chinese and Assam gardens. It is an open secret in Mincing Lane that Ceylon tea will not 'keep.' Your Chinese leaf will stand a year's warehousing; your Cingalese loses its flavour and fragrance in a quarter of the time. This is a difficulty which ought not to be insuperable to the scientific botanist; and after all, it is one of the points embraced in the larger question as to whether the future prosperity of tea investments does not depend more upon the quality of the product than the quantity produced."—*H. and C. Mail.*

* It ought to be taken into account that in all these cases fortunes ruined by the collapse of coffee had to be retrieved by tea,—the process being still in operation.—ED. *T. A.*

KINMAN'S No. 251 PATENT TEA DRYER.

TO THE EDITOR OF "THE PLANTERS' GAZETTE."

SIR,—Will you or any of your readers give their experience of Kinman's Drier No. 251, the last one he brought out some three years ago.

Details such as speed of fans, amount turned out per hour, quality of tea,—whether any trouble is experienced with the fine leaf travelling into other parts of the Machine,—whether it has been found suitable for "final firing;" these and any other details would be very interesting and instructive to one

"SORELY PUZZLED."

LONDON TEA LETTER.

HONOUR LIST.

		£	s	d.
Gallebodde (Ceylon)	.. 1 Box Golden Tip	2	1	0
Sœkamadjœ (Java)	.. 6 Boxes Silver Tip	no bid		
Hukanpukri (Jokai Assam)	.. 12 Boxes Flowery O. P	4	7	
Tjisalak (Java)	.. 1 Box Golden Tip	3	0*	
Bokel (Jokai), Assam	.. 19 Chests B. O. P. Refused.	2	2	

From the above it will be seen, that Java has been trying, so far unsuccessfully, to compete with Ceylon in the "Golden Tip" advertisement competition. Very much more meritorious than these fancy samples was the commercial line from Hukanpukri which realised 4s 7d per lb. A sample of this is before me as I write, and it speaks for itself; the liquor is all that could be desired. The coloured "tip" of a rich orange gold, largely predominating over the black "tip." Of course it is practically all "tip," well twisted, and clean, and even in size. Yet, unlike, the separately plucked, fancy, Ceylon samples, it has all the appearance of a genuine commercial "Line."

Of real news there is very little, if any, just now. Everything is quiet, and more or less unsatisfactory in the business world generally, not alone in tea, and there is a waive of depression over things Commercial just now, which is doubtless helping to keep tea down, with other things. It is apparently the usual reaction after a spell of "decent times." The chief anxiety in the Tea Trade here at this moment, is to get at the probable export from India and Ceylon for this season. Accounts vary, and Estimates just now show very wide differences. We are in the week before the August Bank Holiday, and that may account for some of the absence of enquiry, which is so marked a feature of the moment. The question everybody is asking is, "Will India send over her 112 millions, and exceed by so much her last season's export? If she does, and if Ceylon sends as much as is now expected from her, it will be a revere handicap on prices later on, when the heavy arrivals have to be dealt with.

The prospectus of the "Palais Indian Tea Houses, Limited," came to hand too late to refer to by last mail, and is now, of course, old news. The effort is well meant, and should also prove an important insurance for those few public spirited men who have borne the burnt of one fray after another, by subscribing to Guarantee Funds in the interests it is true of themselves, but also of the great majority, who, have, as a rule, been conspicuous by their absence from every effort made to "push" Indian Tea, which involved a pecuniary risk. This new departure may be the beginning, or, more strictly speaking, the second real step in the direction of attracting continental atten-

tion to Indian Tea, on a scale which may ultimately compare with the scope and talent displayed by those interested in pushing Ceylon Teas in *this* country. The weakest part in the Prospectus is the absence of any statistics or data, showing the actual results and rate of improvement in the sales, since the start, at the Paris Exhibition. To those outsiders, if any, who might be tempted to subscribe, this omission might be ominous, as it would, of course be the first thing looked for. I hear that the hairy dust is now being removed from the sorting rooms in some Ceylon Tea Factories by means of small sized Blackman Fans.—*Indian Planters' Gazette*

THE WRECK OF THE QUININE COMBINATION.

In our issue of July 18th we expressed the belief that the last word had not yet been said in the dispute between the Auerbach and the Brunswick quinine factories. Our anticipation proves correct, for we have this week received a communication from Mr. Hugo Andreae, the president of the Auerbach factory, in which he maintains the correctness of the previous statements, and affords us one or two more glimpses into the history of the combination negotiations, which we will chronicle here, not only for the sake of the historical interest which they possess, but also because they may indicate the outlines upon which future attempts at combination building will probably proceed. In the first place, Mr. Andreae explains that, though the figure of 50 marks per kilo. was correctly mentioned by the Brunswick works as the proposed combination-price for sulphate of quinine, that figure was constructed of purely imaginary elements, the figures in the "protocol," embodying the basis of the combination, being only intended to illustrate the proposal of the promoters of the ring. The wording of this part of the "protocol" is as follows:—

§ 7. A certain amount shall be added thereto for cost of production (this amount to be added.)

§ 8. A profit (to be agreed on) to be added to this figure and sum total to form the minimum selling price.

Example:

Price of sulphate in bark, according to paragraph 5	23s per kilo.
Cost of production	15s per kilo.
	38s per kilo.
(Including all charges, freight, &c.):—	
Profit agreed upon	12s per kilo.
Minimum selling price	50s "

The figures, says Mr. Andreae, should be taken in a purely emblematic sense, in proof of which he points out that the amount of 15s per kilo. is so much in excess of what all quinine manufacturers know to be the real cost of production that it could not possibly have been meant to indicate the actual intentions of the would-be combiners.

In our article of July 4th we specially took exception to this estimate of the cost of the production of quinine as an exaggerated one. It further appears from Mr. Andreae's letter that the "protocol" was handed by the Auerbach to the Brunswick representative, not in London, but at Frankfort-o/M., the seat of another of the four German factories. The selection of Frankfort as the meeting place of the opposing interests not unnaturally suggests that, on the German side, the Auerbach and Frankfort factories were the two firms most anxious to bring the negotiations to a successful issue. But the Brunswick directors were obdurate from the outset. At the Frankfort meeting they declared that no considerations would induce them to sacrifice their freedom of action, and at a subsequent stage of the proceedings they altogether refused to attend the conferences, while the London agent of the Brunswick factory selected the very moment when the negotiations approached a critical stage, in the middle of January, to depress the quinine market by offering the drug right and left at reduced prices. If Mr. Andreae is correct, the position of the Brunswick works was one of antagonism to the planting interests, while the other manufacturers desired, if possible, to include all the planters—and certainly the principal producers in Java and Ceylon—within the projected combination. In his letter to us, Mr. Hugo Andreae claims that all the quinine manufacturers, except the Brunswick works, adopt his side of the question, and agree that it would have been folly to endeavour to establish a combination which left the planters outside—*i. e.*, in opposition.

In other words, Auerbach, according to its apologist, invited the motley multiplicity of interests to seek salvation beneath the ample folds of the grand old combination umbrella, while Brunswick insisted upon figuring as the man who remained true to one party only, and that party was himself. "To leave out the planters," thus argued the majority, "will be to encourage them to form a combination of their own, to establish a quinine factory in the East, and to become their own manufacturers." Such a step has been in contemplation before, and, were the growers to set about its realisation in a determined manner, it is quite possible that the scheme might be worked successfully. But up to the present the planters have shown no more capacity for organisation than the quinine manufacturers themselves.

With regard to the view (set forth by the Brunswick works as the main reason of their withdrawal from the negotiations), that it would be impossible to provide for the absorption of the surplus production of bark by the combination, Mr. Hugo Andreae asserts that the combination promoters hoped to obtain the adhesion of the principal planters to a scheme for the reduction of the output of bark, while they were prepared, if no other way out of the difficulty could be found, to buy up and put aside such a proportion of the stock of bark as would prevent the question of over-supply becomming a pressing one for some time. The president of the Auerbach factory believes that the establishment of a union among the planters would have been a difficult, but by no means an impossible, undertaking, and he holds that, if the larger producers could have been got together, the smaller ones might have been safely left alone if they chose to remain outside. But among the manufacturers no outsider could be allowed if the scheme were to succeed.

It is only just to reiterate that the preceding observations are based wholly upon the view taken by the Auerbach factory, and that further communications by other parties to the negotiations might place matters in a somewhat different light. But, at any rate, we cannot affect sorrow at the failure of the quinine interests to form a great organisation which would have absolutely controlled the market and rendered successful competition practically impossible. So far as the revelations we have published enable us to judge, there is now no prospect whatever of the establishment of such an organisation. The combination of the quinine producers appears to be an object more difficult to attain than the union of the Australias, the abolition of standing armies, or the completion of the Channel tunnel, and it is not extravagant to assert that when the latter schemes shall have become facts of ancient history, the quinine people will still be in doubt whether to look east or west for the master mind that shall consolidate them. —*Chemist and Druggist*, July 25th.

A SHORT BRAZILIAN COFFEE CROP.—A Washington dispatch says that the latest estimate places the Brazilian coffee crop for 1890 91, now coming into market, at 2,200,000 bags. Notwithstanding the high prices the daily receipts do not average over 3,000 bags. Should the present disorganization of labor continue it is believed that the coffee crop for 1891-92, now placed at 8,000,000 or 9,000,000 bags, will not exceed 6,000,000 or 7,000,000 bags.—*Bradstreet's*, August 1st.

NOTES BY "WANDERER."

Aug. 5th.

Weather continues damp, so the factories are anything but busy in the high districts, or even over 2,000 ft. Good tea is now being made, and every planter seems determined next year to have plenty of withering room, and facilities where possible, to have the moisture taken off the leaf in cold showery weather. The great desideratum however is to have a sufficient number of coolies to overtake the rush of leaf in the showery weather that follows the dry months of January, February and March. The London *Times* is cabled as having thundered forth the necessity of "England sitting tight to Egypt." The tea planter must "sit tight to Ramasamy," and our Government must be prepared to give assisted passages to our coolies by any route they choose to come to Ceylon.

Health is not very satisfactory among Europeans just now. Colds so severe as to warrant their being called attacks of influenza get hold of the high-countryman, and fever, rheumatism &c. worry the lowcountry planter. We do not hear of the influenza epidemic among coolies as we did last year, but some of the half-starved coolies don't get in touch with their surroundings in Ceylon, till they have a few stomach-aches, and kindred ailments.

Planting.—The weather could not have been better for the new clearing and supplying man, if he had got it made to order. A great deal of arrears in supplying has been made up, and little additions to cultivated area of tea have been completed in the older districts. Except on the Uva side of Nuwara Eliya and the lowcountry there has not been any large addition to the area under tea The Government is quite right in not putting up more land fit for tea cultivation to public sale. We hear of long continued drought in Uva and Udapussellawa. One wonders how the tea bushes will stand these droughts as they get old. Will red spider then get very troublesome, and rust hasten decay? Young coffee could stand drought even in Dumbara, but as it grew old it succumbed. How will a thirsty plant like tea stand 3 months' drought?

The Ceylon Government Railway is beginning to be a well abused institution. Oh for the days of a Robinson and a Strong!! We hear constantly of badly working brakes, runaway engines and trollies, discontented servants, and engines not in safe condition. The fact is we want a real administrator for our Chief Manager, whose salary would be sufficient to attract a first-class man from home, to undertake the difficult job of railway administration. The salary given to the Government Agents of the North-Central or Western Provinces would not be too large for a good administrator.

Ceylon Tea Companies.—How to get 15 p.c. on a block capital of opened tea land per acre of £30 will puzzle some of our managers at present prices even with present favorable rates of exchange. Ten cents a lb. is about the profit on an estate yielding 350 lb. an acre on the hills or 35 rupees an acre profit. If tea goes down to eightpence, the company manager will have to scratch his head all the more! However, if Ceylon tea is ever to be cheap, now is the time, for no doubt it is getting into consumption with a vengeance. It is all rot about the non-keeping quality of Ceylon tea except in the month of April, May and June, and we will soon be able to dodge even these months by improvements in withering and firing.

Tea Machinists are Awful Chargers.—The cavalry at Balaclava were not in it with these worthies. The tinker who mended one hole and broke two is no doubt the ancestor of the Ceylon machinist. I believe his future award will be to be let stand in the rain of Pedro for two days, then ogeyed in a tea leaf cart to some suitable factory in the neighbourhood of Nuwara Eliya where he will be allowed to wither on a cold damp tat for three days, then to be rolled in Barber's roller for half an hour and Jackson's rapid for another hour. After that he will have two minutes each in the three patent roll breakers. He will then be roasted in the sirocco and Brown's desiccator, and to effect a perfect cure, so that he may have bowels of compassion on his benefactor, the tea planter, he will then be put in Jackson's cutter and sorted in Walker & Greig's sifter. He will then be sent to Colombo to be sold by auction and there have to listen to the feeble jokes of the tea buyers of our maritime capital. I believe this last process will be the most painful of any of the others described previously.

THE "HEATHEN CHINEE" RIGGING THE CHINA TEA MARKET.

The Foochow correspondent of the *Hongkong Telegraph*, writing on the 8th, tells the following tale of the alarm there:—We just found out today that much of the excitement was due to shrewd work on the part of some tea speculators. The crop this season opened fairly well and large shipments were made to London. Here on account of competition from Amoy, India and Ceylon, the market was very flat and every sale of Foochow entailed heavy loss, running from 20 to 55 per cent and averaging 40 per cent on the lot. This meant ruin to many hongs here and a worse financial condition than has ever prevailed in the history of the place. Some of the people who are heavily interested resorted to an old Wall Street ruse and cabled home that an uprising had begun, rioting was imminent and all the tea-hongs were to be burned to the ground. The *Times*, *Telegraph*, *Standard* and the minor dailies swallowed the bait and published the news as well as editorial paragraphs upon the unexpected trouble. As such a riot as described involved the destruction of the present crop and the cessation of shipments for the rest of the year, the London market revived and prices rose quite handsomely. Those who despatched the telegrams have cleared a good profit and probably recouped their losses. No harm has been done to anybody, but there will undoubtedly be an elephantine roaring and growling when the editors at home discover how they have been imposed upon. As a matter of fact, the Foochow natives are, and have always been docile and peaceable. The only ugly elements are 1,500 discharged Honan soldiers, who are penniless and ready to rob and pilfer at every opportunity. On the other hand there are over 8,000 troops here well-disciplined and armed who could suppress any riot in a half hour. The authorities at Peking are alarmed at the indemnities already demanded from the Yangtze district and have advised the generals here by telegraph and proclamation to prevent the slightest disorder and to behead any one guilty of seditious conduct or even inflammatory language. It is safe to lay 50 to 1 that there will be no serious trouble this season at least.—*N.-C. Herald*, Aug. 21st.

COLONIAL [NATAL] TIMBER FOR RAILWAY PURPOSES.

Commission Appointed.

Some interesting papers relative to the testing of the value as timber of certain exotics grown in the colony, such as the eucalyptus, wattle, &c. The question first arose through the Maritzburg Botanic Society drawing the Government attention to the following points:—

1. To the extreme importance of testing the value as timber of the exotics, such as the eucalyptus, wattle, &c., so freely grown in the colony.

2. To the circumstances that there is, at the present moment, a very large quantity of such exotics of such an age as to be ready for felling.

3. To the fact that, owing to the absence of any such test, there is a prejudice on the part of the users of timber against our exotics; and

4. That the recent arrival of the Conservator of Forests, appears to suggest the present as a suitable time for taking up this question.

According to the Conservator of Forests (Mr. F Schoeplin) was asked to report, and he recommends the resolution being taken into special consideration, because the question concerning the qualification of some fast-growing exotic species for timber is apparently

URGENT AT THE PRESENT TIME,

and of general interest for the country. The comparatively small amount of timber, which the native forest will be able to yield continuously in future, the natural difficulties of its utilisation on the one hand, the large plantations of exotics on private land, which have passed the stage of a mere experiment, on the other hand, show it as esential part of the work of a forest department, to devote special attention to future plantations on Crown lands. The preceding work of private enterprise facilities the selection of suitable species of wood. Before entering plantation work on a large scale it will be necessary to certify to the value of the woods by means of a scientific examination of their technical qualities. Species that ought to be examined are *Eucalyptus globulus, E. amygdalina, E. marginata, Pinus insignis, Acacia decurrens.* Suitable specimens could be provided from private plantations.

The General Manager of Railways and the Acting Engineer both deprecate immersion, the fact being that unless the creosote is inject into the wood under pressure, it is almost of no value as a preservative. Mr. Shores does not consider that the cost of sending home 500 sleepers and creosoting them will amount to more than £150.

METAL V. IRON SLEEPERS.

Mr. Hunter, in forwarding the correspondences states: I presume those who are interested in the colonial timber trade, and have timber really suitable for the purpose, would not object to cut and furnish Government with say, 500 sleepers for experimental purposes, and in that case the Government might, I think, send home the sleepers to be prepared for trial. As, however, the subject of metal *v.* timber sleepers is rapidly coming to the front—see may report dated July 14th—it is possible that any expenditure of this kind would be rendered of little value.

COMMISSION APPOINTED.

Dr. Sutherland M.L.C., Capt. G. T. Nicholls, J.P., and Mr. J. W. Shores, M.I.C.E., are in this week's *Gazette* appointed a commission for the purpose of considering and advising the Government on the question of making a fair test of colonial woods for the purpose of railway sleepers.—*Natal Mercury.*

NOTES FROM PEERMAAD.

After two months of persistent rain, we have had a week of fine bright weather, and although, as I write, there are signs of a return of bad weather, the worst of the monsoon is undoubtedly over, and we may now reasonably anticipate a fair percentage of sun for the next month or so, in fact until the advent of the North-East monsoon, which we sincerely hope, will, in this district at any rate, be light, as we have already been blessed with considerably more rain than we require. From statistics received from one of the most central estates in the district, I find that the rainfall in June amounted to inches 50·85; in July, to inches 39·20. In April we had inches 14·60, and in May, inches 24·48, making a total for the year up to the end of July, of 137·30. The heaviest falls of rain occurred on the 20th, 21st and 22nd July, amounting to 12·46.

From the above it will be seen that we had a favourable season for planting, and the young clearings, chiefly tea, are looking well. Nor must I omit mention of the Pepper, of which some 40,000 vines have been planted out on two places on the ghats, and are coming on nicely, as also a small clearing of Liberian coffee. Leaf disease as expected, has made its appearance, and when crops are heaviest the attacks are of course most severe, but with a fine dry September, we shall not, I trust, suffer much; of this, however, I must write later on.

Your correspondent "St. Louis" in his interesting "Planting Notes" gives you such full particulars of the sales of Travancore Tea, that I need allude but slightly to them; I may, however, be pardoned for noticing the good price realised by a parcel of "Bon Ami" Golden Tip, and the fair averages for most of the teas from this district. For the half-year ending June, "Bon Ami" made over 100,000 lb of tea, and will probably make from 150 to 200,000 lb more by the end of the year. The arrival of a new 20 horse power engine will facilitate matters considerably. "Kudawa Kernum," which has also a fine factory and very perfect machinery, among which is a Down-draught Sirocco that gives great satisfaction, probably comes next to "Bon Ami" in output of tea for the past half-year, but I have not particulars at hand sufficient to justify my giving figures. "Glen Mary," mentioned in my last notes, has started Steam Machinery, and further additions are shortly expected. Other estates will, doubtless, soon follow suit, and the only fear now is that our roads will be unable to bear the strain of the ever increasing traffic. Our Chief Engineer, I am told, thinks our roads are good enough, and can see nothing wrong in them, probably, if he were a cart owner, or even a shareholder in a tea concern, he would both think and see differently. "Roads in shocking order," "Considerable difficulty in getting cartmen to take away crop," are some of the remarks one hears.

Our popular Dewan, when on a visit here last May, evinced great interest in the Tea enterprise and in planting generally and would undoubtedly see that our interests in the matter of roads are better attended to, if they were brought more prominently and persistently to his notice. The Association should see to this. Another matter, and that a serious one, that requires the attention of the P. A., is the reduction in cost of plucking; the rates now in vogue are too liberal, and can well bear reduction. The prices paid by purchasers of green leaf, on the other hand, have been anything but liberal, and more equitable rates should be fixed. The paddy crops, on the lower slopes of the hills, are not expected to be up to average, this season. Small quantities of the early paddy have already been reaped, but the regular harvest will not be in full swing until the end of next month.—*Madras Times.*

COFFEE CULTURE IN HAWAII.

We are glad to learn of the increased attention paid to coffee planting on Hawaii. Mr. Barnard, of Laupahoehoe writes that he has 12 000 young trees growing, and we hear that Mr. J. M. Horner, of Kukaiau, has thirty acres planted, while Mr. Wm. Horner, of Kukuihaele, has ten acres. All these intend increasing the extent of their plantings as rapidly as they can.

Mr. Rufus A. Layman has purchased a large tract in Puna, located near East cape, and including the lands of Puna, Kula and Pohoiki, with some leased tracts adjoining, which embrace some of the richest coffee lands in that district. There is room for a large plantation there, and we trust the enterprise may prove successful. The want of roads in that district is a drawback and and we trust some measures will be taken to secure them. The high price of coffee throughout the world ought to stimulate our planters to push this and any other coffee enterprises, so as to obtain as early returns as possible.—*Planters' Monthly.* [All right, if the leaf fungus is absent and can be excluded.—ED. *T. A.*]

CINCHONA IN BENGAL.—The statistics of cinchona cultivation in Bengal for the year 1890-91 have recently been published. During that period the total number of plants, cuttings and seedlings in the Government plantations amounted to 4,749,861 divided as follows; plants in permanent plantation, 4,515,861; stock plants for propagation, 4,000; and seedlings 230,000. The quantity of bark in store at the beginning of the year was 426,256 lb. while the outturn of bark of the year ending April last was 293,972 lb. making a total of 720,247 lb. From the latter amount has been issued for manufacture of cinchona febrifuge and sulphate of quinine, 250,330 lb. leaving a balance in stock at the end of the year of 469,917 lb.—*M. Mail.*

PRUNING CACAO.

The act of pruning is popularly supposed to cause the production of fruit. That properly carried out, it has this effect, is not to be doubted, but the effect is not so direct as is often assumed.

Given a young tree in good health, and with a single stem, the pruning should commence by the regulation of the *primaries*, or first branches made by the tree. There should, as a general rule, be only three, or at most four primary branches left on the cacao tree. These should be encouraged to extend themselves laterally, as they have a natural tendency to do, and should be encouraged to develope at regular distance the secondary branches. The tertiary branches should also be encouraged to grow at regular intervals.

In these stages the operation should be performed before the wood is sufficiently hard to require the use of the knife, by the method called pinching, which is carried out with the thumb and finger, pinching off the young, succulent shoots that are not required. At all times it should be the endeavour of the pruner to maintain the tree well balanced, *i,e.* it should not have one branch growing more rapidly than another so as to make it appear lop-sided from any point of view. Many cultivators do not regard this point sufficiently in carrying out their pruning operations, and many branches are left, owing to their being *bearing branches*, which, for the permanent security of the tree, for its appearance and for its general bearing qualities, should be removed; for it is much better to check at once the tendency of a tree to assume an irregular and uncultivated form, than to allow a branch to grow for a time and finally be compelled to remove it when of a larger size.

The pruning of a tree should be conducted with a view to the production of fruit. Unless we have a plentiful supply of good healthy leaves, evenly distributed over the tree so as to obtain a maximum of the light and air they require, we cannot expect to secure large crops of fruit, in fact unless the machinery is in good working order and the supply of fuel abundant, we cannot expect a good output. The leaves and roots represent the machinery, and water, sunlight, air and manure, acting together, may well represent the fuel supplied.

The branches of a cacao tree therefore, should be evenly distributed, so that the leaves they carry may be maintained in good health, and just thinly enough distributed to admit sufficient sun and air to mature the fruit.

In pruning neglected trees, the first thing to do, is to cut out all useless wood, or wood which can never be expected to bear, or to produce bearing branches. Next, to equalize or balance your tree, and last to thin out your branches, and fore-shorten them when required.

In removing branches the greatest care should be exercised not to make jagged, ragged, splintering or slivering cuts, but to make clean and even cuts close to the wood and near to a bud or young branch into which the sap will be presently directed if the operation is well performed.

The young branches which are often found growing erect, (commonly called gormandizers from the rapidity of their growth), are productions which show that the parent stem, as it stands, does not provide sufficient channels for the expenditure of the sap supplied by the roots, and in consequence this sap provides for itself an outlet and expends itself upon the production of rapid growth in a single direction. It shows that the channels for the conveyance of sap are clogged or contracted, and that the amount of sap produced cannot pass into the more matured portion of the tree. It is also an effort of nature to recover itself from hard work. Every physiologist knows that unless branches are produced, roots cannot be, and the production of root is in exact ratio to the production of branch. When however a tree is bearing fairly in proportion to its size, it is better to keep down these branches, removing them as soon as they appear, as it is certain that by affording free openings for the absorption of the sap, they rob the crop of the full amount of nourishment it should obtain, and the productive powers of the tree is seriously affected. They should be removed however as they appear, and not be allowed to grow to a large size and then be removed, as that practice would be simply a waste of all the material used up in producing them, instead of diverting it to the production of fruit. In cases where a cacao tree has evidently become somewhat worn out or barren, (*i.e.*) its bearing wood shows evident signs of an unhealthy condition, it is better to make use of a "gormandizer" to supply a new bearing head to the tree and give it a new lease of life.

By allowing one of these branches to grow from a suitable portion on the stem and treating it carefully in a similar manner as we would a young plant, it is possible to rejuvenate and bring again into bearing trees from which, owing to their stunted and contracted character no produce could ever be expected. And it is really wonderful in what a short time the operation can be completed if skilfully carried out. After the young tree thus formed has assumed fair proportions the older wood should be carfully cut away from time, to time, but not at once, as heavy pruning is always a check to growth. If pruning is done by a saw the wounds should afterwards be smoothed over with a sharp knife as they always heal over better if thus treated. In situations where the cacao beetle or beetles (for there are several species), are plentiful a mixture of coal tar and clay of the consistency of paint should be applied to all wounds.

Pruning with a blunt cutlass, knife, or cacao hook, should never be allowed. The instruments used should be those only which are able to carry a keen edge, and pruners should always be supplied with the means of sharpening them without leaving the field.

The time for pruning is much insisted upon in Trinidad as being influenced by the "moon." On this point I desire to remain passive, in a similar way as the big blacksmith did when he allowed his little wife to beat him. As the tale goes—when asked why he allowed it, "Why," said he, "it pleases her and it don't hurt me, so what matters?" Well if it pleases the cacao planters to prune at a particular time of the moon, by all means let them do so. It please them, and it does not hurt the trees, so it cannot matter. Mr. Morris, when writting on the same point, used the following words:—

"The Spaniards have a deeply-rooted prejudice against trimming cacao at full moon. They say it causes the tree to bleed and eventually to die. It is a well known and general axiom in horticulture that trees should not be pruned when sap is most active, but with regard to the particular instance of the cacao tree it is a question which only experienced and intelligent cacao planters can determine. I was myself led to look upon the prejudice, at first, as having some general grounds based upon long acquaintance with the habits of the cacao tree, but when I found Spanish settlers had equally strong prejudices against gathering pods for seed purposes, and putting out plants during the same period, I came to the conclusion that the subject was one which might very fairly be left for the present an open question. I may add that I saw in Trinidad, trees pruned on good estates at all phases of the moon, and no injurious effects had been noticed or anticipated."

Whether the moon has an influence on plant growth or not, I am in accord with Mr. Morris that the matter had better be left an open question; not that I have any personal doubt upon the matter, but the question being one in which my opinion has little or no influence either way upon the progress of cultivation; each individual may adhere to his own particular practice without being at a disadvantage. Through a succession of nearly thirty years' practical experience, I have personally carried out a number of experiments bearing on the subject, in the course of which I could not find that the moon's influence on plant life was other than completely *nil*.

The season for pruning is however a different matter, but on this also opinions differ. It is now

ever generally taken as an accepted rule that in established cacao, pruning or "trimming"* as it is called in Trinidad, is best carried on at the close of crop time." The practice is certainly reasonable as the trees are devoid of both fruit and flowers and suffer no possibility of injury.

On first class estates where cultivation is carried out in a scientific manner, the tree should annually receive attention in the matter of pruning &c. Every tree should be visited and carefully examined. On many estates in Trinidad it is the practice to prune only at intervals of once in three or four years. Such cannot be considered good practice as the less pruning that is done to a tree at one operation the better.

It should be remembered that a cut made in pruning a tree, is just as much a wound, as cutting of a finger from the human body, and that although the plant may repair the injury to a certain extent still the wound remains, and produces a certain disorganization of tissue, not seldom resulting in decay and death.

The cultivator should be careful in removing and burning as far as possible prunings from the ground. If left to rot upon the plantation these prunings become the home of innumerable wood destroying insects, and beetles which are inimicable to the welfare of the cacao plant. There is nothing like tidiness and cleanliness in any cultivation, and departure therefrom is sure to produce sooner or later its concomitant evils.

The practice of pruning, the way to hold knife or saw, cutlass or cacao hook, cannot be taught by any writer. The inexperienced should seek practical instruction, and even then it requires a considerable amount of time and experience ere he will be able to handle his tools, with dexterity and precision.

The difference between a slovenly cut and a clean cut are at once apparent when the work is compared, and no workman should be permitted to practice pruning upon valuable trees until he is well accomplished in the practical use of the tools employed.

The skilful pruner can, by a proper handling of his tools, and cutting back to buds situated in the positions from which he desires a branch to come, from the tree at will into the shape he requires, and the plantations in which his skill is exhibited will always present a tidy and cultivated appearance, while those of the negligent and unskilful pruner will always look untidy and irregular.

Good maxims for the cultivator are, "prune little, but prune often; prune carefully, but prune with decision. Prune for leaves and a crop must come." —*Trinidad Agricultural Record.*

RECOVERY OF VINES FROM PHYLLOXERA.—By the latest inspection of the Phylloxera-infested districts of Portugal by the officials of the Portuguese Agricultural Institute, some interesting observations were made, says Dr. Klein in the *Gardenflora* for May. Vines which had been infested for a number of years, and dressed latterly with sulphate of copper, had completely rscovered from the attack, and giveu extraordinary crops, a fact which is not without analogy in the history of the malady. It is the question now, if the proprietors can bear the cost entailed by a continuance of the expensive remedy. In other cases it would appear, that where rows of trees intersected the vineyards, the trees were attacked by the Phylloxera—which the Editor questions. These trees acted as traps or conductors for the lice; and so far no evil consequences to the trees have appeared.—*Gardeners' Chronicle.*

THE BREAD-FRUIT TREE is a native of the islands of the Pacific Ocean and the Indian Archipelago, and grows to a height of from forty to fifty feet. It has large, pinnatifid leaves, frequently twelve to eighteen inches long, dark green and glossy. The fruit of the bread-tree, which in shape and size resembles a muskmelon, supplies the principal part of the food of the inhabitants of these islands. It is attached to the small branches of the tree by a small, thick stalk, and hangs either singly or in clusters of two or three together. It contains a somewhat fibrous pulp, which, when ripe, becomes juicy and yellow, but has then a rotten taste. At an earlier stage, when it is gathered for use, the pulp is white and mealy and of a consistence resembling new bread. The common method of preparing this fruit for eating is to cut it into three or four pieces, and then take out the core, then to place heated stones in the bottom of a hole dug in the ground, to cover them with green leaves, and upon these to place a layer of the fruit, then stones leaves and fruit alternately, till the hole is nearly filled, when leaves and earth to the depth of several inches are spread over all. In rather more than half-an-hour the bread-fruit is ready for eating. It has little taste, and more resembles the plantain than bread made of wheat flour. The inner bark of the bread-fruit trees supplies a considerable part of the clothing of the islanders, and its timber and its milky juice are employed for economical purposes.—*American Grocer.* [In Ceylon the fruit is cooked as a vegetable, and it is very good in curries.—ED *T. A.*]

TEA IN INDIA.—A rather pessimist "Britisher" writes to the *Indian Planters' Gazette.*—

The present state of the Tea Industry for India is doomed except for very fertile lands, with enormous yields as in the Dooars; the competition with Ceylon has brought this about, owing to the latter island's superior natural advantages, a forcing climate and soil which gives an enormous yield. Planters wish that Government therefore would remove the hampering restrictions on the Industry, and grant them laws by which they might be able to fight this great battle of competition. Not one of the Darjeeling gardens last year earned a *kowrie* of rent; according to the *law of rent* as laid down, as one of the first doctrines of political economy by Ricardo and Malthus, Darjeeling lands are held either freehold or else lease-hold at the rate of 6 (six) annas per acre, and it is chiefly due to this fact that the gardens are striving on, so as not to lose the whole capital sunk in tea.

Not a banker in India will advance money to open up tea estates on the security of Tea alone, showing that they consider the industry doomed and will never pay the interest, whereas in Ceylon money is easily found.

Last year, 1890, only two gardens earned a banker's interest, that is 9 to 10 per cent.; two gardens earned a dividend larger than Government Paper interest, *viz*, between 4 and 8 per cent, interest; four gardens earned a dividend of 2 per cent.; and fully 60 per cent. of the land under Tea, in the remaining gardens, made no dividend but a loss, not one earned any rent.

EGG PLANTS.—A recent *Bulletin* of the Agricultural Experiment Station of Cornell University, deals with the varieties, cultivation, and mode of cooking of the fruits of Egg plants, including the Aubergines. Professor Bailey says the requisites for success are "early starting, warm quarters, vigorous plants, rather late transplanting, warm, rich, moist soil, and constant attention against insect pests." The best varieties are Early Dwarf Purple, Early Long Purple, White Chinese, and black Pekin as a late variety. The best market varieties are New York Improved and black Pekin, with Early long Purple for the first demands. The methods of cooking are as follow:—

"1. *Fried.*—Cut in slices crosswise not over a half-inch thick, and parboil in salt water about fifteen minutes; then remove, and fry in a hot "spider" in butter and lard.

"2. *Fried.*—Cut into slices ¼ or ½ inch thick, and lay in strong brine for two hours; then wash very thoroughly; sprinkle with brown sugar, pepper and salt, and fry slowly to a dark brown

"3. *Baked.*—Cut in two lengthwise, remove the seeds and pulp, and fill with dressing made of half a teacupful bread crumbs, one teaspoonful butter, and salt and pepper to taste; lay the halves side to side in dripping pan, add a little water, and bake nearly an hour.

"4. *Fritters.*—Pare, cut in thin slices crosswise, and soak in salt water for eight or ten hours; dry on a towel, dip in beatin egg and roll in bread crumbs, then fry slowly in hot butter until the pieces become a rich brown; serve hot."—*Gardeners' Chronicle.*

* "Cacao," by Mr. Morris, p. 29.

THE ARTIFICAL PROPAGATION OF PEARL BEARING SHELLS AND THE PROD U TION OF PEARLS BY ARTIFICIAL MEANS.

All the efforts as yet made in Ceylon and Southern India to propagate artificially the pearl oysters have been failures, chiefly, we believe, because the experiments were carried on in waters too shallow for the healthy life of the bivalves. We feel much confidence that success will yet be attained, and we certainly shall not despair until a fair trial is given to coir cables, or strong, coarse, wide-meshed coir nets anchored over the pearl bank region, so as to float a couple of fathoms or so below the surface of the sea. We are not aware that any experiments have been tried in the direction of inducing our "oysters" to produce artificial pearls by irritation of the animal, or by the introduction of foreign bodies to become the nuclei of layers of nacre. In Australia a large measure of success seems to have attended experiments for the propagation of shells (mainly we suppose the great mother-o'-pearl yielders) and the artificial production of pearls. Our latest news on the subject is contained in the following telegram in the *Argus*:—

"Thursday Island, Aug. 24.—Experiments initiated by the commissioner of fisheries, Mr. Saville Kent, two years ago in the direction of causing mother of pearl shells to produce pearls by artificial treatment proved substantially successful and encourages the expectation of important developments in connection with the cultivation of pearl shell, which are now proved perfectly feasible. The shells in the experimental nursery at Vuren Point are progressing well and propagating."

Capt. Donnan will, of course, "take a note on." In the South Sea Islands, corals have been successfully propagated by cuttings!

SOIL ANALYSES AND THE VALUE AND VALUATIONS OF MANURES.

Although the elaborate letter by Mr. Pringle which we publish below was written primarily with reference to coffee in South Coorg, the general principles propounded apply as much to tea soil and tea as to coffee soils and coffee. In the olden days when coffee was King of Ceylon products, and before leaf disease appeared to produce "insidious defunction," many of us, in our attention to crop, were apt to forget the value of leaves to both bush and crop and also the demands they made on tree and soil. *Hemileia vastatrix* taught us a striking lesson in vegetable physiology, by the process of weakening and finally killing the coffee bushes from exhaustion, in their desperate efforts to produce crops of leaves, which scarcely appeared when their life juices were absorbed by the parasite. It is the prevalent theory, and it is true, that our climate specially favours the production of leaf; the rapidly increasing tea crops conclusively prove that this is the case. But it does not follow that exhaustion and even death may not ultimately be the result of the processes of constant leaf-plucking and branch and twig pruning, unless the elements thus abstracted are restored to the soil and that in the best possible form. If moderate manuring could be afforded, it would be useful in the early years of an estate; but as the plantation advances in age, the recuperative and yielding powers of the bushes must on every principle of agricultural chemistry, diminish, unless the deficiencies of fertilizing substances in the soil are supplied. Analyses of the soils will then be useful as revealing the element or elements chiefly needed; but, happily, even if this information cannot be obtained, a planter cannot go wrong in applying cattle shed manure and all "dirt in the wrong place" to his fields. If none, or only a limited quantity of *natural* manure is available, then an *artificial* application in the shape of good bones and e castor cake is as valuable for tea as it ever was for coffee. Fish and other specially ammoniacal substances are also valuable, but our chief dependence must be on bones and "poonac," what Mr. Pringle calls "hindy." The quality of each, however, varies considerably, and although the good faith of the leading dealers in the two articles named can be, as a rule depended on, yet it is well that analyses should be resorted to, especially where large quantities may be ordered. It will be seen that Mr. Pringle deems an application of iron sulphate advantageous to some soils. In most of our Ceylon soils, there is, naturally, a proportion of iron which (and we may say the same of clay) render them far better calculated for the growth of tea than for coffee. Our climate is, on the whole, one of the best tea climates in the world. Rather too much wet is, doubtless in some districts, an obstacle to the withering process in the case of gathered flush, but science founded on experience is rapidly providing remedies.

The facts and figures adduced and the principles enforced by Mr. Pringle cannot fail, we submit, to be of value to the tea planters of Ceylon, when deciding on the manures to apply and the mode of applying them. We fear that on but few of our estates could the "broadcast" process be carried out, although it is doubtless the best in theory. But that is a matter of detail. The great lesson to be learned and practically applied is, that the luxuriance of the growth of the tea plant in Ceylon and the unexpectedly large and increasing yield of leaf per acre are the strongest possible arguments against evading the duty of restoring, as far as we can, to the soil whence our crops come, the elements of which we are constantly depriving it.

THE VALUE AND VALUATION OF MANURES: PART I.

By William Pringle, M. S. C. I.,

late agricultural chemist to messrs. matheson & co. in coorg.

(Under special arrangement for publication in the "Ceylon Observer" and "Tropical Agriculturist.")

Every planter and agriculturist accepts the dictum that manures are valuable aids to the cultivation of crops; sometimes their value is questioned, but this generally happens when the manure used has proved unsuitable to the land or to the crop, or there may not have been enough applied, or there may have been too much.

Coffee supplies will stand 4 cwt. per acre of Ammonia Sulphate under favourable conditions of weather, but 8 cwt. is too much, it kills them off. Under like conditions 5 tons of cattle manure (first quality) answered well, but 10 tons was almost as bad as 8 cwt. of Ammonia Sulphate. This shows that even cattle manure must be used with discretion. It is deservedly a favourite; it 's like a charge of snipe shot, it covers a wide area, and has less chance of missing the mark than such a manure as hindy, *i. e.* oil cake; in which the ammonia preponderates so greatly over the other manurial elements; this sometimes like a bullet misses its billet.

Theoretically a very poor soil has sufficient materials for a great number of crops, practically it has not; hence the value of manures.

There is a general law of the greatest practical importance to all agriculturists and planters, viz: "*That if a soil be deficient in* ANY ONE ELEMENT, *no manure is of value on that land that does not supply the deficiency.* For instance in England practice has shown phosphoric acid to be the element required by turnips, and as a rule phosphatic manures produce good results; but if the soil is short of nitrogen or potash, manures supplying only phosphates will be of little or no value. Again if the soil be short of iron or sulphuric acid, wonderful results may be got by the application of iron sulphate in moderate doses; but if there happens to be a large quantity of ferrous salts already in the land the results are nil or worse, the crop may be killed off. Gypsum, *i. e.* Sulphate of Lime, is often very useful where lime and sulphuric acid are required, as it supplies them cheaply especially, when a super phosphate is used, as only the soluble phosphates are paid for.

Every agriculturist is familiar with the fact that repeated applications of lime exhaust the land unless they are well backed up by manure. This results from the circumstance that lime renders the nitrogenous matter of the soil more easily assimilable by the plant, the ammonia acts as a powerful stimulant and the increased energy of the plant enables it to absorb such food as the roots come in contact with more rapidly. The soil is exhausted when any one of the elements of fertility is reduced in quantity below that necessary to supply the immediate requirements of the plant in an easily asssimillable form. There may be plenty of the element in the soil, but so shut up by its combination with silica &c. that it is not immediately available as plant food; the value of comparative soil analyses which enable us to judge what is necessary to supply the deficiency of the soil is of primary importance, as we are by them able to render the necessary assistance to the soil, that is supply a manure that will remedy the defect. To quote Sibson and Dr. Voelcker:—"The infertility of a soil is often explained by an analysis; the soil may be suffering from the want of some material indespensible to the growth of plants, or it may contain something poisonous to plants; in either case chemistry is generally able to enlighten us and to point out means of remedying the evil. Of a soil whose fertility is impared we can all pronounce that it wants manuring; but with the assistance of an analysis we may also learn in what substance the soil is deficient or what kind of manure it wants. With this knowledge we may restore its fertility in the most economical manner." As pointed out in my paper on coffee manures, soil analyses settle many vexed questions of cultivation; they decide the question as to whether the land requires drainage; whether shade should be thick or thin, but the greatest value to the planter lies in the fact that they enable him to get full manurial value for his money. Having settled what the soil requires we must next enquire what the plant demands. Unfortunally there is no royal road to this end. Experiments on soils of known composition with widely varying conditions, of climate, soil, &c. are needed to finally settle the question. The cereals and root crops of Britain have been and are the subjects of constant study and experiment.

Lawes and Gilbert's work has done much to solve many abstruse questions and to place the cultivation of cereals and root crops in England on a scientific basis, enabling her to compete with the prairie lands of America, Australia and the cheap labour of India in the growth of wheat and other crops. Such experiments are much needed in connection with Tropical Produce. It was the want of such experiments in regard to coffee, tea, cocoa, &c. that led me in my paper on coffee manures to say that "The question of manuring coffee has had little systematic work spent on it, compared with the vast interests at stake." Had I said "little systematic experimental work," most people would have agreed with me. I was fully aware of the valuble work done by Messrs. Marshall Ward, Morris, Thwaites, Trimen and others in connection with *Hemileia vastatrix*. The thorough systematic investigation of that pest is deserving of the highest praise: I consider that the thanks of the whole coffee planting community are due to the before named gentlemen, the Ceylon Planters, Government, and *Observer* newspaper for the energy and zeal displayed in their crusade against the pest; the information gained is of inestimable value in guiding future investigations.

Hughes' analyses I know and fully appreciate the value of, but I would like to see systematic experiments put in hand to determine what is to use Ville's words the "dominant element" required in a manure for coffee, tea, cocoa, and other tropical products. Having found the dominant element we must first supply the deficiency—(if any exists, and the probability that it does is great) in the soil, then apply it. From the view of a plant, few soils are complete; a complete soil should grow any and every plant equally well provided the climate is equally suitable; it's only a question of £ s. d. With suitable manures you can grow plants in calcined sand. Coffee Arabica can be made to yield a ton per acre; on small blocks say up to 5 acres or so, it pays to spend R200 to R300 per acre per annum and pick crops of 10 cwt. to a ton. But when we come to 200 to 1,000 acres or more, the labour difficulties are so great that such cultivation is a practical impossibility. An average of 5 cwt. per acre must for coffee under shade with ordinary work and manure be considered good. Except on very poor land, and patches of such exist on every estate, such crops can be got in South Coorg.

The crop of one block of estates there has averaged 4 cwt. per acre per annum for the last ten years, and there are other blocks as good; individual estates with much higher averages are to be seen throughout the district.

There is every prospect of the average being raised, as the labour difficulties are overcome and the general work can be kept well in hand, allowing of steady systematic annual broadcast manuring being carried out at the right time. There is little doubt that it is best to manure every portion of the estate yearly, but under some circumstances if the labour is sufficient, two manurings would be better for the trees. Last year (1890) South Coorg was no better off for labour than her neighbours; the evil effects were pointed out, and the district bestirred itself and procured coolies to replace the Canarese. Tamil labour was introduced; coolies were not paid off at the usual time, but were retained as long as possible. All the supply pits required for perceptible vacancues were cut in the hot weather, the weeds were kept down, and I had the pleasure of seeing supplying briskly proceeding early in June.

Leaf disease (in Coorg) in the hot weather receives a severe check and I do not think that where the land is well and deeply cultivated and efficiently manured that there is much fear of it on well drained land killing off the trees; but there is no denying that it does often seriously affect crops. A tree cannot exert it's energies to produce leaves when bearing crops, without dropping some of it. Efficient manures adapted to the necessity of the plant and the deficiences of the soil are of the greatest assistance.

Too much stress as regards manures for coffee has been laid on the composition of the bean, and too little attention devoted to the leaves and prunings. Take Marshall Ward's figures, twenty-one weeks as the duration of the life of a coffee leaf, the tree must shed all its leaves 2½ times in a year; under shade they remain a little longer, but the trees as a rule certainly renew their leaves at least twice a year. This loss on a healthy tree is not noticed as it proceeds all the year round. It is a poor tree of seven years growth that has not at some period of the year at least fifteen hundred leaves, a fair average tree will have over two thousand, and a first class one in full leaf as many as three thousand or more. Then there are the prunings.

Let practical planters experiment as Mr. Cameron F.L.S. of the Botanical Gardens, Bangalore, suggested to me the other day: surrounding a trees with wire netting, collecting the leaves and prunings weekly or monthly, dry and weigh them, and have them analysed.

With other produce the same course should be pursued. In this way it would be seen what demand the plant makes on the soil for available food at different periods of the year.

Having decided that a manure is required and what it is to be, the question is how to supply the estate with it at the least cost in the most suitable form. All manures vary greatly in quality; a merchant guarantees the bones or other manure supplied as pure, but the quality of pure bones and other manures of undoubted purity are of very different manurial value. The following analyses show how widely pure bones vary in quality:—

Analyst.	Macadam.		Gibson.	
	Highest. per cent	Lowest. per cent	Highest. per cent	Lowest, per cent
Phosphates	57·08	44·72	48·14	44·95
Ammonia	5·23	3·34	—	—
Alkaline Salts	·85	·32	1·91	·63

Analyst.	Hughes.		Pringle.	
	Highest per cent	Lowest. per cent	Highest. per cent	Lowest. per cent
Phosphates	54·03	39·40	52·25	43 ·77
Ammonia	4 48	3·01	5·09	3·25
Alkaline Salts	—	—	2·02	·50

Sibson unfortunately does not give the ammonia, and Hughes unfortunately does give the carbonic acid with the alkaline salts which prevents comparison, but on page 107 of his report on "Ceylon coffee soils and manures" the composition of Indian bone dust is assumed to be

	per cent.		
Nitrogen	3·5	Equal to Ammonia	4·25
Phosporic acid	24	„ „ Phosphates	52·32
Potash	1		

Here then in pure bones or what is sold as such we have Phosphates (*i. e.* Tricalcic phosphate) varying from 39·40 per cent up to 57·08 per cent and the Ammonia from 3·01 per cent up to 5·23 per cent.

The alkaline salts found in bones are generally assumed to be magnesia and soda, but in some samples a notable quantity of potash is found, whether it is derived from the food of the animal or from accidental mixture with ashes I am not able to say. The Agricultural Societies of Britain generally fix selling price units for the season and manures are valued on them; for Southern India and Ceylon the units might be fixed by the Planting Associations and the Chambers of Commerce.

For the present I will take bones and oil cake as the standards for phosphates and nitrogen. It is necessary in the first place to decide what constitutes a fair marketable quality of bones and Hindy *i.e.* oilcake.

In England the manure manufacturers generally buy bones on a basis of 48 per cent phosphates (*i.e.* Tricalcic phosphate) and 4 per cent ammonia. Numerous analyses show this to be a fair average.

For valuing bones the alkaline salts are not considered, only the phosphates and ammonia being paid for. Assuming the price per ton for bone flour of that quality to be R60 in Bangalore, Colombo and the west coast, we can estimate the value of other manures in comparison with it. Castor hindy may safely be assumed to contain 6 per cent of ammonia and costs say R36 per ton; the ash though very valuable as plant food is not valued, as it generally corresponds to the per cent of ammonia. We thus get the value of six ton units of ammonia in oil cake at Thirty-six rupees or rupees six per unit per ton; that in raw bone flour is worth as much per unit. Deducting the value of four units of ammonia R24 from the total price of the flour we get R36 as the value of 48 units of phosphates or three-fourths of a rupee per unit per ton for phosphates. The Home price is about one shilling and ninepence for phosphates and eleven to twelve shillings for ammonia. So that these manures here are cheaper than in England. As showing the valuable nature of castor cake and of its ash the following analyses may be of interest:—

	Castor cake parts per 100.
Moisture	.. 6·71
Oil	... 10·03
Albuminous Compound ...	.. 30·29
Mucilage gum &c.	... 19·64
Woody Fibre...	... 27·34
Soluble Ash..	... 5·16
Insoluble matter, sand, &c. ...	... ·83
	100·00
Containing Nitrogen	... 5·05
Equal to ammonia	... 6·13
Soluble Ash Analyses	
Lime	... ·09
Magnesia	... ·67
Potash	... 1·98
Soda	... ·76
Phosphoric Acid	... 1·21
Sulphuric Acid	... ·24
Chlorine...	... ·21
	5·16

Analyses of the ash of oil cakes are seldom made, but the proportion of phosphoric acid worked out to phosphates is equal to 2·64 per cent, worth very nearly R2 per ton, and there is potash 1·98, worth about another two rupees. But the R6 paid for each unit of ammonia covers that.

The following are the generally accepted proportionate values of phosphates and ammonia.

90 per cent pass through screen		Phosphates.	Ammonia.
Bones	½ inch mesh	20	132
Meal 1/6	„ „	21	138
Flour 1/80	„ „	22	144
Fish whole (about the size of sprats)		21	144
Meal 1 16		22	150
Oil cake 1/16		—	144

In England the price of ammonia chiefly depends on the supply of ammonia sulphate, in India most probably on oil cake; a determination of the nitrogen in it, expressed as ammonia is all that is required to determine its value, as the consumer knows that from a manurial point of view, if the cake is rich in nitrogen the percentage of, to him, valuable ash will be high, and the valuless oil low, and vice versa.

Carriage is a most important item to most planters, and an oil cake which has over six per cent of ammonia is more valuable proportionately to them on this account than one with less, though both are paid for at the same rate per unit ton. The buying of oil cake by analyses is the fairest plan both for planters and manufacturers. For instance suppose two coast firms offer oil cake one at R36 with 6 per cent Ammonia and one at R42 per ton with 7 per cent delivered on the coast. The upcountry planter has we will say R10 per ton to pay for carriage, therefore the prices of the cakes on his estate are respectivly R46 for 6 per cent. or R7 and 66 cents or R7, 10 annas and 8 pice, while the 7 per cent costs R52 per ton or R7 and 43 cents or R7 6 annas 10 pice. Let us suppose the order to be for 100 tons 6 per cent or the equivalent in 7 per cent, then the bill stands as follows:—

100 tons 6 per cent at R36 ..	.. R3,600
Carriage at R10 ..	.. 1,000
Cost on the estate ..	.. R4,600

Ammonia supplied 6 tons cost per ton .. R766
Only 85 tons 14 cwt. 1 qr. of 7 per cent are required to supply 6 tons Ammonia therefore the cost is roughly 85 tons 14 cwt. 1 qr. at R42 .. R3,600
Carriage on the above at R10 .. 857

R4,457

6 tons Ammonia supplied cost per ton „ R743

The actual saving by purchasing the equivalent of 7 per cent. instead of 100 tons of 6 per cent. R143, a saving not to be despised in these hard times. The most careful and conscientious maker of oil cakes can only guarantee that they shall contain a certain per cent. of ammonia, if he supplies more it is only right that he should be paid for it, or he can divide his cakes into classes to suit his customers. On the other hand the consumer has an equal right to ask for the cake he likes best, and is prepared to pay for.

In some cases where carriage is difficult it would pay the planter to give a rupee or even two per unit ton more for a high class oil cake with 9 to 10 per cent. Ammonia. White castor cake of this quality can be produced, though Macadam gives the average for castor cake in great Britain as 5½ per cent. Hughes gives 9·45 per cent. as the highest for white castor, but the sample had 11·57 per cent oil in it which could with advantage to the planters be reduced to 5 per cent. or less.

WILLIAM PRINGLE, M.S.C.I.

Bangalore, Aug. 24th, 1891.

TEA, COFFEE AND CACAO.

In articles which we extract from the *Home and Colonial Mail*, the *Grocer*, and the *Financial News*, there is much interesting discussion regarding the three products named above. The decline of coffee consumption in Britain has no special connection with the decadence of coffee crops in Ceylon. The article is dearer (calculating by bulk of infusion), more difficult to prepare, and far more liable to adulteration, than tea. We are not so sure, however, that the *Financial News* is correct in tracing no connection between the increase of specially high quality cacao from Ceylon and the largely increased use of this fatty and nourishing article, Linnæus's "food of the gods," in Britain. The British householder who is choice in his taste and able to gratify it knows a good article when he sees it. And that Ceylon cacao is, beyond all question, the best in the world,—due largely to extreme care and the application of scientific principles in its preparation, we believe;—is evident from the comparative prices in the British market in 1890. We give the ascending scale :—

Grenada	...	59/ to 63/ per cwt.
Trinidad	...	66/ to 70/ „
Guayaquil (Arriba)		90/ to 97/6 „
CEYLON	...	119/ to 125/ „

the latter rising at one time during the year to 133/ per cwt. With such prices and advancing consumption, surely the few who are growing cacao successfully are to be congratulated. For growers of tea, too, who dread a repetition of that overproduction which rendered the cinchona enterprise unremunerative, there is comfort in the articles we quote. Tea is not only easier made and cheaper than coffee, but our Ceylon product, equally with the Indian, gives a greatly increased number of cups per lb. more than is yielded by China tea. Ceylon tea, with all the attacks on it by foes and the pessimism of friends, is beyond question, the favourite tea in the market, and is likely to benefit specially by all advances in consumption of "the cups that cheer but not inebriate" in Britain and in "new markets." In the great leading market of the world, it will be seen, the consumption of tea, under the influence of reductions in duty and cost price, has increased in four decades thus :—

	lb.
In 1860 consumption was only	77,000,000
In 1870 the quantity rose to	...112,000,000
In 1880 there was an advance to ...	...160,000,000
While in 1890 there was a sudden spring to ...	...194,000,000

Much of the advance is traced to the reduction of duty, and there can be little doubt that the end of 1891 will see the round 200,000,000 lb. exceeded, with an advance up to the three hundred millions of lb. by the end of the decade and the century. Such a result in Britain, where the consumption of tea has now reached 5 lb. a-head,—equivalent to at least 7 lb., considering the greater strength of Indian and Ceylon tea—and proportionate advances in other markets, depend, of course on the preservation of peace, for which we have material as well as moral reasons to pray. Preparations for war have, in truth, become so awful in their immensity and their destructive character, that while on the one hand there is danger of an outbreak being precipitated, there is on the other the dread which even the most unscrupulous must feel at letting loose forces so far-reaching and calculated so rapidly to decide, not only the fortunes of campaigns, but the destinies of nations.

NOTES ON PRODUCE AND FINANCE.

INDIAN TEA IN PARIS.—If Indian tea is to make its way in Paris funds are necessary for the purpose. That a coffee drinking nation can be induced all at once to change its taste is not at all likely, but there is a very good prospect indeed that the consumption of tea will steadily increase if the sale is persistently pushed. The question is, Shall the enterprise languish for want of money?

THE POSITION OF TEA AND TEA COMPANIES.—The article in the *Financial News* on this subject, which we quoted last week, has called forth some correspondence in the paper. "J. C." writes:—"As you doubtless wish that all your information should be as accurate as possible, perhaps you will allow me to point out that in quoting tea shares for 1890 some allowance should be made, to the extent of say, two per cent. for the advance in the value of the rupee. With regard to Ceylon companies, I may mention that while the Ceylon Tea Plantation Company has paid 15 per cent. for five successive years, other Ceylon companies have paid 20 per cent and 30 per cent. It is quite correct to say that Ceylon tea has the bad reputation of not keeping; but I think you will find, on enquiry 'in the Lane,' that this refers only to parcels made during unfavourable weather. I saw some broken Pekoe a week ago sampled against some of last year's crop from the same estate, which was decidedly inferior to the old leaf of 1890. I am not one of those who believe in the enormous estimates for future Ceylon crops of tea, but the quality be only fairly maintained, I am confident that the new markets opening up in Russia and the United States will absorb all the leaf which Ceylon can produce. Allow me to assure you that I am not interested in Ceylon tea or tea estates." "Wiry Leaf" writes :—"I am glad you have again brought these investments under the notice of the public, for really such concerns seem to be about the only ones that would not be injured or ruined by strikes, as in the case of rails, trams, steamships, docks, &c. Indeed, tea and milk, and perhaps ginger-beer, will be the only things left to drink soon. Coffee is not in favour, and is 90 per cent chicory, and cocoa is similarly adulterated. Some months ago you inserted one or two letters from me under my present *nom de plume*, in which I called attention to different tea companies, especially British Indian and Eastern Assam. The former, at the close of the season, July, 1890, was £1,600 to the bad; but now—July, 1891—not only is this wiped off, but about £2,000 paid in dividends, and £400 carried forward. The Eastern Assam in 1886 was £10,000 to the bad, but has made a profit each year since, and there is every reason to anticipate that not only will the small remaining balance be wiped off this year, but a dividend is not impossible.

LAST WEEK'S TEA SALE.—The quantity, says the *Produce Markets' Review*, of Indian tea brought forward has been larger than last week, the proportion of the lower descriptions giving a poor infusion being consider-

able, but nevertheless prices for these kinds have remained steady. Good new season's teas have been in active demand and have realised firm to advanced rates, while a few parcels of Darjeeling growth of unusually good quality have fetched higher prices than the trade have been accustomed to pay for some time past, the average for one invoice of about 60 packages being over 2s. 2d. per lb. At the public sales about 18,200 packages were offered nearly the whole of which were sold at firm to advanced rates. There has been a distinct revival in the enquiry for Ceylon teas, and as the quantities brought forward have not been at all excessive there has been a renewal of confidence on the part of buyers; prices have shown an improvement for all kinds, except perhaps for teas at from 6½d. to 6¾d., which are slightly easier. Very high rates have again been paid for the finest specimens, which are only fine, however, in respect of being tippy teas as real quality is still conspicuously absent. Brokens, of all grades and Pekoes at from 8d upwards have advanced considerably. Reports from Ceylon still point to large supplies for the next few weeks, and as the stock is equal to about three months' consumption, there seems little reason to anticipate a repetition of the rise which has characterised this time of year for the last two seasons.

THE CONSUMPTION OF TEA.—The British people now consume rather more than 5 lb. of tea per head each year. When the tea duty was reduced from 6d to 4d per lb., it was said that such a small remission would scarcely influence consumption. The thirty-fifth report of the Commissioners of Customs justifies Dr. Goschen's more liberal anticipations. In the year under review the imports showed an increase of over 23,000,000 lb.

CEYLON COCOA.—We reproduce elsewhere some remarks from the *Financial News* on the subject of the Ceylon cocoa industry and Ceylon tea. We presume that, apart from the financial aspect of the question, the future of Ceylon cocoa cannot have very much interest for readers of the *Financial News*. Perhaps we are to have a boom in Ceylon cocoa! The concluding remarks of the writers are as follows:—"The reason why so little information as to the possibilities of Ceylon cocoa reaches the investing public is that the holders of stock in the prosperous companies are satisfied with their securities, and prefer to keep the good things to themselves." Is an endeavour about to be made to induce some of these holders of stock to part with it for a consideration and will the investing public be asked to participate in the "good things" hitherto hidden from them?

THE CONSUMPTION OF TEA AND COFFEE.

(From the *Grocer*.)

Our anticipation of the effect of the reduction of the duty on tea to fourpence per pound, which we expressed last year, has been fully borne out by the substantial increase in the consumption which has already taken place. In fact tea has now become such a popular beverage that it is almost difficult to say to what extent the consumption will grow. In 1860 the average consumption per head of the population of the United Kingdom was 2·67lb., in 1870 it reached 3·81, in 1880 4·59, and in 1890 it was over 5lb per head. The weight of tea consumed in 1860 was only 77,000,000lb., whilst in 1870, 1880, and 1890 it was 112,000,000, 160,000,000, and 194,000,000lb., respectively. This wonderful increase was, of course, mainly due to the reduced cost of the article. We find, on reference to the books of one of the largest wholesale teadealers in London, that the average cost in the three periods mentioned was, omitting small fractions, 1s 10d, 1s, and 9½d per lb. in bond, and the duty was in the first instance 1s, then 6d, and in the last mentioned year 4d per lb.; so that the cost on the market has fallen from 2s 10d to 1s 1½d duty paid. As the duty was only reduced for part of the year 1890, the consumption for the first half cannot fairly be compared with the corresponding period of 1889, but taking the six months ending June 30th last with the same period in 1889, when the duty was 6d. per lb. we find that duty was paid upon about 8,000,000 more pounds at the fourpenny rate; and as the market for tea during the early months of this year was very firm, the increase is even more remarkable.

There is another important element to bear in mind, that a pound of Indian or Ceylon tea will make more cups than the same weight of China produce; and it is marvellous how the consumption of the former has increased. For instance, twenty-five years ago the consumption of Indian and Ceylon tea was 25,500,000 (in 1865), against 120,000,000 from China, whilst in 1890 the consumption of Indian and Ceylon was 137,000,000, and the total from China had declined to 55,000,000 lb. There is a large field for grocers in this business, and, notwithstanding the reduced price, it is still a trade well worth cultivating. No one ought to know better what kind of tea suits the customer and the water of the district (which is very important) than the grocer who is on the spot. Of late we have heard that some persons, under the guise of philanthropists, are sending tea direct from the place of growth to the consumer at ridiculously low prices, with the view of cutting out the distributor in this country; but we do not think a grocer who knows what his customers' wants are need fear this opposition. When the price of tea was much higher than it is now, retailers had an opportunity of making a good profit on the sale. This by competition and other causes has been considerably reduced and the interest of the grocer has in many instances proportionately diminished, but the increase in the consumption should stimulate the desire to push a trade which even now bears a fair percentage of profit, and if energetically cultivated, would still contribute in a satisfactory measure to the weekly takings.

As a contrast to the substantial increase in the consumption of tea in the United Kingdom, it is interesting to compare it with that of coffee, which in 1864 was about 14,000 tons, and the average price in bond 74s per cwt. with a duty of 28s making 102s per cwt.; in 1873, when the duty was 14s, the price in bond had risen to 105s per cwt. and the consumption had only reached 14,433 tons; while last year the average price was, singularly, the same as in 1873, viz., 105s, and the duty 14s, or a total of 119s per cwt, but the consumption had declined to 12,810 tons. It is a well known fact that a pound of tea will make a larger number of cups to drink than the same weight of coffee, and taking into consideration the loss in weight which coffee sustains in the process of roasting, it will be seen that tea is now much the cheaper commodity. The imperfect manner in which coffee is generally made in this country helps to retard consumption, for in Holland, where it is almost the national beverage, it is roasted, ground, and made within a few minutes, in order that the aroma may be retained. In England it is roasted, and often ground, for weeks before it is required, and instead of being made by simply passing boiling water through the coffee, it is practically stewed, and undesirable elements are extracted which really spoil the liquor. This decoction is met with at railway stations, &c., and travellers are led to entertain a dislike to a drink which on the Continent, where properly made is so generally used and appreciated. We have indicated some of the causes which have led to tea making such rapid strides in advance of its rival drink, coffee, and although the price of tea cannot be reduced in the same proportion as during the past twenty-five or thirty years, there is still room for a reduction or abolition of the fourpenny duty; and while we do not advocate this at present, we know there is strong pressure brought to bear upon the Chancellor of the Exchequer every year by the advocates of the free breakfast-table. When the duty is removed we shall be surprised if a further marked increase in the consumption does not take place. It is therefore highly desirable, as we have pointed out, that grocers should, by all means in their power, cultivate a trade which

though not bearing the same proportion of profit as formerly, is still likely to increase in quantity and, notwithstanding the various forms competition has taken, can still be made to bear a very fair profit and yield a good return to grocers who are in a position to know their customers' tastes better than growers in foreign countries, and others who only affect this knowledge.

COCOA IN CEYLON.

(From the *Financial News*.)

The shrewdest of the Ceylon tea companies are wisely showing their appreciation of the maxim that no one should put all his eggs into one basket. Tea is of necessity, the most valuable export at the present time, and will probably continue to be the staple produce of Ceylon for another ten years to come. The West Kensington correspondent whose letters we published on Monday does not believe in "the enormous estimate for future Ceylon crops of tea." The most "enormous estimate" is that the output will amount to 100,000,000 lb. per annum in ten years time, which is about the quantity exported today from all the Indian gardens. Our point in discussing "Tea Shares as Investments" was the danger of the supply overtaking the demand. Quality rather than quantity should be the peremptory instruction of the London companies to their local managers. When the success of a plantation is measured by the fineness and lasting qualities of its leaf rather than by the extra thousands of pounds in weight sent out per annum, the Ceylon tea gardens will have established their equilibrium, and Ceylon tea will still hold a commanding place and a profitable price in "the Lane;" but, apart from tea, the natural resources of the island are sufficiently abundant to sustain the hopes of the investor in Ceylon securities. The disappointing results of Ceylon coffee and the quinine bark may fairly be said to have been counterbalanced by the success which has attended the experiments in the cultivation of indigo, of cotton, of a new fibre known in the market as "kapok," and, more especially, of the cocoa plant, of which the Ceylon variety is outstripping the best growths of the West Indies, not excepting the famous nut of Caracas.

It can only be a coincidence that the increasing consumption of cocoa in the United Kingdom should be occurring at the same time as the rise of the Ceylon cocoa industry. There is no possible connection to be found between the two facts that we are all drinking more cocoa than ever, and that the Ceylon supply is increasing, and obtains the best prices in Mincing Lane. It is possible that Ceylon cocoa is even now caviare to the general public. It has not yet become a special brand on the grocer's counter; it would be necessary to travel far afield to procure a sample with which to try experiments on one's palate. Its value, however, is recognised by the manufacturers of cocoa and chocolate in France and Russia, as well as in the British islands. Its prime cost is high, and it is bought, apparently, as an ingredient "too pure and good for human nature's daily food." Its commercial value consists, in fact, in its refining influence, which lends colour and flavour to a blend with cocoas of a poorer class. It can scarcely be said that the intrinsic merits of Ceylon cocoa account for the remarkable increase in the general consumption. At 4s or 5s per lb., the price at which the retailer could afford to dispose of it, the commodity would be almost out of the reach of the prudent housewife. The consumption of cocoa has, nevertheless, been a continually increasing item during the five years comprised in Messrs. Lewis and Noyes' last report. Their record, as regards the United Kingdom, runs, for the first half of each year, from 3,960 tons in 1887 to 4,780 tons in 1890, and 5,370 tons in 1891. The French—to whom cocoa in one or another of its forms is at once meat and drink—did not keep pace with our own people during the same period. The consumption in France for the first half of the present year was 6,910 tons, or only a trifling increase on the 6,070 tons of five years before. Stocks were large in France at the end of June; but prices were steady, and Ceylon cocoas still maintain their supremacy. The relation which Ceylon prices bear to the commercial values of the West Indian product will be seen by the appended table, which we have taken from Messrs. Lewis and Noyes' August report:—

COMPARATIVE PRICES PER CWT.

	1891.	1890.	1889.	1888.	1887.
Ceylon	119/-125/	95/-105/	85/ 96/	90/-95/	90/- 00/
Guayaquil (Arriba)	90/-97/6	80/- 85/	75/-80/	70/-78/	75/- 80/
Trinidad	66/-70/	65/- 69/	65/-70/	70/-75/	80/- 84/
Grenada	59/-63/	60/-63/6	59/-64/	60/-66/	69/- 73/

And this does not complete the tale, for at one time this year Ceylon "good red" fetched as much as 133s per cwt. in open auction.

The cocoa industry in Ceylon, promising as it is, requires of its cultivator that "great capacity of taking pains" which Carlyle described as the quality of genius. It asks from all who know anything about it faith, hope, and charity. It makes a demand upon one's faith because five years must pass before it is possible to say that the outlay on the nurseries is likely to prove a profitable investment; it asks for charity in the sense that it must be tenderly nurtured upon a rich alluvial soil, somewhere by a river's brink, and under the shade of such shrubs as those which return their value in the "kapok" pool, or such trees as are being raised to come into our timber market as good teak wood. The three or four plantations which are cultivating the cocoa plant are even now only at the threshold of the good fortune which appears to await their enterprising proprietors. The root of the growth must have been originally at Caracas; it was transplanted to Ceylon, and, so far, it has increased and multiplied amazingly. The once famous cocoa of Venezuela, the fruit of the equally celebrated growth in Mexico, the special varieties for which Trinidad was wont to be noted, have had to give way to the new competitor—the immigrant shrub which is fructifying in Ceylon. It involves some sacrifice, no doubt, to let one's money rest for half a dozen years until the cocoa plant matures. Everything seems to depend upon the suitability of the soil; but when the location is rightly selected, the plant is robust, and enjoys a remarkably long life. It is too soon to talk of the longevity of the Ceylon description of the *Theobroma Cacao*; but in Trinidad there are two thriving estates on which the cocoa trees are creditably reported to be over 100 years old. Perhaps the reason why so little information as to the possibilities of Ceylon cocoa reaches the investing public is that the holders of stock in the prosperous companies are satisfied with their securities, and prefer to keep the good things to themselves.

WITH A VIEW of encouraging the fruit industry in Victoria, the Railway Commissioners of that Colony have agreed to carry fruit at special rates, with a minimum of 1s for each consignment for any distance. This concession is a large one, as it will enable growers at a considerable distance to send single boxes of fruit to different persons at a very much reduced rate, provided the boxes do not exceed 1 cwt. in weight.—*Colonies and India.*

IVORY.—When passing through the Exhibition, the other day, we noticed a splendid display of ivory in its raw and manufactured states. The "teeth," as they call elephantine tusks in the trade, included some very fine specimens, and it was apparent from some of them that *Bos lucas* has been a great martyr to that ache which invariably reminds us that our masticating members are a plague to get, a plague to keep, and a plague to lose. One pair of mammoth tusks weighed 2 cwt, and was valued at 90*l*. Mammoth ivory, by the way, is not hunted for nowadays. It is found as an "alluvial deposit" in the rivers of Siberia, and is rarely fit for commerce, being too discoloured. The specimens at the German Exhibition, however, are, curiously enough, quite white. A couple of elephant's tusks are also shown which weigh 1 cwt. 3 qr., and which are priced at 175*l*. This lot came from the Kilima-Njaro district, the happy hunting ground of the searcher after ivory.—*European Trade Mail.*

PEPPER, TEA AND COFFEE CULTIVATION IN PERAK.

In the annual report of the Kuala Kangsar district, it is stated that

Syed Musa's pepper estate at Pasir Panjang, although not quite so well-kept and cared for as might be wished is making fair progress. Syed Musa, unfortunately, knew nothing of the cultivation of pepper when he commenced his plantation, and has therefore been very much in the hands of the Achinese coolies working on contract under him. The latter have not paid sufficient attention to the tying up of the vines, and the estate has not always been kept as clean as it might be, and this I find to be the case with most of the Malay plantations. Apart from these defects, vines are doing well. The estate is now about 16½ acres in extent, and contains about 14,500 vines, of these 1,500 are grown on hard-wood posts and the remainder on "dedaps." The first vines were planted about two years ago, and there are now 5,000 in bearing, about three of pikals pepper having already been gathered. Up to the end of the year the Government had advanced $4,780 on the estate. Advances are to be continued up to $8,000, and altogether 16,000 vines are to be planted. The Government originally provided Syed Musa with the means of opening this estate with a view to encouraging other natives in the district to take up land for the cultivation of pepper and this object has certainly been attained, during the year 600 acres, mostly in small blocks varying from one to five acres in extent, having been taken up for this purposes. Some of the plantations are doing very well particularly those belonging to Chinese and Achinese who possess a little capital. The Perak Malays, as a rule, are not so successful, lacking both the perseverance and energy requisite for the cultivation of pepper and having a rooted objection to sinking any money in their plantations unless it can be borrowed from Government. After Syed Musa's the largest pepper estates are two belonging to Kong Lim, which are 10 and 30 acres in extent respectively. The smaller of the two, on which the vines are trained against hardwood posts, is worked with Chinese labour, but on the 30-acre block the pepper is being grown against dedap trees, and the labour performed by Achinese working in the tribute system. These two estates were both started about the same time and on the same soil, it will therefore be interesting and instructive to compare their progress and ultimate success. Kong Lim does not appear to have much difficulty in obtaining Chinese agricultural labour, but he complains of the short hours the coolies work. The men he is now employing insist on working for only eight hours a day, as in the mines; and to make pepper pay he says it is necessary that they should work for at leat 10 hours. The Government experimental pepper plantation at the foot of Gunong Bondok, as was anticipated, has not proved a success, the soil, although very rich, being quite unsuited for the growing of pepper. In the other Government plantation, at Padang Rengas, the vines, appear to be in a very flourishing condition. This plantation is about 13 acres in extent, and contains several large nurseries of pepper plants which are now ready for planting out, a large number having already been supplied to Kong Lim and other planters in this district. The Cicely Tea Estate was let in June to Messrs. Lim Ah Kui, Li Peh and others; and in July the Hermitage Tea Estate was relet to the same people. During the last year the number of coolies employed on Messrs. Hill and Rathborne's Liberian coffee plantation, at Kamuning, has been increased, and a vast improvement effected in the general appearance of the estate. Several fields, which, for want of labour, had to be abandoned, have now been reclaimed, and I am informed that the whole of the original clearing, about 258 acres in extent, will be cleared and planted up by March next, and that the first picking will commence about October.

COCO-DE-MER.

There is in the cabinet of Mr. Joseph H. Wright of this city a very fine specimen of the Coco-de-Mer, a curious nut produced upon the palm tree which grows in only one spot in the world, the Seychelle Islands. This specimen has attracted a great deal of attention and has been loaned by Mr. Wright for exhibition in this and other cities. We (*American Grocer*) are indebted to Mr. Wm. Saunders, Superintendent of the Public Gardens, Washington, D. C. for the following interesting description of the palm tree which produces this remarkable fruit:

LODOICEA SECHELLARUM.

This palm produces the celebrated Double Coconut or Coco-de-Mer, which, until about 140 years ago when the trees were discovered upon which they grew, was only known as a large nut found floating in the Indian Ocean and near the Maldive Islands. The nuts were only found destitute of their husks, and mostly with the internal part decayed. They were supposed to be produced on a tree growing in the sea, and Chinese and Malay sailors affirmed that the nuts were borne upon a tree deep in the water, which was similar to a coconut tree, and was visible in placid bays, upon the coast of Sumatra and adjoining coasts, but that if they sought to dive after the tree it disappeared.

Negro priests declared that it grew near the island of Java, where its leaves and branches rose above the water, and were the habitation of a monstrous bird, which carried off elephants and tigers to its nest, so that mariners of the Indian Archipelago carefully avoided that spot.

Great value was also preferred upon these nuts for medicinal properties, all of which is equally a matter of historical fable.

The Seychelles lie to the north of Madagascar, in about 5 deg. south latitude. It is in this group only that the palm is found, and among them only in the isles of Praslin, Curieuse and Round Island. These are within half a mile of each other and are mountainous and rocky.

The Lodoicea attains a height of 80 or 90 feet, and is surmounted by a beautiful crown of winged and palmated leaves; the trunk is from 12 to 15 inches in diameter and very flexible; the leaves are large, 20 feet long and 10 to 12 feet in breadth, and even larger. The straight and slender stem, when surmounted with a heavy crown of leaves and fruits, has a strong leverage on the roots, which are strengthened for this office in a peculiar manner; the base of the stem is rounded, and fits into a natural basin or socket, about 30 inches in diameter and 18 inches in depth; this basin is pierced with hundreds of small oval holes about half an inch in diameter, with hollow tubes corresponding on the outside, through which the roots penetrate the ground on all sides, but never become attached to the basin or bowl, their partial elasticity affording a certain amount of play to the stem in violent gales.

The tree requires 100 years before it attains its full growth, and thirty years is the shortest period before it pushes out its flower buds. It requires ten years from the first appearance of the flower till the fruit reaches maturity; it bears only one cluster of flowers yearly, yet it will often have ten in bloom at once; it has flowers and fruit of all ages at one time.

The fruit is a drupe, of an olive green color, and generally double, sometimes triple, and even quadruple, and frequently attains a length of 18 inches, with a circumference of 3 feet, and sometimes weighing 40 to 50 pounds. It is the largest fruit which any known tree produces.

The immature fruit is easily cut with a knife, and affords a sweet and melting aliment, of an agreeable taste. When it is ripe it drops on the ground, and is no longer fit for use.

The unopened leaves of young plants are used for making hats and bonnets; the splitting of the leaflets is difficult, but is performed with considerable skill by those accustomed to the work. Various useful and extremely beautiful articles are made of these leaves, and mats of great durability are manufactured of the strong leaf fibres. The leaf stalks are used for fences and for rafters of houses; they are strong and very durable. The trunk is so hard as to be difficult to cut with an axe; split in two and hollowed, it is used for water gutters, and is almost imperishable.

THE ANNUAL REPORT OF THE KINTA DISTRICT, PERAK,

states :—

Land and Agriculture.—During the year 1,649 acres of land were alienated—mining 1,550, agricultural 99. Agriculture in the district, it will be seen from this, makes little progress except in the shape of small gardens. It is true there are constant applications from Malays for forest land, for the purpose, they say, of planting coffee, pepper, and nutmegs, but on enquiry these applications turn out, almost without exception, to be put in for the purpose of evading the Government order prohibiting the felling of "rimba" for ladangs, and where the land has been given, and the heavy forest felled and destroyed, the land is always abandoned after one crop of dry padi has been taken off it, and the applicant surrenders the title, saying the coffee which he never planted would not grow.

To prevent this I have during the year always insisted on natives who apply for "rimba" land finding security that they have sufficient captal and *bona fide* mean to plant the land before I grant it. The acreage above-mentioned is small, but it has been issued to men who will really work it, and, considering the greater attractions held out by the mines to invite investors, it cannot be considered unsatisfactory. A great portion of it is being planted with Liberian coffee and pepper, but it is too soon et to express any opinion as to whether these small plantations will be a success or not.

Mines.—The number of mines now registered in the Kinta Land Office as held under Leases and Agreements for Leases is 850, and comprises an area of 10,948 acres. During the year 1,550 acres of new mining land were granted to 62 applicants, and that number of titles issued, and at the end of the year 47 further applications were registered in the District Land Office, and the land applied for is being demarcated and surveyed.

The alluvial mines are as a rule, well worked, but there are several mines, notably those of His Highness the Sultan in Kampar, of Joh Domba, in Sungei Raya, and of Fu Chun at Lahat, which have been worked in the most wasteful way, small pits being sunk in their land by men who have no capital to go deep enough, and are only able to lift a small portion of the tin-bearing strata, the balance being afterwards left and covered up with over-burden from the adjoining ground. The well known Sorakai mine, worked by Fu Chun for Captain Ah Kwi, has been spoilt in this way, as after getting down over 100 feet through the wash without reaching the bottom, the engines were not sufficiently powerful to pump any deeper, and some sort of winding gear having become necessary to lift the wash-dirt at a profit the Chinese, sooner than spend the necessary capital on machinery, abandoned the mine, and have since filled it up by sluicing sand from the adjoining hill into it. Legislation of some sort has become necessary to prevent another case of the sort occuring. The land of His Highness the Sultan in Kampar, I am glad to say, is now being better worked, owing to a change in the agent in charge of his mine. There is little more to be said as regards the alluvial mines, but a remarkable find of tin ore at Sayak is worthy of mention. The mine belongs to the Datoh Panglima Kinta, and is let to a Chinese towkay who works it on the co-operative system. Late in the year his coolies sunk two holes, one thirty feet square and the other twenty-four feet square. In the first hole in 12 days 11 men lifted 450 pikuls of tin sand, worth $8,100, and in the second 23 men lifted in 5 days 200 pikuls of tin sand, worth $3,600. Nine-tenths of this goes to the coolies, who have in a few days become comparatively rich men.

There are 56 steam pumping engines now in the district, of which 42 were at work at the end of the year.

The year has been remarkable for the numerous discoveries of lode out-crops made in the district, and the attention given to that branch of mining.

A remarkable change has come over the transport of the district during the year owing to the Chinese having almost entirely abandoned elephant transport and substituted wheel-barrows for them. The change was brought about by the elephant-owners demanding such exorbitant prices for the use of their animals that the Chinese refused to submit to such extortion any longer, and introduced wheel-barrows, which are cheap and work very well on the jungle path.

NEW MINERALS DISCOVERED IN KINTA DISTRICT DURING 1889-1890, AND LOCALITIES.

1. *Asbestos* (R. O. S. Q.)—This mineral was found associated with ferruginous quartz in lode-stuff at Haji Latif's mine, Kledong. It is in very small quantities

2. *Cerusrite* (carbonate of lead).—This mineral was also found in Haji Latif's mine at Kledong, associated with lode-stuff. It is not in sufficient quantities to be of any commercial value.

3. *Pyromorphite* (phosphate of lead).—This mineral was also found in Haji Latif's mine at Kledong, also in several of the different lodes in Kinta.

4. *Apatite* (phosphate of lime).—This mineral was first found at Tempurong, near Gopeng ; after this a big dyke of it was found running through the limestone hills at Si Lunah, Tambun. This phosphate, treated with sulphuric acid, which could be obtained from the ore smelted by the lode-mining companies, forms a very valuable manure. The apatite at Tempurong occurs as small veins and leaders running through the country limestone, and is very rich in tin.

5. *Wolfram* (tungstate of iron and mangalese).—This mineral was first found in the Kilian Repoh lode at Tambun; it occurs there in large quantities ; since then it has been found to be associated to a large extent with the tin ore in Kinta. The present low price of this mineral would not admit of its being exported at a profit.

6. *Bismuth* (native).—A small piece of this valuable metal was found in the limestone hills at Tambun ; no trace of it has been found since.

7. *Fluor spar* (fluoride of calcium).—This mineral was first found at Lahat; since it has been found associated with the lode taken up by Mr. Taylor at Kedong.

8. *Sapphire* (pure alumina).—Sapphires have been found at Sungei Raya, but they have no commercial value, although of good colour. They are very opaque, which renders them useless as gems.

9. *Chaleedony* (silica oxygen).—This mineral has also been found in Sungei Baya, and some of the varieties of chalcedony are precious stones of value, such as agate, onyx, and cornelian.

10. *Gold.*—This has been found in small quantities at Ulu Tekah; it has not been worked.

In the Kinta *Monthly Report* for July, it is stated :—

On the 3rd Mr. Marks, Superintendent of Government Plantations, arrived and inspected the lands at Pusing planted by Raja Mahomed and his followers.

As Mr. Marks tells me he has nurseries of coffee, pepper, coconut, and other plants at Kuala Kangsar, from which he can supply young plants at low prices. I have sent notices to that effect to the Penghulus, and have already had several applications for plants.

An Italian marble cutter named Banardo applied for permission to work marble at the Ipoh quarries. I gave him the permission. He states that the marble is of the best quality, and easily worked. There are three sorts in the quarry—pink, white and blue veined.

PROPOSED QUININE-FACTORY IN JAVA.—Mr. P. van Leersum, assistant director of the Government cinchona plantations in Java, has received permission from the Dutch Indian Government to proceed to British India on behalf of the Bandoeng and Soekboemi Agricultural Association for the purpose of investigating the manufacture of quinine in the Indian Government factories, and with the ulterior object of establishing a quinine-factory in Java.—*Chemist and Druggist.*

Correspondence.

To the Editor.

MR. MAITLAND KIRWAN'S PATENT TEA PAPER.

Billiter Square Buildings,
London, Aug. 13th, 1891.

Dear Sir,—You may have noticed by Messrs. Wilson, Smithett & Co.'s last circular that tea still continues to come forward in the new patent paper lining and is found to arrive in perfect order.

The last consignment I had from Elkadua in this paper proved very satisfactory; the more so because my head superintendent wrote me saying he feared it might not arrive in good order owing to its having been packed in very wet weather. It was however just the test I wanted to prove that the paper was not merely a fair weather material. I may mention that this tea was valued by an expert along with a sample out of the same break packed in the ordinary lead lining; and without knowing which was which, he pronounced the sample (paper packed) the fresher and better of the two; the lead lined presenting somewhat of a tinny flavor.

I think there can be no doubt that a certain amount of corrosion must be imparted from the lead linings which to some extent must affect the quality. The paper linings, of course, will obviate this, and what with a saving of nearly 50 per cent I have no doubt these linings will continue to command themselves to the planter and proprietor. I am a little surprised that your Planters' Association have not taken the matter up, after being supplied with samples of the paper, but, no doubt, now that it has been proved a genuine success, they will move in this business.—Yours truly,

J. M. MAITLAND KIRWAN.

(*Extract from Wilson, Smithett & Co's Circular.*)

In the Board of Trade Returns given below we note a satisfactory expansion in the exports of Ceylon tea, which seems to indicate a wider knowledge and growing appreciation of its excellence. One or two breaks of Ceylon were included in the sales packed in patent paper lined packages, and apparently arrived in very good order.

A WORD OF WARNING TO CEYLON TEA PLANTERS.

London, August 21st.

Dear Sir,—The Ceylon Tea Industry taken as a whole is apparently well on its way to ruin. Let those whom it may concern take warning in time. The sole cause is the attempt to make too much tea. A very short continuance of the late style of picking and manufacture will religate Ceylon teas to the place lately occupied by the lowest kinds of China; and Ceylon tea instead of being a name to attract will repel all who want tea of good character and agreeable flavour. The teas at present on this market from Ceylon are to a very large extent badly made, inferior in strength and quality and overgraded; consequently prices are realized which must leave a serious loss to planters in many cases and under the most favourable circumstances but very small profits. This in itself may act as a remedy, but it will take time. In the meanwhile it behoves everyone who has the interests of the Ceylon Tea Industry at heart and more especially the Planters' Association to urge planters not to be tempted by heavy flushes and increased estimates and yield to make more tea than they can properly manufacture. —Yours, &c. CAVE.

THE TALGASWELA TEA CO.

Aug. 25th.

Dear Sir,—It would be well if the Directors of the Talgaswela Co. published the whole of Mr. Grigson's report, so that present and intending shareholders might really read for themselves what Mr. Grigson did write, instead of having their minds exercised with the scraps of the report given in the papers. One part of the scraps seems to have led a shareholder to indulge in the funny suggestion that the series of patches of bad planting was not bad planting at all, but the result of poisonous roots, as if an intelligent V. A. like Mr. Grigson would have wasted time and paper and ink in describing a few blemishes in a field, that anyone may note in a new tea clearing. Let me refer to the scraps even as to what Mr. Grigson did write on this matter. Notwithstanding "(what?) there is great irregularity in the growth and development of the tea due to planting by village labour." I, for one, and I am pretty certain no sensible man, would believe, that such "great irregularity in the growth and developement of tea" is caused by poisonous roots, but simply by bad planting. The use of the "red herring" is not confined to cookery!—Yours truly,

MYSTIFIED.

THE TALGASWELA TEA COMPANY (LTD.).

Colombo, Ceylon, Aug. 28th.

Dear Sir,—The writer of the letter in your issue of yesterday need not long remain "mystified," as I am quite sure the Secretaries of the Company will be only too happy to supply him, or any other applicant, with a copy of Mr. Grigson's report, which, I believe, has already been sent to every shareholder in and out of the island. I may tell him that the report covers five pages of printed foolscap, and it is hardly to be expected that papers would give any company a free advertisement by inserting so lengthy a document—a document, too, intended primarily for the information of the shareholders. Other companies do not usually publish their V. A.s' reports, but no doubt the directors of the Talgaswela Company will deviate from the general custom, if "Mystified" sends a cheque to cover the expense of so doing.

As to the other point referred to by your correspondent—the irregularity in the appearance of the tea—Mr. Grigson is of opinion that it is due to "village labour," while the manager of the estate Mr. Broadhurst (who has been a planter in the Galle district for 12 out of 22 years in the island) attributes it to "immature seed." It is no uncommon thing to find experienced men differing very widely on planting matters, so the present conflict of ideas is hardly a subject of much moment to the shareholders. What is of *more* interest is the fact that the V. A. reports that this year's crop has been sold at an average of 46c. per lb. *nett*, "*which is a better result than would be expected from the low-country generally and is therefore a feature of distinct promise.*" He also states that the yield next year should be about 180,000 lb. from 485 acres four years old and 196 acres three years old, equal to an average of 264 lb. per acre; and the yield for the following year (1893) is estimated by another competent authority at 450 lb. per acre, giving a total of over 300,000 lb. Bearing in mind the "exceptional advantages" (Mr. Grigson's words) Talgaswela enjoys in regard to labour, the "easy and inexpensive" transport facilities, and the fact of there being "500 or 600 acres available for the further extension of the tea industry," I shall not be surprised to find "Mystified" in the market for

shares, even though he has to pay from 30 per cent to 40 per cent premium. I may add that I for one have bought more shares since the circulation of Mr. Grigson's report.—Yours faithfully,

WHISKEROSO.

[*Authenticated.*]

A PRACTICAL TALK ON TEA MANUFACTURE.

Sept. 3rd.

DEAR SIR,—Your issue of 1st instant contains a good deal of interesting matter to tea planters :—

1. Mr. Hughes' remarks to your London correspondent regarding tannin in tea as being the test of the market. No word, in Mr. Hughes' remarks or in your leader, appears as to *flavour*. Any expert will tell you that that is the true test of tea.* Strong teas are the result of quick withering in a warm climate because one day's plucking is rolled the next day, and therefore the withered leaf is not sufficiently tough ; whereas at a high elevation and at a lower temperature the withering process is slower and more natural so that the contents of the cells of the leaf are released without the texture of the leaf or the cell walls being bruised. You say, tannin is said to be scarcely "ever present to any extent in the first cup of infusion obtained from tea if the time allowed for it to stand be limited to some three minutes or so only." Just so ; so that tea tasters do not wait for the extract of tannin. When tannin is unduly present the tea are classified as "rough" or harsh.

2. Mr. Davidson's remarks.—Here we have a true expert speaking, and his remarks are worthy of all attention. Stewing is the result of rolled tea spread *thickly* on the firing trays and not the result of low temperature used in the drier. Slow firing is the correct method to dessicate the tea, but when a planter is pushed for time he cannot afford to do it. Let a machine be adapted to finish large quantities of leaf with a minimum of firewood. There is a good deal of truth in the effect of steep rocky land on tea giving it a "high-grown" character. Udugama and Galle being "pucka" low country, does not come under that category, and I have often heard that tea from that part of the island has a distinctcharacter of its own.†

3 "Wanderer's" Notes.—The remarks as to the absence of the planter from the factory resulting in better tea is correct, barring the chaff implied. Your Talawakellie correspondent is not consistent. He first of all "joins issue" with Wanderer, that is seeks to correct him. Then he says "he (Wanderer) talks about the absence of the planter from the factory as possibly conducing to better made tea," and then in the next line agrees with him that "tea is not made in the factory" !! The Talawakellie correspondent may say what he likes, but when all departments in the factory are strained by press of leaf ; when coolies have to tear ahead, and Sinhalese called in to help during the rush in May ;—surely the tea cannot have the attention which it gets in August. In August a planter can pluck, wither, roll, fire, pack, calmly and easily ;—*therefore* better tea is the result. Many men say that it is all humbug for the brokers to call out about bad tea when large quantities are coming in, but the majority of planters know what goes on when to save their estimates leaf *must* be harvested, when the rush is on, and to that end the flush must not be allowed to run away. The cry about inferior quality of tea, and insufficient labour becomes a screech in the agony of a "May" rush, and sinks almost to a whisper in the easy days of August. Your Talawakele friend must have laughed in his sleeve when he wrote the following: "I would say rather labour is plentiful because more coolies have come in from the coast." Ha ! Ha! All our troubles are ended—more coolies have come in from the coast ! I wonder who is the man whom your Talawakele correspondent knows who "rarely spends over an hour a week in the factory." His teas may be good, but that argues the excellence of the tea maker and the wisdom of the tea-maker's master in keeping out of the way, but not that the factory coolies will do better without the durai going near.

4. Then in the issue before the one under notice we had some hard criticism from India. All right, we can afford to read it and laugh over it. The days are gone when Ceylon planters used to brag. That's gone out with coffee. There is no brag now, but a hard grind to make ends meet ; and if great progress has been made, then Indian sneerers cannot affect what is known everywhere : that we have built a new industry on the ruins of another. The Indian tea planters were always tea planters and have been at it for many years ; but the Ceylon men have risen from the ashes of a former great ruin, and if they are not making their fortunes, they have held their own and pushed ahead by steady determination, energy, combination, and advertisement. PRACTICAL MAN.

* For drinking unmixed, no doubt ; but for mixing purposes strength has been desiderated.—ED *T. A.*

† Like that of the Terai and Dooars in India.—ED. *T. A.*

UNFERMENTED TEA SELLING WELL.

DEAR SIR,—A planter of many years' experience of tea told me a short time ago that he never allowed his tea to ferment, but put it into his driers direct from his rollers. Reading a treatise on the subject of Fermentations, I notice the following paragraph :—"Fire your tea immediately after it is rolled, and after infusion note flavour of liquor and colour of out-turn. The liquor tastes harsh, pungent and raspy, *and is quite unpalatable*, it further wants body."

In the face of these remarks I am surprised to find the unfermented teas, made by the planter I refer to, have realized an average of about 47c per lb. during the present year. Can any of your readers give me any information on the subject?—Yours faithfully, PUZZLED.

[We can imagine such teas being pungent and valued for this quality, but if wanting in body it is not likely they would sell at the price mentioned. *Over-fermenting* is certainly injurious.—ED. *T. A.*]

COFFEE GROWING IN THE VANNI is described by Mr. J. P. Lewis, A. G. A. of Mullaittivu, in his Diary for 1890, as follows :—

June 25.—I turned off on the road also to inspect Kachchilamadu, a good village. Here in one compound I saw several coffee trees in bearing—a curious sight in the Vanni. The owner (the chief cultivator Vellivayalkulam) said they had been planted by his grandfather, and that formerly there was a whole garden of coffee in this village ; even now the berries are sometimes sold. This is the place where Pandara Wanniya was finally defeated by the British troops under Captain Drieberg in 1803. I made inquiries as to the exact spot where the fight took place, and the man referred to above pointed out to me a part of the village clearing under some tamarind trees, which he said he heard his grandfather and other people describe as the scene of the fight.

ECHOES OF SCIENCE.

The effect of adding aluminium to steel ingots has recently been discussed by the American Institute of Mining Engineers, and, according to Professor Arnold, its effect in rendering steel castings perfectly sound is very marked. It is twenty times as powerful as silicon, and the resulting steel is tougher. By using it, manganese can be discarded, and a considerable saving in time and fuel effected.

The new lake which recently formed in the hollow of San Diego County, California, turns out to have been fed by the Colorado River which, overflowed its banks owing to the melting of the winter snow in the Sierras of Colorado, Utah, and Nevada. As evaporation proceeds at the rate of 100 inches a year in this region, it is expected that the lake will only have an ephemeral existence.

In a study of the flora of Greenland, Sir J. D. Hooker came to the conclusion that it was European rather than American, and Professor E. Warming has since tried to show that it is American rather than European. As usually happens in the case of two such conclusions the truth lies between them, and Professor Nathorst now points out that while the coast of Greenland nearest to Iceland contains European forms only, the coast next to America yields American forms, and at the Southern extermity the flora partakes of both characters. On the whole, however, Sir Joseph Hooker seems to have been right, the flora being rather more European than American.

The flora of an insular country comes as a rule from the nearest land, and in this respect is like the human population. Thus in Britain we have a southern flora opposite France, a Germanic flora on the east coast, a Lusitanian or Peninsular flora in the south-west, and in the extreme west of England there are two American plants unknown in any other part of Europe. The seeds have probably been brought hither by winds, tides, or birds. Since the close of the glacial epoch a replanting of our shores with various forms from the nearest coasts has been slowly going on, and is still in progress.

According to a German scientific journal the place where thunderstorms are most frequent is Java, which has an average of no fewer than 97 thundery days in the year. Next to Java comes Sumatra with 86, then Hindostan with 56, Borneo with 54, the Gold Coast with 52, and Rio Janeiro with 51. In Europe the list is headed by Italy with 38 days, Austria with 23, Baden, Wurtemberg, and Hungary with 22, Silesia, Bavaria, Belgium with 21, Holland, Saxony, and Brandenburgh with 17 or 18, France, Austria, and South Russia with 16, Britain and the Swiss Mountains with seven, Norway with four, and Cairo with three. In Eastern Turkestan and in the extreme northern parts of the world there are few or no thunderstorms. In fact the northern limit runs through Cape Ogle, Iceland, Novaja Semelja, and the coast of the Siberian Sea.

It is clear from these statistics that heat is necessary for the productions of thunderstorms; hence it is that they are most frequent in the hottest summer months, such as July and August. But heat alone is evidently not everything; there must be moisture too, and in the form of clouds. Cairo, for instance is a very hot place, but being dry and cloudless it is seldom visited by lightning.

It is well-known that a mixture of lime and sulphate of copper has been used as a germicide in diseases of the vine, potato, and tomato. M. Aimé Girard has also applied this remedy to beetroots threatened with attacks of the fungus which causes the disease known as "Peronospora Schachtii." A three per cent. solution of copper sulphate is mixed with a three per cent. water of lime, and the mixture is sprayed on the beet from a tank carried on the dresser's back. Copper hydrate is the effective agent, but its use had better be watched with care, for certain cereals are known to assimilate metallic salts, and beet sugar is now consumed in large quantities by children.

On the 6th of June last a shower of stones fell at Pel-et-Der in the Department of the Aube during a violent hailstorm. These unwonted drops have been examined by a geologist, who finds them to be of chalk from Chateau-Landon, which is 150 kilometres from Pel-et-Der. It is believed that the stones were lifted into the atmosphere, and conveyed by a whirlwind.—*Globe.*

CACAO, COFFEE, AND COCA IN PERU.

From a recently-published report by Consul Mansfield on the Agricultural Condition of Peru, dated Lima, October 8th, 1890, we learn something of the value of the above-named plants in that country.

Of Cacao, or Cocoa, as we usually call it (Theobroma Cacao), we are told that up to a recent date its cultivation in Peru seems to have been confined more especially to the Transandine slopes, in the province of Convencion, in the department of Cusco; not, however, in sufficient quantities to supply the markets of the southern departments of the Republic. The Cacao produced is of a superior quality, and could compete advantageously with the best descriptions raised at Soconusco and in Venezuela. The excellence of the bean is, however, rather due to the geological and topographical conditions of the Valley of Santa. Ana than to the efforts of the cultivators. The Cacao goes by the name of Cusco Cacao, but owing to the cost of production, distance from the sea, and deficiency of transport, cannot compete in price with that imported from Ecuador; consequently, the production and consumption does not extend beyond what is requisite for the local demand. Cacao of good quality has also always been raised in the province of Jaén, in the department of Cajamaica, and the cultivation of the plant extends towards the sea-board in the north of the department of Piura; but upon so limited a scale as scarcely to amount to more than an experiment.

With a more extended development, Cacao could easily be produced in sufficient quantities for the internal consumption of Peru, displacing export from abroad, and, perhaps, even competing in foreign markets, a future for the industry which appears more than probable, when the contemplated irrigation scheme in the department of Piura shall have been carried into effect.

With regard to Coffee, it is said no better quality is produced in the world than in Peru; more especially that raised at Chauchamayo, in the department of Junin, and in the province of Carabaya, in the department of Puno. The production amply suffices for the internal consumption, notwithstanding that the latter has much increased during the last few years. Small quantities, during several years, have been exported to Europe, which, on account of the quality, found favour in the market, and fetched good prices, with the result that foreigners are beginning to settle in Peru as Coffee planters upon quite a considerable scale. The coast valleys, as well as those in the Transandine districts, furnish a favourable field for the plantations. The amount of the present production is not estimated. In 1888, 27,107 kilos. were exported from Callao, and 25,650 kilos. were imported from Guayaquil through the same port.

The Coca plant (Erythroxylon Coca) so well known for its anæsthetic and medicinal properties, is indigenous in Peru, and is largely consumed by the Indians in the Republic, where it is cultivated for exportation. No other country, indeed, competes with Peru in the quantity exported. Two establishments exist for preparing the leaf—one in Lima and one in Callao. During the last year, 1730 kilos. of Cocaine were exported to Europe, principally for Germany. No statistical data are forthcoming concerning the amount of production, but in the year 1888, 28,660 kilos. were exported through the port of Callao.—*Gardeners' Chronicle.*

"Practical Lanscape Gardening."—Under this title Messrs Putnam, of New York, announce the speedy publication of a work by Mr. Samuel Parsons, Superintendent of Parks in the City of New York.—*Gardeners' Chronicle.*

A BOOK ON DRUGS.

It is somewhat startling on opening this volume* to find that it commences with page 305 in the middle of a sentence. However, as it is essentially a book for the study or reference library and not for the boudoir, this printer's eccentricity is of no moment. The labour that this single Part represents is something enormous, for of nearly every drug dealt with the botany, history and uses, chemical composition and therapeutic or industrial properties have been exhaustively worked out. Most of the matter is too technical for quotation or comment, but the following about the safflower (*Cartnamus tinctorius*) should commend itself to official readers:—

"In silk dyeing it affords various shades of pink, rose, crimson and scarlet. Rouge is also made from it. According to Calvert (*Dyeing and Calico Printing Ed.* 1878), though the safflower has lost much of its value as a dye since the discovery of the aniline colours, it is still used extensively in Lancashire for the production of peculiar shades of pink of the Eastern markets. It is also used for dyeing red tape, and there is no more striking instance of 'red-tapeism' than the love which is shown for this particular colour by the users of that article. Much cheaper pinks can be produced from aniline, but notwithstanding the attempts which have many times been made to introduce them, they have failed in every instance, because the exact shade has not been obtained."

Think of this, heads of offices, and as you seal the official document, let the colour of the tape recall fleeting visions of the rosy-cheeked Diva whom you distantly worshipped in the golden period of youth! To return to the flora of this country, we learn that chicory is cultivated here and largely exported, probably not less than 20,000,000 lbs. being annually consumed in Europe, from which it may be gathered that "coffee that makes the politician wise" may not be what it seems. This plant was held in high esteem by the ancients, who attributed many virtues to it. According to Pliny, persons who rub themselves with the juice of the plant mixed with oil are sure to find more favour with others and to obtain with greater facility anything they may desire. In later days olive (the palms of) those in power has proved a surer road to favour. An important subject dealt with by the authors is datura, stramonium, which is a valuable remedy in spasmodic affections of the chest, and is at the same time one of the commonest poisons used in India. A plausible stranger falls in with a Hindu traveller and finds that they are journeying the same road. At a halting place he volunteers to prepare the curry and rice, and doctors the chutney, with the result that the unsuspecting one falls into a dreamy slumber from which he may or may not awaken. He is then relieved of any superfluous rupees or articles of jewellery for which he has no further use.

One of the most elaborate treatises is that on the *Nux vomica* plant, which now holds such an important place in Western medicine. We commend this to the students of such things, but it contains too much physiology for the lay reader. *Nux vomica*, or its alkaloid strychnine, is not much used as a poison in India. The action of tobacco on the blood corpuscles, heart, muscles, nervous system and digestion, is discussed under the heading *Nicotiana tobacum*. There seems to have been great opposition to the introduction of the "weed" in more countries than one. For instance, at one time a Turk who was caught smoking had a pipe thrust through his nose and was led in derision through the city; and in Russia, up to the time of Peter the Great, snuff-taking was forbidden under the penalty of having the nose cut off. We are told that "the value of tobacco-smoking as a palliative in the paroxysms of asthma is well established, and in some cases its use appears to affect a permanent cure." We understand that asthma has of late years been decidedly on the increase amongst European ladies. Again, "there can be no doubt that the moderate use of tobacco-smoking is not injurious to a great many people," (from which we may conclude that the authors smoke), "but it is equally certain that on some constitutions it produces mischievous effects." We should like to be informed how many cheroots of given length and strength constitute "moderate smoking;" but this information is not given. We now come to the dark side of the picture and learn that "the excessive use of the herb by smoking, snuffing, or chewing. . . . lessens the natural appetite more or less impairs digestion, . . . irritates the mouth and throat, rendering it habitually congested and impairing the purity of the voice. It induces a constant sense of uneasiness and nervousness with epigastric sinking or tension, palpitation (irritable heart), hypochondriasis, impaired memory, neuralgia' and a whole host of other symptoms. "The mind is apt to be filled with crude and groundless fancies leading to self-distrust and melancholy. The sleep is frequently restless and disturbed with distressing dreams." Gentle smoker, ponder on this tonight, as you ignite your *n*th cigar!—*Madras Mail*

* *Pharmacographia Indica.*—A history of the principal drugs of vegetable origin met with in British India. By Brigade-Surgeon William Dymock, retired, Surgeon-Major C. I. H. Warden, and David Hooper. Part IV. London:—Kegan Paul, Trench, Trübner and Co., Ld. Bombay:—Educational Society's Press, Byculla. Calcutta:—Thacker, Spink and Co. 1891.

Liberian Coffee in Selangor.—The *Singapore Free Press* of September 3rd says:—We hear that Liberian coffee planting is extending in Selangor, and that Count Bernstoff is about to open up a new estate near Kwala Lumpor.

Caravan Tea in Siberia.—In the *Illustrated London News* of 22nd Aug. there is a full-page illustration of a tea caravan from China on the great post road in Siberia, by Mr. Julius M. Price, who writes as follows on the subject:—

I presently saw a large caravan pass, which was but the forerunner of what we afterwards met, day and night almost without intermission, the whole way to Irkutsk. While many were laden with European goods bound eastward, more were coming from the Chinese frontier with tea, so great is this traffic. The tea of China, packed in bales of hide, is brought across the Gobi desert by ox-wagons or by camels as far as Kiakhta, the Russian frontier town, where it is transferred to sledges or Siberian carts, according to the season, and the long journey to Tomsk is then commenced, a journey taking over two months. The same horses go the whole way; but they are allowed to take their own pace, and seldom do more than three miles an hour. At Tomsk the tea is stored till the spring, when it is taken by river steamer into Russia. Tea brought overland is said to retain more of its original flavour than that which, packed in lead, has made a sea voyge, but the difference is probably so slight that only an expert could detect it. There are comparatively very few men in charge of these immensely valuable consignments, which often consist of as many as two hundred and fifty sledges—one man to about seven horses as a rule—and these at night take it in turns to keep watch. For on the Great Post Road a peculiar form of highway robbery exists; bales of tea are frequently cut loose and stolen in the dark hours by thieves, who lurk around taking advantage of a driver dozing on his sledge. The poor fellow then has to pay dearly for his "forty winks," as he has to make good the loss out of his wages, a very serious matter, considering the value of a large bale of tea. Last year I am informed these thefts became so frequent and the thieves so daring that at last the drivers combined to have their revenge, and when on one or two occasions they managed to catch a thief they inflicted a dreadful punishment upon him For, banding a stout birch sapling to the ground by means of a rope, they fastened the back of the victim's head to it by the hair, and then cut the rope, releasing the tree, which immediately sprang back to its original position, and the unfortunate wretch was literally scalped. He was then left to his fate.

THE EGG-PLANT.—As some of the neglect of the egg-plant is doubtless due to the fact that cooks are not familiar with it, the following recipes for cooking the fruits are recommended by the experimenters at Cornell as reliable: (1) Cut in slices crosswise, not over a half inch thick, and parboil in salt water about fifteen minutes; then remove, and fry in a hot spider in butter and lard. (2) Cut in slices a quarter or a half inch thick and lay in strong brine for two hours; then wash very thoroughly; sprinkle with brown sugar, pepper and salt, and fry slowly to a dark brown. (3) Cut in two lengthwise, remove the seeds and pulp, and fill with dressing made of half a teacupful of bread crumbs, one teaspoonful of butter, and salt and pepper to taste; lay the halves side to side in a dripping pan add a little water, and bake nearly an hour. (4) Pare, cut in thin slices crosswise, soak in salt water for eight or ten hours; dry on a towel, dip in beaten egg, and roll in bread crumbs, then fry slowly in hot butter until the pieces become a rich brown; serve hot. *American Grocer.*

CINCHONA IN JAVA.—From the report of the director of the Government cinchona enterprise in Java for the second quarter of 1891 we learn that from the middle of April to the end of May drought was experienced. June was wet, but only occasionally heavy showers fell. The weather was not favorable for the young plants put out in March and April, but the older plants made exceptional growth in response to the alternate heat and wet. The upkeep of the plantations during the west monsoon was confined to keeping clean the young gardens, with the view of assisting the small plants in their struggle with the growth of weeds. On the setting in of the dry wether the thorough working of the surface of the soil by means of hoes was commenced. Working of the ground was specially carried out in young plantations, with a view to protect them from the drying of the soil in the expected severe east monsoon. The continuance of working of the ground during the rainy season has had the good result of diminishing considerably the root disease, which now prevails only at Nagrak. It may be admitted that the root disease has its origin chiefly if not entirely in the excessive moisture and incomplete aeration of the soil. By the maintenance of a dense growth over the ground the superfluous moisture of the soil is evaporated through the leaves of the cultivated plants and the weeds, and thus also the chief factor of the origin of the root disease is removed. The aim is to cause the evaporation of the soil moisture by the cultivated plants alone, by means of close planting. At Nagrak, in order to hasten the drying of the soil and thus combat the root disease successfully, the working of the ground was not carried out again in the second quarter. During the first half year of 1891 some 200,000 half kilograms of bark were gathered, consisting both manufacturer's barks of moderately high quinine contents and of pharmaceutical barks in the desired quill form. In consequence of the great fall in the price of cinchona bark in the European market, whereby the bark of *C. succirubra*, since it cannot be harvested in quill form, can no longer be brought into the market with any profit, or only little, a considerable change has taken place lately in the harvesting of this variety of cinchona. Crowded plants, which should of necessity be removed in order to give more light and room to the overshadowing trees, are no longer dug out, but cut off near the ground, whilst no more bark is gathered from the stems, except what can be cut in quill form. If in the future no root bark and also little or no stem bark of *C. sucirubra* is packed in bales and despatched, this will have a great influence on the quantity of bark gathered, but the average value of the crop will thereby be considerably increased. By the end of June 123,307 half kilograms of bark of this year's crop were despatched to Tanjong Priok. On 2nd April, 14th May and 11th June bales of bark of the 1890 crop were held in Amsterdam. The unit price for manufacturer's bark amounted at these sales to 5½, 6¾ and 6½ cents per half kilogram. As a consequence of the mild east monsoon in 1890 the blossoming of ledgerianas was small, and the crop of seed of this variety of cinchona therefore promises to be small. In the latter months of this year it will be possible to hold sales of small lots of ledgeriana seed. The total number of plants in the Government gardens at the end of June was 3,791,600, viz.:—In the nurseries—490,000 ledgeriana (including 20,000 grafts), 443,000 succirubra: total 933,000. In the open—2,169,000 ledgeriana (including 270,000 grafts and cuttings and exclusive of the more or less 3,000 original ledgerianas), 2,200 calisaya and haskarliana, 633,000 succirubra and oaloptera, 52,900 officianlis, 1,500 califolia: total 2,858,600.

COCOA is an article which ought to be g[rown] [Hawaii] and exported. The cocoa of co[mmerce] high-priced and always in demand. There are a few cocoa trees growing on these islands, but no attempt has ever been made to prepare the article used in commerce. On page 249 a correspondence gives a detailed description of the best mode of cultivation and of curing the berries. It seems to us that a small farm of ten to twenty acres, located on the line of the Oahu railroad, where artesian water for irrigation can be supplied, would be just the locality. Bananas help to pay current expenses till the cocoa orchard comes into bearing and perhaps even after it. The subject treated of by our correspondent is well worth the attention of those having the means and the opportunity to engage in this pursuit, in a desirable locality, which, if well located, must always be a safe real estate investment.—*Planters' Monthly.*

OUR NORTH TRAVANCORE correspondent writes to us, under date 23rd instant:—"While reports are coming in from other planting districts about the scarcity of labour, and the friction which is the natural outcome, we find ourselves here with labour to spare. In May I had to send away a gang of 30 coolies who came and offered themselves,—they went on to the next Estate and were not wanted there either. At the end of this month I shall send away about 50, much against their own will! I know of more than one Estate here which does not give any advances whatever, and the labour supply for the last five years at any rate has been ample. My own coolies return to me year after year without an anna in the way of advance. They are recruited partly in Trichinopoly and partly in Tanjore. This shows what combination even in a small district with only 2,000 acres under cultivation can do. The Travancore Planters' Association has divided the estates which subscribe to it into three sections, North, Central, and Southern, and the facilities for procuring labour differing slightly, rates of pay for each district have been separately settled, and every planter has bound himself to make no further change unless allowed to do so by the Association. At the last General Meeting of the Association, the correspondence with the South Mysore Association on the subject of combination was read, and our Secretary was asked to try and arrange an early meeting of delegates from every Association in Southern India. So far we have not heard what has been done, but as far as we are concerned, we intend to keep hammering away at the subject until a United Planters' Association is formed for the whole of Southern India. As a step in the right direction, our local Association has become affiliated to the 'Travancore Planters' Association.' Last week when I wrote, the monsoon seemed to have gone for good, but yesterday it commenced raining and looks like continuing."—*Madras Times.*

THE PROPOSED PLANTING ENTERPRISE IN PERU.

In a letter which we publish today, as well as in productions previously published, a former well-known, intelligent and experienced Ceylon planter sings the praises of the land of the Incas, from its Pacific shores to its Trans-Andean expanses of exceptionally fertile soil under a climate (which, with a characteristic ebullition of disappointment) he contrasts with that of Tasmania, which sometimes tastes of the Antarctic it faces described by him as just perfection,—to a man, he means, who has spent a large portion of his life in a tropical hill country, where torrid heat is tempered by coolness due to altitude. But even in Peru extreme altitude can produce cold as intense as arctic or antarctic blasts. One account runs :—

In all the lower regions of the country the climate is warm, but healthy; in the uplands, and on the highest plateaux, it is often inclement. Violent storms beat upon the plain of Titicaca and terrific tempests, accompanied with thunder and lightning, roll frequently around the table-lands of Pasco ; where, indeed, the climate is so cold, that but for the mines, which have attracted hither a numerous population, this region might have remained uninhabited.

The same as to cold may be said of Tasmania and its exceedingly rich mining regions which will yet enable it to rival what Peru was in the days of its glory. On soil and climate, natural productions and suitability for the culture of such products as coffee, tea, cacao and the like, our friend is an excellent authority. But he says nothing of the malaria, which is not likely all to have forsaken the jungles of South America, since the cure of the Countess of Chinchon, wife of the Spanish Viceroy, gave its name (mutilated by Linnæus) to the valuable fever bark which, native specially to Peru and Bolivia, has been, mainly by the enterprise of Ceylon planters placed within reach of the sick poor, instead of being the expensive luxury of the rich. Mr. Sinclair's prejudices against the native "Indians" (not a merely mutilated but an absolutely misappropriated name), he avows, were removed by an incident which is interesting as showing that "one touch of nature" in the shape of hospitality "makes the whole world kin." But it has yet to be proved that the Indians will prove to be good labourers on estates, or that labour otherwise is abundantly available. But granting that the reports brought up by the Ceylon trained spies of the land of promise are favourable on the points adverted to, we are reminded by the telegram just received of a fatal and devastating earthquake, that nature in America can in a moment exchange placid beauty for the most terribly destructive and relentlessly cruel letting loose of forces, which spare neither property nor life, but entomb human beings in the ruins of their abodes. Nature, in fact, is seized by recurring fits of anarchy, a characteristic which the volcanic Andes seem to have imparted to the races who dwell on their slopes or inhabit the plains at their base. Our correspondent gives a painful account of the effects of the war waged by Chile against Peru on the latter country, for which it is possible that Chile has just been subjected, by way of retribution to the unutterable horrors of civil war. The occurrence of similar horrors in Peru are not only possible, but, judging by the past, probable. In the strife of factions, equally reckless of principle, what would be the fate of foreign wealth invested in plantations and stores? Would either or both parties to civil strife hesitate to confiscate to their own use capital or property? Such are a few of the reflections per contra to the paradisaical descriptions of our gifted correspondent which occur to us. We shall await the regular report, but at the moment we are inclined to think that Ceylon and other British possessions, even poor unprogressive Tasmania, have advantages of their own: a negative one in the absence of earthquakes natural or political.

THE DUTCH MARKET.

Amsterdam, August 13.

CINCHONA.—The cinchona bark sales, which will be held in Amsterdam on September 3, 1891, will consist of 2,686 bales and 199 cases, about 246 tons bark, among which from Government plantations, 278 bales 77 cases, about 29 tons ; for private plantations, 2,408 bales 122 cases, about 217 tons. The bark is composed as follows :—*Druggists' bark :* Succirubra quills, 178 cases ; broken quills and chips, 102 bales 6 cases ; root, 42 bales. *Manufacturing bark :* Officinalis broken quills and chips, 30 bales ; Ledgeriana quills, 3 cases ; broken quills and chips, 1,565 bales ; root, 648 bales ; hybrid quills, 12 cases ; broken quills and chips, 182 bales ; root, 117 bales. Total, 2,686 bales 199 cases.—*Chemist and Druggist.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Aug. 22nd, 1891.

ANNATTO.—Eighty-three bags good dry colbury seed, from Ceylon, sold at 2¾d per lb. today ; another small lot, rather duller, realised 1¾d per lb. Seventy-four baskets of what may once have been Brazilian roll annatto (some of it was imported in 1869) were offered without reserve, but only one lot old hard red annatto (1871 import) sold. It brought 5½d per lb.

CALUMBA.—Of 264 packages offered today, only 116 sold, without reserve, at 17s 6d per cwt. for ordinary brownish and slightly wormy root. Good washed sifted calumba was bought in at 50s per cwt. today.

CARDAMOMS.—The supply at today's auctions was small —only 72 packages ; but some parcels stand over until tomorrow. Prices are generally 2d to 3d per lb. advance. The following prices were paid :—Mangalore-character, pale round medium, 2s 6d ; small 2s per lb. (bold are held for 3s 6d) ; split and specky, 1s 6d per lb. Ceylon-Mysore, bold pale round, 3s 5d; medium size, 2s 4d to 2s 5d; small to medium, pale long and thin mixed, 2s to 2s 1d; yellow mixed, 1s 10d to 1s 11d ; small yellow and brown, partly split, 1s 5d to 1s 6d ; rather better ditto, 1s 8d per lb. Ceylon-Malabar, small to medium, good plump yellow, 2s 3d to 2s 4d ; very small round, 1s 3d to 1s 5d; split dull brown specky, 1s 6d per lb. Seeds sold very high, at 2s 2d per lb.

COCCULUS INDICUS.—The price is still rising slowly. At today's sales, 20 bags realised 11s per cwt.

OILS (ESSENTIAL).—Citronella oil in tins is held for 11-16d per oz.

QUININE.—The market has declined further, and 10d per oz. was accepted for German bulk on the spot early in the week, since when about 100,000 oz. have changed hands at that figure. A sale of 10,000 oz. November-December is also reported, at 10¼d per oz.

WHILE NEWS comes from the Wynaad that the coffee crop there is going to be a bumper one we are also told that gold is disappointing its searchers. Every one who is any one in geological circles admits that there are rich auriferous deposits in the Wynaad tract, but the amount of capital required to properly develop the gold industry has never yet been utilised there, and bad results are the consequences. Some of the mines there are doing so indifferently that large numbers of hands have been turned adrift to swell the vast and discontented ranks of the unemployed. Some very hopeful planters tell us the El Dorada days of coffee planting are coming back to Wynaad. "Oh ! let it be soon." —*Malabar Spectator.*

"DESICCATED COCONUT."

Very few in the island have an adequate idea of the extent to which the industry in desiccated coconut has been developed in our midst. A short time ago we referred to the increasing exports; and since then the Chamber of Commerce has recognised the importance of this latest prepared or manufactured product by including it in the list of staple exports in their weekly table. Our reference to the industry as carried on in the Veyangoda establishment of the Orient Produce Company, Limited, Dematagoda Mills, &c., has brought us a letter from a London merchant interested in the matter, who roundly declares that, like so many other branches of enterprise in Ceylon of recent years, the preparation of desiccated coconut is certain erelong to be overdone. "We are alarmed," he writes, "at the prospect of so many going into the manufacture, knowing that it must mean loss to all. The consumption of such an article is, as you might suppose, not unlimited, and any considerable increase in what is now being shipped would exceed the requirements of all the outlets yet discovered. If so many are really starting the manufacture, as stated in your issue, the production will be so much in excess of requirements that the fight for survival must end in the ruin of some of the competitors." This is a point on which we are unable to express an opinion, seeing that our pessimistic correspondent has given us no clue to the market demand or to the present rate of consumption as compared with what it was some years a o. But this much is certain—that, for good or evil, the preparation and export of desiccated coconut from Ceylon has increased, is increasing, and is bound still further to increase for some time to come. A great impetus has been given to the preparation, we understand, through the discovery that Mr. John Brown's patent "Desiccator"—the well known tea-drying machine—afforded with a little adaptation the very best means of drying and desiccating the sliced coconut kernels. The process al ogether is kept as secret as possible; but it is understood that the first step is to slice up the kernels, and for this purpose there seems to be a machine in use (previously used for slicing the kernels preparatory to grinding in oil-making) with an ingenious arrangement of knives that cut up the coconut kernels very quickly. Then comes the drying; and for this purpose, as we have said, the desiccators are found so suitable that in one mill some half-dozen are said to be at work; while, as agents, the Colombo Commercial Company are favoured with not a few further orders. To the older establishments at Veyangoda and Dematagoda, there have lately been added arrangements at Kollupitiya Mills (Messrs. Lee, Hedges & Co.) and at Negombo (Mr. Akbar's) for the preparation of desiccated coconut. On the other hand, to counterbalance the effect of this news, we are able to inform our London mercantile friend that a demand for the new product in Australia is springing up. We had an advertisement the other day from a large Melbourne firm, intended to arrange for a purchasing agency for this article. Though to some extent classed as "confectionery," desiccated coconut must surely, to a considerable extent, be regarded as a "food product," and as such we have some reason to look for a wide and expanding demand such as, we trust, may ensure a profitable market for all that Ceylon may turn out for many years to come. The exports so far recorded in the Chamber's table are as follows;—

From 22nd June to 7th Sept. 1891—559,528 lb.

CACAO IN RANGOON.—The *Rangoon Gazette* of Aug. 28th says:—We have just seen a large cocoa pod, which Dr. Stephens has received from Ceylon from his father's properties. Dr. Stephens presented the Agri-Horticultural Gardens with a fine cocoa plant, over five feet high, but this unfortunately died and he has now obtained seed for the Gardens, and will be happy to obtain some for anyone who wishes to grow cocoa. He has also some coffee and tea plants, which he will give to anyone who will grow them carefully. Cocoa requires little cultivation and the trees are decidedly ornamental.

TEA FOR HORSES.—A correspondent sends us the following from the *Graphic*:—

Afternoon tea has become such an institution with English people that even their horses are to adopt the habit. Competent authorities assert that tea is the best restorative for horses, the animals being quite revived after a hard day's work by a drink of weak tea with milk and sugar.

Our correspondent writes regarding the above:—"Oh ye gods and little fishes! It actually makes me convulsed with happy thoughts of the near future. Take courage now, oh ye Knights of the Tea Bush; don't ye mind the croaking brokers in Mincing Lane. Send your muck and flood the market! Horse troughs to your rescue!!! It won't be a bad idea to agitate for a horse census in the United Kingdom; we might start one in Ceylon too, not excluding jaw-bones! Eh! Mr. Editor?"

TURKISH LIQUORICE.—The British Consul at Bussorah, in an interesting report on the growth of the liquorice plant on the banks of the Tigris and Euphrates says that these great rivers in the part where the root is found flow through flat, treeless prairies of uncultivated and nearly uninhabited land. For three months of the year hot winds blow, and the temperature reaches 104deg. For six months the climate is moderate and salubrious, and for three months bleak and wintry, the thermometer going down to 30deg. at night. The liquorice plant is a small shrub, with light foliage, growing to about three feet high, where its roots can reach the water It grows without any cultivation. No lands are leased for the purpose, and no objection is made to its being collected. It is found in abundance from Ctesiphon, ten miles from Bagdad down to Kut-ul-Anara, half way between Bussorah and Bagdad. It grows on red-earth soil, and also on light almost sandy, soil, where the wood is best, provided, it has plenty of water, and the ground is not more than 50 yards from the actual river or stream. Only one firm works it in Bagdad, and it is well known that the business is a prosperous one. The wood, after being once dug up and cut grows again better afterwards. The time of collecting is, generally speaking, during the winter, but it is possible all the year round. The root when dug is full of water, and must be allowed to dry, a process which takes the best part of a year, especially in hot weather. It is then sawn or cut into small pieces six inches to a foot long. The good and sound pieces are kept, and the rotten ones are used for firewood. It is then shipped in native river boats to Bussorah whence it is shipped in pressed bales to London, and again from there to America, where it is used largely in the manufacture of tobacco. The Consul thinks the trade is capable of expansion. The demand in America is great, and shipments are easily disposed of. After sorting there still remains some useless wood in the bales, perhaps 7 per cent. From figures supplied by the Bagdad firm engaged in the business, it seems that the total net cost of a ton of liquorice root laid down in London is about £4.—London *Times*.

THE AMERICAN CEYLON TEA COMPANY.

The letter from Mr. Elwood May to Mr. Leake of which our London correspondent has sent us an abstract contained intelligence which will doubtless be welcomed by every member of our planting community. For it will be generally acknowledged, we believe, that our present production of tea promises to necessitate the opening out of fresh markets as rapidly as may be possible. The low rates now obtainable for it in Mincing Lane seem to evidence that at the present time the supply is at least fully equal to the demand for home consumption; and there seems to be no guarantee that, with fresh fields coming into bearing, we may not shortly pass beyond it.

Sir Arthur Birch, who is prominently associated with our tea planting industry, is reported as having said that this need for new markets is becoming an urgent one; and we are disposed to think that there can be found few who are likely to disagree with that view of our former Colonial Secretary. Reliance has for some time past been placed upon America's furnishing us with this new opening for our tea; and the intelligence we have now received seems to promise that tha reliance is not likely to prove unfounded. Ever since Mr. Grinlinton paid his visit to the States and opened out negotiations with Mr. May, and more especially since the latter gentleman visited England and placed himself in communication with the Ceylon Association in London, we have expected that we should soon hear of some great step in advance being achieved. This expectation seems to be now in a fair way towards realization. Not only as newspaper proprietors ourselves, but as part of the general public experienced in such matters, we have acknowledged how greatly success in the introduction of a new article of trade must be dependent upon liberal advertising. In a country like America this is even more than elsewhere a fact that cannot be gainsaid; and Mr. May seems to have been more than commonly fortunate in securing a contract which will enable this advertising to be done without necessitating any financial outlay either by the planters of Ceylon or by those who are so energetically exerting themselves on their behalf in America.

The *imprimatur* sought by Mr. May from our Planters' Association and from our representative body in London seems to have been productive of the happiest effect, and the result obtained has more than justified Mr. May's contention that the securing of that *imprimatur* for his company would enable him to "go ahead," as the Yankees say, with rapid strides. As we understand what our London correspondent has communicated to us of what Mr. May had written, the compliance with the requests he made that his Company should receive official acknowledgment has enabled him to secure the co-operation of men of very high social and financial standing in New York. The names of these parties, although given by Mr. May, have been withheld from us until it is known if that gentleman consented to their publication. But the main thing reported is that the proprietor of several very influential American papers and periodicals has consented to enter into a contract to do 50,000 dollars' worth of advertising of the American Ceylon Tea Company, he to receive payment in the stock of that Company. Now 50,000 dollars—or, roundly speaking, £10,000 sterling—of expenditure on advertising cannot fail to do much to advance the interests of the American Association dealing with pure Ceylon tea, and were this advantage the limit of good things promised, we should have much to congratulate ourselves upon.

But this is not the limit which we may hope to see reached. The newspaper proprietor referred to has secured the privilage of extending the operation, should be see fit to do so, to the extent of 200,000 dollars or £40,000. Indeed, he has expressed himself as most desirous to extend his promise to that extent, but declines to bind himself to it in the fear lest, should he die before he could carry it out, he would be subjecting his heirs to a very large liability with which he does not think it fair to charge them. This, we can all see, is a perfectly good reason why he should decline to bind himself to the larger operation. It is, however, perfectly understood that, if his life be spared, Ceylon tea will be advertised throughout the United States to this amount of £40,000, without imposing the least charge upon our representative company in America. We need hardly point out—nor could we exaggerate—the advantages likely thus to be secured. No wonder that Mr. May has written jubilantly on the prospect before him, or that he expects in consequence soon to seek the execution of large orders for our tea and so open up fully that new market which the circumstances of the time render us so desirous of securing. If, further, Sir Arthur Birch and Sir William Gregory may be willing to afford to Mr. May the *ægis* of their names, the latter regards his position and prospects as being most fully assured. We trust that both Sir William and Sir Arthur, in view of the interest taken by them in Ceylon, will be willing to grant the concession sought of them by Mr. May.

MR. MAY AND THE CHICAGO EXHIBITION; ADVERTISING OF CEYLON TEA IN AMERICA; SIR ARTHUR BIRCH AND NEW MARKETS FOR CEYLON TEA; ADULTERATION OF COFFEE.

LONDON, Aug. 21.

A letter received during the present week by Mr. Leake from Mr. Elwood May contains information of a kind which we feel will be very welcome to you all. This letter is a private one, so it is not permissible for me to give you its text in full; nor, until Mr. May's consent be obtained, to quote the names of the several parties to whose conjoint action with himself he refers. This letter opens with the statement that he had wired to Ceylon "Rutherford's proposals accepted." This of course refers to those based upon the application made by Mr. May for aid with regard to the Chicago Exhibition. At last we presume here that it does so. The letter, which is dated from New York on the 7th August, then goes on to say that the recognition of his enterprise by the Ceylon Planters' Association and that of the Ceylon Association in London had enabled him to obtain promises of active support by several gentlemen of high social and financial standing in New York. But beyond this Mr. May reports that he has been enabled to conclude a most favourable contract for advertising his company with a gentleman who is the proprietor of several important newspapers and periodicals.

This contract binds the contractor to advertise the company to the value of 50,000 dollars, stock of the Company to be accepted as payment. That is as far as the contract extends on the side of the contractor. But further than this, and on the side of the company, it is conceded that, should the contractor see fit to do so, he can at his option extend the terms of the contract to 200,000 dollars, accepting stock of the Company to that amount

in payment. The contractor declines to pledge himself on his side to carry out the agreement to that extent, because, as he has very justly remarked, to do so would, in the event of his death occurring, too heavily burden his heirs. He has however stated that he is hopeful of being able to carry out the scheme to the larger amount should his life be spared. You will, therefore, see that a very great step in advance has been made towards pushing the sale of Ceylon tea in America. "Advertising," they say, "is the soul of trade," and too many proofs of the correctness of this saying come under our own observation to admit of its being doubted. And this end, under the arrangements concluded as above detailed, will be gained without its being necessary for the Company to advance a single dollar in cash. The contractor, of course, is imbued with the belief that he will be able to place the stock among his friends at a profitable rate, and Mr May augurs from this important arrangement that he will soon be able to extend the sale of Ceylon tea in a most considerable degree. Knowing what we do of Mr. May, and of the energy with which he works, we have entertain very little doubt what he now anticipates will shortly be realised.

The contractor believes that by the method he proposes he will be able to distribute the shares of the Company, partly for cash and partly in stock, among fully 1,500 of the leading newspaper proprietors of the United States, each of whom will then have a direct interest in furthering the development of the sale of Ceylon tea by the Company. Mr. May's letter proceeds to say that it would be an invaluable thing for him if he could succeed in obtaining Sir William Gregory's and Sir Arthur Birch's names as vice presidents of his Company. He told Mr. Leake, when in England, that if he could get "your aristocracy" to lend their names to his scheme it would ensure him success. Well, we can hardly rank the names of the two gentlemen above indicated among those of the British aristocracy, but no doubt even simple knighthood goes close to a great extent among our American cousins. We know that Sir Arthur Birch has shown great interest in Mr. May's scheme, that gentleman, as you were informed by me, having brought with him on the occassion of his late visit to England a very strong letter of introduction to Sir Arthur, who, Mr. May further informs us, had since he had returned to New York written him very warm wishes for his success. If both your former Governor and your former Colonial Secretary will consent, in view of the great impetus it would give to the sale of Ceylon tea in America, to permit the use of their names as suggested by Mr. May, it would no doubt greatly aid the latter in his enterprise.

No one, we are told, recognises more fully than does Sir Arthur Birch the pressing necessity that there is for opening up new markets for Ceylon tea, and that with all possible speed. He is, we hear, himself connected in a large degree with your leading industry, and he is certain, therefore, to closely watch the markets. He cannot have failed to notice how seriously the competition for your teas has fallen off of late. All those with whom I have commenced on the subject admit this to be the case, and attribute it to the imports overreaching the present demand. The advisability, therefore, of giving Mr. May the fullest supports possible must be freely recognised by Sir Arthur Birch, and possibly Sir William Gregory may also recognise that desirability. But even should those gentlemen hesitate to grant what Mr. May desires of them, the news I have been able to give you cannot but be pleasurable to the whole of your readers.

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Below is given an extract from the *Times* summarizing a most interesting article in the *Kew Bulletin* with respect to the adulteration of coffee in the United States. Of course we have often heard of the artificial beans to which reference is made, but it is—at all events to myself—quite a novelty to learn to what a large extent the manufacture and use of them has extended. The matter is not now of the same importance to your planters as it would have been before the failure of coffee in your island, but it cannot even now be said to be wholly a matter of unconcern to some of them that this method of adulteration should be checked.

SPURIOUS COFFEE.—The current issue of the *Kew Bulletin* contains some information respecting the manufacture of artificial coffee beans, an industry which appears to have assumed some importance in the United States. As far back as 1860 the late Dr. Lindley presented to Kew carefully-modelled artificial beans, intended for mixing with the genuine beans, and which were supposed to be made from finely-powdered chicory. The American beans are supposed to be composed of rye flour, glucose and water, and are prepared to resemble in size and colour a moderately good sample of roasted coffee beans, and by the introduction of a few genuine beans they acquire the aroma of true coffee. The modeling is sufficiently good to deceive the public, although if critically examined differences appear. But "the general characteristics are those of fair coffee with small and somewhat broken beans." It is said that 20 per cent of the coffee sold to consumers in the United States is artificial. The spurious beans can be made at a cost of £6 per 1,000lb. and the latter when mixed with 50lb. of pure coffee finds a ready sale, and yields a profit of cent. per cent. "Coffee substitutes" are also largely manufactured in the United States, one firm alone producing 10,000lb. a week. The article is sold by the manufacturer as "coffee substitute," not as coffee, and therefore he violates no law against adulteration; but the retailers throughout New England and the Central States who purchase it by the barrel either sell it as genuine coffee or mix it with coffee which is genuine. The production of artificial coffee has also received some attention in Germany. An Imperial decree has forbidden the manufacture and sale of machines for producing the artificial beans. These latter were recently extensively advertised in German newspapers and attracted the attention of the Government. The beans are intended to mix with genuine coffee, and not to produce a beverage which might act as a substitute for coffee. The British Embassy in Berlin found it impossible to obtain any of these spurious beans for Kew, as the machines for making them have been confiscated.—London *Cor.*

THE CULTIVATION of the Yokohama and Hong Kong bamboos is to be tried in various parts of the Madras Presidency, and arrangements have been made to import a large quantity of seed for

A QUANTITY OF CEYLON TEA made up in ½ lb. packets is to be distributed free in Perak. The duty has been entrusted to Mr. Hanson by the Tea Fund committee of the Ceylon Planters' Association, who are endeavouring with commendable energy to push the sale of Ceylon tea in all parts of the world.—*Pinang Gazette.*

ALLGGED NEW TEA PEST.—A former tea planter now on the Nilgiris writes to a local contemporary about an alleged new disease in tea which, although affecting the branches and not the leaves, he ventures to think must be the "origin" of the coffee leaf disease, *Hemiliae vastatrix*! The statements are vague and unscientific; and the object seems to be to bring an alleged remedy into notice. That a few branches of tea bushes should be affected with "insidious defunction" is neither wonderful nor alarming.

OUR FISHERMEN AND FISHERIES.

Probably few among us have given much thought to our fishermen and fisheries, and to the important place assigned to fish as an article of food in South India, especially by dwellers in the towns and villages along the coast. It is only when the fish world is affected by some epidemic, as was reported to be the case several years ago, and fish as an article of diet is proscribed for a brief space, that we realise the value of it as human food. Most of us know more of fishermen than fisheries, for of them some statistics are available, but of our fisheries, Government has hitherto taken but little note, and we search the "Madras Manual" in vain for some reliable information concerning them. The fishing castes number about a million persons in all, but those who live inland, far removed from sea and river, follow the occupation of hunters, and, since they cannot destroy the creatures of the water, live by destroying the creatures of the land. The fishermen are known by many names, and their kingdom has been invaded by other castes, who also seek to seize the treasures of the sea, but the Pattinavar are the original fishermen, the real Simon Pure. They are of an ancient Dravidian stock, and represent one of the most ancient types of civilisation to be found among the dwellers on the plains. Compared with the Pattinavar, the ryot is a civilised and polished gentleman, and his occupation and implements of husbandry represent a civilisation many centuries in advance of that of the fisherman. The Pattinavar, as fishers and hunters, exhibit to us man in a state of mere animalism, preying upon other creatures, and possessing but little more genius of an inventive or mechanical kind than is to be found among birds or spiders. Even after the lapse of thousands of years, this is still true of them; they appear to have made hardly any advance, and their houses, clothing and equipment for their toil are generally as primitive as they were when the Aryans crossed the Vindhya Mountains. The houses are leaf huts, consisting of a circular mud wall some two feet high, on which a palmyra framework with a covering of palmyra leaves serves as a roof. To the hut there are no windows, but only an opening for ingress and egress, which serves as a door The boat of the fisherman is the *kattu maram*, which properly consists of five pieces of wood fitted close together and tied at the ends with rope made of the fibre of the coconut tree. On this raft they are perfectly at home, and guide it where they will by paddling, and occasionally by a brown sail of rough canvas. They make and mend their own nets, and for this work their implements are of the simplest.

The work of the fishermen is hard enough, yet on these shores they are not exposed to such risks as beset the fisher in Western and North seas, and we rarely hear of deaths by drowning, or of such calamities as happen, for example, to those engaged in herring fishing. Probably nowhere in the wide world can better swimmers be found than our India fishermen: they take to the water as naturally as ducks and from their childhood are accustomed to go to sea on the *kattu maram*. The income of the fishermen is generally sufficient for their maintenance, and in the neighbourhood of Madras and other large towns is abundant, and, if they were accustomed to cultivate habits of temperance and thrift, would amply suffice to secure for them many comforts in addition to the necessaries of life. But of all the Hindu castes, there are no more abject slaves to drink than they. Their degradation could hardly be more complete than it is, and toddydrinking is the cause of it all. The Shanar is their destroyer, and quite recently when in one village there were signs that a number of men were making an attempt at total abstinence (for to the Hindu low castes moderation in drinking is impossible), the Shanar visited the huts of the fishermen, and appealed to them not to forsake him, promising to supply them gratis when they should come again. It is needless to say that Pattinavar virtue is not proof against an offer like this, *viz*, to be made drunk free of cost. By way of training the fisher-children, in drinking habits, the fathers bring them as mere infants to the toddy-shop, and they each receive free of cost from the Shanar a small draught of toddy, or if a small tin-pot of regulation size be brought, it is duly filled for the child at home. Thus the continued ruin of the caste is secured, and life is shorn of all comfort. The fisherwomen are for the most part coarse and unattractive, and grow prematurely old. It is a rare thing to see any of them really clean and decently clad: their life is without adornment and full of hard work. Surely the fish-girl from whom Vyasa, the Veda-maker, sprang was better looking than Pattinavar women are now-a-days. Vyasa at least was better educated than are the children of our modern fishers, for we find among them no schools, nor influences of any kind calculated to improve them and secure their social advancement. And though they reckon Kanniyamma as their deity, the toddy-shop may be said to be their temple. It is impossible to avoid the regret, that a caste so ancient, useful and hard working should be so completely unable to rise to a better social condition. Polygamy is common among them, and married life by no means all that it should be, and in the speech both of men and women, and in the games played by their children, we hear the most indecent expressions which the vernacular can supply. If the headmen of the caste were intelligent and worthy enough, they should pass a law for the Pattinavar compelling the education of all their children, and in a few years a wonderful change for the better should be apparent. They have the power to do this, but whether they have the public spirit and the requisite courage is another matter.

Like our fishermen, our India fisheries receive but scant attention from Government. Statistics of fisheries are nowhere very complete, but incomplete as they are, they suffice to impress on us the fact that the sea makes large contribution to the food-supply of the world. In India, where we are continually experiencing difficulty in obtaining a sufficient food-supply, it behoves Government to give special attention to every source from whence contributions to it may be obtained. In a city like Madras the fisheries contribute enormously to the food-supply, as may be discovered by a visit to the local Billingsgate, and an abundant supply of fish tends to cheapen flesh as an article of diet. Though it may be said that there are no signs of famine in the sea, and that the fish-supply is by no means scanty, it is worth considering whether the supply cannot be made far more abundant, and the price of food thereby considerably cheapened. We have no doubt but that this can be done. Among the non-European population, it may be said that nearly all kinds of fish, and they are very many, are eagerly consumed, and besides those which are eaten fresh, immense quantities of salt-fish are also used. These find their way

among the villages and serve to improve the dietary of the poorest classes. In the absence of statistics, we may form some idea of the extensive trade in salted and dried fish, which is carried on in the Presidency, by a reference to the report of the Salt Department. It will there be seen that the quantity of salt used for this purpose is enormous, and that this trade in dried fish is an increasing one. It is well known that the flesh of fishes differs in different seasons of the year, and that there are times, as in the spawning season, when they are not very fit for human food. But in India, among our fishermen, no notice whatever is taken of this fact, they catch all they can, great or small, and at every season of the year. We are of opinion that among the non-European community, not a little illhealth is due to the want of attention here. The destruction of spawn in our estuaries is common; we have ourselves seen men day after day capturing them by thousands for their food, and have found remonstrance with them of no avail. As a result of this, added to the fact that multitudes of fishes are caught long before they are half-grown, the fish-supply is not nearly so plentiful as it might be, and the matter is of sufficient importance to justify a little Government interference. For our fish-supply, as an article of food for poor, is worthy of all possible attention. In the country the right of catching the fish in tanks is usually sold by auction, and purchased by the caste villagers for a trifling sum. An instance occurs to us of a village in the Chingleput district where, after purchasing for four rupees the right in question, as they know how to do, the caste villagers immediately resold it for nearly a hundred rupees. If Government were to throw such tanks open to the poor, that they might increase the food-supply, this would be a great boon, and the jobbery to which we have refered would be brought to an end. At any rate, we think that some cognisance should be taken of our South Indian fisheries, which are of such importance to the people as a source of food, and if something can be done to regulate them, so that they may become more profitable and yield a still more abounddant supply, Government will have its reward.—*Madras Times.*

NOTES ON PRODUCE AND FINANCE.

Increased Consumption of Tea.—We gave some figures in our last issue which showed the increased consumption of tea since the reduction of the duty. The Commissioners of Customs point out that the extent of the loss which the Revenue has sustained by the reduction in the duty of 2d per lb., when compared with the preceding year's receipts, is not so great as had been anticipated, the increase of consumption having been very marked. The gross revenue from tea in 1889-90 was £4,490,695. Last year it was £3,416,802, an actual loss of £1,073,893. The quantity of tea on which duty was paid in 1889-90 was 179,620,000 lb. In the year ending March last the quantity was 202,633,000 lb., an increase of 23,013,000 lb. It is curious to note that in 1835, when the duty ranged from 1s 6d to 3s, according to the quality of the article, the amount netted by the Revenue from this source stood almost exactly at the same figure as at the present moment, when all kinds of tea pay only 4d.

The American Tea Market.—It is pointed out by a Philadelphian correspondent, for the benefit of those interested in the American tea market, that the taste of consumers in the United States is fickle. Twenty years ago the rage in the States was entirely for Foochows; then basket-fired Japans and China green teas followed in order, nothing else being in demand for a time; to be again succeeded by Amoys and eventually by Formosas. At the present time the popular taste seems to be returning to its first love, Foochow oolongs, to the prejudice of Amoys and Formosas. The changes appear to occur exactly about five years apart. We trust that Indian and Ceylon teas will have their turn.

The Rivalry of Indian and Ceylon Tea.—In his report on the trade of India, Mr. O'Connor calls attention to the competition of Indian and Ceylon in the tea market, or rather he points out figures which indicate this position. He says that "while the United Kingdom took from India in 1890 over a hundred million pounds of tea and only seventy-four millions from China, it had also taken forty-two-and-a-half million pounds from Ceylon, a remarkably large quantity considering the recent commencement of tea cultivation in that island. Ceylon, Mr. O'Conor points out, has certainly greater advantages in its greater nearness to England and to Australia than Calcutta, and the consequent smaller freight that has to be paid, in the close proximity of the tea gardens to the port of shipment, in the abundant and cheap labour supplied to it from the adjacent ports of Southern India, in climate conditions, and in the excellent quality of most of the tea produced." This is all true enough, and tea planters are quite aware of it. The rivalry between India and Ceylon is, however, a friendly one. The main idea being to keep China tea out of the market as much as possible.

Tea Shares.—The following letter signed Z. appeared in the *Financial News* of yesterday's date;—"Your useful and accurate article on the position of the tea companies has attracted a good deal of attention, and I hope you will allow a little discussion on the subject, in the interests of those who are already concerned as proprietors, as well as of those who would like to have a pecuniary interest in the business of tea production. There is no question as to the highly profitable nature of the industry; it is really much more so than the figures of the few companies quoted show, because a large proportion of the best estates, though worked by companies whose shares can be obtained by those in the trade through private treaty, are not known in the general market. The industry is also subject to much less risk than is generally supposed; failure of crops over any but a most limited area is unknown; cultivation and manufacture have now almost reached the level of a science; while the uncertainty attaching to value which existed in the early days of Indian teas as an article of commerce is a thing of the past, seeing that it has taken the leading position in the market, almost extinguishing the trade in China tea, as far as this country is concerned, and has quite out-stripped in point of quality its only serious rival, Ceylon.* This being so, the question arises why Indian tea companies attract so little attention from the investing public, and, with the exception of the *Financial News*, from the financial Press. Is it not because those who manage the companies impart so little information about the course of the year's operations? Some of them only communicate with their shareholders once a year; many only twice a year, while those who issue monthly returns of the quantity produced give no information respecting the realisation of the crop. Investors do not like to be kept in the dark like this, and the reticence of managers is the more unaccountable inasmuch as the industry is carried on in the light of day, the crops grown above ground, and mostly sold in the public auction room, while for honourable and business-like management they can challenge comparison with any industrial undertaking. Another drawback seems to be the share value ranging from £5 to £20, denominations disliked by the small investor, who calls for a £1 share fully paid. But possibly the chief obstacle to a free market in the shares lies in the fact that there are too many small companies, each with separate management; their

* Ceylon planters will certainly not admit this.—Ed. *T. A.*

operations confined to a limited area of land, and with no Stock Exchange quotation for the shares. The remedy for this is obvious—viz., amalgamation, with its consequent reduction of cost and equalisation of annual profit, through the risk being distributed over a wider area. The history of the Jokai Company of Assam, a combination of numerous estates which used to be separately worked, proves how successful this policy is. The need for some such measures being taken must be impressed upon the most conservative of managers, as they witness the pioneers and founders of the industry passing away one by one, and discover how difficult it is for trustees and executors to realise their holdings when necessary, except at a 'giving away price,' for the sole reason, as our stockbrokers inform us, that 'nobody knows anything about tea shares.'"

OUR LAST WEEK'S TEA SALES.—Indian tea is coming forward more freely, says the *Produce Markets' Review*, *à propos* of last week's sales, and the public sales will continue to be held three days a week instead of two, as has been the case during the past few months. The quantity shipped from Calcutta is about 4,000,000 lb in excess of the same period last year, and the market therefore will now be liberally supplied. The arrivals so far have not been equal to the average qualities of past seasons, a large proportion of the tea, including some of the better known gardens, being poor, but prices having fallen to a comparatively low level, these kinds have gone freely into consumption. The scarcity of better tea is shown by the active bidding for the small quantity offered; the prices realised must be satisfactory to importers, and should encourage them to furnish this market with a larger proportion of higher grade tea than they have sent this season. At the public sales 19,389 packages were brought forward, and only 2,120 were withdrawn, which have mainly been disposed of since. The demand was fairly active, the latter sales showing greater strength, and prices generally were rather firmer, a few really fine teas fetching extreme rates. The sales of Ceylon teas have been extremely large, but the market has firmly withstood the unusual pressure, and prices have on the average been higher than those of last week. There has been a decline in the commonest grades at from 6½d. to 7½d., and the value now offering is such as has not been seen for the last three years. This fact has been generally recognised by the trade, and a large business has resulted. The quality of the late imports has shown a slight improvement, and with a diminution in the excessive supplies, this should tend to enhance values still further.

A "GOLDEN TIP" SALE.—A small parcel of Golden Tip from Ceylon marked "Maha Rettiya" was this week knocked down at 35 guineas per lb. Although the Lane has ceased to take any interest in these fancy sales, they continue to serve as an advertisement both for Ceylon tea and the purchaser of the expensive packages.—*H. and C. Mail*, Aug. 28th.

THE BRITISH NORTH BORNEO CO. seems to have fallen on evil days, to judge by the report presented at the half-yearly meeting held on 31st Aug., the proceedings of which, contained in the London *Times* received by the German mail steamer will be found elsewhere. The chairman, it will be seen, laid the chief blame of the unfavourable condition of the Company on the late manager, who has been dismissed. The low price of tobacco was also another cause of loss. Some of the shareholders, expressed their opinion of the directors conduct pretty freely; and though the report and accounts were ultimately received, it was only with the understanding that fresh accounts were to be prepared and presented at a meeting to be held in a few months' time. It is to be hoped that Mr. Henry Walker, who has been sent out in connection with the present crisis, will be able to give a more hopeful report.

PROFITABLE USES OF THE MANGOE CROP.

The following is extracted from a report of Mr. Shelton presented to the Queensland Department of Agriculture, and reprinted in the proceedings of the Agri-Horticultural Society of Burma.

Recently, in various shapes the question has been put by fruit-growers living in different sections of the colony: How can the great mangoe crop of the present season be utilised by preserving or otherwise, so as to be made available throughout the greater portion of the year? To meet this and like inquiries, Mrs. Shelton and myself have undertaken a considerable number of experiments having for their object to preserve the fruit with as much as possible of the original mangoe characteristics of texture and flavour. Our experiments covered canning and the making of marmalade and jelly.

The fruits furnished by Mr. Edgar, of Rockhampton, although differing greatly in minor particulars, are roughly divisable into two classes—those large growing varieties having dark green skins, light cream-coloured flesh, and a distinct and pronounced acid flavour with a minimum of the turpentine taste; and those varying greatly in size, form, and colouring, but all having deep golden coloured flesh, which in ripe specimens is very sweet and soft. Undoubtedly the former are as valuable for cooking and all forms of preserves as the latter are for use in the raw state—*i.e.*, eating from the hand. Our experiments show, too, that best results from cooking are always obtained with fruit that is full grown, but firm and not over ripe. In making marmalade and jelly, a mixture of the two sorts in equal portions gave very satisfactory results. The large, light-fleshed, acid sorts gave a marmalade hardly distinguishable from that made from the best apples. The addition of the golden fleshed varieties proved useful in giving to the product a very distinct and agreeable mangoe flavour.

After peeling, the fruit is separated from the stones by slicing into pieces of convenient size; these should be stewed for a few minutes only, before pouring into the cans, in syrup strong or weak in sugar to suit the taste. Or the fruit may be cooked in the can with syrup as before. There may be a difference of opinion as to the palatableness of canned mangoes. A considerable number of those persons who have tasted the results of our work have pronounced the canned fruit excellent, while others have declared their indifference to it. A like diversity of opinion, we note, holds respecting the raw fruit, particularly with those unaccustomed to its peculiar flavour. Mangoes stewed in the form of a sauce will be found a welcome addition to any dinner table. "As good as stewed peaches," we have heard them pronounced.

Webster defines marmalade as "preserve or confection made of the pulp of any of the firmer fruits . . . . . boiled with sugar, and usually evaporated so as to take the form of a mould." Nearly in this sense the word "marmalade" is used in this essay. Peel and slice the mangoe, cutting close to the stone, and cook, using plenty of water. Boil until the fruit is thoroughly disintegrated, when the pulp should be run through the colander with the purpose of extracting the "wool." Sugar should now be added to suit the taste (about ¾ lb. to the pint of pulp), and the mass boiled until clear, when it would be poured into the moulds or jars in which it is to be kept. This marmalade is of a rich golden yellow colour, it retains the form of the mould perfectly, and its seems in all respects to satisfy the most exacting taste. In the absence of the experience necessary to test the keeping qualities of mangoe marmalade, it would be part of wisdom to seal the jars designed for future use while hot with wax, or better yet, with a plug of cotton wool.

For jelly, prepare the mangoes by slicing as for marmalade, boil the fruit with water, prolonging the boiling only to the extent of extracting the juices. Great care should be taken in boiling as the mangoe rapidly "boils to pieces," in which case it is impossible to make satisfactory jelly. Pour off the juice, strain

and boil down to a jelly—an operation that occupies only a few moments, as the mangoe is rich in gelatinous materials; the pulp remaining after jelly has been removed may be used to advantage in making marmalade. In the amount of sugar used in making jelly, the housekeeper is safe in following old practices in this respect with other fruits. It is impossible to give exact rules in all the operations connected with working up this fruit. In general it will be well to use, in boiling, water somewhat in excess, and as the mangoe "cooks" readily, constant watchfulness is needed to prevent burning.

To show something of what is possible in the way of results with this fruit, I may say that in our experiments thirteen good-sized mangoes gave one pint of jelly and five quarts of marmalade. This certainly must be counted a very favourable, not to say remarkable, result.

It is clear to me that there are great possibilities in connection with the Queensland mangoe crop. If put upon the market in attractive form in the shape of jelly and marmalade, it would be certain to come into almost instant popularity; and that it might be manufactured and sold at a handsome profit is apparent from the figures here given.—*Rangoon Gazette.*

MANA GRASS BOARD FOR TEA BOXES A SUCCESS—A NEW INDUSTRY FOR CEYLON—STANLEY-WRIGHTSON SYNDICATE AND MR. ELWOOD MAY—PROSECUTION OF TEA ADULTERATORS.

London, Aug. 28.

At length, and during the present week, it has been possible for me to see the square tea boxes moulded, as regards the sides, in one single piece from the mana grass pulp. They were exceedingly strong and serviceable looking, and it is intended, we hear, to adopt the method of putting in the heads and bottom pieces followed by the Stantley-Wrightson Syndicate, though this, to my mind, may even yet be considerably simplified. The board of which the boxes are composed is exceedingly stout and hard, and even my weight—which is by no means inconsiderable—had no effect towards altering their shape. Dr. Norman Evans himself brought these boxes to the office of the Stanley-Wrightson Syndicate, and expressed his full satisfaction with them.

It may be as well to give you the following extract from his report made to the Syndicate above-mentioned on the course of manufacture that he watched, and on its result. He wrote, under date of August 25th:—"The grass was boiled for eight hours with a pressure of forty pounds (of steam) and fifteen per cent. of lime. On visiting the mill on the morning of August 6th, I found the grass properly boiled. We were able to beat it in the engine for four hours with far less trouble than we had ever before had. To 200 lb. of the dry grass was added forty pounds of rough paper, which gave 150 lb. of dried board and barrels. The stuff ran well in the machine, giving good thick boards and barrels (see specimens) which dried without blistering or splitting. I think that this experiment conclusively shows that it is possible, with the addition of a comparatively small percentage of old paper, to manufacture good solid boards out of mana grass. (Signed) P. Norman Evans."

Success having so far attended the repeated trials made with this material, the course to be followed to utilize their results has now to be considered. Undue haste might be attended by disappointment, but we have it said that the Universal Barrel Company intends negotiating with the Stanley-Wrightson Syndicate for the purchase of its Ceylon patent, and that it has already entered into comunication with a gentleman in Colombo with the object of arranging for working that patent in the island. It would be premature to add anything to this statement; but we hope that it may prove to be the prelude to the successful introduction of the manufacture of these tea boxes in some locality adjacent to your tea estates. It may perhaps be usefully added that, although quite new, the boxes had no appreciable smell.

Further with reference to the proceedings of the Stanley Wrighson Syndicate it may be written you that Mr. Elwood May proposes to purchase their American patent and to manufacture boxes locally, which, after that amount of embellishment that American taste seems to demand, will be used to distribute the tea to their customers. A large amount of their tea, however, the American Ceylon Tea Company proposes to send out from their stores in highly ornamental packets. Specimens of these we may expect to receive in England, and we shall be curious to see how the versatile ingenuity of our American cousins can manage to improve on our own methods of making up these packets.

Allusion to this topic reminds me that some surprise is felt here at nothing having as yet been heard from your Planters' Association with respect to the letter from the Ceylon Association in London containing a suggestion as to some thirty adulterators of your teas being prosecuted. Although we believe that opinion here is opened to wholesale prosecution of offenders, there is no doubt that it would be a wise course to make periodical raids on these pests of your tea trade. To allow the system to go on of selling mixtures as pure Ceylon tea with only a colorable pretext of an almost undistinguishable label intimating that the contents of a packet on mixture, must be to court the continuance of a practice very damaging to the extension of the sale of your tea, and we hope your local Association will counsel the prosecution of a few at least among the chief offenders.—London *Cor.*

THE MINERAL WEALTH OF INDIA.

Captain C. C. Townsend, R. A., will find many to agree with him in his opinion that the mineral resources of India have not received adequate attention in the past, and that the country contains below its surface potentialities of wealth which might change its history and immensely improve the condition of its people. Some also, perhaps, will think with him that such attention as the subject has received has been devoted too exclusively to gold and gems to the exclusion of the so-called baser metals, especially iron, which are so much the most important factors in the history of the world as to have given names to the epochs of its existence. We fear, however, that all will rise from a perusal of his brochure with ideas very little more definite than before as to the means for the attainment of this wealth. The little book is disappointing in that it gives glimpses of great possibilities without laying down any practicable road to their realization; it demonstrates that there is mineral wealth in India, it shows the obstacles to its exploitation, but it hardly indicates, even vaguely, the means for overcoming those obstacles. The author does not claim to have evolved an exhaustive treatise; he has deliberately made his work a mere sketch in the hope that it will attract readers that a more ponderous tone would deter; but he has not made the most of the space he has allowed himself. In fact, the book contains more than the usual amount of padding. One-third of

it is occupied with the idiosyncracies of English and Indian workmen; dissertations on the recent Factory Act agitation; the relative importance in the social scale of the clerk and artisan; the repressive influence of caste upon native ambitions; the influence of irrigation upon the fertility of the soil; anecdotes of Indian candidates for the English Parliament; and other matters which, though interesting enough in themselves, have the slenderest connection with the title of the book. Its arrangement is also illogical and trying; sequence there is none, and the more cognate two subjects are the greater the distance separating them. For instance, while the author shows that the near proximity of coal and iron is essential to the commercial production of the latter (a truism by the way) half the book separates the chapters dealing with the two subjects, and constant cross reference is necessary to follow his arguments.

And now, having criticised the pudding we shall proceed to extract the plums, for plums there are well worth investigation. That India is an iron-producing country has been known from the earliest times. The armourers of Damascus sent to India for their steel; it has even been imported into England; and the bridge over the Menai Straits was constructed largely of Indian metal. But to-day many thousands of tons are imported into India for railway and other purposes, which, if they could be produced at home, would have an important bearing on remittances, and the far-reaching question of exchange, while they would give employment to thousands of the people of the country. The author indicates four places in India where iron has been produced to some extent on a commercial basis. The best known mines are those of Raneegunge, in Bengal, to work which the Bengal Iron Company was formed in 1874. It proved a financial failure, and was closed in 1879, but the author argues with some show of reason that this was not due to any want of the raw material, but to insufficient capital and want of recognition by Government, owing to whose refusal to make a grant of land much additional expenditure was thrown upon the Company, and it had to borrow money at a high rate of interest Its system of manufacture, too, was much criticised, though it certainly seemed to have possessed every element of success. The ore cost only 8 annas a ton at the furnaces, the lead for the fuel was very short, and it had limestone for flux and fireclay on the spot. The Company has been recently rehabilitated, and for the short time it has been at work, is understood to have been successful. The Wardha Valley, in the Central Provinces, is also well known to possess an excellent iron ore, while there also are coal, fields, and limestone is stated to abound. This has never been worked, and a serious difficulty here, and to some extent also at Raneegunge, is the great deficiency of carbon in the local coal, a fault that is to a great extent common to all Indian coal, and that is fatal to its successful use for smelting purposes without expensive preliminary processes that greatly add to the cost of the product. In Cutch iron ore of good quality is said to exist, but our information as to its quality, as well as of the fuel available for smelting is limited, which is the case also of the Chindwin Valley and several other parts of Burma where both coal and iron are said to have been found.

Of most interest to Southern India are the Salem iron fields, well known to contain ore of a very excellent quality, and which have been worked on a very small scale by natives for many years. Half a century ago the Indian Steel, Iron and Chrome Company made iron, from Salem ore, at Porto Novo. It used charcoal for smelting, and the iron acquired a very high name as possessing qualities similar to Swedish iron, and being especially suitable for conversion into steel. At the present day the knives made by Arnachellam at Salem have a fame far wider than the Presidency. While this Company was working it sent home large quantities of pig iron (there were no factories for working up the raw material in India in those days), and it was of some of this iron that the Menai Straits Bridge, already referred to, was made. The exact causes of the winding up of the Company have not been traced. It is believed to have had trouble with water in its mines and probably it found, even in those days, that charcoal smelting could not compete with coal. An authentic account of this Company, of its methods of working, and the exact locality and present condition of its mines, and especially the reasons which induced it to establish its works on the Coast, thus involving a long lead for the ore, rather than on the spot, when the cost of transport would have been incurred only for the less bulky pig iron would be of much interest. The hitherto insuperable bar to the extensive working of the Salem iron fields has of course been the absence of coal, and we cordially agree with the author in urging a more thorough and minute examination of the neighbouring districts with a view to verifying, once for all, whether any exists. A Royal Engineer Officer, whose opinion is entitled to respect, has declared that the cuttings of the Madras Railway in the Coimbatore District show clear signs of coal-bearing strata, and though the head of the Indian Geological Survey has spent so long a time as three days in examination and then proclaimed it to be shale, we hardly feel as convinced as we ought to be of the consequent impossibility of the existence of coal in the District, for did not the Geological Department for many years pooh-pooh the existence of coal at Singareni, where the mines now hope to shortly turn out 1,000 tons a day? The author states that "coal is nearly always found near iron, and there appears to be no reason why Salem should be an exception to the rule." But this is rather confounding cause with effect, and the truth of the case is most probably, not that iron does not exist, but that it is hardly ever worked when coal is not near it. Again he says:—"One of the great difficulties in the way of thoroughly developing the Salem fields is the distance they are away from coal, but this distance is not so great but that a light coal tramway, laid down *ad hoc*, would pay a really large firm consuming its hundreds of tons of coal a day." The nearest coal fields are those of Singareni, which are already in railway connection with Salem; but the distance is quite prohibitive of the use of their produce for smelting purposes. Captain Townsend states that "Salem ore is so good that it would pay to take it to Calcutta and smelt it with the Kahabari coal," but he gives no figures in support of his contention, and without clear proof we are unable to believe it. The freight by rail and sea would be little short of the freight *via* Madras or Calicut to England, and would be the equivalent of sending coals to Newcastle. He qualifies his statement further on, however. "At the same time, good fuel, within reasonable distance, would be essential to the full development of the Salem fields, for the ore is far from being the same throughout, varying greatly, and only the best would be worth exporting to Bengal—if that." In default of coal he suggests the use of charcoal, liberal forest rights being combined with extensive special plantations of babul wood. Figures are conspicuous by their absence in all his arguments, and in default of some convincing proof we cannot accept his conclusions.

Iron production by the aid of charcoal is now about to be tried in the Mysore Province, and we shall watch the result of Dr. Dhanakoti Raju's speculation with much interest; but it will be many years before this will reach a stage from which instruction can be derived. The question is, however, one of such vital importance to the interests of the Presidency that it would be worth the while of Government to depute an officer to the duty of collecting statistics as to the extent of forest available after allowing for the general requirements of the Districts, and of land available for planting, of charcoal obtainable per acre of forest and required per ton of ore smelted or of iron produced, the cost of its manufacture, &c. The present head of the Geological Department in this Presidency is well qualified for the task. Another fuel alluded to is the peat produced on the Nilgiri Hills, and in view of the shortly expected Nilgiri Railway some enquiry in this direction might be useful. It must, we fear, be accepted as a fact that the cost of any imported fuel would be prohibitive. The author argues, and in this we agree, that to be a commercial success the production of pig iron must be accompanied by its manufacture into wrought iron bars, plates, rails, &c., nor, assuming the fuel difficulty to have been overcome for the production of the 'pig," should there be any obstacle, in the present advancing state of enterprise in India, to such further progress; while it is almost superfluous to point out, as the author does, the advantages to the country of being self-contained in this important respect in times both of war and of peace. There were established some years ago at Beypore Ironworks for the purpose of re-rolling rails and otherwise working up old railway iron, but it came to an early end, on account, we believe, of this same fuel difficulty. Some hazy recollection of this has caused a curious confusion of ideas in the author's mind when, on page 5, he apparently treats Salem and Beypore as convertible terms, and implies that iron has been produced at both places.

Not the least interesting chapter in the book is that which treats of the subsidiary metals to which space only permits a very brief reference. Copper is believed to have been worked in pre-historic times near Midnapore, and even worked with some success in the fifties, but it was killed by the heavy royalties demanded by the Rajahs. In 1831 the Indian Copper Company was working the Nellore Mines. "In the Goomacunda Valley, in the Kurnaul District, there exists a deserted copper mine so old that the very legend of its workers has been lost to the people living there," which has been the case also with the gold mines of Kolar. Of other metals we are told of platinum in the Indus Valley and at Kolar, mercury in the Andaman Islands, zinc in Oodeypore, tin at Ranegunje and in several parts of Burma; all showing potentialities of riches which have hitherto borne little fruit and which justify the writer's lament that "truly the mineral wealth of India has been sadly neglected." Government can do much by exploitation and publication of results and judicious concessions, and we conclude with a passage from the author with which at least, however we may have differed from some of his conclusions, we can cordially agree:—

"But the chief things wanted to develop the iron industries of India are money and experienced skill, neither of which shall we get until either some skilled capitalist is attracted to the East with a view of developing, not its gold and jewels, but its iron, *or*—and this is the real solution—the natives of India, or a few of them, take real interest in these matters. We see how native enterprise has developed the cotton industry of Bombay, and made it what it is—an industry the greatest in all India. This is due to the fact natives have realised the value of cotton and also the processes of manufacture, and are devoting themselves to its development. Let them devote themselves to the study of iron with equal zeal for five or ten years and then see what great results will arise. Let five or six of our most intelligent native youths, the sons and nephews of our great capitalists, be sent by their relatives to Europe to study the iron industries as they now go to study law and medicine. Let them be not too proud to learn in the proper way, viz., as workmen, and not at first as masters, and much will be done. It is an old story but a true one, that India can be best developed by her own people, provided the people will study the right way."—*Madras Mail.*

CINNAMON.

The news received by wire yesterday, of the results of the Quarterly Sales held in London on Monday last, is not very cheering, though it cannot be said to have been unexpected. This is the third sale in succession at which fine qualities have been neglected, and a drop in prices has been experienced. In November last, fine qualities were not in demand, and were chiefly bought in. What little was told changed hands at ½*d.* to 1*d.* less than August prices. At the February sales, out of 1582 Bales offered, only about 700 sold—fine qualities being again neglected, and largely bought in, though sellers were willing to accept 1*d.* to 2*d.* less than the previous rates. There was no private inquiry between the sales for the lots which did not find buyers; and, with the quantities sent forward since February to add to the unsold parcels, it is not surprising that a further drop was experienced. Whether the small proportion of lots which found buyers—600 Bales out of 1300—means that some holders of fine spice were firm, and bought in their lots in hopes of better prices, or that even at the decline of 1*d.* buyers neglected the better qualities, we cannot say. It is to be feared that the latter is the case, as a dead set seems to have been originated against fine spice, and London Agents have begun to counsel their Principals here to manufacture medium sorts. This is not the first time that Cinnamon of superior make has been neglected; but it is, so far as we know, the first occasion on which fine sorts have been neglected at three successive Quarterly Sales, selling at a decline each time, while coarser sorts have advanced almost *pari passu*. In February these sold at an advance of about ½d, and this week of about ½d. to 1d per lb. This would seem to indicate a determination on the part of buyers to lower the price of fine Cinnamon, whether for speculative purposes, or from a conviction that the coarser qualities answer quite as well as the finer manufactures for most of the purposes to which they are put. The consoling features in the situation are that the fall in Exchange will, to some extent at least, nullify the fall in price; and that the current prices might help to popularise the best spice. When good times set in, there may be a brisker demand for fine qualities. Good times, we say, because the financial troubles of the principal foreign countries which consume the spice may account largely for the drop. Spain, Portugal and the South American Republics are known to absorb large quantities in their Roman Catholic Churches; and among the Continental nations the spice is used freely for confectionery, chiefly chocolates. Meanwhile, manufacturers of ordinary qualities are to be congratulated on the better demand for their wares; and there should be a rise in local prices in sympathy with the upward tendency in London. The extent to which fine qualities have been neglected may be inferred from the following figures:—

November	1890 ..	3,029 Bales ...	1,520
February	1891 ..	1,582 „ ..	700
May	1891 ..	1 300 „ ..	600

The decreasing offerings do not imply a falling off in the quantities imported into Great Britain; for last year, out of 1,094,514 lb. quills exported hence,

the United Kingdom took 1,084,837 lb, and this year up to date, no less than 397,893 lb, have gone direct to London from total exports aggregating 725,648 lb. In view of the downward tendency of finer sorts, the advice of Agents in London is sound, that extra expense should not be incurred in the manufacture of fine qualities. But such are the exigencies of trade, that it is reported from the principal districts that, while old rates still rule, advances to peelers were never higher! The manufacture is in the hands of a caste; the lower the profits, the more anxious are Proprietors not to lose the season, and thereby part of their crop: there is a rush for peelers, and these delight to commence their labours in debt, and most proprietors will that it should be so!—Local "Examiner."

JAVA CINCHONA DIVIDEND.—The dividend of the Java Cinchona Company "Kertamanah" for 1890-91 has been fixed at 11 per cent. The Kertamanah estate is one of average size. Its yield has increased from 80 to 155 tons in three seasons and the bark it produces averages from 4½ to 5 per cent. quinine sulphate.—*Chemist and Druggist.*

THE COLONY OF THE LEEWARD ISLANDS.—The text of Mr. Morris's lecture on these islands has just been printed in the journal of the Royal Colonial Institute. It comprises a description of the natural features of the islands and their agricultural resources. As in the case of agriculturists nearer home, the colonists have manifested a tendency to put all their eggs into one basket, and with more or less disastrous results. Thanks to the initiative of Kew, and the energy of Mr. Morris, "botanical" stations, which should rather be called agricultural stations, have been instituted for the purpose of introducing and distributing tropical and other plants likely to be of economic importance and suitable for cultivation in particular districts such as Coffee, Tea, Caoutchouc in various forms, Cinchona, spices, fibre-plants, and so on A great federation of botanical and agricultural stations, with Kew as the centre, has been the ideal of successive directors, and now the ideal is being realised. Perhaps in the future the West India Islands, or other suitable localities may be utilised as nurseries for Orchids and other tropical plants, whence the home market may be supplied, somewhat as the propagating houses at Kew furnish the decorative plants for the show houses.—*Gardeners' Chronicle.*

THE WEST AFRICAN CINCHONA PLANTATIONS.—From time to time parcels of West African cinchona are placed on our market, but the extent of the plantations in the island of São Thome, where the bark is grown, is generally believed to be very small. That view seems to be incorrect. In 1882 planting commenced in the island, and since that time two millions and a half trees have been planted in several plantations. The total exports from the island in 1890 amounted to 34,435 kilos., but a much larger export is anticipated in the future. The four principal plantation owners, with a view to obtain a better return for their money than they receive on the London market, are reported to have established a quinine-factory near Lisbon, which was to have commenced operations in May of this year, but does not appear to be working as yet. These four proprietors own 1,800,000 trees between them. The planters are endeavouring to obtain knowledge of a process which will enable them to export, in the place of bark, a liquor containing from 25 to 30 per cent. of quinine, to be refined in Europe. Such a process would effect a saving in freight, &c., of about 20s. per cwt. on the liquor exported, and enable the growers to make use of poor barks, which it does not pay them to ship at present.—*Chemist and Druggist.*

THE GOVERNMENT of Tasmania has created a Department for conserving the Crown forests which cover over 16,000,000 acres, and promise to be very valuable. The gum trees are the most common, and some are of great size. An Eolosa blue gum 330 feet high has been observed, and there is one called "Lady Franklin's Tree" near Hobart Town which measures 107 feet in girth, a few feet from the ground. The "peppermint" tree, another gum also grows to a great altitude, especially in the humid valleys of the island.—*Indian Agriculturist*, Aug. 8th.

A SIMPLE REMEDY FOR CABBAGE CATERPILLARS.—An old and experienced gardener tells us that his invariable remedy for destroying the caterpillar is boiling water. So soon as they commence their work of destruction he fills a large kettle with water and heats it to boiling. Then taking a watering-can with a fine hose he proceeds to water the plants with the boiling water. This kills the caterpillars, and that without injury to the plants and without fear of poisoning the eaters of the cabbages' a danger too often attendant upon the using of poisonous mixtures or powders. We know the gentleman who gives us this remedy to be perfectly reliable.—*Southern Planter.*

WHEN we set hens we either put a little sulphine or pulverised tobacco in the nest to keep vermin off the hen When the chickens are hatched they are fed on light bread crumbs soaked in milk, as they grow older we bake bread for them out of Graham or shorts, taking the same pains to have it light that we would if it were baked for family use. As they grow older we mix soaked wheat with their feed. When they first come off the nest we rub a small quantity of lard and grease on the breast of the hen. The young chickens get enough of it on them to keep off the vermin.—*Chronicle*

VEGETATION OF URUGUAY.—M. E. Andre recently addressed the Members of the French Acclimatisation Society on the results of his botanical researches in Uruguay. In planting the parks of Monte Video, M. Andre has very wisely determined to avail himself largely of the native vegetation. There will not be much difficulty in finding suitable subjects, for taking a few of the plants mentioned in M. Andre's letter promiscuously, we find the Pampas Grass, the giant Eryngiums, Verbenas, Petunias, gigantic Thistles, Lucuma, Eugenias, Tillandsias, Palms (Cocos australis), Calliandra, various Laurels, Erythrina, and very many other suitable plants What a pity it seems that our Indian and Colonial friends do not follow M. Andre' plan of utilising and developing the resources offered by the native flora, instead of endeavouring to reproduce under unfavourable conditions the gardens and flower-shows of Europe.—*Gardeners' Chronicle.*

THE REPORT on tea and coffee cultivation in Bengal during the past year gives the following particulars:—There were 416 plantations during the year as against 399 in 1889. The total area under tea was 85,203 acres against 79,006 acres in the preceding year. But while the number of plantations and the area under tea show increases, the outturn of tea and the average yield per acre both show a falling of compared with 1889. The outturn was 24,923,269 lb. against 25 089,423 in 1889, and the average yield per acre 354·81 against 375·47 lb. in 1889 The Rajshahye Division heads the list with 350 gardens Chota Nagpur comes next with 35, Chittagong has 25, and Dacca 6. In Darjiling the outturn of the year in most gardens was below the average owing to drought at the beginning of the season and excessive rainfall and want of sunshine in the middle. Owing to the influenza epidemic the year was very unhealthy for the coolies. In Jalpaiguri the hybrid plant is most common, though in a few gardens the China plant may be seen. The indigenous seed from Manipur and Assam is considered the best in this district. Lohardaga is the only district in Bengal which cultivates the coffee plant, but it produced no coffee during the year. The only production of the year was 120 lb., which was turned out in the Hill Tracts of Chittagong.—*Madras Times.*

IN PRAISE OF TEA.

An enthusiastic lover of tea, writing to the *Globe* on the subject, says :—"But, while the wise men in Parliament are dealing drastically with water companies, and are seeing to it that we have wholesome water, is there no substitute? The road to grace is through tea, not that concoction served as such in England, but an aromatic and delicious beverage as it might be made, as indeed it is made in Russia. The English opium-eater, learned in this as in all matters, has said:—'For tea, though ridiculed by those who are naturally of coarse nerves, or are become so from wine-drinking, and are not susceptible of influence from so refined a stimulant, will always be the favourite beverage of the intellectual.' The claims of tea have been fittingly put forth too by Hazlitt and Leigh Hunt. The former, in the language of a jolly toper, talks of quaffing 'libations of tea.' He could not have spoken thus and meant the bitter stuff served at thousands of ignorant tables. No; depend on it, he knew how to brew tea, and had studied the judicious quantity of the leaf which should be imbrued. They certainly recognised in Swift's time that the water must boil, or my Lady Smart would not have cried, 'Lord, miss, how can you drink your tea hot? Sure your mouth's pav'd." That elegant lady also bids Betty 'bring the canister,' which shows us the tea was made by those who had to drink it, doubtless for scientific as well as economical reasons. Tea then cost a round sum per pound, and an excessive infusion was injurious both to the beverage and the pocket. We may believe that a dish o' tea made from Lady Smart's canister was worth the drinking.

"Not a housewife but knows that boiling water is requisite to a sound result, but how often does the water boil at the moment? Urns brought to the table with a spirit lamp beneath are not to be despised, but they are the appurtenances of the well-to-do, and by no means common. What we want is a cheap and an easy way of heating our water, under the eye of those who brew and those who drink. The Russian samovar, a delightful invention, has been devised for this purpose, and, in case some are not acquainted with its virtues, let me describe it in a few words. The Samovar, then, is a water-jacketed urn, often very elegant in shape, composed of metal, with a funnel in the centre, at the bottom of which is a miniature grate, upon which rests the charcoal fuel used to maintain a boiling temperature. A few shavings of wood are first introduced, and, when these are in a blaze, the charcoal is added, and the samovar is ready for use. The top of the funnel or chimney is utilised to place a small tea-pot upon, thus keeping the brew from losing any of its heat. Meanwhile a choice simmer imparts to the tea-drinker a cheerful feeling, and he may now say his grace. The pot receives some boiling water, and, when duly heated and emptied one spoonful of tea is introduced for four people, which is ample. At a legitimate temperature the leaf renders its finest flavour, and it is then only necessary to fill each cup one-third full from the pot, adding two-thirds of boiling water delivered from the samovar through a tap. Tea should be drunk without milk; but, with excellent reward to the palate, a slice of lemon may be put in the cup. The Russians often take a small piece of sugar in the mouth, and pass the tea over it, instead of inserting the sugar into the tea. I see no particular gain in this habit, but am open to admit that without sugar at all the delicate essence of the leaf appeals more insinuatingly to a virgin palate; but, alas! how few of us can claim this immaculate virtue of discriminativeness. Travel where you please in Russia, every peasant has his samovar. When he marries he sets up a samovar, which outlasts his lifetime. That, and an *eikon* for his spiritual wants is often near all he has, and he is contented. The price of a samovar is quickly saved through the economy in the use of tea, and a home-like influence is created in the poorest dwelling. In England, a samovar could be made and sold profitably for 10s, while no more artistic ornament for the table can be imagined. And why not serve glasses of tea in clubs and restaurants at luncheon time? At twopence the glass the net profit would be greater than on a glass of beer. There is much in example, but precious little in preaching. To see a gentleman quietly sipping his tea with lemon would find imitators, whereas all the dehortations in the world are as the babbling of insanity to your average lover of alcohol.

"It is to be observed that, for some physiological cause, the nature of which has not been explained, tea and alcohol do not always harmonise in the same economy. A cup of tea taken by one who uses alcohol is not infrequently followed by a dyspeptic visit, due probably rather to the strength of the tea than to any other cause. Drink tea, however, of the proper strength, and you may swallow half a dozen cups at a time with impunity as far as perceptible harmful effects are concerned. Most of us know the fatal happy climax of wine-taking, the Apex of Lamb, beyond which you cannot go, and which you can only strive to regain, minus hope of reaching at that particular sitting the gaiety of soul already experienced. But with tea, one can go on passing his glass. An equable, normal jollity is comfortably sustained. The brain is gently stimulated, and you participate in the ideal hilarity of Dr. Johnson. Even a health might be most properly drunk in tea. 'Gentlemen, charge your saucers,' will be perhaps the order of the future. And the saucer is a very good thing to drink from. The custom should be revived."—*H. and C. Mail*, Aug. 28th.

THE INDIAN TEA TRADE.

It was not long ago, before I had the good fortune to be entertained by a mercantile firm, that I was just as ignorant as the generality of the Indian public are to the present day, of one of India's principal trades —the tea trade. It is true that I would almost weekly notice in the daily papers advertisements of tea auctions having been held, and of thousands of chests at a time having passed the hammer; but my idea about all this was that these sales were attended exclusively by native grocers; that the tea sold was consumed entirely by ourselves in Calcutta and the mofussil: and that as a matter of fact, cheapness was the principal characteristic of these sales, labouring under the impression that cheap things could only be picked up at an auction. The majority of the public are today no wiser than I was before I entered the trade. It may, therefore, be interesting for them to know something about such ridiculous notions that prevail. Tea is one of the principal articles of export from India, also from Ceylon, where it may be said to be still in its infancy, notwithstanding its development within a comparatively short space of time. Indian tea is manufactured in Assam, Cachar, Sylhet, Darjeeling, the Dooars, Kumaon, the Kangra Valley and Chota-Nagpur. Assam growths are renowned for their strength. Cachar and Sylhet possess the same character, but in less degree. Darjeeling with the Dooars, the Kangra Valley and Kumaon produce flowery teas, and the last named district, tea of an inferior quality, *viz.*, appreciably devoid of either strength or flavour. Since the introduction of Indias tea the old favourite, China tea, is being universally replaced. It has completely lost its former reputation, and is year by year fast losing ground, and growing in disfavour everywhere. Indeed the day is not far removed when China tea will only be a thing of the past. The reason of this general displacement, nay expulsion, is because it has of late years depreciated very remarkably in quality, and is no longer considered genuine. Besides, it is by far more economical to drink Indian tea. In a report published by the London Board of Customs they say: "From information which has been afforded us on the subject, we believe that we make a *moderate estimate* in assuming that Indian tea goes half as far again as Chinese tea, so far as depth of colour and fulness (not delicacy) of flavour are concerned. Thus, if 1 lb. of Chinese tea produces 5 gallons of tea of a certain depth of colour and fulness of flavour, 1 lb of

Indian tea will produce 7½ gallons of a similar beverage. To add to this, the average price of 1 lb. of Indian tea is scarcely more than that of its rival.

A very small portion only of our manufacture, it will be surprising to learn, much to the shame and discredit of the Indians is consumed in India; scarcely 2 million lb. or 1-50th part of a whole season's crop is retained for local use; and as this quantity is apparently more than India, judging from experiences gained by experiments (the tottering condition of the Indian Tea Supply Company, Limited, furnishes ample proof), will ever consume, the proportion will diminish as the production increases annually. The bulk of the manufacture, therefore, is exported to the United Kingdom. Australia takes a small portion, but promises very soon to absorb more. In the season 1887-88 we exported thence 2,408,000 lb. in 1888-89 2,869,000 lb. in 1889-90 3,596,000 lb. and this season's 1891-92 exports bids fair to outstrip the last, which stands at 4,879,000 by 1,000,000 lb. America has just begun to give our teas a trial, and will soon accord them more of her patronage. French epicures are begining to acquire a taste for our leaf, and Russia still purchases our finest descriptions.

Tea drinkers in India think it absurd to pay more than 12 annas, or at the outside R1 for a lb. of tea. What will they say to tea having been sold in London, by auction, from the Gartmore Estate of Ceylon, at R145 and R345 per lb. and in our sales in Calcutta, only so recently as the 30th of July last, at R40, R20 and R15 per lb. from the Nassau Tea Garden of the Kangra Valley District.

I shall now give a full idea as to the present position of our industry as compared with that of its rival in the United Kingdom, coupled with some other interesting facts.

From the year 1849 to 1859, China tea held uninterrupted sway; its consumption having increased from 50,000,000, to 76,000,000 lb. In 1864 Indian tea made its appearance in the field; insignificant at the time, but promising to prove a formidable foe; it kept increasing in strength, so did its rival, (the consumption of China tea having increased from 85¾ millions to 118¾ millions, while Indian, beginning with 2¾ million lb. increased to 18½ millions within the space of 10 years, from 1864-1874; but in 1884 down fell the quantity exported by China, while Indian had almost doubled itself. Ceylon now appeared on the scene, and 1½ million lb. were consumed. In 1889 the figures stood thus:—

China tea, drank	...	...	61,100,000 lb.
Indian	,,	...	96,028,000 ,,
Ceylon	,,	...	28,500,000 ,,

Thus, within a period of 26 years from 1864-1889, the average monthly home consumption of Indian tea steadily and rapidly increased from ¼ million lb., or from 3 per cent. to 67 per cent., while that of China, by various fluctuations, commencing with less than 7¼ millions in 1864, and reaching the highest point, a little over 10¼ millions in 1879, when scarcely 3 million lb. of our staple was drunk, ultimately fell to 5 million lb. in 1889. The rapid and extensive consumption of Indian tea has been further stimulated by the fall in prices. For instance, Medium Pekoes and Pekoe Souchongs have fallen in the course of eleven (11) years from 1880-90, from 1s 6d to 10½d and 1s 3d to 9d per lb. respectively.

Large quantities of tea are sold locally every week by auction, and good portion, the major in fact, is shipped direct to London to be disposed of there at the hammer. The teas sold here are purchased by our merchants, who, for the most part acts as agents on behalf of London wholesale dealers.

The tea trade is perhaps the most risky venture extant. Great caution, much foresight, and extensive experience, to say nothing of the requisite knowledge of the article itself, are indispensable to buy to advantage. But notwithstanding, it often and often happens that purchases made here under the above conditions heavily lose money when resold in London. As a case in point: Facts and figures were so encouraging when this season 1891-92 opened, that the most cautious buyers here, supported by the advice of their home friends (commercial), entertained the most sanguine hopes of the most satisfactory results attending their purchases and consequently paid much higher than actual value. They very soon learnt how sadly erroneous their estimates of the London market were, for, upon re-sale losses averaged from about 15 to 30 per cent. Not a single parcel of tea, even so much as "scraped out" much less shewed a profit. And cases of this kind are of common occurrence. I would, therefore, not be far wrong in saying that this business is absolutely clothed in uncertainty, as no amount of foresightedness or experience can say whether tea is going to pay or lose till it is actually sold.

Tea merchants place their interests in the hands of tea experts or tea-tasters, whose services they engage at fair remunerations. These men have to undergo a long course of training in tea-tasting before they are considered competent to manage the tea purchase department of a firm. They must be able to discern, by means of their palate, the character of a tea,—in other words, whether it possesses strength or flavour, how much of the latter or the former, or of both, and accordingly determine its value. They must not forget at the same time to throw into the account the various influencing agents of the market. They must be able, with existing facts and figures of tea statistics, to gauge the future, at least two or three months hence, for teas bought here at a certain time can only be placed on the market some two months after. Their responsibility can never be over-estimated, and it is for this condition alone that they are remunerated. Upon their shoulders, in a great measure, rests the welfare of the business. They can make or ruin a firm. Such being the case, their appointment is always at a risk, and greatly dependent upon the temperament and mercy of their employers; probably, in many places, their actions are viewed with suspicion and hence closely watched, and at seasonable opportunities scrutinised, if for no other reason, with the object of keeping them aright, and of preventing irregularities. They can, therefore, be never too careful, and must always look a dozen times before they leap, lest they should take a false step, and thereby render themselves open to rebuke. In relation to their employers their position is acutely delicate.

Not so the tea broker, or the independent individual in whose hands merchants place the disposal of their teas by auction. It is true he has a lot of running about to do, and a great deal of worry, and betimes a lot of snapping and snarling to accept with all deference and humility, and under choking sensations, which he has to bridle much to his own discomfiture; but he has the satisfaction nevertheless of knowing that he is a free agent. It is true that he gives his labour for a nominal sum of one rupee for every 100 rupees of tea sold, and a similar return for every 100 rupees of tea bought, but as nothing can be sold or bought according to commercial rules, relating to the tea trade, without his mediation, he turns a decent penny monthly. He can afford to pay R250 per mensem to the boarding house keeper; as much or more in addition to his club for sundry pegs, etc.; keep horses and conveyances and have left, after all such moderate expenditures, ample to retire upon after 6 or 9 or, not to be too inconsiderate, say 10 years of service. He can always obtain market value, which is his own value, for a tea. It would be unreasonable to expect a better result of him, and he does not care a button whether you do or you do not. He is of all labourers the most independent, and least taxed, nevertheless the best remunerated. Merchants may come and merchants may go, but he goes on for ever. Every labourer is worthy of his hire, he knows this well, and he is pretty certain of his. News of every description he has always on the tips of his fingers to suit each of his customers according to each one's immediate requirements, and he can spout it out with a sympathetic assurance. A tea broker, like others of the same fraternity, is an anomaly. He goes to the tea seller and whispers confidentially to

him that teas are about to lose in order to gratify his avarice; the very next moment, in the presence of the buyer, he blandly and innocently contradicts himself. I said before that a large proportion of the season's crop is shipped direct to London for sale by auction there. The tea broker abhors this foolish system of business; he has no sympathy either with it, or with its promoters, and is unceasingly at pains to destroy it for his own aggrandizement. He evinces great concern for a merchant's welfare, although in his heart of hearts he cares not a straw whether a merchant fails or prospers. It affects him little one way or the other. A tea broker is a man of circumstances, better, a man of fine sympathetic tendencies, and in this respect resembles the cold chameleon. He can at a moment's notice sadden at a man's losses or gladden at his profits, and in this fashion keep changing and re changing the colour of his feelings during his daily calls according to each one's needs. He believes himself to be over worked, but can still find enough of time to indulge in golf, tennis, cricket, and football, each in its proper season. Indeed he has so much leisure at his disposal that by excessive practice he excels in all manner of pastimes. He is one of the many who argues that "all work and no play makes Jack a dull boy." In all sincerity he is heard to say that it is not for the sake of playing so much as wise regard for his health that he does play. In short, the tea broker is a clever, happy-go-lucky fortunate fellow; and his motto is "*Live and let live.*"—"Quill" in the *Indian Empire.*

GOVERNMENT CINCHONA ENTERPRISE IN BENGAL.

From the annual report of the Government Cinchona plantation and factory in Bengal for the year 1890-91, it appears that the whole of the crop, with the exception of a small quantity supplied on indent sold to Government institutions, was sent to the Febrifuge factory for disposal. The outturn of the factory showed a decrease in the quantity of cinchona febrifuge as compared with that produced during the preceding year: but there was a marked increase in sulphate of quinine, of which 4,010 pounds were manufactured, against 1,833 pounds for the year 1889-90. The revenue derived from the sale of sulphate of quinine, cinchona, crystaline febrifuge, cinchona barks, and other products of the plantation was in excess of that derived from the same products in the previous year; while the net profits of the year's working, which amounted to R17,040, are considered satisfactory. The resolution on the Report states that, in starting the cinchona plantations, the Government did not aim at a profit, its object being to secure for the people a cheap remedy against fever. The quinine manufactured at the Government factory can now be sold at one rupee per ounce, and Dr. King observes that it would be possible still further to reduce the price if all the charitable dispensaries in the country were to supply themselves with the Government drug instead of buying it elsewhere. It is stated that the Government drug is purer, and the Inspector-General of civil hospitals will be asked to consider what steps should be taken to extend the demand for Government quinine, in order to bring about a further reduction in price. Judging from the tenor of the resolution on the Report, it would appear that institutions helped by Government may expect to be requested to draw their supplies of quinine from the Government factory. It will be interesting to know what the Inspector-General of Civil Hospitals will have to say on the subject, and how the charitable and other dispensaries view the enterprise.—*Statesman.*

ECHOES OF SCIENCE.

Platinum is a very useful metal in science, because it resists corrosion, and has a co-efficient of expansion nearly equal to that of glass, so that it can be safely fused into glass without fear of fracturing the latter under changes of temperature. Mr. R. A. Fessenden, of Roseville, New Jersey, U. S., has, however, discovered an alloy of iron, nickel, cobalt, silicon, and gold or silver, which can be used as a substitute for platinum. The co-efficient of expansion for glass is 85, that of platinum 95; whereas that of the new alloy can be made exactly the same as that of the glass with which it is to be employed. Hence for vacuum tubes in particular it will be very useful, as the air will not be able to enter at the point where the metal penetrate the glass on account of any unequal shrinkage.

To prevent the frightful accidents which happen on steamships through the bursting of the copper steam pipes, the Fairfield Shipbuilding and Engineering Company of Govan began the practice of lapping the pipe outside with copper wire. They found, however, that copper wire loses much of its strength on being heated, and have since tried Delta metal, which, at the temperature of melting tin, or 442deg. Fahr., was found to be much superior to copper not only in strength but in ductility.—*Globe.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Aug. 29.

CINCHONA.—The cinchona auctions which were held this week again of very moderate extent, the quantity offered for sale consisting of:—

	Pkgs.		Pkgs.	
Ceylon bark ..	... 738	of which	713	were sold
East Indian bark ...	... 987	,,	659	,,
Java bark ...	... 97	,,	97	,,
South American bark	... 182	,,	24	,,
Total ...	... 2004	,,	1493	,,

There were a few parcels of fine bright druggist's barks from Madras and several lots of good officinalis cinchona, also from British India; but on the whole, the assortment offered nothing of importance the following are the quantities purchased by the principal buyers:—

	lb.
Agents for the Mannheim and Amsterdam works ...	100,086
,, Auerbach works	63,530
,, Frankfort o/M and Stuttgart works..	59,180
,, Brunswick factory	51,478
,, Italian and American works ...	50,884
Messrs. Howards & Sons	22,211
Sundry druggists, &c.	21,290
Total quantity of bark sold	368,659
Bought in or withdrawn	88,567
Total quantity offered	457,226

The tone throughout the auctions was miserably dull, and about 20 per cent. of the bark (mostly East Indian cinchona from Bombay and Calicut) was bought in owing to insufficient competition. The price paid were hardly up to the low standard of the last auctions, and the unit is nearer 1d than 1½d per lb.

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it; firms who buy a small quantity of bark by weight frequently take the richest lots, and *vice versa.*

No detailed figures about the Java shipments for the year ending June 30th are yet to hand, but the following may be taken as approximately correct:—

	1887	1888	1889	1890	1891
	lb.	lb.	lb.	lb.	lb.
Amsterdam	2,230,000	3,493,0000	4,415,000	4,750,000	6,000,000

being an increase over the season preceding of 67, 26, 8 and 27 per cent. During the month of August of the last three years the shipments are given as follows: 1889, 700,000 Amst. lb.; 1890, 760,000 Amst. lb.; 1891, 1,000,000 Amst. lb.

OILS (ESSENTIAL).—Citronella, in tins, 11-16d; in bottles, ¾d per oz., on the spot; and for delivery 10½d per lb. in tins and 11d per lb. in drums, c. i. f. terms.

QUININE.—The market remains very dull, and the total sales reported during the week only amounted to about 35,000 oz. at 10d per oz. for German bulk from spot until January delivery. On Wednesday night a sale of 5,000 oz. spot was reported at 9¾d per oz., but it is doubtful whether that transaction actually took place—at any rate, there are no further sellers at the figure today. A New York correspondent writes under date of August 18th: "Quinine is very dull with us, and we think will go lower. P. & W. reduced their price 2 cents this week. There is practically no demand for any large quantities."

THE DUTCH MARKET.

AMSTERDAM, AUG. 24.

The analysis of the cinchona to be offered at the bark sales in Amsterdam on September 3rd shows the following results:—The manufacturing bark contains about 9 tons sulphate of quinine, or 4 19 per cent. on the average. About 8 tons contain 1-2 per cent. sulphate of quinine; 37 tons, 2-3 per cent.; 75 tons, 3-4 per cent.; 88 tons, 4-5 per cent.; 34 tons, 5-6 per cent.; 24 tons, 6-7 per cent.; 6 tons, 7-8 per cent.

STEPHANITE.—A NEW FLUX.

A number of gentlemen interested in the manufacture of iron and steel, recently visited the works of Messrs. H. Young & Co., Eccleston-street, Pimlico, with a view to investigate the properties of a flux, named after the inventor, the late Mr. Stephan. The addition of aluminum to iron has lately received a considerable amount of attention, owing to the fact that the resultant product is of much improved quality, providing that the admixture is properly effected.

Various methods have from time to time been brought forward to secure this end, amongst which we may mention the ordinary addition of the alumilum to the charge in the cupola, but it has been found in practice that the aluminum is, in operation, dispersed by the action of the blast; another method is to add it to the molten charge in the ladle, but this practice requires the aid of stirrers, and it has been found that an uniform admixture does not result, the operation producing a merely mechanical mixture, and not a homogeneous metal.

The Stephanite process, however, seems to overcome these difficulties; certain proportions of alumina, lime, and emery are taken and incorporated and pressed into briquettes, which are added to the charge of iron and coke in the cupola, in the proportion of 80 lb. of Stephanite to one ton of iron. The action which is then said to take place is that the temperature of the furnace converts the alumina into metallic aluminum gases, which the molten metal readily absorbs. The result is, that instead of a mechanically mixed compound, a chemically perfect mixture is produced.

One of the claims of the Stephanite Company of London-wall, who are introducing this invention, is that the flux acts as a strong clearing agent, and that every particle of metal is separated from the slag. The Company was fortunate enough to have the foundry of Messrs. Young placed at its disposal for these experiments, and on the day of the demonstration, Messrs. Young agreed to have the whole of their castings run from the new compound.

At the demonstration, the cupola was charged with three tons of low quality scrap iron and 240 lb. of the flux. Immediately the metal was run off, its great fluidity was perceived from its behaviour in the ladles, and as a consequence, it follows that better castings are obtainable, and blow holes are, to a great extent, avoided. Several most severe tests were applied to some of the day's castings, in one instance two castings were taken from the moulds whilst at cherry heat and plunged into cold water. This test, instead of utterly spoiling the castings, as would be imagined, simply resulted in the production of a splendid steely metal, as was at once seen on breaking a cooled casting. The file test was applied, and it was found that the merest superficial scratch was made. One half of a casting was afterwards heated in a forge and cooled in the air, and it was found to be soft, and amenable to the file; the same piece was afterwards reheated and again plunged into cold water at cherry heat, and it was then found that the file once more made no impression on the metal.

This new metal—for practically it is a new metal, being really a combination of iron and steel, produced direct from the cupola without the aid of any after manipulation—met with general approbation from those present, the prevalent opinion being that the results were remarkable, and that the invention is capable of very wide application. It only remains to be said that divers grades of metal may be produced by a variation of the proportions of iron and Stephanite.—*Manufacturer and Inventor.*

A VOYAGE TO THE COCOS ISLANDS.

H. M. S. "Rattler" returned last Wednesday from the annual visit to the Cocos Islands, having on board Mr. Egerton, Commissioner to the Cocos.

The "Rattler" left Singapore on the 25th July and calling at Batavia, anchored off Christians Island. The anchorage there is particularly bad even in the S. E. Monsoon when it is sheltered. The "Rattler" dragged and had she not been under steam, the results might have been serious. During the N. W. monsoon, landing is impossible. Christmas Island is situated about five hundred miles to the S. E. of Java Head. The island is about the size of Singapore, is of considerable height, and is covered with vegetation. The present population consists of one of the brothers Ross and eight natives. Mr. Ross has taken over the whole island for ten years, after which period he will pay a sum annually to the British Government. So far, very little has been done in the way of cultivation for want of labour, but the soil is rich and perfect for planting purposes. The island abounds in a species of large blue or slate coloured pigeon, which is almost tame and is excellent to eat. The frigate bird and other sea bird are also seen in thousands and the small green pigeon is abundant. A kind of ground thrush is also common. The settlement on the island—the metropolis in embryo—consists so far of a few huts. The natives who are with Mr. Ross have come from the Cocos Islands. Twice a month the schooner 'J. G. C. Ross' calls at the island *en route* to the Cocos from Batavia.

Leaving Christmas Island, the "Rattler" proceeded to the Cocos or Keeling group. The ocos Islands are entirely of coral formation an are very low. The group is in the form of a horseshoe, and the water, immediately around and between the islands, is so shallow that it would be possible to walk right down the group at low tide. The present Governor, Mr. Ross lives on the main island with his daughter, and the population has increased to above 540 (Mr. Egerton took the census during the "Rattler's stay at the islands). Mr. Ross's rule appears to be excellent. So far, there has been no crime whatever, and, considering the fact that there are no laws properly so called and no police, this clean record of twenty-three years may be considered almost phenomenal. Mr. Ross's power, of course, is practically absolute. Lately he has suffered heavy losses. His sheep have died, and his deer in swimming from one island to another have been eaten by sharks in considerable numbers. At one time, the plague of rats was so great that it was feared the coco-nut palms would be exterminated by them. As a preventive measure, Mr. Ross imported a number of cats. The cats

soon however, ran wild, and did much havoc among the pigeons and small birds. Mr. Ross has since obtained a remarkable breed of fox-terriers which are more successful. These dogs go out in batches of twenty-five, every day, and the rat mortality is steadily on the increase. As in Chrismas Island, the large slate-coloured pigeon is abundant. A number of deer were seen, and jungle fowl are beautiful and not exceedingly difficult to get at. Fish are very plentiful and on a lake in the North Keeling Island, Mr. Ross has a breed of sea salmon or salmon trout which afford excellent sport for fishermen. A large green fish of heavy weight is plentiful. During the visit, the people on the "Rattler" caught two of these fish, one weighing 88 pounds and the other 50. For table purpose, it is said this fish cannot be surpassed. Altogether, to the naturalist or sportsman, the Cocos would well repay a visit. Shells in great variety and of great beauty are plentiful everywhere; specimens have been brought back in the "Rattler," ranging in size from large shells of the oyster tribe which two or three sailors can barely carry, to tiny shells of which a thimble would hold a dozen. The inhabitants have a wonderful collection of boats, and some of Mr, Ross's Una built boats would compete for speed with anything of their class anywhere. The islands have passed through one or two strange experiences of late years. Some seven years ago, when a volcano, 700 miles off, in the Straits of Sunda, was in eruption, the air became so full of scoriaceous matter that almost total darkness prevailed for forty hours literally as in Egypt of old this was a "darkness that could be felt." It can in fact be picked up by handfuls still in some parts of the island. Again some years ago a terrible typhoon struck the islands and destroyed almost everything. So violent was it that, in Mr. Ross's own house, there was not a single piece of furniture unbroken by this storm that crushed in doors and windows as if they were the flimsiest of obstructions. The only currency in the island is the notes signed by Mr, Ross, ranging in value from five rupees downward. These are used as cash for all kinds of trade and other insular transactions, and, when a man is leaving the islands, Mr. Ross gives him a cheque for any notes he may possess. The coral growth of these islands is sufficiently rapid to upset. Admiralty survey doings continually. Mr. Ross estimates that above a certain depth the polyps build at the rate of nine inches a year. In course of time, this coral growth will join the islands into one. The officers of the "Rattler" have made new surveys during this voyage, so that at present, the soundings are known well enough. The anchorage at the Cocos is excellent.—*Straits Times*, 1st. September.

A JAPANESE OPINION ON TEA.

A Japanese merchant whose views are reproduced in the *Jiyu*, delivers the following opinion about the future of the export trade in tea and silk:—"The most important staple of export in Japan is silk, and after it come tea, coal, and rice. The future of the trade in silk and tea is not bright. * * * As for tea, which stands next to silk on the list, there is a demand for it in America and Russia; but in its case also the outlook is not good. Looking at the figures of the export trade during the past six years, we find that in 1885 the value of the tea sent abroad aggregated 6,854,120 *yen*; in 1886 it rose to 7,720,320 *yen*; in 1887, it fell to 6,603,341 *yen*; in 1888, to 6,120,000 *yen*; in 1889, to 6,150,000 *yen*, and in 1890 to 6,320,000 *yen*. This declining, or at best stationary, condition is due to various causes, the chief of which appears to be gradual development of tea cultivation in China, India, and Ceylon, tea, of which places is ousting ours in Western markets. The export of Indian tea in 1887 amounted to 80,800,000 lb., in the following year it rose to 89,783,000 lb., and in 1889 the returns showed 92,590,000 lb. Russia, again, to which Japan has turned of late for a market, is beginning to grow quantities of tea on her own account, so that that the prospect for importers becomes less and less encouraging. On the whole, I conclude that for Japanese sericulturists and tea-men alike the out-look is far from favourable. —*China Mail.*

LONDON TEA LETTER.

As regards the prices obtained for small single boxes of Fancy Tea, it seems hardly fair to those who have obtained good prices for real, commercial, breaks, to place the former in the "Honour List," thus causing the more profitable Commercial Lines, to take a lower position on the "Honour List" than their real merit entitles them to. As any *chóta sahib* in his first season on Tea, could, if he were allowed to play the fool, turn out a small box of these Fancy Teas, the "Honour List," will, for the abovd reasons, the Season, take presedence of the "Fancy List," the latter being quoted, rather for the "fun of the thing" than for any more weighty reason

HONOUR LIST.

			s.	d.
Goomtee ..	..	20 hf-chts Bro. Pek.	..2	6½
Darjeeling Co.	..	48 chests Pekoe	..2	6
Jokai Co. (Bokel)	..	12 do Or. Pek.	..2	4½
Goomtee ..	..	24 hf-chts Or. Pek.	..2	3½
Jokai Co. (Panitola)	..	22 chests Bro, Or Pek.	..2	3½
Lebang ..	..	30 do do	..2	3½
Jokai Co, (Panitola)	..	17 do Or, Pek.	..2	0½

FANCY LIST.

Bramley (Ceylon)	.. 1	Box, Gold Tea	..7	7
„ „	.. 2	„ „ „	..7	6
„ „	.. 1	„ „ „	..7	5
„ „	.. 3	„ „ „	..7	3
„ „	.. 1	„ „ „	..7	2
„ „	.. 1	„ „ „	..7	1
„ „	.. 1	„ „ „	..6	0
Court Lodge (Ceylon)	.. 1	„ „ Tip	..6	6*
Beaumount do	.. 2	Boxes, Silver Tips	..6	0
Kintyre do	.. 1	Box, „	..5	3*
Do. do	.. 1	„ Gold Tip	..5	0*
Gopalpore (Kangara)	.. 1	„ Silver Tip	..5	0*
S. Leys (Ceylon)	.. 1	„ Gold Pek.	..3	9
Drayton do	.. 1	„ Gold Fly Peak	..3	0*

* Refused.

—*Indian Planters' Gazette*, Sept. 11.

Plants Seeing.—It is odd to think of plants as seeing, but Mrs. Robert King describes an experience in India that she regards as confirming her husband's theory that creeping plants have some faculty akin to sight. Mr King was seated with one foot against a pillar, when a kind of convolvulus growing near was seen to turn towards his leg, which was then kept motionless until, at the end of an hour, the tendrils had laid themselves over it. He then went to breakfast, and on returning found that the plant had turned away in disgust. A pole was procured and placed against the pillar about a foot from the nearest sprays of convolvulus, and in ten minutes they had begun to curve toward it, and in a few hours the tendrils had twisted quite around it. The pole was on the side away from the light, and the observers find it difficult to account for the phenomenon except by assuming that the plant could see the pole.—*Mildura Cultivator.*

[It more likely felt by some subtle influence the existence of an object suitable for its support. —Ed. *T. A.*]

UNFAVOURABLE REPORTS ON TEA.

A writer in the *Indian Planters' Gazette* has an amusing passage, thus :—

You will find that, as a rule, the agency firms describe and report upon your samples fairly and as compared with other teas actually being made. The appetite for fine quality has, however, in several instances (there is one particularly bad offender in London) led to a practice of reporting upon samples as compared with what one would imagine would be the quality of Utopian produce, supposing that province grew tea. This firm habitually made the teas out many degrees worse than in reality, with singular contempt for the intelligence of their Managers, to whom they kept up a standing cry of *wolf*. Now this is not a way to treat a tea-house sirdar.

Their vocabulary did not run from "very good" to "very bad," but from about "moderately fair" to "infamous." The results were that the reports simply misled you.

One especially awful report I got, I remember, was such that even the experience of several seasons failed to reassure me that there was not something really wrong with the teas at last, but when the sale report arrived they came out fifth upon a list of eighteen. And the mystery to me has been ever since, what (with the English language at its present strength) could the Agents have found to say to the maker of number eighteen teas. The only possible solution is (to my mind) that they had recourse to vulgar French abuse, and reported somewhat in this fashion.

Valuations and Characters of Bankpore Teas.

Grades.	Descriptions.	Values.
Broken Pekoe	Criminally irregular Broken Souchong fannings kind. Disgraceful outturns. Shocking liquor.	2½d.
Pekoe	Revoltingly ill-twisted Ball-Congou kind. Shameful outturn. Horrible liquors.	1d.
Pekoe Souchong	Leaf and liquor indescribably abominable.	0d.
Bro. Souchong	Ah gredin, vilain monstre, voleur,—	*4d.

General Remarks.—Cré nom de pommedeterre Corbleu.—

(Sd.) CANNONADE & Co.
Disgrace Church St. E. C.,

7th October 18—.

THE BRITISH BORNEO COMPANY, (LIMITED.)

The ordinary half-yearly meeting of the shareholders in this Company was held yesterday, at the Cannon-street Hotel, when Mr. A. J. Scrutton occupied the chair.—The landed property of the Company, the report stated, now amounted to about 104,000 acres, all of which was covered with valuable timber. A large portion of the land was suitable for growing tobacco, coffee and sugar, and should the development of Borneo continue in these products, it should be saleable for planting purposes in the future, more especially as it was easily accessible from Sadakan, the capital. As suitable virgin land was getting scarce in Sumatra, the attention of the large Dutch companies was being attracted to Borneo, and it was hoped that they would commence there. The general manager in Borneo had been dismissed. The Board had despatched a special representative to Borneo, who was of opinion that, with a suitable manager there, and more shipping facilities, their trade with China alone would show a sufficient profit to pay the Company. The Board did not think they were warranted in proceeding with the cultivation of tobacco, next year, on account of the low price of tobacco and the high price of labour in Borneo. The report then entered into details with regard to matters complained of in the island.—The Chairman expressed regret at the character of the report which was submitted, and he attributed the unfortunate position they were in to the late manager, who had failed to appreciate the responsibility of his position. To this fact, and the existence of exceptionally serious circumstances in Borneo, they attributed their position. The country was very slow in development, which was partially due to the want of appreciation on the part of the local Government. They were seven or eight weeks' sail from their property, which obliged them to trust very much to their representative. On some of the contracts entered into by their late manager they had lost several thousands of pounds, and their loss had been increased by a want of adequate supervision. They had had great difficulties with the labour question, which was seriously felt by all the trading companies in the island. Their timber was most valuable, and the markets of the world were open to them. He moved the adoption of the report and statement of accounts.—Mr. J. J. Dunn seconded the motion, and also alluded to the great value of their timber; but on the trading account they had lost about 5,000*l*.—Mr. R. V. Williams suggested that a drum-head court martial should be held upon the directors and immediate punishment inflicted, because of the miserable tale of mismanagement which was disclosed by the report. They had found a scapegoat in the person of their late manager, but the real fault lay at home. He hoped the Shareholders would keep in touch with each other, and act in such a way as to enable them to bring pressure upon the Directors, and give them a chance of redeeming their character.—Mr. C. P. Bennett, who had visited Borneo, gave an account of the valuable stores of timber which they possessed, and maintained that in China alone there would be an unfailing demand for what they could send.—Several Shareholders expressed their great dissatisfaction with the state of affairs as disclosed by the report and statement of accounts. One or two suggested that a Committee of Shareholders should be appointed; but to this exception was taken, on the ground of the difficulty of controlling an estate so far from London. Another proposition was to adjourn the meeting for two months for fresh accounts to be prepared. Ultimately the Shareholders agreed to receive and adopt the report and statement of accounts, the Directors on their part agreeing to prepare fresh accounts, showing the position of matters down to June, and to call another meeting in a few months' time.—After some formal business the meeting terminated.—London *Standard*.

* Minus.

HONOLULU AND HAWAIIAN VEGETATION.

Honolulu is situated under the lee of a range of mountains about 4,000 feet high, that almost entirely break the trade winds and as a consequence the climate is sweltering in the day time, but the nights are cool and pleasant.

Trade is somewhat depressed on account of the McKinley bill. Sugar is the principal article of export and the price has gone down so much that they say there is no profit in it. Heretofore they have been making from 40 to 90 per cent on their sugar and it goes hard to have to come down to 10 to 25 per cent, which they will have to do. The quantity exported amounts to 125,000 tons for this year and they have been getting $100 a ton. It costs about $50 a ton to manufacture it and after the freight is added, left them a large margin of profit.

It is now thought that some of the poorer plantations will have to shut down entirely as they can get no one to carry them on. The average yield is from three and one half to four tons per acre. Some plantations or parts of them yield as high as seven tons per acre. There are not many places that will yield that however.

There are two methods of extracting the sugar from the cane, the old roller process and the more recent diffusion process. All the new mills now being erected

are for diffusion. In this method the cane is cut into very thin diagonal slices, dumped into iron cells and water and steam turned on. The sugar and nothing else is extracted and the juice is almost absolutely pure. It is claimed that they get 98 per cent of the sugar from the cane. In the old process they do not get over 80 per cent; the diffusionists claiming a saving of from 12 to 18 per cent. There are now three new diffusion plants going up. The Ewas 18 miles from this city and Kahuka 30 miles away—both 50 ton mills, that is, with a capacity of fifty tons of sugar a day. The other, Mukkiwilli is on Kauai and is a 100 ton mill. The machinery of the two former are being built here while the larger one is coming from Scotland, a considerable portion of the stock being held there.

There is considerable rice grown on these islands. There are two crops a year. The winter crop matures in about 140 days and the summer crop in about 20 days less. It is grown almost entirely by the Chinese. No other race of people would take the trouble they do. The rice is first sown thickly broadcast and the water turned on to it. When it gets the proper size it is transplanted in small bunches of eight or ten stalks about a foot apart—the men wading about in the water planting it in the mud. The water is probably six to eight inches deep. The water is kept on it almost the entire time. The first crop is now being harvested. The yield from the Islands is about 15,000 tons of which 5,000 is exported, the balance used here.

Besides sugar and rice about the only other article of export is bananas. Every steamer takes a large number of bunches—from 3,500 to 7,000 and even more. There is but one variety shipped, the Chinese dwarf. Good ten hand bunches are worth $1 here. The freight to San Francisco is 75 cents and sometimes when the market gets overstocked there is heavy loss. One party told me some time ago that they had over 3,500 bunches in store in San Francisco and expected to lose a great part of them. We can buy ordinary sized bunches at from 15 to 25 cents.

There are quite a number of hides shipped from there, here being no tanneries.

Coffee culture is coming to the front and several companies have been formed for its cultivation. It grows wild in many places and yields very abundantly and is of very superior flavor. The best I ever drank I have got here. It wants to be three or four years old to be good. If used younger it has a green, oily taste, and the older the better. It sells here at 45 cents per pound at retail.

Pineapples are plentiful and cheap, retailing at from 5 to 25 cents each for the native varieties, and 50 cents to $1 for imported varieties. I saw some sugar loaf pines that weighed nearly 10 pounds which sold at $1 each.

There is a strong feeling here favorable to annexation to the United States. Some think that it is the only remedy for the stagnation in business caused by the decline in the price of sugar. It is hard to tell or forsee what the result will be and many are very anxious about it. It is said that there are several hundred white men organised and fully armed for any emergency. H. J. RHODES.
—*Rural Californian.*

FORESTRY IN MADRAS.

The likes and dislikes of particular trees, in respect of shade, undergrowth, moisture and other conditions, have evidently still to be studied, as also the effects of such individual peculiarities as time of seedling, that is, whether before or after the firing season, and as to which species reproduce best by seedlings and which by coppice. As to the complaint that rank undergrowth and long grass, the first effects of protection, choke seedlings, it has been suggested that if more time were allowed them to become more strongly rooted, they would be able to push through or outgrow, this slight obstruction. The failure in the natural reproduction of teak in the teak forests has been ascribed to the inability of the seed to reach the ground through the fallen leaves with which it is covered. But it appears that rose-wood seedlings have been found in a forest, in which mature rose-wood trees did not occur. In regard to young teak and *Hardwickia* seedlings supposed to be withering from drought it is found that while so appearing, they are often actually making underground growth, which in a year or two enables them through the depth of their roots, to resist the effects of dry weather. Although coppicing is unsuitable for *Casuarina*, it has been successfully tried with satin-wood and *Terminalia tomentosa* in the Bellary district, and with the *eucalypti* on the Nilgiri hills. The forests of the Madras Presidency have generally shown good growth, where protection has been efficient, even on the most unpromising areas, and a copious reproduction of the more valuable trees, such as teak, rose-wood, *Hardwickia*, sandal, satinwood and *Pterocarpus marsupium* has been attained. The only district in which protection and reproduction have been bad is South Arcot. Nor was artificial production less attended to, or less successful comparatively. The amount spent on plantations, topes and cultural operations was R51,701, against R50.748, and the area operated upon was 50,681, against 49,319 acres in the previous year. The increase was chiefly under plantations; while no addition was made to the topes. Teak at Nilamber, blue gum on the Nilgiris, and casuarina, were the more valuable trees included among the new plantations. In the Southern Circle, beside casuarina, which was put down on a most extensive scale, cashewnut, mango, jak *divi-divi*, arnotto, teak, palmyra nut, *Acacia planifrons*, mahogany (*S. macrophylla*) were own or planted; while, in the Northern Circle, *Casuarina*, *nim*, tamarind, *Cassia tora*, Arabian dates, were laid down in the plains, and mahogany,—teak, *Frenela* and *Pinus longifolia* were planted out on the hills. The clearing of creepers and undergrowth was continued in both circles, it is believed with good effects in respect of reproduction. Some difficulty and expense are anticipated in eradicating the prickly pear, which has taken a firm hold in the fuel and fodder reserves of the Coimbatore district. As regards the cultivation of exotics, the results of experiments vary. Dates are said to germinate freely, but the after casualties are numerous in the more wet districts on the coast. Offsets appear to be of stronger constitution than seedlings, but they are more difficult to obtain. *Carob* is reported to have grown well and borne fruit; it is a useful tree and its seed should be distributed to be sown in suitable localities. Of the various species of *Eucalyptus* which were tried on the plains, all, with the exception of *E. robusta*, failed, germinating well but dying soon after. *E. robusta*, seems likely to thrive in the plains. At slight elevations, however, such as the Palmana, Wynaad, North Coimbatore and the Papanasam hills, the Eucalypti, *citriodora*, *resinifera*, *paniculata* and *rostrata* do fairly well. Giant bamboos grow well in the Wynaad, in Nilamber and South Canara. *Ipecacuanha* in Nilamber is full of promise. Mahogany shows healthy and vigorous growth in the moister climate of the Presidency. Although the various rubber trees are said to be thriving, no information as to their yield has been furnished. A special experiment with silk is also in progress under the supervision of the Honorable Mr. Garstin. In addition to the revenue derived from the sale of timber and fuel, bamboos, and minor produce, the department has been realising a handsome income from grazing fees, which have risen from R40,138 in 1883 84 to R1,43,845 in 1888-89, with the prospect of a still further rise under a gradual and cautious enhancement of the fees to the maximum of he sanctioned scale. But any sudden increase in the burthens imposed upon cattle-owners is to be avoided. The main object of imposing a charge upon grazing is not, we are told, to increase the revenue, but to restrict the number of cattle feeding in the reserves and so to improve the sources from which future demands for fodder can be met. The plan upon which the Madras Forest department has been working seems to us to be well calculated to make the local forests a progressively increasing source of revenue; and the results of its operations during 1888-89 cannot but be regarded as full of encouragement.—*Indian Agriculturist.*

NOTE ON COMMERCIAL OIL OF CITRONELLA.*

BY JOHN C. UMNEY,
Pharmaceutical Chemist.

The more common Indian grass oils, known in trade as verbena, ginger-grass, and citronella, the products respectively of *Andropogon citratus*, *A. Schœnanthus*, and *A. Nardus* differ considerably in appearance. The first two are usually of a yellowish brown colour; the third varies, being sometimes yellow, at others emerald green, the yellow oil generally becoming green on exposure to light.

In order to determine on what the difference in colour of this last and the change from yellow to green which takes place depend, eight samples of citronella oil were obtained from various sources, and a small quantity of each exposed to direct sunlight. Of this number five (A, B, C, F, G) were decidedly green before exposure, two (D and E) were yellow at first, but rapidly became green, whilst one (H) was yellow originally and underwent no change. The fact that the presence of copper has been shown (Guibourt and Histed) to be reason of the green colour of commercial cajeput oil, led me to suspect the same contamination in the case of this oil. (Since writing this note my attention has been called to the fact that Kremers † mentions incidentally the presence of copper in a sample of this oil which he examined.)

250 c.c. of the sample *a* was shaken with a dilute solution of ferrocyanide of potassium, when a rapid separation of a red precipitate took place, which after washing with spirit to free it from traces of oil and then with water to remove any excess of potassium ferrocyanide, was proved to be ferrocyanide of copper. Examination was then made of all the samples, with the following results:—

	Sp. gr. at 15° C.	Colour.	Remarks.
A	·896	emerald green.	copper present.
B	·895	greenish.	,,
C	·890	,,	,,
D	·887	yel., becoming green.	,,
E	·896	,, ,, ,,	,,
F	·896	emerald green.	,,
G	·897	greenish.	,,
H	·870	brownish yellow.	copper entirely absent.

From the fact that only those samples which were green, or became so on exposure, contained copper, it appeared almost certain that the change in colour might be due directly to the presence of that metal, which was readily proved by precipitating all the copper from the most markedly green sample, by treatment two or three times with solution of potassium ferrocyanide, when the oil became pale yellow in colour. One portion of this oil was then exposed to sunlight for some days and a second to the heat of a water-bath in an open porcelain dish for twelve hours without any change whatever in colour taking place. A third portion of the oil was treated on a water-bath for a few minutes in presence of a very small piece of copper foil, when the oil rapidly assumed its original green colour, thus showing conclusively that the green coloration of the oil is due to the presence of a trace of copper, and that its removal causes the oil to assume its natural color, namely, yellow.

The green coloration of the oil was destroyed on heating to 50° C., and at a higher temperature an acid distillate was obtained which was proved after neutralization to consist principally of acetic acid. It seems possible, therefore, that the metal exists in combination with this acid, the change in colour on exposure to light either depending on oxidation of an aldehyde present to acetic acid, or on the partial decomposition of an ester of acetic acid contained in the oil. Varying statements exist as to the specific gravity of pure citronella oil, for whilst Messrs. Schimmel state that it should not fall below ·895 at 15° C. (*Pharm. Journ.* [3], xx., 264), Dodge (*Pharm. Journ.* [3], xx., 855) assigns to it a gravity of ·877 at 16° C. It will be noticed that sample H, which contained no copper, was of lower specific gravity than the others, and fell considerably below the limit proposed by Messrs. Schimmel. This sample proved, on examination of its solubility in 80 per cent. spirit, to be adulterated with petroleum, as was readily proved by fractionation, and the absence of copper is probably due to its distillation in the earthen or iron stills, now only used by the poorer native distillers. The quantity of copper present, without doubt derived from distillation in stills of that metal, is, of course, very minute, but it seems desirable to call attention to it, as pointing out that pale yellow, and not green, is the natural colour of citronella oil.

* Read before the Pharmaceutical Society of Great Britain, at an Evening Meeting in London, April 8.

† 'Proceedings American Pharmaceutical Association,' 1887, p. 562.

DISCUSSION.

Mr. C. UMNEY said it was very desirable that pharmacists should be aware of the changes which took place naturally in drugs and other matters with which they had to deal. Essential oils they all knew were prone to oxidation and change, as was seen in the case of essential oil of almonds, which one day might be quite limpid and the next almost a solid mass from crystallization due to oxidation, or in essential oil of camomile, which would be one morning quite white, and the next a beautiful blue colour. Oil of cajuput, again, was sometimes rejected because it was white and had not the green copper colour they were accustomed to. It was very important to know when these changes were due to natural causes and when to sophistication or defects in manufacture. Citronella oil was a very large article of commerce, being imported enormously from Ceylon, where the grass from which the oil was distilled grew in such luxuriance that they had nothing to do but gather it and put it into the still, and the oil came to this country almost for nothing, the price being only about one-tenth what it was some few years ago. It was quite clear that there was often a defect in manufacture which could be remedied by having the head of the still well tinned, and by having the worm of tin or earthenware. That, however, would not prevent sophistication. Petroleum was very cheap in most places, and the citronella oil which came to London was often adulterated with it, sometimes only to so small an extent as to arouse suspicion, but sometimes to such a large extent that those who understood such matters simply marked "petroleum" against it in their catalogues and paid no further attention to it. This paper would put people on their guard, and would enlighten those who like himself had been under the impression that this charge of colour was due to a similar cause as that which took place in camomile oil and not to defects in manufacturing or sophistication.

Mr. HOLMES said the specimens of citronella oil in the Museum had never been green; and it seemed therefore that the method of distillation must have been altered of late years. The question of adulteration with petroleum was of great importance, as essential oils were more frequently adulterated than most drugs, and the fraud was often difficult of detection. American essential oils were much worse than those in this country, which might account for the fact that the specific gravity mentioned in American text-books was not always correct. The same thing had been noticed in the case of sandal-wood oil.

The PRESIDENT said it would appear that the so-called sophisticated oil was in fact pure, the green colour being only due to distillation in copper. He did not know wheather anyone could throw any light on the reason for adding petroleum. Apart from any question of gravity it would probably be useful in preserving the flavour of the original oil.

Mr. CHARLES UMNEY thought possibly the petroleum was put into the still with the grass. Formerly this oil and also oil of verbena came to this country in bottles which had been sent out with wine or brandy, but these essential oils now came over either

in tins or sometimes in huge cisterns, weighing half a ton. It was in these large packages that adulteration with petroleum had chiefly been found.

Mr. Moss remarked that it did not necessarily follow that the mode of manufacture was altered, because at the present time both green and colourless citronella oil came into the market, the difference being due to the different nature of the apparatus in which it was produced. If this apparatus were a very primitive one, a tub, a clay head, and a bamboo stem, there would be no trace of copper, but with a more modern still, if the copper were not well tinned inside, there might be the green colour.

The PRESIDENT said he was rather suggesting that the petroleum might be put into the still primarily to prevent oxidation or change during the process of distillation.

Mr. C. UMNEY said his belief was that the petroleum was added because it was cheap.

Mr. BOTTLE said he had been rather struck with the statement in the paper that citronella oil with distinct traces of petroleum did not show the copper colour, and he might state the result of an experiment—accidentally made—which he witnessed at Dover on the previous day. A child was coming out of an oilshop with a wine bottle containing about a pint of petroleum oil, when, owing probably to the neck not having been wiped, the bottle slipped from the child's fingers and was smashed on the pavement. At that moment he was about twenty yards off, and by the time he got to the spot, he found to his surprise that the petroleum oil was rapidly turning a greenish blue wherever it came into contact with the cement with which the pavement—blocks of patent Victoria stone, about two feet square—was laid; it was evidently the cement and not the stone which was giving the colour. He was inclined to think at first that this was an indication that the petroleum had been distilled in copper, and was rather surprised to hear Mr. Umney's remarks. When he returned home he should take steps to ascertain the composition of the cement in question.

Mr. J. C. UMNEY, in reply, said Mr. Moss had remarked that some commercial oil of citronella was yellow, rather implying that it contained no copper and would not turn green; but he might say that he procured eight samples from different sources, out of which seven went green, though five of them were quite yellow at starting. He thought the reason that the light oil did not change colour was that it had been distilled by poor people, and that petroleum had been added, being cheaper, to increase the yield. Richer people using more modern appliances got a full yield and had no need to adulterate. The sp. gr. of the oil in America was stated in a recent paper by a Mr Dodge to be ·877, which was rather a peculiar statement, and might account for some of the analyses.

The PRESIDENT then proposed a vote of thanks to Mr. Umney for the paper, referring to the fact that he had been a pupil in the School of Pharmacy and was then working in the Research Laboratory. The vote was passed unanimously.

Sir,—I have perused with much interest the paper on "Commercial Oil of Citronella," read before the last evening meeting by Mr. J. C. Umney. Some years since I had occasion to conduct some experiments on citronella oil with the same object in view, and as my results pointed in some respects to slightly different conclusions from those arrived at by Mr. J. C. Umney, it may be useful to record them now that the subject is under notice.

Two samples of oil were operated upon: one a new one from an original bottle, the other an old one. The former, was pale yellow, whilst the latter was green. Two bottles filled with the first sample and hermetically sealed were placed, one in sunlight the other in darkness. Two other bottles were half filled and the stoppers removed daily after well shaking; one of these was exposed to sunlight whilst the other was kept in darkness

The two samples which were in the full bottles remained unchanged in colour for the month whilst under observation, but of those in the partly filled bottles the one exposed to light had become green, and the one in darkness also, though not to quite the same extent. An elevation of temperature was afterwards found to accelerate the change.

The other sample was next operated upon. A portion was distilled from a fractionating flask and the distillate was set aside in succeesive portions and exposed in partly full bottles. The first three portions of distillate did not change in colour, but the last one slowly acquired the green tint of the original. The small portion of residue in the flask and the last distillate were both found to contain copper.

The foregoing seem to indicate that the development of the green colour in those samples containing copper is caused not by the action of light, as assumed by Mr. J. C. Umney, but by oxidation.—E. H. FARR, Uckfield.—*Pharmaceutical Journal*, April 18th.

CROPS IN SOUTHERN INDIA.

SEASON TELEGRAM TO THE GOVERMENT OF INDIA, REVENUE AND AGRICULTURAL DEPARTMENT, SIMLA.

Week ending 5th September. Rainfall good in Ganjam, Vizagapatam, Godavari, Kurnool, Anantapur, Cuddapah, South Canara and parts of Kistna, Nellore, Bellary, North Arcot, Chingleput, South Arcot, Malabar and Nilgiris; very little elsewhere. Rainfall to date very much below average in all districts, except the three northern and the West Coast districts, Tinnevelly and Nilgiris. Prospect slightly improved in parts of Chingleput and South Arcot, but more rain urgently wanted in a large number of districts, and agricultural operations suspended in several. Water, pasture and fodder growing scarcer and cattle mortality increasing in affected areas. Prices rising in Godavari, Kurnool, Anantapur, Cuddapah, North Arcot, South Arcot, Salem, Coimbatore, Tanjore, Trichinopoly and Madura; falling slightly in Ganjam, Vizagpatam, Kistna, Bellary, Madras, Nilgiris, South Canara and Travancore; stationary in the rest. Coolies employed on works—6,710 in Chingleput, 6,721 in Wandiwash, 3,387 in Kalahasti, 6,965 in Coimbatore, 3,953 in Nellore, 1,707 in Cuddapah, 415 in Malabar and 147 in Tinnevelly. Number fed at kitchens—2,019, including 590 women and 1,142 children, in Chingleput; 1,659, including 312 women and 1,190 children, in Wandiwash; 29, including 14 women and 13 children, in Cuddapah; 2,084, including 458 women and 1,488 children, in Kalahasti and 199 in Coimbatore. Loans granted from commencement of distress Rupees 2,88,441 in Chingleput, 96,455 in Wandiwash, 18,027 in Cuddapah, 1,280 in Nellore, 22,996 in Coimbatore, 19,820 in Tinnevelly. Wells constructed—981 in Chingleput, 32 in Coimbatore, 26 in Wandiwash, 25 in Cuddapah and 34 in Tinnevelly; under construction —1,926 in Chingleput, 1,022 in Wandiwash, 245 in Cuddapah, 104 in Coimbatore, 68 in Tinnevelly and 4 in Nellore.

INDIA.

The authorities at Kew, in conjunction with the Government of India, have devised a scheme for the organisation of a botanical survey of India, and the welding of the scattered departments into a federation with the Calcutta Botanic Gardens as the centre. The details of the scheme are given in the current number of *Nature*, from which we condense the following particulars, noting, by the way, that this is only another illustration of the general principle upon which the Director of the Royal Gardens, Kew, is working to secure a regulary organised Botanical Department for the whole empire, varied in detail according to circumstances and requirements, and of which the staff shall be so selected, that any man who enters may rise by successive steps to the higher position.

The Botanic Gardens, Seebpur, Calcutta, is officially recognised as the acknowledged centre of the Botanical Survey of India, to which should be referred the solution of all problems arising out of the practical or scientific study of India botany. Dr King, the Superintendent of the Royal Botanic Gardens, Calcutta, thus becomes, henceforth, the Director of the Botanical Survey of India. Dr. King will specially undertake the direction of the botanical survey of Burma and Assam.

The investigation of the Flora of the Madras Presidency and of the Hyderabad and Mysore States, has been entrusted to Mr. M. A. Lawson, the Government Botanist and Director of Cinchona plantations.

In Bombay, Dr. Cooke, Principal of the College of Science, Poona, is officially recognised as in charge of botanical research in that presidency.

The Director of the Botanical Department, Northern India, is Mr. Duthie, formerly the Superintendent of the Botanic Garden, Saharanpur. Mr. Duthie accompanied the Black Mountain Expedition, and acquired information concerning the flora of the country, which had, hitherto, not been botanically explored. During the last three years, Mr. Duthie has also been deputed to Simla, in the hot weather, to assist in the preparation of the *Dictionary of the Economic Products of India*, and during the same period he has been actively engaged in the botanical exploration of Rajputana and the central provinces. Neither the Straits Settlements nor Ceylon are included in the scheme, they being Crown colonies.—*Gardeners' Chronicle.*

CEYLON TEA FUND.

Minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Kandy on Friday, the 18th day of September 1891 at 1 o'clock in the afternoon.

Present:—Messrs. Giles F. Walker (Chairman, Planters' Association of Ceylon), Sholto G. D. Skrine (Chairman Dikoya Association), A. G. K. Borron (Kandy Committee), W. Sandys Thomas (Chairman, Dimbula Association), A. L. Cross (Kandy Committee), C. S. Armstrong (Hewaheta District), T. C. Huxley (Kandy Committee), A. T. Karslake (Kandy Committee), W D. Gibbon (Kandy Committee), E. Hamlin (Kandy Committee), J. Anderson (Kandy Committee and Matale West District), Hon. L. H. Kelly (Kandy Committee), J. H. Barber (Kandy Committee), Wm. Forbes Laurie (Kandy Commtitee), and A. Philip (Kandy Committee), Secretary, Planters' Association of Ceylon.

The notice calling the meeting was read. The minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Kandy on Friday, the 14th day of August 1891, were taken as read and were confirmed.

Read letter from Mr. Robt. A. Fraser.

Read letter from Mr. H. H. Boyd. Resolved:—"That the letter be acknowledged and the Committee regrets being unable to meet Mr. Boyd's views."

Read letter from Mr. A. T. Cathcart. Resolved:—"That it be stated in reply to Mr. Cathcart's enquiry that the cost of the Tea referred to will beborne by the 'Tea Fund.'"

Read letter from Mr. A. W. Salmon, Victoria British Columbia, North America, on the subject of opening up a Tea Trade between America and India. Resolved:—"That the letter be referred to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon."

CEYLON TEA AT THE WORLD'S EXPOSITION AT CHICAGO IN 1893.—Read letter from the Colonial Secreary forwarding by desire of the Governor copy of a circular despatch from the Secretary of State on the subject of the Chicago Exhibition of 1893, and enquiring what steps the Association proposes to take for the purpose of exhibiting Ceylon Tea at that Exhibition.

The Planting member in Council stated that he was authorized to intimate that a sum of R50,000 would be granted by the Government for a Ceylon Court at the Chicago Exhibition.

Resolved (i):—"That the Standing Committee of the Tea Fund desires to express its appreciation of the action of Government in promising a vote of R50,000 towards the representation of Ceylon at the Chicago Exhibition."

Resolved (ii):—"That Government be informed that the Standing Committee of the Tea Fund has set aside a sum of R30,000 for the purpose of pushing Ceylon Tea at the forthcoming Chicago Exhibition and that the Standing Committee has requested the Chairman and the Planting member in Council to confer with Government on the subject of further arrangements."

Resolved (iii):—"That the Planting member in Council be asked to confer with the American Consul in Colombo with reference to space at the Chicago Exhibition and previous correspondence."

Read letter from Mr. E. Hamlin, The Oriental Bank Estate Company, Limited.

Read letter from Mr. J. J. Grinlinton transmitting extracts from a letter recently received from the President of the Ceylon Tea Planters' Tea Company, New York, and conveying to the Planters' Association and to the Standing Committee of the Tea Fund Mr Elwood May's cordial thanks for the assistance afforded him in recent resolutions.

CEYLON TEA IN RUSSIA.—Read letter from Mr. William Martin Leake, Secretary, Ceylon Association in London advising demand draft for R3,453·24 being equivalent at 1s 5⅜d per rupee of £250 sterling paid by Mr. Rogivue's instructions to his London Agent. Resolved:—"That the letter to Mr. Rogivue returned through the Post Office be forwarded to him through the Secretary of the Ceylon Association in London together with the envelope and that Mr. Rogivue be requested to furnish the accounts asked for as soon as possible."

NEW ZEALAND AND SOUTH SEAS EXHIBITION.—Read letter from the Government Agent, Western Province, enquiring whether certain articles exhibited from Kalutara had been received. Resolved:—"That the letter of the Secretary to the Government Agent dated 31st August 1891 be confirmed."

Read extract of a letter from Mr. W. Mackenzie regarding the Ceylon Tea in New Zealand. Resolved,—"That the matter be referred to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon."

FINAL ARRANGEMENTS AS TO LEASE OF "KIOSK" AT COLOMBO TO THE CEYLON TEA COMPANY, LIMITED, UNDER THE PATRONAGE OF THE PLANTERS' ASSOCIATION OF CEYLON.—Read letter from Mr. Wm. Mackenzie. Read letter from Mr. James Sheriff. Resolved:—"That in reply it be pointed out that the Association is precluded by the terms of its lease from Government from selling the Tea Kiosk, and that the Standing Committee trusts that under the circumstances Messrs Mackenzie and Sheriff will reconsider their proposed idea, realizing as they must the impossibility of this Committee carrying out the individual wishes of every subscriber to the Tea Fund."

Considered and discussed final arrangements as to the Lease of the "Tea Kiosk" at Colombo to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon. Resolved:—"That the recommendations submitted by the Sub-Committee of the Standing Committee of the Ceylon Tea Fund appointed for the purpose of establishing a Tea Kiosk at Colombo be and they are hereby accepted."

CEYLON TEA IN PARIS AND THE CORRESPONDENCE WITH THE COMMITTEE OF THE CEYLON ASSOCIATION IN LONDON.—Resolved:—"That the consideration of this subject be postponed to the next meeting."

Laid on the table prospectus of the Palais Indien Tea Houses, Limited.

ANALYSES OF SAMPLES OF TEA GROWN AT VARIOUS ELEVATIONS.—Read letter from the Secretary Ceylon Association in London submitting a proposal to obtain analyses of samples of teas grown at various elevations (at sea level 3,000 feet, 4,500 feet and 6,000 feet above sea level) for the purpose of determining the percentage of Tannin in each sample, and also if

funds were sufficient the percentage of Theine. Resolved: —"That consideration of the subject be deferred to next meeting of the Standing Committee."

SAMPLES OF SOILS FROM CEYLON TEA ESTATES FOR THE PURPOSE OF ANALYSES AND COMPARISON WITH TEA SOILS IN INDIA.—Read letter from the Secretary, Ceylon Chamber of Commerce, Colombo, transmitting copy of a letter received from the Bengal Chamber of Commerce on the above subject. Resolved:—"That the letter be acknowledged and that it be stated that the matter will have consideration."

CEYLON TEA IN THE TRANSVAAL, SOUTH AFRICA.—Read letter from Mr. Alex. Wardrop regarding opening up a market for Ceylon Tea in Johannesburg. Resolved:—"That the letter be referred to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon."

CEYLON TEA IN PERAK (MALAYA): GRANT TO MR. C. R. HANSON.—Read letter from Messrs. Whittall & Co. intimating the delivery of 160½ pkts. to Mr. Hanson's order for free distribution in Perak as per resolution of the Committee on 14th August.

CEYLON TEA IN TASMANIA.—Read letter from Mr. W. Jones, Colombo, on the subject of a Tea Agency in Tasmania.

Read letter from Mr. Geo. Finlayson, Roslyn Forth, Tasmania. Resolved:—"That the letter be acknowledged, and that it be suggested that application might be made to the Ceylon Tea Company, Limited, under the patronage of the Planters' Association of Ceylon."

The Standing Committee of the Tea Fund then adjourned.

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

CHINA *VS.* CEYLON TEA—"THE DANGERS OF TEA"—"GOLDEN TIPS" FROM NAHAKETTIA ESTATE—BRITISH BORNEO TRADING AND PLANTING CO.

London, September. 4th.

There is very little intelligence for me to convey to you by this mail having special relation to Ceylon. Even if it were not the fact that such matters are just now experiencing a lull, the further fact that most of our Ceylon community are as yet out of town would prevent my obtaining information with respect to them.

In my last letter mention was made of some letters appearing in the *Globe* depreciatory of the qualities of Ceylon tea in comparison with those of China. By those letters an effort, it was evident, was being made in the interest of the China tea trade to persuade home drinkers of teas that Indian and Ceylon growths were simply poisonous as compared with those of China. My opinion was expressed when mentioning these attacks on your tea to you, that we should soon see the other side of the question taken up in defence; and in the issue of the *Globe* for the 29th August there appeared the following letter, which, as coming from a medical man, will be possessed of material value in educating the opinion of the public at large. This letter reads:—

"THE DANGERS OF TEA."

Sir,—I cannot in justice to the Ceylon tea industry allow the fallacious statements of your correspondent "A Connoisseur" to go uncontradicted. It is quite evident that he knows nothing of the subject he writes about. He says that Indian and Ceylon tea contains ten times more tannin than Chinese tea. As the latter contains, as a rule, about ten per cent, it follows, if your correspondent is correct, that Indian and Ceylon teas are more than all tannin. Ceylon tea is really the most delicate of all. The reason tea is injurious when it is so, is that people will buy cheap tea, and then not take the trouble to make it properly. The price of tea and its flavour depend upon when the leaf is plucked and how it is harvested. The finest tea is plucked in the bud, and if your readers can imagine plucking the buds of a gooseberry tree, and plucking the leaf when it is fully developed, they will see what I mean. The fuller matured tea leaf is coarser and more full of tannin than the bud tea or half-developed leaf. Tea to be healthy should only be infused eight minutes: if infused longer, the bitter extractive and tannin are brought out, and these spoil its flavour. As a dietitian I always recommend my patients to drink Ceylon tea only. I get mine direct from a Ceylon plantation, and I think if your readers did the same they would soon give Chinese tea a wide berth. Ceylon tea is machine made and is not handled and pressed like Chinese tea by the hands and feet of the Mongolian, and this is a great desideratum. Ceylon tea has a great future before it, but, unfortunately, cheap, coarse Chinese tea is often palmed off as the produce of the "Gem of the Eastern Sea."—Yours faithfully, N. E. YORKE-DAVIES, L. R. Coll. Phys. Lond, &c. August 28th.

We think here that the above letter exposes pretty fully the fallacies so speciously put forward by the attacking parties in the *Globe*, and that it will be all that is necessary to set your production right with the British public.

Did I mention in my last letter the sale of some "golden tips" in Mincing Lane last week at the rate of £35 the pound? It is my belief that I did, but at all events if this was not done you are sure to have heard of it from other sources. This sample was grown on the Nahakettia estate in Ceylon, and Mr. Delmege tells me it was brought into the sale-rooms under a glass cover, and that great curiosity and noisy excitement was shown about it. Mr. Delmege also tells me the funniest part of the business is that some "golden tips" of equally good quality had been sold in the Mincing Lane sale-rooms the week before only at from 7s 6d to 10s the pound! But it seems to have been understood beforehand that an attempt would be made to purchase this tea for exhibition abroad, and for some reason or other this induced exceptional competition, the high price eventually secured being the result of this. We see from this fact that it is not any inherent quality in the description of prepared tea which dominates its price on the market, but simply any chance demand arising for it for the purposes of advertising.

You in Ceylon have so many friends and relatives working in some position or other in Borneo, that we expect here that many of your less well-informed residents look upon that island as a sort of El Dorado. We fear these will be sadly disabused when they read the report following of what took place at the meeting this week of the British Borneo Trading and Planting Company. We wish we could get private letters from those residing in the island telling us of what their experience is. According to what passed at the meeting we are kept as yet in entire ignorance of what the real facts connected with European life in Borneo are. [See page 270.]

There have been this week shown to me some new-fashioned tea boxes, the body of which is made in tin in one piece, the head and bottom being closed by straw-board which is made to fit into a groove pressed in the tin and then closed by a folding angle-iron which grips the board within the groove and is fastened by a single screw only. There is much that is ingenious in this arrangement, but I am quite certain that a tin tea box will never stand the rough handling of a journey home. The price quoted for a 50 lb. chest is 2s 6d f. o. b., of course packed flat and open; but experts tell me that price would be quite prohibitory.—London *Cor.*

VEGETABLE "BUTTER."

Some time ago the London *Grocer* called attention to a new industry which has sprung up in Germany, especially at Mannheim, for the manufacture of "butter" from vegetable sources. So far this industry has been successful, and now we hear that it is spreading into France. M. F. Jaen, writing in the *Moniteur Scientifique*, recently stated that the manufacture of a vegetable butter from the oil obtained from coconuts is developing into a large business in France as well as in Germany. D. Schlink's method is the one most favored by manufacturers. It depends upon the treatment of the coconut oils with alcohol and animal charcoal, which removes the volatile and fragrant fatty acids of the aromatic oils, and makes the oils perfectly white. The product thus obtained is a perfectly white mass, of the consistency of butter, and of a sweet neutral, agreeable flavour melting at 25 deg. cent., and remarkably free from any tendency to turn rancid. Its analysis reveals the following composition: Fatty matter, 99·632 per cent.; mineral matter, 0·011 per cent.; water 0·357 per cent. Experiments conducted by various medical men on the indigestibility of vegetable butter go to show that it exercises no harmful influence upon the animal functions.—*American Grocer.*

IRRIGATION IN EGYPT.

1.—THE NILE BARRAGE.

* * * *

In 1842 a French engineer, named Mongel Beg, suggested the building of barrages across the river, where it divides into the Rosetta and Damietta branches, about 12 miles below Cairo, and of combining with these fortifications of considerable strength for the purpose of arresting the progress of any invader, and storing munitions of war. The idea exactly fell in with the military views of Mehemet Ali, who proposed to make the Nile bifurcation a sort of military capital, and the works were sanctioned and started in 1843. The barrages consisted of two long masonry dams or bridges, the arches of which when closed were to hold the water up, or opened to permit the passage of floods. There were 61 of such arches in the Rosetta barrage and 71 in the Damietta, with locks for navigation on each side of both; the object being to keep the water at the same level in all seasons so as to entirely supersede the necessity for lifting throughout the district below, and remove the difficulties of navigation when the Nile fell to its lowest. Mehemet Ali died in 1848, and in 1853 his successor, Abbas Pasha, dismissed Mongel Beg and directed another engineer, Mazhar Beg, to finish the work on Mongel Beg's plan. In 1861 it was completed at a cost of £1,800,000, exclusive of forced labour, an additional sum, estimated at about 2½ millions sterling having been spent on fortifications, canal heads, &c. As was not uncommon in Egypt a very large percentage of these sums must have gone in the *etcetera;* nothing like 4 millions was ever forthcoming in masonry.

Cracks appeared almost as soon as the work was finished: a part gave way when the gates were closed; the water worked under the foundation and extensive settlements occurred. Repeated commissions of inquiry sat on it. In 1867 it was abandoned altogether, and finally pronounced a hopeless failure. In the next 15 years it was nothing but an impediment to navigation, the passage of the locks being a difficult and expensive undertaking. Add to this many of the channels below had fallen out of use, others had been so neglected as to be capable of a very small proportion of their proper duty, had become in fact not so much canals, as natural channels in which the Nile rose and fell without any regulation whatever. When Sir Colin Scott-Moncrieff and the staff of Anglo-Indian engineers, were called in to carry out the policy of Lord Dufferin, it was notorious the whole system of Egyptian irrigation had for years been steadily going down hill from bad to worse. While giving every credit to these officers, there is, however, no necessity to depreciate their predecessors, the French engineers. In the first place, the latter to a great extent no doubt had their hands tied by the Pashas, had often to suit their schemes to the political notions of the day. The country is hardly provided with means of communication, and instead of touring about and seeing matters for themselves, they had to direct Arab subordinates from Cairo. In the second, with all their scientific training, they had not the practical experience of the Anglo-Indian officers, who throughout their service had been accustomed to deal with very similar conditions, to adapt means to ends in every possible way, to be engineers, contractors, and revenue officers, and in India to deal with very similar Oriental people. What they so successfuly accomplished in Egypt their brother officers have been doing equally well every year in this country.

Such was the state of things in 1883, obviously not particularly hopeful. There was a proposal on foot for a system of irrigation by pumps to cost some £700,000 down, and £250,000 yearly for maintenance. But before embarking on this Sir Scott-Moncrieff decided to give the old barrages, neglected for 15 years, a trial. Some bits were patched up in 1884 and 1885, at a cost of £44,000; the water was kept up during the first low Nile season to 7 feet, and the next year to nearly 10 feet, which accomplished much. Fortune favoured the enterprise; there was a bumper cotton crop, the cultivators and commercial community were delighted with the result, the merchants of Alexandria voted an address. In 1885 the great Powers authorised the loan of a million sterling for special constructional works, and last year saw the chief engineering work of modern Egypt successfully completed, at the modest cost of about £420,000.

The foundations of the barrages rested on fine river sand and Nile mud. When the gates were closed, the difference of level between the water of the Nile above and below the dam was very considerable; during the low Nile of June 1885 this difference amounted to 10 feet, and the percolation by hydrostatic pressure under the foundations varied proportionately, as this difference increased or diminished. The problem to be first solved was therefore to counteract this tendency, either by some form of construction that should provide greatly increased depth of foundations, or by broadening these out horizontally. In the case of existing foundations, the former was obviously impracticable, and any adequate additional vertical protection would have been of doubtful value, if not of prohibitive cost. The engineers, therefore, fell back on their Indian experience of similar work. For instance, in the case of the Okhla dam across the Jumna below Delhi, the river is a mass of loose rubble stone with absolutely no foundations, which holds up successfully 10 feet of water. There the construction is so broadened out that the weight of the river per lineal foot is about 40 times as great as the weight of water pressure against it. In the case of the Nile barrages, it was determined to make the weight of the submerged masonry bear a ratio of not less than 50 times this pressure. A solid bed of Portland cement, 4 feet thick, was put over the old flooring and under the arches. An up-stream apron about 85 feet wide, and a heavy masonry pavement of dressed stone below were added, as also a row of sheet piling 16 feet deep along the edge of the apron. The difficulties of this construction were enormously increased by the springs constantly met with as the work proceeded, and by the necessity to hold up the water during the low Nile season every year. A few arches could only be dealt with at a time, enclosed by carefully constructed earthen coffer dams and assisted by continuous pumping. Preliminary operations were begun in March 1886, the work was taken up in real earnest in 1887 under Lieutenant-Colonel Western with Mr. A. Reid as the Resident Engineer, and the whole practically completed, both for the Rosetta and Damietta branches, with permanent heads for the Beherah, Menoufieh and Tewfiki canals last year. For the new regulators wrought iron gates have been provided, worked by travelling cranes, with Mr. Stoney's patent rollers, and an excellent tramway runs over the whole length of both bridges to the offices, work

shops, and to the station on the railway from Cairo, for there are now railways on both sides of the Nile.

It is impossible to assess in figures the enormous benefits of a work like this to the people of Egypt, the boon it is to the fellaheen in diminishing forced labour, and in almost every way to the cultivating and commercial classes. To take a single instance, while the work may be said to be still incomplete, for its full benefits have hardly yet been felt, the cotton crop of the delta has alone increased in value to the extent of £80',000 a year, a very large share of which has most certainly to be credited to the barrages and speaks volumes as to their financial result.—*Pioneer.*

THE AMSTERDAM CINCHONA SALES.

(Telegram from our Correspondent.)

AMSTERDAM, Thursday evening.

At to-day's cinchona auctions 2,553 packages of bark sold at an average unit of 6 cents (=1 1/5d. per lb) which is a very slightly lower figure than that prevailing at the last London auctions. Manufacturers' bark in quills, broken quills, and chips, sold at 10 to 47 cents per ½ kilo. (=1¾d. to 8½d. per lb.); ditto root at 9 to 42 cents =1½d. to 7¼d. per lb); druggists' barks in quill, broken quill, and chips, 11 to 114 cents (=2d. to 1s. 8½d. per lb.); ditto root, 11 to 13 cents (=2d. to 2¼d per lb). The principal buyers were the Brunswick factory, Messrs. C. L. Schepp & Zoon, of Rotterdam, and the Auerbach works.—*Chemist and Druggist*, Sept. 5.

THE EXPORT OF TEA FROM INDIA TO AFGHANISTAN.

A telegram to the *Madras Mail* summarizing Mr. O'Conor's Review of the Indian Foreign and Transfrontier Trade for 1891 says:—

Mr. O'Conor takes the case of a camel load of Kangra tea of the value of R140, consigned to Kabul or Bokhara. In its transit to the former town 62 Kabuli rupees will be levied as Customs dues by the time it has crossed the Oxus. At Kilif the charges will amount to 138 Kabuli rupees (R106 India currency) or about 76 per cent of the value of the tea. But the troubles of the trader are not over even then. "Tea has to pay 2½ per cent *ad valorem* at Bokhara value, being the value there and not what was the value at Peshawur." The conclusion arrived at is that, adding to this the cost of conveyance by camel between Peshawur and Bokhara (R81) it is cheaper to ship tea from Bombay up the Persian Gulf and send it through Persia, where the 5 per cent duty clears it through the country.

NOTES ON PRODUCE AND FINANCE.

WHO SHALL DECIDE?—When medicine men and analysts disagree the consumer acts wisely in deciding the case for himself. Some correspondence has appeared in the *Globe* about the respective merits or demerits of China, Indian, and Ceylon tea. One of these scribes rehashed the old story about the quantity of tannin in the latter. In answer to this "Yorke Davies, L.R. Coll. Phys. Lond., &c." writes as follows:—"I cannot, in justice to the Ceylon tea industry, allow the fallacious statements of your correspondent,' 'A Connoisseur,' to go uncontradicted. It is quite evident that he knows nothing of the subject he writes about. He says that Indian and Ceylon tea contains ten times more tannin than Chinese tea. As the latter contains, as a rule, about 10 per cent., it follows, if your correspondent is correct, that Indian and Ceylon teas are more than all tannin. Ceylon tea is really the most delicate of all. The reason tea is injurious when it is so is that people will buy cheap tea, and then not take the trouble to make it properly. The price of tea and its flavour depend upon when the leaf is plucked and how it is harvested; the finest tea is plucked in the bud, and if your readers can imagine plucking the buds of a gooseberry tree, and plucking the leaf when it is fully developed, they will see what I mean. The fully matured tea leaf is coarser and more full of tannin than the bud tea or half-developed leaf. Tea to be healthy should only infuse eight minutes; if infused longer the bitter extractive and tannin are brought out, and these spoil its flavour. As a dietitian I always recommend my patients to drink Ceylon tea only. I get mine direct from a Ceylon plantation, and I think if your readers did the same they would soon give Chinese tea a wide berth. Ceylon tea is machine made and is not handled and pressed like Chinese tea by the hand and feet of the Mongolian, and this is a desideratum. Ceylon tea has a great future before it, but, unfortunately, cheap, coarse, Chinese tea is often palmed off as the produce of the Gem of the Eastern Sea.'" Thereupon another correspondent, Carl H. Gold, says:—"You must allow me to inform your other correspondent, Mr. Yorke Davies, that the result of some experiments, made a short time ago, show the relative proportions of tannin to be as follows:—

Mark of Sample.	Percentage of tannin by weight extracted by infusion for 3 minutes.	Percentage of tannin by weight extracted by infusion for 15 minutes.
A	11·30	17·73
B	7·77	7·97
C	9·37	11·15
D	9·89	12·03

A was the finest Assam; B the finest China; C Common Congou; D the finest Ceylon.

"I think," says Mr. Carl H. Gold, "that the above analysis will clearly prove that China still produces the best and purest tea." But, fortunately, consumers do not accept this statement.

LAST WEEK'S SALES.—Of last week's sales the *Produce Markets' Review* says:—"The demand for Indian tea shows greater activity, and a good business has been transacted, generally at firm prices. Excepting on Monday, when about 15,000 packages were offered, the public sales have been small, and up to the present the quantity catalogued is less than that of last week; this falling off, however, is only temporary, as the imports are large, and the market will be well supplied later on. Many of the teas from the Assam and Darjeeling districts are of good quality and have fetched firm prices, while the finest parcels sold at very high rates. These high values, however, are not likely to be maintained, and a considerable fall may be expected when the immediate requirements of the trade are satisfied. Less Ceylon tea has been offered, and a recovery in the prices of all grades has resulted. The advance has been only fractional, however, in the lower descriptions, and teas at from 6½d. to 7½d. are still remarkably cheap, but Pekoes from 7½d. and upwards show a distinct improvement. Broken teas are again generally dearer, but extremely good value is still obtainable at from 10½d. upwards; indeed, these grades are undoubtedly the cheapest on offer, many of them being good enough in leaf to suit any district, and they much surpass any other class of teas in water. The general quality of the teas offered has been distinctly better, and it is to be hoped that growers will strive to maintain the improvement. Finest descriptions, although rather more plentiful, are still scarce, and command high prices. The public sales comprised 18,644 packages, of which 2,120 were withdrawn.

TEA DRINKING IN AUSTRALIA.—Mr. Christie Murray, who after his stay in Australia is again in London, acting in a piece written by himself, says that the Australian uses strong language, drinks strong tea and strong liquor. "In all up-country places," says Mr. Murray in his second article on "The Antipodeans" in the *Contemporary*, "men drink tea. They drink it all day long and at every meal in amazing quantities, and at a most unwholesome strength. The method of preparation is simple, and one would think that if the aim were to

brew a concoction altogether poisonous it ought to be effectual. On Sunday morning the tea-maker starts with a clean pot and a clean record. The pot is hung over the fire with a sufficiency of water in it for the day's brew, and when this has boiled, he pours into it enough of the fragrant herb to produce a deep coffee-coloured liquid. On Monday night removing yesterday's tea leaves he repeats the process, and so on to the end of the week." It is quite time Indian and Ceylon teas, together with proper instructions how to brew them were known in "up" country stations. Mr. Murray's opinion of Australia comes to this:—"There is no country in which so high a condition of general comfort, so lofty a standard of proved intelligence, and such large and varied means of intellectual existence exist side by side with so much turbulence, so lax a commercial morality, and such overcharged statistics of drunkenness and crimes of violence."

PLANTING IN JAMAICA.—The prospects of Jamaica are looking up, according to the official reports of Sir Henry Blake, the Governor of the island. Although the sugar crop, the staple of the island, has undergone a terrible decline, and is still decreasing, Sir Henry does not believe that it has ceased to be "a safe and profitable investment," under altered conditions. He declines to accept the theory that the abandonment of sugar estates is attributable to the low price of sugar, and the difficulty of obtaining labour. The Governor thinks there has been improvidence in the system of cultivating the canes, and a lack of science in the methods of manufacturing sugar and rum. Sir H. Blake regrets, for an especial reason, that sugar planting should be given up. The cane, unlike the banana, cannot be destroyed by a hurricane, and thus it offered a steady field for labour when such calamities occurred. Nor does he see any reason why the industry should be abandoned, but the business of manufacture should be separated from that of cultivation, and the planter should cultivate scientific methods. Fruit-growing, which has taken the place which sugar-planting used to occupy in the commerce of the island, is a profitable industry alike to the small cultivator and the capitalists who have engaged in it on a large scale. The crop consists chiefly of oranges and bananas, and a large quantity of the latter is sent to the United States. The cultivation of rice, commenced by the East Indian immigrants a few years ago, has expanded considerably. Cocoa is being sedulously cultivated. Stimulated by the success which has attended the Bahamas experiment, planters are seeking another string to their bow in the fibre industry.

THE QUARTERLY SALES OF CINNAMON.—The third series of public sales of cinnamon for this year was held last week, when of 1,460 bales, 16 parcels, 12 boxes and 44 ballots Ceylon was offered; but the market was so dull that at the commencement of the auctions scarcely any bids were made, and whole marks were withdrawn almost without a price being named. Afterwards, however, as importers manifested a disposition to make concessions, the competition seemed to improve a little, though it was still far from sprightly, for, whilst the commoner grades found buyers at somewhat easier rates, the finer sorts were more difficult to realise, and were disposed of about 1d per lb. lower than in May, leaving the general currency as follows:—Superior quality plantation at 1s 4d to 1s 5d; fine firsts at 10½d to 1s 1d, ordinary to good at 7½d to 9½d; seconds at 6d, to 10½, finest at 1s 1d; thirds and fourths at 6d to 8½d; fifths at 5½d to 5⅝d, with broken in boxes at 5½d to 7d, and in ballots at 4½d to 5¼d per lb. These prices may be regarded as unprecedently low.

RAKI.

The East Indian name for all sorts of distilled spirituous liquors, but chiefly for that procured from toddy or the fermented juice of the cocoa and other palms, and from rice. The coconut-palm is a chief source of toddy or palm-wine, and is obtained from trees ranging from 12 to 16 years old, or, in fact, at the period when they begin to show the first indications of flowering. After the flowering shoot or spadix enveloped in its spathe is pretty well advanced and the latter is about to open, the toddy-man climbs the tree and cuts off the tip of the flower-shoot; he next ties a ligature around the stalk at the base of the spadix, and with a small cudgel he beats the flower-shoot and bruises it. This he does daily for a fortnight, and if the tree is in good condition a considerable quantity of a saccharine juice flows from the cut apex of the flower-shoot. The juice rapidly ferments, and in four days is usually sour; previous to that it is a favorite drink, known in India by the natives as callu, and to the Europeans as toddy. When turning sour it is distilled and converted into raki, known better to the Hindus as naril, and to the Cingalese as pol, or nawasi. It is probable that the use of raki is more widely diffused among the human race than either wine, brandy, whisky or beer.—*American Grocer.*

ECHOES OF SCIENCE.

Mr. Edison is credited with another "big idea" in the shape of a "cosmical telephone." Some years ago, while experimenting with his long distance telephone on a long line, he observed singular induction noises which did not appear to have an earthly origin, but to be due to solar eruptions. Possessing a mine of magnetic iron ore at Ogden, New Jersey, he is now arranging to run a telephone wire round and round the mass of magnetic ore so as to form a large coil with a magnetic core. He intends to connect telephones with this wire, and hopes to hear a faint rumour of the catastrophes in the sun as communicated by the modern Hermes "induction."

Mr. W. F. Stanley, the well known optician, has devised a "phonometer" chronograph for enabling a person to measure distances by observing the time between the report and flash of a gun. It can also be used for estimating the distance of lightning by timing the flash with the clap of thunder, and allowing a quarter of a mile (333 metres or over 1,000 feet) for every second of the interval.

In the *Philosophical Magazine* for July M. S. Tolver Preston proposes to make an acoustical thermometer. It is well known that a tuning fork of a certain vibrating period will at the normal temperature vibrate in resonance with a tube possessing a certain length; but the note of a resonance tube varies according to the temperature of the air or gas it encloses. Hence if the tube is placed near a heated body so as to change its temperature, the same fork will no longer vibrate in resonance with it. There are two obvious ways of utilising this idea. Either the resonance tube should be telescopic, so that its length can be varied as its temperature varies, and in that case the same tuning fork will serve. Or, if the tube is unaltered, an adjustible tuning fork can be used to find the temperature.

MM. Fridourg and Hesse, of 23, Rue des Ecoles, Paris, have brought out a useful little pyroscope for indicating when a certain high temperature is reached in a furnace. The device can be used to tell different temperature between 1,150 deg. and 1,700 deg. centigrade. It consists of a little cylinder of refractory material which fuses at the temperature in question. They have been carefully callibrated and are said to be very accurate.

It is well-known that the bacillus of tuberculosis is often found in places lately occupied by consumptive persons. Herr Prausnitz, of Berlin, has lately collected the dust from the railway carriages used to convey such patients to Meran, and inoculated guinea pigs with it. Three out of four of the animals became infected with the disease; and were killed after ten or twelve weeks. The author supposes the number of the bacilli in the dust to have been small, but the facts nevertheless show the necessity of disinfecting such carriages.

The practice of placing green boughs of the eucalyptus or blue gum tree in sick-rooms as a disinfectant is growing in Australia. Dr. Curgenven states that if placed under the bed in cases of scarlet fever they will thoroughly disinfect the couch and every article in the room. The volatile scent has also a favourable influence on consumptive patients, as an antiseptic and sedative, tending to promote sleep.—*Globe.*

ARTIFICIAL RAIN.

The manufacture of rain has, for longer than it is easy or pleasant to remember, ceased to be of the slightest practical interest in this country. If anybody would patent an invention for the manufacture of sunshine and dry weather, even if it were no more than the Laputans got from cucumbers, he would deserve a statue. But we must not be so selfish as to close our sympathies to districts which actually envy the state of Cornwall, where, according to the proverb (now apparently requiring extension beyond the borders of the Duchy) it rains once every day except on Sundays—when it rains twice. In Texas, it seems, they have been cloud-compelling with startling success. In a district where for more than three years no rain has fallen save in very occasional small showers, and under atmospheric conditions considered incompatible with rain enough to melt a pinch of salt, an explosion of oxygen and hydrogen from five balloons at various heights brought a sharp clap of thunder, followed by heavy rain within about five hours. For five hours the rain went on, displaying a beautiful rainbow at sunrise; the first recorded instance, so far as we are aware, of the manufacture of a real rainbow. The details of the whole process are minute; they are based, it need not be said, on the constant experience of rain after big battles, and the continual aerial explosions in Texas no doubt cheated the spirits of the storm into thinking that they were called in to assist at a favourite and familiar human pastime. The question of course remains whether they will always consent to be tricked into thinking that there is a big fight when there is nothing of the kind. Meanwhile it is gratifying not to live in Texas, if nightly bombardments of dynamite and explosive gas are to be among the phenomena of practical farming. We have noise enough of our own, as things are; and happy therefore is the land whose rain, like the poet, is born, and not made.—*Globe.*

PAPAIN: THE VEGETABLE PEPSIN.

It is one of the concomitants of the advance of human civilization, and perhaps a form of the Nemesis that follows man's neglect of nature's dictates, that as his power over the material increases and as he accumulates wealth and knowledge his physical being tends to undergo a kind of retrogression, and becomes less able to bear the strain imposed upon it by an active and almost unwearying intellect.

Thus it is that one of the characteristc features of the age is the number and variety of the devices for remedying the defect alluded to, sought after and introduced, prominent among which must be classed the ever increasing array of preparations for facilitating digestion, and remedying the evils resulting from confused and sedentary habits of life, combined with hurried and unnatural systems of supplying the severely taxed frame with nutriment.

Of artificial digestive agents few have been more conspicuous than the pepsins, which being natural peptonizing substances, are apparently most suited to enhance the functional activity of an infeebled stomach. It is, however, well recognized that pepsin is not a definite body and that, as a matter of fact, its nature will vary according to the methods of preparation; it seems to be further inevitable that, by whatever process it is isolated, a considerable proportion of mucus and similar substances will be present.

The fact that pepsins are of animal origin, has been the source of some amount of repugnance to their use, both on the part of patients and of physicians; the tendency of modern medicine has been to abandon the internal employment of members of the animal materia medica, and against this tendency the introduction evidently militates. Again, it has been pointed out, that the excretion of ptomaines or cadavric alkaloids ceases in the animal body simultaneously with the arrest of the vital functions, so that it is not at all impossible that carelessly made specimens of pepsin might be contaminated with animal ferments or the products of their action upon the devitalized tissues. This danger is the more probable as consistently with the preparation of an active substance, sufficiently high temperatures cannot be employed in the isolation of the digestive agent to destroy the ptomaines possibly present.

In view of these objections to pepsin and the allied agent pancreatin, a good deal of interest was excited by the earlier accounts of the wonderful properities of the fruits of the papaw tree, a native of tropical America, which was credited with the power of disintegrating and more or less completely digesting flesh simply hung beneath its branches.

Carica papaya, belonging to the natural order papayaceæ, is a tree which grows to about 20 feet in height and 2 feet in diameter. It is easily and quickly raised from seed, attaining a thickness of 1 foot by the third year and commencing to decay during the fourth or fifth year. The straight and undivided stem is herbaceous and soft, though it develops an external layer of fibrous tissue; as might be expected from the rapidity with which it grows, the trunk is hollow, though at irregular intervals it has more or less dense, imperfect septa. The newer parts of the stem are green, but as they age become greyish; towards the top it also bears the scars formed by the falling off of leaves., which are arranged in a kind of umbellate canopy.

The large palmately cleft leaves are borne upon long petioles, from the bases of which the pale yellow flowers originate. Like other species of the same order the flowers of the papaw are unisexual. The staminate flowers are borne upon a long peduncle in a racemose form, while the pistilate flowers are sessile.

The tree continually flowers and simultaneously bears fruit, the latter ripening at the lower part of the crown of foliage while the flowers are just opening at the apex. The flowers, as also some other parts of the plant, resemble Indian cress—the nasturtium of the garden—in order and taste.

The fruits are somewhat melon-like in form, or they may be more ovoid and pointed at the apex. When first formed they are green, but as they mature they become yellow or dull orange colored. A large fruit is said to sometimes attain a weight of 10 pounds. The rind is thin, and within it is the yellowish flesh, with a pleasant sweet taste, enclosing a cavity containing the dark brown or black seeds.

By the natives of the districts where it grows the fruit of Carica is largely consumed and regarded as highly nutritious. The milky juice of the unripe fruit and the powdered seeds have the reputation of being powerful anthelmintics, and it was further reported, that the former had the property of softening the toughest meat when boiled with it for a short time. Some parts of the plant were esteemed as vulneraries, and the juice of the ripened fruit was said to be useful in removing freckles and spots from the complexion.

These reports naturally attracted considerable attention, and the juice was subjected to analysis by a number of chemists. Vauquelin found that the juice resembles animal albumen in its characters, and Wittstein stated that it contained a ferment which had a most energetic action on nitrogenous substances.

The leaves, like most other parts of the plant, yield a neutral, yellow, milky juice, with a sharp bitter taste, which by the addition of sugar, glycerine, ethe

or chloroform may be readily preserved. Milk is at first coagulated by it, and subsequently changed to an aqueous liquid. Upon albumen, meat, and blood fibrin its effect is to soften and dissolve; the best temperature for effecting this is, as appears from experiment, 30° to 40° C. It was also found to kill and practically dissolve ænia, ascarides and other intestinal parasites.

From the milky juice of the fruit an active principle, papain, is isolated, which occurs as an amorphous white, or yellowish white powder, odorless, and with a scarcely perceptible taste. The composition of the substance is not yet made out, but it indicates on ultimate analysis a content of 10·6 per cent. of nitrogen. Papain is soluable in water, and 0·1 part will dissolve 10 to 20 parts of blood fibrin. The aqueous solution is rendered turbid by boiling, and is precipitated by alcohol, by acetate of lead, by tannin, by nitric acid, etc.

This principle has been proved to possess the peptonizing properties of the juice in a very high degree of concentration, and the experiments of careful observers have shown that papin, in concentrated solution, will dissolve more meat-fibrin or coagulated albumen than will pepsin in the same time. It must also be pointed out that the vegetable principle differs from the animal substance in that first, it is most active in the presence of a small quantity of fluid, and secondly, it is almost equally effective in acid, neutral, or alkaline solutions.

One of the first uses to which the solvent powers of papain were first put in European medicine was for the breaking down and solution of the false membranes of diphtheria. It is used in 5 per cent. solution, and painted or sprayed on the affected parts. Asch, Kohts, Oertel, Rossbach, Schaffer and others used such solutions, and found them to be very successful. Dr. Jacobi, president of the New York Academy of Medicine, used papain in several cases of diphtheria or croup, and observed that its local application was followed in a few hours, or at the most days, by the disappearance of the membranes. Similar experience is recorded by Prof. Croner, Dr. J. R. Bromwell, of Washington, and other authorities. Dr. J. B. Richardson characterized it as the best and most rapid solvent for diphtheritic membrane he had used.

It was in virtue of the same solvent property that the principle was recommended and employed in the treatment of the various affections of the skin associated with a thickening of the epidermis and with the formation of crusts. Drs. McKenzie and Johnston extended its employment by applying a 5 per cent. solution, with half the welght of sodium bicarbonate, to the clearing out of the middle ear when it was plugged with masses of wax, or epithelium, or morbid secretion that syringing could not remove.

The property already mentioned of softening and more or less peptonizing flesh and fibrin, at a temperature of 30° to 40° C., evidently indicates its adaptation to internal administration—in doses of 1 to 5 grains—as a means for relieving an enfeebled stomach of part of the work of digestion. It is further noteworthy that, besides exerting its peptonizing action on the albuminous and fibrinous contents of the stomach, papain increases the secretion of the gastric juice and prevents the fermentation of the food. By virtue of these properties, it has been given with considerable success in the treatment of gastric cartarrh, and in dyspepsia, while in dysentery and the chronic diarrhœa of infants it has also proved a valuable remedy.

Perhaps one of the principal fields of usefulness in which pepain has been widely employed is in the expulsion of intestinal parasiies. A number of authors have recorded cases in which its administration has been followed by the discharge of tænia, ascarides, etc, in a shrunken and partly digested condition. Unlike a majority of so-called anthelmintics it is not dangerous to the patient, nor is it unpleasant to take. It must be remembered that although papain destroys the parasites, it does not directly expel them from the body; this must be effected by following the dose of papain with a laxative or mild purgative.

In conclusion attention should be called to the necessity of excercising care in the selection of brands of papain, as there are many kinds which are almost destitute of peptonizing power and therefore, useless for the purposes indicated above The value of a good specimen can be readily estimated by digesting 100 grains of finely minced raw lean beef with 1 grain of the papain and 1 oz. of distilled water containing 2 grains of hydrochloric acid or bicarbonate of soda. After 20 minutes' digestion at 100° F. (with assiduous stirring) the liquid should be strained through muslin, the undissolved residue washed, dried at 212° F. and weighed. Allowing 75 per cent. for moisture in the raw beef, from 60 to 90 per cent. of the meat should be dissolve d.—*Notes on New Remedies.*

EFFECT OF CHEAP ALUMINIUM.—"What will be the effect of this reduction in price (to 50c. per pound)," says the *American Manufacturer*, "remains to be seen. We do not believe that aluminium will have the extensive use in certain directions which was predicted for it, owing to its lightness and tensile strength, but there is no doubt that for many purposes, as for covering buildings, the manufacture of tableware and hardware, the production of kitchen utensils, etc., there will be a market that will consume all that can be made in the near future, if it can be produced in quantities and sold at 50 c. a pound. The German Government has been in the market for twenty tons of aluminium for utensils for the kits of soldiers. We question, however, if any quantity of aluminium has ever been made so that it can be sold at a profit at 50 c. a pound. No doubt some method or a modification of a known method will be discovered that will permit of its sale at a profit at 50 c. a pound, if not at 25 c., but that day is not yet."—*Bradstreet's*, Aug. 15th.

THE MURUNGA OR DRUMSTICK.—A paper was recently read before the Bombay Natural History Society by Surgeon Major K. R. Kirtikar, I. M. D., entitled "Notes on a Rare Fungus Found Growing on the Drumstick Tree." The description is accompanied by a plate. From the remarks we quote as follows:—

The Drumstick tree is a familiar figure in the Konkan fields and kitchen gardens. It is largely cultivated for its twisted trilateral follicles wrongly called "pods," which contain a rich fleshy pulp. This pulp when cooked with butter, salt and pepper yields an agreeable and by no means unwholesome dish. Its root is used in the place of Horse-raddish at English tables in India.* Though a little coarse in fibre, the scrapings of the root are quite as good a substitute as one could expect to have in point of flavour and pungency. The flavour and pungency are due to an essential oil which is abundant in the loose parenchyma of the bark of the *Moringa*. The soft and porous woody tissue also contains this essential oil. No wonder then that any parasite throwing its mycelium on its most vitally active cells should imbibe the essential oil and retain it in its own tissue. * * * The question strikes one as to whether this peculiar horse-raddish odour has an attraction for the weevil that destroyed my fungus, for we find that it certainly, I ought to say presumably on account of that odour, attacks the host, even in the living state of the latter. Everybody who knows the habit of the *Moringa pterygosperma* can call back to memory the gum-studded stem of this tree marked with burrows and furrows clogged with the millet-seed sized globules of the weevils' excreta bound up in innumerable chains with flocculent fibres not unlike a cobweb. Does this weevil find any special charm in the odour which the fungus inherited from the *Moringa*. * * * The point is worthy of investigation, and I commend it to the careful study not only of those who are interested in the study of fungi, but also of those who watch the habits of the insects and molluscs which destroy our plant life.

* So in Ceylon, but the pods make favourite curries here.—ED. *T. A.*

Correspondence.

To the Editor.

THE TEA PACKING PAPER.

Billiter Square Buildings, London, Aug. 27, 1891.

Dear Sir,—Since writing you on 13th instant my attention has been drawn by the Brokers to a break of tea from Laurence estate, lately arrived, packed in the lead paper linings. The quality appears to have been entirely preserved, and is reported as particularly brisk and good.

I mention this fact, as doubtless planters will be looking out for results, as a good many have been experimenting with various sized breaks. I may mention that we have completed arrangements with Messrs. Pierce, Leslie & Co. for the agency of the articles for Southern India and Malabar coast, and within the last few days we received a large quantity of orders for immediate transactions.—Yours truly,

J. M. MAITLAND KIRWAN & Co.

[The following is the notice referred to, which occurs in Messrs. Wilson, Smithett & Co.'s Circular:—"A break of Laurence Pekoe Souchong packed in the new, patent paper lining recently came under our notice, which on inspection, we found to be in excellent condition." Ed. *T. A.*]

CEYLON PLANTERS' TEA COMPANY OF NEW YORK.

Colombo, Sept. 14.

Dear Sir,—We have pleasure in sending you herewith extracts from correspondence recently received from New York giving particulars of some of the efforts which the Ceylon Planters' Tea Company are making to push the sale of Ceylon Teas in America.

This correspondence will doubtless be of great interest to those of your readers who are shareholders in this Company as well as to others who desire to see fresh outlets for the sale of Ceylon Teas.—Yours faithfully.

p. pro. DARLEY, BUTLER & CO.,
James F. Headrick, Agents for Ceylon.

Extract from letter dated New York, 11th August, 1891, from Mr. S. Elwood May to the Hon. J. J. Grinlinton.

"I have just returned from Chicago where I minutely investigated the prospects of the fair, as well as going all over the site appropriated for its use.

I have requested the Bureau of the Exposition to mail to Ceylon its literature, &c., which will save any necessity for my going into details.

After having visited most of the large world fair and spending two months at our centennial fair held at Philadelphia, to which I was appointed, and being fresh from the Naval and German exhibitions in England, which I also carefully studied, I can state that the 'World's Columbus Exposition' will be the largest fair ever held anywhere.

I know you will rejoice with me in the fact that I have been enabled through the result of my London work and your kind aid in Ceylon to make the arrangement with Mr. Arkell indicated in copy of his letter to me herewith enclosed for your information.

In considering the great value of this contract do not lose sight of the fact that this will distribute the stock of our company among at least 1,500 of the leading newspaper owners all over the country whose interest at once must be to aid in making this stock valuable.

As a suggestion to the planters of Ceylon to make this Chicago exhibit somewhat on the lines of India, China and Japan, they should each contribute a certain quantity of tea which could be sold here and proceeds of sale added to the sum voted by the 'Tea Fund Committee.'

Kindly bear in mind that the smallest exhibitor intends to make the effort of his life at the Chicago fair."

Copy of letter from W. J. Arkell to the President of the Ceylon Planters' Tea Company referred to in above letter.

Mr. S. Elwood May, President, Ceylon Planters' Tea Company, New York.

Dear Sir,—In regard to our conversation of this morning, I will state that if your company desires me to place $50,000 worth of advertising with the representative papers of this country within a period of three years, I will do it for $100,000 with the understanding that if I desire to place $150,000 more of advertising to be covered in three years that I am to receive an additional $300,000 worth of stock for this advertising.

It is understood that you will leave the advertising to my discretion, since being such a large holder of stock I would want to place the advertising where I believe it would do us the most good.

If this meets the favourable consideration of your board kindly notify me and oblige.—Yours truly,

(Signed) W. J. Arkell.

TEA PREPARED AT DIFFERENT TEMPERATURES.

Sept. 14th.

Dear Sir,—Enclosed are the results of some experiments I have been making as regards tea fired at different temperatures, etc. The *A lot* was fired up in imitation of chula firing. You will note, as the temperature increases, flavour decreases. *B lot.*—In this, the same as above flavour decreases as temperature goes up. Of the two methods of firing with No. 1 Siroccos, I prefer the firing up, viz., placing the wet leaf in the hottest place first and finishing off at the top. It requires on the whole a rather higher temperature than the old method, but the damping of the air from the wet tray under, very considerably reduces the temperature to the upper trays. No doubt the tea made this way is on the whole better than firing down, as the fermentation is checked at once and there is no stewing in the upper tray, as is the case when you fire down at a low temperature.

Unfortunately with our present machinery we cannot use the low temperature which secures the aroma and flavour, unless the draft can be very much increased as Mr. Davidson speaks of doing; but he requires a fan driven at high speed. This requires power, which is a great consideration, where both water and fuel are short. We can get electric motors which will give us all the power required from our rivers which run at the foot of most of our valleys; then again this necessitates a great expense. For No. 1 Siroccos, making the chimneys higher would increase the draft, so enabling us to fire at a lower temperature and help in a great measure to improve the make of our teas. The lower the temperature we fire at the better will be our teas; for this we require air moving at high speed to keep the volatile oils in.—Yours,

ENQUIRER.

Experiments Referred to.

All Fired in a No. 1 Sirocco.

Results of firing at six different temperatures in a No. 1 Sirocco, wither fairly even; rolled 1 hour and 30 minutes without sifting.

Sample No.	Temp. of Sirocco.	Time in drying.	Remarks.
		A. FIRED UP.	
1	210°	40 to 45 mts.	Bright infused leaf, pungent, flavoury, good aroma, fairly strong liquor.
2	240°	25 to 30 „	Bright infused leaf, malty liquor and flavoury, fair aroma, good body and fair strength.
3	290°	20 to 25 „	Infused leaf, same as No. 2, malty liquor, more body and strength, *no flavour*.
		B. FIRED ORDINARY WAY.	
1	200°	1 hour	Infused leaf, bright but darker than A 1, liquor pungent, flavoury, good strength & body.
2	230°	30 mts.	Infused leaf, same as No. 1, but lighter, less body and flavour, but more strength.
3	260°	25 „	Infused leaf, same as No. 2, fair strength and body, little or *no flavour, aroma equal in all*.

A. No. 1 creamed slightly; No. 2 good light milky cream; No. 3 creamed thick and darker than No. 1 and 2.

B. No. 1 light cream; No. 2 same as No. 1, but darker; No. 3 thick dark cream.

The above teas were fired on a fine sunshiny day, with the thermometer in the factory standing at 85°.

THE LOCAL *VS.* THE LONDON MARKET FOR TEA.

Central Province, Sept. 21st.

SIR,—The question "Does it pay better to sell tea in the local market than ship it to England?" has been so frequently asked amongst planters that the following facts may interest some of your readers.

A, B and C are three different properties under my supervision. The tea leaf from all three is manufactured on A as if it all belonged to A. The tea is all carefully bulked and packed twice a month in the slack season, and weekly, as a rule during the busy months.

The breaks despatched veraged 4,544 lb. to A, 3,688 lb. to B, 2,819 lb. to , and consigned to the respective agents of the three properties. A's teas were shipped and the gross average of sales in London was 10·15d per lb. If we knock off 2d according to the Planters' Thumb Nail Tea Price Table we have 8·15d at 1s 6 11 32d the average rate of exchange at 3 ms., July 1890 to August 1891, which shows 1d = 5·443c. × 8·15 = 44·36c. for A's tea. B's tea sold in local market at 47·03c. and C's for 49·56c. average.—Yours truly,

THE SUPERINTENDENT.

PEPPER-GROWING IN SUMATRA.—The cultivation of pepper in the Lampong districts (Southern Sumatra) is constantly increasing. The output in 1890 is estimated at 50,000 piculs (one picual equals 133⅓ lb), and it is calculated that, at an average price of 48s 6d per picul, over 125,000*l* in cash has been received by the combined pepper-growers for their produce. The Dutch Indian Government are also endeavouring to extend the pepper industry in Bantam (Western Java).—*Chemist and Druggist.*

THE DECLINE OF THE FOOCHOW TEA TRADE.—The *Foochow Echo* of 12th Sept says:—As further evidence of the depression in native trade here scores of shops and houses in the city and suburbs are noticed to be untenanted, many of them being offered for sale at half the original cost. A well-informed native attributes this solely to the rapid decline to the Tea trade, pointing out that for the last three or four years it has, while falling off, been at the same time unprofitable, and that those engaged in it have had no money to spend. This is confirmed by others, and so many were connected with the trade one way and another that we can quite believe it. The settlement next week (the 12th and 13th days of the 8th moon) will, it is said, not pass by without a great deal of trouble to very many, and those who are able to tide it over will have a disagreeable time to look forward to next settlement, the China New Year, unless some great change comes about in trade in the meantime. The once flourishing Foochow is at present in a very bad way.

WYNAAD.—Coffee promised to yield a bumper crop, but the planting community is growing despondent, as leaf disease is playing much havoc, and berries drop largely; nevertheless, the crop will not be as bad as that of last year. But the planters would do well to keep a sharp look-out on some well known Mops in the far south, who own some Paniars nominally for cultivation, but really for stealing coffee. These Mops know where to please and grease, and of course, pass off as Hasaraths and Khan Sahibs.—*M. and T. Spectator.*

CEYLON TEA FUND.—As a Kandy correspondent hinted last week, the Tea Fund Committee transacted some important business at its meeting on the 18th instant, as will be seen by the report of the proceedings on page 274. It is satisfactory to learn that Government is to grant a sum of R50,000 towards the representation of Ceylon at the Chicago Expository, and that the Tea Fund has set aside R30,000 for the pushing of Ceylon tea there. We hope that this will lead to a large demand for our teas in the States. What the purport of the letters from Messrs. W. Mackenzie and Sheriff was, we can only guess; and we hope that some means will be found of satisfying both parties in the Tea Kiosk controversy.

IT IS understood that the Secretary of State has ordered an experiment to be made in India with the *Lathyrus Sylvestris*, or flat pea, a wild plant of the same order as Peas or Vetches, but which has been discovered to be a valuable forage production, by sowing some lands in Oudh and the North-West with the seed. Succulent fodder that will grow and thrive in poor soil under such conditions as are now harassing some of our Southern districts would be a boon to the impoverished tenants and starving cattle of the distressed centres, the value of which it would be impossible to overrate. It is claimed for this new plant that it is especially suitable to a dry climate, as it can resist the most unusual drought; it requires no manure, will grow on the same soil year after year, and will flourish on waste stony land where nothing else will, and improves rather than deteriorate the soil. It has been successfully tried in Ireland, Germany, Australia and South Africa, and if all that is said of it is true, should soon become much sought after in this land of impoverished tenantry and underfed cattle.—*Indian Agriculturist.*

A CALIFORNIAN paper says—"The liquid in which the State Board of Trade has so successfully preserved fruit for exhibition purposes is prepared as follows:—Thirty gallons of filtered water are placed in a barrel end; on the water is placed in a tin pan containing 25 cents worth of sulphur. The sulphur is set on fire, and the top of the barrel is covered with a piece of oilskin, so as to retain the fumes. When the sulphur ceases to burn the covering is removed, allowing the supply of oxygen in the barrel to be renewed, and after stirring the water the sulphur is again set on fire and the top of the barrel is again covered. This operation is repeated until the sulphur will no longer burn, when the water is ready for use. Not only are fresh fruits preserved in this water, but where decay has set in it is completely checked, and withered fruits have their plumpness and colour restored. All the fruit in 'California on wheels' has been treated in this manner, and there are jars of fruit in the rooms of the Board that were prepared over a year ago, the fruit still appearing as if but plucked from the tree."—*Indian Agriculturist*, Aug. 29th.

NOTES ON PRODUCE AND FINANCE.

INDIAN AND CEYLON TEAS IN AUSTRALIA.—It is clear that Indian and Ceylon teas are making rapid headway in Australia. China is losing the market. The quantity of tea received from Foochow in the twelve months was fifteen-and-a-quarter millions of pounds, against twenty-one and twenty-four millions during the two preceding years. Meanwhile the shipments from India and Ceylon to Australia in the twelve months are given as:—From India, 4,800,000 lb ; from Ceylon, 2,900,000lb.; total, 7,700,000lb. The Melbourne *Argus*, commenting on this, says—"There can be no doubt that not only China, but also India, has much to fear from the competition from Ceylon. The well-cured Ceylon teas are certainly most attractive, being remarkably flavoury, with good strength. Ceylon teas, however, have one serious disadvantage, and that appears to be their inferior keeping qualities; and, judging from the present years' receipts, this trade is certainly 'the jam tart trade' in tea. They are all better sold fresh than stale and flat, which, in many instances, from inferior manufacture, they soon become. There is, however, a somewhat better demand for choice Ceylon Pekoes, and it only requires time to educate the public taste for the demand to be good for choice teas from both Calcutta and Colombo."

TEA RE-PACKING IN BOND.—The following order has been issued by H. M. Customs. "The Board authorises inspectors of districts to allow remnants of blending and re-packing operations in tea to be used without application to the Board in subsequently blending operations, provided that such remnants do not exceed the limits laid down in Port Order 50, 1889."

BOARD OF TRADE STATISTICS.—The board of trade Returns for August show that the imports of China teas are still falling off, while those of India and Ceylon are increasing, and this holds good as to the consumption also. The deliveries out of bond of articles liable to duty for home consumption is generally taken to indicate the prosperity or otherwise of the wage-earning portion of our population, and their capacity for absorbing the various beverages which are used in daily life. On these there has been a decline during the month in coffee, and an increase in chicory, cocoa and tea. There is an increase in all for the eight months of the present year as compared with the corresponding period last year.

COFFEE CULTURE IN JAVA AND SUMATRA.—The annual report on the finances of the Netherlands (India) deals with the subject, and the Minister for the Colonies fully recognises the importance of the question, but he points out that any proposal to introduce new systems must receive careful consideration, there being always the risk lest any modification of an existing system may result only in a sacrifice of certain interests in order to acquire other uncertain advantages. It is furthermore pointed out that there is no product which in any immediate future can be looked for to replace coffee as a source of revenue. Any ill-considered change might increase the burden of indebtedness and at the same time cripple the administative powers of the Government. The future, however, is stated not to be so dark as has been represented. Notwithstanding the coffee plant disease the harvests in 1888 and 1889 were fairly good ones, and it is mainly on account of the unpropitious weather that that of 1890 has been so deficient—a very small amount of coffee having, in fact, been collected. The prospects for 1891 at the time this statement was drawn up were not unpropitious, and made the gloomy anticipations which had been indulged is quite unjustifiable. In dealing with the financial question generally, Baron Mackay again alluded to the impossibity of finding any substitute for coffee as a source of revenue. It was fortunate, he said, the present deficiency from this source was made up for by the results of previous years of prosperity. Had it not been for this a recourse to a loan would have been inevitable. He, however, fully recognised the gravity of the situation, and the necessity for economy, holding out no prospect of being able to raise any considerable sum from new taxes. At the same time, he declined to admit that the prospect was as unfavourable as it appeared to be in some quarters, showing by a comparison of 1888 with 1891 that the total expenditure is considerably less in the latter, although the amount included in the estimates for productive works is higher. It is not, however, denied that the relation between income and expenditure unconnected with produce has become less favourable than formerly. This, it may be presumed, is principally on account of a diminution of income from land rents and from the opium monopoly. Much is hoped from a more prosperous coffee harvest to redress the balance of income and expenditure; at the same time, it may be foreseen that even to carry out productive works it may be necessary to have recourse a loan.—*H. and C. Mail.*

TEA FIRING AT HIGH AND LOW TEMPERATURES.

The letter of "Enquirer," on page 281, giving the results of some very careful experiment, in firing tea at various temperatures, is well worthy of attention from planters and tea-men. The general conclusions are entirely in favour of the principles recently so emphatically enunciated by Mr. Davidson, of Sirocco and "down-draft" fame. All the experiments gave the same result: at the high temperatures, from 270° to 390°, all special tea flavour and aroma had disappeared, and a rich, malty taste and smell came instead; not the peculiar violet flavour desiderated. A drying machine to fire at a low temperature, therefore, would be a great gain to planters. Such machines are provided in Mr. Davidson's "down-draft sirocco" and Mr. Jackson's "Britannia," excellent both, but both expensive. The claim for Mr. Jackson's machine, however, that it is an effective witherer as well as a good drier, is an important consideration in facing the first cost. We cannot help quoting from the private letter of a correspondent as to the general conduct of tea planting and manufacture:—

"What we really require is that our teas should be made on some *certain basis*, and this can only be done by the whole series of manufacture, growth, pruning, as to season &c., worked out in different districts, by an analytic chemist. Like beer and nearly all the principal food manufactures at the present day, all under guidance of the analytic chemist."

A CHINESE TEA MERCHANT AT HOME.

The *Independent* [American paper] says that the following glimpse of the domestic life of a Chinese millionaire is given by one of two British young ladies, who recently, and without male escort of any kind, made a tour round half the globe. The gentleman whose home was thus laid open to view was a successful tea merchant at Canton, possessing a fortune estimated at thirty-five milions:—

After walking ten minutes from the landing stage we reached a massive gate opening on a large court. Several men, apparently servants, were lounging about, and to one of them the English friend who had met us on our arrival at Canton, gave his card, on which he had pencilled a few words in Chinese. With this the man went off, and while waiting his return, we curiously examined a handsomely decorated covered chair, evidently very heavy, which was standing in the court, with four coolies in attendance, all dressed alike in livery. Our friend said it was a mandarin's chair, and that probably the mandarin was calling on Mr. Howqua. The servant soon returned and marshalled us across the court, along passages, through rooms, and round corners while we mused on the mysteries of Chinese architecture. As our captain had said, "a Chinese house is a meaningless muddle from beginning to end." At last we entered another court, smaller than the first, with some fine vases

standing about, and on this opened the room where Mr. Howqua was. He ran to meet us, beaming. He was a little, wizened, yellow Chinaman, with high cheek bones, oblique eyes, a pig-tail, and a little silk cap on his shaven crown. His dress was as plain as possible, with not a sign of wealth about. This surprised us, for, in the street at least, the dress of the richer Chinese is rich and tasteful. He spoke excellent English, and not that dreadful mixture called "Pigeon English" which seems the only medium of communication between Europeans and Chinese. As we were each introduced in turn, he bowed low, and *chin-chinned* Chinese style. Then, in deference to our Western ideas of politeness, he shook hands—rather a difficult proceeding, owing to the length of his finger nails. To *chin-chin* you close each hand separately, then, putting both together at the chest, gently shake them up and down and say "chin chin." After all this ceremony had been gone through, we became conscious that another Chinaman, sitting on one of the great chairs, was looking at us much in the same way as a child for the first time at the Zoo looks at a monkey. We looked at him, too, for he was a great personage, no less than the mandarin and the Chief Secretary of the new Viceroy. It was his chair we had seen outside. He was as different from our host as possible—tall and very stout, and magnificently dressed in brocade and furs, with the mandarin red button on the top of his hat and a heavy gold chain round his neck. He spoke no English, but rose and *chin-chinned* with solemnity when he was introduced, while we made as deep a bow as we could. As conversation went on he seemed quite content to sit and survey us. He may have seen English women in the street, but it is very probable he had never met any before.

THE DRAWING ROOM.

The large and lofty room was furnished with tables, high square stools, couches, and arm chairs of heavy black wood, all elaborately carved. The couches as well as the chairs had cushions of red silk, and were like old-fashioned settees. Each couch was divided into three, like a first class railway carriage, but the padded arms of the carriage were here small tables. Some handsome lamps, of the shape seen in all Chinese pictures, were hanging from the ceiling, and there were some ornaments which even our inexperienced eyes recognised as of great value; but on the wall were hanging some shabby photographs in still shabbier gilt frames. The whole front of the room was open to the dreary little court. The floor was of earth, and the effect was cold and cheerless.

HOW TO DRINK THE TEA!

A servant brought the tea in handless cups of egg-shell china. Each cup, being supplied with its own pinch of tea, had a small saucer at the top to keep back the leaves, and a large saucer at the bottom. The problem was how to get at the tea. We wished to take it correctly, according to the Chinese fashion, and show that we had at least a smattering of civilisation. No doubt the Chinese find it as objectionable to see any innovation on the established fashion of sipping tea as we do to see a man eating peas with his knife. So we watched the mandarin. He placed his thumb under the large saucer, his second finger above the small saucer, and, raising the cup and both saucers, contrived, by some sleight of hand, to empty his cup. This was too difficult for us. We gave it up. We removed the small saucer. Even then it was difficult to convey the beverage to one's lips, for, as I said before, the cup was without a handle, and was moreover exceedingly hot. In spite of the absence of sugar and cream and the number of tea leaves we swallowed, the tea was delicious. On our praising it Mr. Howqua presented each of us with a silver paper-covered jar of it to take away with us. We learned afterwards that this particular tea never reaches England. It is all sent to Russia, where it costs, in English money, over a guinea the pound.

NOISY DISPLAY OF JUVENILE PROFICIENCY.

Tea being over, Mr. Howqua took us to a room where seven of his sons (of ages, apparently, from nine to fifteen) each at a separate desk were learning their lessons. They were like miniature men, with their pigtails, and little silk caps, and came forward with expressionless faces to shake hands with us. To the mandarin they bowed—almost to the ground—and he returned the salutation with profound ceremony. At a word from their father they let us hear how well they could read; but as they read all at the same time, each boy at the pitch of his voice, and as they were all (so far as we could make out) reading different words, the effect was somewhat startling. Then the great man took his departure, and we were shown over the house. This was a complete puzzle to the uneducated Western mind. Privacy seemed to be the last thing thought of. Comfort there was none. But the rooms were full of beautiful objects, carvings, vases, beaten work in gold and silver and embroideries which must have been worth large sums of money. In one room was

ONE OF MR. HOWQUA'S WIVES

with several maids in attendance. She was quite young, and might have been made of wood for all the interest or expression there was in her face. As she *chin-chinned* she looked like a big mechanical toy. Her cheeks were thickly plastered with red and white paint, and her hair, stiffened and stuck out in the Chinese fashion, was adorned with a long gold pin. Another room was used as a private chapel, containing an altar, before which joss sticks were burning, and was hung round with portraits of his ancestors. Mr. Howqua pointed out the portraits of his great-grandfather and grand-father, and there were others of much earlier date. But the great joy of our host's heart were two rooms furnished in European style—one as a dining-room, the other as a smoke-room. In the dining-room the table was laid for dinner, and the sideboard was laden with different kinds of wine-glasses. Here, we are told, Mr. Howqua gave dinner parties to his European friends. After we had seen through the whole place, our kind host insisted on our going to see his mother. She lived at a few minutes' distance, but in the same great enclosure—which might be called the grounds—belonging to the Howqua Mansion.

THE DOWAGER AND HER DWELLING.

Her house was so like the houses seen in Chinese pictures that as we neared it we seem to be realising a dream. Built on the edge of a lake, which was covered with lotus leaves, it had little staircases, terraces, covered roofs, and wide verandahs, into which the whole front of the house opened. There, too, were sitting the Chinese ladies, with teacups and jars. Old Mrs. Howqua, who was very, very old, had probably been told that we were coming to see her, for she was seated in state on a low chair placed on the verandah, with her women grouped behind her. She wore on her head a black velvet coif, very like the Mary Stuart cap, edged with pearls, and with one enormous pearl in the centre. Her tiny feet, of which she seemed very proud, were just seen below the edge of her skirt, and those feet gave us quite a shock. Two days before I had bought a pair of Chinese lady's shoes, but could not believe that any woman could wear such a small size. Mrs. Howqua's shoes, however, were quite as small as those I bought, but it is probable that her feet were exceptionally small.

THE TEA TRADE AND THE DUTY.

For the edification of those who like statistics, we supplement our remarks of last week on this subject with the full report of the Commissioners of Customs so far as it relates to tea. In the year 1890-91 the tea duty was reduced from 6d to 4d a lb. It may be useful here to record the steps by which the duty on this article has been reduced from between 2s to 3s per lb. to its present rate of 4d.

In 1835 the duties in force stood as follows:—

	Rate per lb. s. d.	Revenue realised.
1835.—Bohea	1 6	£3,832,372
Congou Twankay, Hyson skin, Orange Pekoe and Campoi	2 2	
Souchong, Flowery Pekoe, Hyson, Young Hyson, Gunpowder, Imperial and other sorts unenumerated	3 0	

These different rates of duty were abolished in 1836, when the rate was made uniform. The changes then and subsequently made have been:—

		s. d.		£
1836.—All sorts of Tea	...	2 1	...	4,674,534
1840 ,,	...	2 1 and 5 per cent. additional	...	3,472,864
1853 ,,	...	1 10	...	5,683,791
1854-5 ,,	...	1 6	...	5,126,317
1855-6 ,,	...	1 9	...	5,802,086
1857-8 ,,	...	1 5	...	5,459,698
1863-4 ,,	...	1 0	...	4,554,475
1865-5 ,,	...	0 6	...	2,599,817
1890-1 ,,	...	0 4	...	3,416,802

The extent of the loss which the revenue has sustained by the reduction in duty of 2d. a lb., when compared with the preceding year's receipt, is not so great as had been anticipated, the increase of consumption having been very marked. The gross revenue from tea in 1889-90 was £4 490.695. Last year it was £3,416,802, an actual loss of £1,073,893. The effect of the reduction of duty upon consumption has been as follows:—The quantity of tea on which duty was paid in 1889-90 was 179,620,000 lb. In the year under review the quantity has turned out to be 202,633,000 lb., an increase of 23,013,000 lb. Thus the actual gross quantity cleared for duty increased by 12·8 per cent. But this result does not give the true state of the case. The Budget statement was made on April 17th; but the reduction in duty did not actually take place until May 1st. Early in January a large section of the tea trade appeared to have formed the idea that some portion of the surplu which it was known would be at the disposal of the Chancellor of the Exchequer would be devoted to a reduction of the rate of duty. This anticipation soon began to influence the quantities taken out of bond for consumption. Thus in January the clearances for duty showed a decrease, as compared with the corresponding month of 1889, of 913.551 lb., in February of 1,129,837lb., in March of 3,957,086 lb., and in April of 10,040,461 lb. Altogether the decrease in th quantity on which duty was paid amounted,for the first four months of 1890 to 16,040,,935lb. To this extent dealers applied the public wants out of their duty-paid stocks which were depleted in a corresponding degree. When the lower rate of duty came into force on May 1st the exhausted stocks were quickly filled up, the clearances in May, 1890, amounting to no less than £33,095,211lb. against 16,527,162lb, in May, 1889, an increase which more than made good the depletion in duty-paid stocks above mentioned. But this replenishment of stocks fell entirely within the financial year 1890-91, while the revenue of the preceding year had suffered to the extent represented by six million lb. of tea held back from duty. For the sake of clearness we give a comparative table showing the quantities of tea taken out of bond in the months of January, February and March in 1888, 1889, and 1890:—

	1888.	1889.	1890.	1890 compared with 1889.
	lb.	lb.	lb.	lb.
January	16,750,669	17,114,627	16,201,076	913,551
February	15,254,635	14,429,410	13,299,573	1,129,837
March	14,790,845	14,996,038	11,038,952	3,957,086
Total of three months	46,796,199	46,540 075	40,539,601	6,000,474
April	15,895,873	14,768,871	4,728,410	10,040,461
Total of four months	62,692,022	61,308,946	45,268,011	16,040,935

The effect of the reduction of duty upon consumption cannot, therefore, be seen until allowance has been made for these deferred duty payments. In this case the duty payments do not represent the normal conditions of clearance for home consumption, which can only be arrived at by deducting the 6,0000,474 lb. from the clearances of 1890-91, and adding them to the duty clearances of 1889-90. But taking the eleven months since May 1st, 1890, during which the lower rate of duty was actually in force, to March 31st, 1891, the quantity of tea cleared for home use amounted to 197,905,000 lb. From this must be deducted the estimated "held back" tea of January, February, March and April, amounting to 16,000,900 lb., which gives the normal clearance for home consumption for the eleven months as 181,905,000 lb. Comparing this amount with the quantity cleared for duty in the same eleven months of 1889-90, viz.: 164,852,000 lb. (to which latter total we must first add six million lb. properly belonging to the consumption of Jaunary, February and March, but only cleared in May), we have the following result:—

	lb.
May 1889 to March 1890 inclusive	170,852,000
May 1890 to March 1891 inclusive	181,905,000
Increase in 1890-91	11,053,000

being an increase of consumption at the rate of 6·5 pe cent. The subjoined figures show the consumption per head of the population:—

	lb. per head.
1886-87	4·92
1887-88	4·97
1888-89	4·94
1889 90	4·91
1890-91	5·14

The calculation for the last two years shows the effect of the change of duty, due allowance being made for the "held back" tea. The actual quantities of tea on which duty was received for 1889-90 and 1890-91 would show a consumption of 4 75 lb. and 5·30 lb. respectively per head of the population. The process of consumption of Indian and Ceylon teas in substitution for China and other teas still progresses, the percentages for the past year being 70 9 to 29·1 respec tively, as against 68·3 to 31·7 respectively in 1880-90 —*H. and C. Mail.*

EGGS AS FOOD.

Eggs, at average prices, are among the cheapest and most nutritious articles of diet. Like milk, an egg is a complete food in itself, containing everything necessary for the development of a perfect animal, as is manifest from the fact that a chick is formed from it. It seems a mystery how muscles, bones, feathers, and everything that a chick requires for its development are made from the yolk and white of an egg; but such is the fact, and it shows how complete a food an egg is. It is also easily digested, if not damaged in cooking. Indeed, there is no more concentrated and nourishing food than eggs. The albumen, oil and saline matter are, as is milk, in the right proportion for sustaining animal life. Two or three boiled eggs, with the addition of a slice or two of toast, will make a breakfast sufficient for a man, and good enough for a king.

According to Dr. Edward Smith, in his treatise on "Food," an egg weighing an ounce and three quarters contains 120 grains of carbon and 17¼ grains of nitrogen, or 12·25 per cent of carbon and two per cent of nitrogen. The value of one pound of eggs as food for sustaining the active forces of the body is to the value of one pound of lean beef as 1584 to 9000. As a flesh producer, one pound of eggs is about equal to one pound of beef.

A hen may be considered to consume one bushel of corn yearly, and to lay 10 dozen or 15 pounds of eggs. This is equivalent to saying that three and one tenth pounds of corn will produce, when fed to a hen, five-sixths of a pound of eggs; but five sixths of a pound of pork requires about five pounds of

corn for its production. Taking into accont the nutriment in each, and the comparative prices of the two on an average, the pork is about three times as costly a food as the eggs, while it is certainly less healthful.—*Boston Journal of Chemistry.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.)*

LONDON, Sept. 5th, 1891.

ANNATTO.—After showing more firmness recently, this article appears to be again falling into its former neglected state. Good bright seed from Colombo (74 bags) was bought in at 2d today. The other day it realised 2¼d per lb.

VANILLA.—Dull of sale. For common Mauritius 5s to 7s 6d was paid today, and from 2s 6d to 5s 9d for very low to fair long foxy Ceylon beans. It is estimated that the coming Mauritius crop will amount to 13 000 kilos. The new crop of Mexican beans is now arriving upon the new York market It is reported that the later arrivals are of rather better quality than some of the earlier shipments.

CINCHONA PLANTERS CLOSING THEIR RANKS.

We announced some time ago that the Dutch Indian Government were about to commission an official of the Java Government plantations to investigate the manufacture of quinine in British India with a view to the establishment of a quinine-factory in Java. Mr. Van Leersum, the official in question, is probably by this time on his way to British India, where he is certain to receive from the heads of the British Government plantations every possible assistance in the discharge of his mission. The British Indian Government has always shown itself exceedingly liberal in allowing other nations to participate in the benefits of its industrial experiments; and, on the other hand, the Dutch Indian Government has on more than one occasion rendered valuable assistance to the British authorities in supplying them with cinchona seed and plants. The process of quinine manufacture at the Naduvatam factory in the Nilgiri district has been fully described in our issues of June 9th, 1888, and December 20th, 1890, and it will, therefore, be enough to say that it consists in beating up a mixture of powdered bark, water (rendered alkaline with caustic soda), and paraffin and fusel oils in a revolving cylinder for three hours, then dissolving out the alkaloids by means of water acidulated with sulphuric acid, filtering the liquid through charcoal, and crystallising on the sulphate of quinine. The cost of the first batch of quinine made at Naduvatam, calculated at the European market value of the bark, was 1s 6d per oz., but since then it has probably lessened. Plant, sulphuric acid, and oil are naturally much dearer than in Europe; labour, on the other hand, costs less than ⅛ of a penny per oz. of sulphate of quinine in India, and may, perhaps, restore the equilibrium of the balance of competition. The Naduvatam factory only produces the insignificant total of about 65,000 oz. of quinine per annum, and the object of the Government is simply to provide the native population with a cheap febrifuge at about cost price. The Naduvatam quinine is retailed 16 rupees per lb., or, say, 1s 5½d per oz. The object of the Dutch Indian Government, however, is not to supply a cheap medicine to the Malays of their colonies, but to enable the Java planters to have their bark manufactured on the spot, and thus not only to save nearly the whole of the freight, warehouse, and sale expenses now paid on the bark shipped to Amsterdam, but also to obtain a firm hold upon the quinine markets of the world.

If the Java planters possess sufficient power of combination, and are lucky enough to find an honest, strong, and astute business-man to hold the reins, there seems no reason why, within two or three years, they should not become the dominant force in the quinine market. Nearly all the Java plantations are situated within a comparatively small area on the west of the island, in the centre of which it is proposed to erect the factory, which will be under Government control, and receive from each planter the bark he grows, returning to him its contents in quinine salts and by-products, and charging, perhaps, a fraction above the actual cost of manufacturing.

That there exists among the cinchona-planting interest a widespread dissatisfaction at the manner in which the control of the quinine market has been allowed to slip from the hands of the growers and their representatives into those of a few quickwitted German quinine manufacturers is abundantly evident. That this feeling of impatience at their helplessness is not confined to East Indian or South American planters is shown by a report which recently reached us from the West Coast of Africa. The proprietors of the plantations on the Portuguese island of São Thomé who now send all their bark to London, *viâ* Lisbon, are casting about, so we hear, for a process which will enable them to send over their produce in the form of a liquor. from which the alkaloids can be regained in Europe. They calculate that such a process would save them about 20s per cwt. on each barrel of liquor. As the bark now shipped from Sao Thomé realises only about 30s per cwt. in sale, the saving would be considerable. It should be stated, however, that the experiment has been tried upon more than one occasion by South American planters, and has proved unsuccessful. The first shipment of concentrated liquor from Bolivia to London was made about thirty years ago. The consignment remained for years in the docks here without finding a purchaser, and subsequent attempts to send over a partly-manufactured article in the form of a resin were equally fruitless. But the failure of these attempts by no means proves that efforts in a similar direction could not succeed now. The inducement is greater, inasmuch as the freight now represents a much larger proportion of the value of the bark than it did twenty years ago; manufacturing processes have been simplified, and the keenest possible competition now prevails among a number of manufacturers in four or five different countries, whereas a generation ago two or three British and French houses, by simply discountenancing an innovation which they did not like, could effectually bar its success. The erection of plant in Peru for the manufacture of cocaine in a crude form has proved sufficiently successful to alter the conditions of the trade in one important drug, and the anxiety of even the most insignificant and backward foreign Governments to promote the establishment of industrial works in their territories may similarly affect the trade in other drugs in future.

But, apart from the establishment of a quinine-factory, there are indications that the Java planters are determined to endeavour to assert the power which effective combination would place in their hands. With the season which commenced on July 1st, Java is taking precedence over Ceylon as a cinchona-producing country. The figures of the actual exports from Java and Ceylon, both reduced to English lb., and both taken for the year on June 30th—the closing date of the Java season—show that in the season just brought to a close Ceylon still gained a Pyrrhic victory in the matter of weight, the figures footing up as follows:—

	1890-91 English Lb.	1889 90 Englsh Lb.	1888-89 English Lb.
Ceylon ..	6 900,000	8,600,000	11,890,000
Java ...	6,000,000	5,225,000	4,857,000

But as the Java bark contains considerably more quinine than that from Ceylon, Java has actually been a greater quinine-producer than Ceylon for at least twelve months.

The principal planters' association of Java has just published a most valuable return of the prospective production of quinine bark in the island for the next two seasons. That return will be found in another column. At the meeting of the association at which it was made public a resolution was also adopted de-

claring the direct sales of bark by one or two plantations to certain European quinine-makers to be opposed to the interests of the community. What the Java planters aim at, and what they may possibly accomplish with a good man at their head, and effective Government assistance, is shown in a recent declaration of one of their number. "Even if we do not get our factory here," said that authority, "we shall knock the European quinine speculators on the head. In that case we shall form a syndicate, which will regulate the whole of the bark exports from this island. Bark will only be sold to the European quinine manufacturers on condition that they shall turn over all the quinine sulphate prepared from it to a European syndicate, which will take care of the sale of quinine. The by-products the quinine manufacturers may sell without interference. The quinine syndicate will have an agent in every country of the world. That agent will in turn control the provincial agents, who, where the law of the country allows it will sell quinine and quinine preparations of every description directly to the public, and, where that is not permitted, will use retailers as middlemen. The Brunswick factory, the arch enemy, will be altogether excluded from dealing with the syndicate, and the other works are to be expressly prohibited from selling any surplus bark to this concern. The profits will be divided among the planters in ratio of the quinine value of their bark.

The scheme seems a somewhat fantastic one, and if it is attempted to put it into execution it is sure to meet with a determined opposition from many quarters. But as the Java planters now control the bulk of the rich manufacturing barks, and some of their Indian and South American colleagues will no doubt be anxious to co-operate in the scheme if fair terms are offered to them, it would be rash to prophesy its entire impracticability.—*Chemist and Druggist.*

THE PREPARATION OF VEGETABLE TALLOW IN CHINA.

In a recently-issued report by Mr. Consul Hosie on the trade of Winchow, he thus refers to vegetable tallow from Stillingia sebifera, which he says occasionally appears as an import, but more frequently as an export. The tree is largely cultivated near Wencho, and still more widely within the Ch'u-chou Prefecture to the west. It is not, perhaps, generally known that the fruit of this tree produces oil as well as tallow. The berries, which resemble coffee-beans in appearance and size, are first steamed and then pounded in an ordinary rice-trough. By pounding, the soft mealy mesocarp is partially separated from the kernels, the whole is then placed in a bamboo-sieve, the meshes of which are just large enough to allow the mealy matter to be scrubbed through, and small enough to keep back the kernels, which are hard, black, and about the size of Peas. From the mealy matter the tallow is expressed in primitive wooden presses. The oil is derived from the kernels in the following manner:—They are dried and passed between two millstones, held at such a distance apart, by means of a Bamboo pivot, as to crush the hard shells of the kernels without injuring the white interior. The whole is then passed through a winnower, which separates the broken shells from the solid matter; the latter is then placed in a deep iron pan, and roasted till it begins to assume a brownish colour, the process being accompanied by continuous stirring to prevent burning. The crushed shells make an excellent fuel for this purpose. It is next ground by a huge stone roller in a circular stone well steamed, made into circular cakes with Bamboo and straw casings, and passed through the wooden press. A good lighting oil, called "Ch'ing yu." of a brownish-yellow colour, is thus obtained. The tallow is called "p'i yu;" that is, skin or external oil.—*Gardeners' Chronicle.*

JAVA AND THE QUININE MARKET.—At a meeting of the Sockabbemi (Java) Agricultural Association, on July 14th, the directors communicated the result of careful investigations on the subject of the probable supply of quinine from Java bark during the years 1892 and 1893. The information is based upon the replies to circular letters sent by the association to all the Java cinchona planters. In only a very few instances were replies withheld, and in nearly all these the association, though its relations with neighbouring planters or financial houses, succeeded in obtaining the desired information. If all the plantations in Java were uprooted, the resulting produce would represent 710,000 kilos (= about 25,000,000 oz.) quinine sulphate. That, of course, would be the end of the Java cinchona industry. The equivalent of quinine sulphate in the estimated bark exports from Java is as follows :—1891, 137,000 kilos (4,830,000 oz.) ; 1892, 151,188 kilos. (5,340,000 oz.) ; 1893, 155,175 kilos (5,490.000 oz) The increase, therefore will be proportionately smaller than during the part four years, when the bark sold at the Amsterdam auctions represented :—Quinine sulphate, 1887, 33,740 kilos. ; 1888, 47,431 kilos. ; 1889, 77,090 kilos. ; 1890, 121,420 kilos. The great increase in the sales of bark at Amsterdam in 1890 is due partly to the fact that the direct shipments of Java bark to London were smaller in that year than in former years, and partly to the uprooting of several plantations. At present seven plantations are about to be uprooted.—*Chemist and Druggist.*

CEYLON EXPORTS AND DISTRIBUTION, 189

COUNTRIES.		Coffee, Cwt.			Cinchona.	Tea.	Cocoa.	C'moms.	Cinnamon.		Coconut Oil.		P'bago	
		Plantation	N'tive	Total.	1891 B'inch &Trunk lb.	1891 lb.	cwt.	lb.	Bales lb.	Chips lb.	1891 cwt.	1890 cwt.	1891 cwt.	
To United Kingdom	...	49988	...	49988	3486633	47404185	14365	83068	748521	148197	109993	40034	117750	289619
,, Austria	...	4664	41	4705	...	50159	...	500	2100	3370	10998	10895	...	276051
,, Belgium	...	16	...	16	128438	85	...	...	36000	...	2507	1161	3906	309902
,, France	...	179	56	235	3362	11043	149	...	103400	25380	3002	5007	...	185514
,, Germany	...	113	300	413	...	72947	158	1598	266165	93520	15828	10459	22000	
,, Holland	...	...	...	...	21438	2280	...	...	...	...	...	10	...	
,, Italy	...	54	...	54	...	710	...	...	88800	58800	5612	2661	...	
,, Russia	...	...	...	...	...	11230	...	...	...	...	1001	700	...	
,, Spain	...	...	...	...	...	12675	...	...	61000	...	...	...	...	
,, Sweden	...	...	...	...	...	300	...	...	...	...	...	...	...	
,, Turkey	...	...	50	50	...	2961	...	89	24272	...	78864	66870	242	
,, India	...	1538	2769	4302	...	302525	...	117056	...	10028	1355	1213	334	
,, Australia	...	7143	748	7891	...	2399732	...	40	5200	...	74735	38322	145387	
,, America	...	204	...	204	407414	141512	2018	7643	47000	...	33	...		
,, Africa	...	72	...	72	...	60634	...	...	...	...	1433	8	...	
,, China	...	81	...	81	...	114171	...	200	60368	...	58	40010	...	
,, Singapore	...	35	...	35	3124	...	84	...	...	...	...	...	...	
,, Mauritius	...	155	...	155	...	39925	...	...	...	...	...	...	...	
Total Exports from 1st Jan.	1891	64239	3964	68203	4047285	50634498	16774	210223	1442826	339395	305419		289619	
to 26th Sept.	1890	66314	2543	68857	6529317	34765299	11157	237496	1304036	281872	216750		276051	
Do	1889	56584	4024	60706	7151076	24517539	11713	208614	1777473	365993	219105		309902	
Do	1888	108890	4435	113325	5899948	16355864	10377	203724	1238240	384959	278656		185514	

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current London, September 10th, 1891.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry ...	£3 a £3
Zanzibar & Hepatic	Common and good ...	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d a 10d
	Medium to fine Quill ...	4d a 9d
	Spoke shavings	2d a 4d
	Branch	1½ a 3½
Red...	Renewed	2d a 10d
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow ...	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to good	£6 a £6 15s
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine...	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 9d
Ceylon, Malabar sort	Fair to good bold bleached	2s 6d a 3s 6d
	,, ,, medium ,,	1s 6d a 2s 4d
	,, ,, small ...	1s a 1s 6d
Alleppee and Mysore sort	Small to bold brown ...	1s a 1s 6d
	Fair to fine bold ...	2s 6d a 4s
	,, ,, medium ...	1s 6d a 1s 10d
	,, ,, small ...	1s a 1s 4d
Long wild Ceylon...	Common to good ...	6d a 2s
CASTOR OIL, 1sts	White	4¼d a 4¾d
2nds	Fair and good pale ...	3d a 3½d
3rds	Brown and brownish ...	2½ a 3d
CHILLIES, Zanzibar ...	Fair to fine bright ...	35s a 40s
	Ord'y. and middling ...	30s a 33s
CINNAMON, 1sts	Ord'y. to fine pale quill...	7d a 1s 5d
2nds	,, ,, ,, ,, ...	7d a 1s 3d
3rds	,, ,, ,, ,, ...	6½d a 1s 1d
4ths	,, ,, ,, ,, ...	5½d a 10d
Chips	Fair to fine plant ...	2½d a 7d
CLOVES, Zanzibar	Fair to fine bright ...	3¾d a 3¾d
and Pemba.	Common dull and mixed	3d a 3¼d
STEMS	Common to good ...	¾d a ¾d
COCULUS INDICUS ...	Fair sifted... ...	11s a 11s 6d
COLOMBO ROOT... ...	Good to fine bright sound	22s 6d a 28s 6d
	Ordinary & middling ..	16s a 20s
CROTON SEEDS, sifted...	Fair to fine fresh ...	18s a 20s
CUTCH	Fair to fine dry ...	24s a 32s 6d
DRAGONS BLOOD, Zanzibar ...	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah & Turkey ...	Fair to fine dark blue ...	52s 6d a 60s
GINGER, Cochin, Cut ...	Good white and green ...	40s a 50s
,, ...	Good to fine bold ...	65s a 75s
Rough...	Small and medium ...	40s a 52s
,, ...	Fair to fine bold ...	32s a 40s
Bengal, Rough	Small and medium ...	24s a 28s
GUM AMMONIACUM ...	Fair to good	19s
AMMI, washed ...	Blocky to fine clean ...	50s a 90s
	Picked fine pale in sorts,	£11 a £12 10s
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£10 a £12
scraped...	Medium & bold sorts ...	£6 10s a £11
ARABIC E.I. & Aden ..	Good to fine pale frosted sifted	60s a 80s
	Sorts, dull red to fair ...	35s a 55s
Ghatti ...	Good to fine pale selected	45s a 55s
	Sorts middling to good...	23s a 33s
Amrad cha.	Good and fine pale ...	65s a 100s
	Reddish to pale brown ...	25s a 50s
Madras ...	Dark to fine pale ...	15s a 50s
ASSAFŒTIDA	Fair to fine pinky block and drop	30s a 80s
	Ordinary stony to middling	15s a 25s
KINO	Fair to fine bright ...	60s a 70s
MYRRH, picked	Fair to fine pale ...	£4 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings..	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 8d a 2s
East African Ports, Zanzibar and Mozambique Coast	White softish ditto ...	1s 5d a 1s 9d
	Unripe root	10s a 1s 4d
	Liver	1s 2d a 1s 7d
	Sausage, fair to fine ...	1s 7d a 1s 10d
Assam,	Good to fine	1s 6d a 1s 11d
	Common foul & middling	9d a 1s 4d
Rangoon	Fair to good clean ...	1s 6d a 1s 9d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	1s 8½d a 2s
	Fair to good black ...	1s 3½d a 1s 7d
ISINGLASS or Tongue.	good to fine pale ...	2s 2d a 3s
FISH MAWS	dark to fair ...	1s a 2s
Bladder Pipe...	Clean thin to fine bold...	1s 6d a 3s 4d
Purse ...	Dark mixed to fine pale	6½d a 1s 6d
Kurrachee Leaf ...	Common to good pale ...	1s 8d a 3s

EAST INDIA *Continued* East Coast Africa. Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet ..	1s 4 l a 5s 9d
	Ordinary to middling ...	3s 4d a 4s 2d
Kurpah	Fair to good reddish viol	3s 5d a 4s
	Ordinary and middling ..	2s 2 l a 3s 3 l
Madras (Dry Leaf)	Middling to good ...	2s 8d a 3s
	Low to ordinary ..	1s 8 l a 2s 4d
IVORY—Elephants' Teeth 60 lb. & upwards	Soft slightly def. to sound	£66 10s a £77
over 30 & under 60 lb.	,, ,,	£55 a £69
40 a 100 lb. ...	Hard ,, ,,	£48 a £59
Scrivelloes	Soft ,, ,,	£30 a £48 10s
,, ...	Hard ,, ,,	£23 10s a £23
Billiard Ball Pieces 2¼ a 3¼ in	Sound	£80 10s a £90 10s
Bagatelle Points ...	Sli. def. to fine sound ...	£70 a £81
Cut Points for Balls	Shaky to fine solid sd. .	£55 a £68
Mixed Points & Tips...	Defective, part hard ...	£34 10s a £53 10s
Cut Hollows ...	Thin to thick sli, def to sound	£30 a £55
Sea Horse Teeth— ⅜ a 4½ lb.	Crvd. crkd & close stright	1s a 3s 9d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	13s a 15s
	,, II, fair picking.	8s 6d a 10s
	Jubblepore I, good & fine pale	12s 6d a 13s 6d
	,, II, fair rejections ...	9s 6d a 10s
	Vingorlas, good and fine	10s 6 l a 11s 6d
Madras, Upper Godavery	Good to fine picked ...	11s 6d a 12s 6d
,, ,, ...	Common to middling ...	8s a 10s 6d
Coast	Fair	11s 3d a 11s 6d
Pickings ...	Burnt and defective ...	8s 6 l a 10s
MACE, Bombay ...	Dark to good bold pale...	2s a 3s 2d
	W'd com. dark to fine bold	3 l a 1s 2d
NUTMEGS, ,, ...	65's a 80's	2s 8 l a 3s 1d
	83's a 180's	1s 6 l a 2s 7d
NUX } Cochin, Madras	Fair to fine bold fresh	11s a 13s 6d
VOMICA } and Bombay	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour..	3d a 4d
LEMONGRASS ...	,, ,, ,, ...	1½d a 1¾d
ORCHELLA } Ceylon ...	Mid. to fine, not woody	20s a 25s
WEED } Zanzibar ...	Picked clean flat leaf ...	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy... }	4d a 4¼d
Alleppee & Tellicherry	,, good ,, ... }	
Tellicherry, White ...	,, ,, ,, ...	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 22s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	1s 6d a 8s
RED WOOD	Fair and fine bold ...	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	50s a 60s
	Ordinary to fair ...	28s a 45s
	Inferior and pickings ...	15s a 25s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs ..	Fair to fine flavour ...	£35 a £60
,, ,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	30s a 90s
SENNA, Tinnevelly ...	Good to fine bold green...	6d a 8d
	Medium to bold green...	4d a 6d
	Small and medium green	2d a 3d
	Common dark and small	1d a 1½d
Bombay ...	Ordinary to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—med. to large	85s a 97s 6d
	small and medium, oyster and chicken	70s a 85s
large	BOMBAY—fine thick ...	90s a 100s
medium stout ..	bright fairly clean	97s 6 l a 105s
chicken part stout	,, ,, ,,	80s a 102s 6d
oyster part thin	,, ,, ,,	72s 6d a 80s
Mussel ...	medium to fine bold	43s a 55s
	small and medium sorts	31s a 45s
Liugah Ceylon ..	Sorts...	2s a 10s
TAMARINDS	Mid. to fine blk not stony	15s a 18s
	Stony and inferior ...	8s a 12s
TORTOISESHELL ...	Fair & fine clean heavy	19s a 22s
Zanzibar and Bombay	Low thin to mid. clean	8s a 17s 6d
TURMERIC, Bengal ...	Leanish to fine plump finger	16s a 17s
Madras ..	Fin. fair to fine bold brgt	20s a 25s
,, ...	Mixed middling... ...	17s a 20s
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 16s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	7s a 12s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	4s a 7s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for October :—

THE CONGRESS ON SEWAGE-UTILIZATION.

UNDER the presidency of H. R. H. the Prince of Wales, the Seventh Congress of Hygiene and Demography held its meetings last week in London. The attendance is reported as being larger than on any previous occasion, and the foreign delegates considerably exceeded 2,000. The subjects of Hygiene and the prevention of diseases in man and animals were dealt with under 10 different sections, and a new department was inaugurated for the consideration of diseases communicable from the lower animals to man and *vice versa*. In the several departments many instructive papers were read, interesting not only to medical men and veterinarians, but to all communities at large, while most of the papers called forth valuable discussion. The varied nature of the business of the Congress testified to the rapid progress that is being made in so many departments of knowledge, and to the practical research of numerous trained and earnest workers who are elucidating the problems of life, and are applying the information acquired to the benefit of humanity.

From the incomplete reports of the work of the Congress which have reached us, we are not in a position to fully review those sections which must have a practical interest to agriculturists.

Dr. Carpenter contributed two papers on sewage, and insisted that it was the duty of local authorities to utilize the sewage of towns, even although the process might not prove a commercial success. General testimony was borne to the value of sewage-grown forage, especially for dairy cows, and of sewage-raised vegetables and fruit as human food; and it was shown that as long as sewage was properly supplied, it communicates no injurious qualities to growing plants, nor does it prove a nuisance to those residing in the neighbourhood; indeed, evidence was adduced of the improved health of Croydon and other places since sewage had been applied to the fertilising of adjacent lands.

We have before this referred to the desirability of utilizing the sewage of towns in Ceylon for agricultural purposes. It will, we admit, take time to overcome the objection of the generality of people to fresh sewage matter being brought in contact with vegetation intended for food, however much distinguished men like Dr. Carpenter may aver that it communicates no injurious properties to plants if intelligently supplied. We have witnessed sewage farming about Edinburgh, London, Paris and in Yorkshire, and experienced very little discomfort in walking through the irrigated fields. It will of course be said that the heat of the East will, by more quickly decomposing, give more foulness to the sewage matter. But there is another method of utilizing sewage besides sewage-irrigation, and that is the conversion of it into poudrette. According to Dr. Carpenter, it is the duty of Municipal bodies to utilize sewage matter even if the process results in financial loss. It is more likely that in many cases there will be profit rather than a loss resulting from this latter process, for while the cost of manure-making will not be much more than the cost of removing the sewage and other refuse matter to distant places, there ought to be a good sale of the manure and a fair income resulting. There is at least one Municipal town in Ceylon where sewage, blood and other refuse substances are made up into a compost and left for the time necessary to transform it into a valuable and by no means very disagreeable manure; and it is desirable that Colombo should follow the lead of the town above referred to, and appoint one of the minor officers

of the Sanitary division of the Municipality to superintend the work of poudrette manufacture, after having seen the process in working where it is carried on.

There is more than one spot where sewage matter, and blood and other refuse from the slaughter-houses, together with coir dust could be manipulated without proving a nuisance to the public.

We hope to find this suggestion carried out, as there is little that could be said in the way of objection; for while we would be glad to see illustrations of agricultural economy such as this, there is the high authority of the speaker at the Congress of Hygiene and Demography, that the utilization of sewage for agricultural purposes is by no means antagonistic to the fundamental principles of sanitation, that should carry great weight with our city fathers. In our last issue we quoted a passage to prove that a large income was being realized by the Municipal towns in the Punjab by the sale of sewage and other refuse matter. We reproduce the following sentence:—

"The sooner this prejudice (against the utilization of sewage in farming) disappears, the better for both the Municipal coffers and the agriculturist, as a common gain must fall to both.'

OCCASIONAL NOTES.

The Sub-Committee appointed by the Legislative Council to report on the Ordinance relating to Cattle Disease, have recommended that the duties and powers vested and imposed on the Inspectors should be exercised and performed by the Government Agent, it being impracticable to procure in the island Inspectors having sufficient veterinary knowledge to carry out such duties to the satisfaction of the public. We suppose that this suggestion will be carried out pending such arrangements as will secure the Inspectors with the necessary veterinary knowledge. We would suggest that a qualified person, and one who has had some experience of the working of measures relating to cattle disease, should be appointed to draw out a list of instructions, as a guide to those who are to assume the duties of veterinary inspectors, till these latter are available.

Of late there have been reports of "foot-and-mouth disease" from more than one district. There are two forms of this troublesome disorder:—(1) Sporadic aphtha, and (2) Epizootic aphtha. The former which affects few (and especially young) animals is controllable to a great extent by aperient medicines and astringent washes, but the latter which affects large numbers, is very hard to deal with. It is commonly known in Scotland by the name "Murrain" which, however, has a totally different application with us. Affected animals should be isolated and care should be taken that they are kept in a clean dry place. A dose of ½ to ¾ of a pint of linseed oil (according to the size and age of the animal) with an ounce of powdered ginger should be given to act on the bowels, the mouth should be washed with a solution of alum in water—one ounce to a quart—and the feet with a stronger solution, and the hooves kept clean and dressed with blue vitriol (copper sulphate) or zinc sulphate or salycilic acid or zinc chloride or carbolic acid and glycernic (½ oz. to 6 oz. of water) or strong mixtures of Condy's fluid or Jeye's disinfectant and water. It is a good thing to relieve the vesicles and hasten their healing, and to cut and remove all detached pieces of the hoof. Rock salt should be supplied for the animals to lick.

Eleusine Indica (crow-foot or crab-grass) the Sinhalese Belatana, or as it is sometimes called the wild kurrakkan, is a variety of the Indian *ragi (Eleusine Corocana)* the Sinhalese kurrakkan. It is figured and described in the New South Wales Agricultural Journal for February last. The Botanist to the Agricultural Department thus refers to it:—"A coarse, erect, tufted perennial grass.... recognised by its dark green colour, strong stalks, and digitate panicles, the spikelets of which are flat, and overlap each other. It grows nearly all the year round, but during the summer months yields a great amount of rich succulent herbage, which is much relished by cattle. If cut when it first shows its flower stems, it makes excellent hay. Mr. G. D. Hilder of Kempsey, forwarded a specimen of this grass to me for identification quite recently, with a note to the effect that it was a 'very good grass for cattle, and that they ate it greedily.' It is a grass that is worth disseminating on moist lands in the coastal districts; and as it produces a great amount of seed if left undisturbed for a time, there would be very little trouble in collecting any quantity. Besides its value as a forage grass, it is useful for binding the banks of rivers, dams, and loose earth. Its tough fibrous roots penetrate deeply into the soil, and in time form a perfect mat, so that flood-waters would have little effect upon the land where it was firmly established. It will even undergo partial submersion for a few days without the slightest injury." This hardy grass grows abundantly in the warmer parts of Ceylon, and cattle are very fond of it Native medical men recommend it for external application in cases of sprains.

Two varieties of Cumbu *(Penicillaria spicata)* are grown in India: the ordinary variety is that grown as an unirrigated crop, while that known as *Munumani Cumbu* is an irrigated crop. The plants of this latter variety are shorter than those of the other, and mature sooner, the ears appearing as a rule at fourth node. Cumbu is considered an unexhausting and ameliorating crop. It is largely grown and relished as a food by the natives of South India. It is a common proverb among them that "cumbu is equal to paddy as food." The crop is not usually manured, and is generally chosen for exhausted lands. It is either grown alone and successively on the same land year after year, or with other crops such as green gram. The ears are reaped two or three times before the straw is cut. The chaff is used as a bedding for forming straw stacks, and subsequently added to the manure heaps. The straw, which is inferior to paddy straw, is not of much value as fodder. Cumbu is grown to some extent in the island, and principally in the North-Western Province. A small extent of the new land attached to the

School of Agriculture is about to be laid under cumbu.

A small quantity of the seed of *Lathyrus Sylvestr is* for experimental cultivation at the School of Agriculture, has been indented for.

Of Cholum *(Sorghum Vulgare)* there are two varieties grown in South India, Songucholum and Arisicholum. In the former the grain has many husks, in the latter the grain is visible protruding over the husk. The former variety which is raised for fodder may or may not produce ears. It principally follows cotton. Cholum straw is wholly consumed without any portion being rejected. The crop is reaped in 4 months close to the ground, the roots remaining or not, as the soil is hard or soft, in the ground. About three cartload of 40 bundles each is said to be a fair outturn of fodder. Cholum is grown as a grain crop without rotation where sand predominates, and the grain of this *Arisicholum* is eaten by the poorer classes. The straw and chaff are given to cattle, but consumption of the grain by them is said to be attended with distention of the stomach. The albuminoid ratio of cholum straw is the lowest of all Indian fodders, but, says Dr. VanGeyzel, Chemical Examiner, Madras, "without further information as to the digestibility of the straw, it is not possible in reference to the analysis of cholum to explain the high repute in which the fodder is held, although in respect of the total amount of nutriment contained in it, it is superior to all the other Indian fodder straws."

The *Agricultural Gazette* of New South Wales declares that the value of Sorghum *(Sorghum Saccharatum)* for the food it furnishes to man in the form of flour from grain, of sugar, and of mollasses, and to animals in the form of green fodder, ensilage or grain, has not been fully recognised. Its value as a source of sugar has been conclusively shown in the United States by exhaustive investigations, and the financial results of a number of sorghum sugar factories, to be a highly commercial one. The plant also furnishes, in addition to sugar, a large quantity of syrup of the best quality, seed, and other by-products of commercial value. It is, in fact, a plant which has been found to pay the farmer to cultivate. Sorghum is said to succeed wherever maize will grow, and provided it gets a good stand in the earlier part of the season, will even flourish during a drought far too severe for maize. Three to four crops can be obtained in a year from sorghum, which, whether in the form of green food or chopped with straw, is very much relished by stock. The clean seed, as food to man or animals, is fully equal in value to either maize or oats, and but little inferior to wheat. The average yield of seed may be put down at 30 bushels per acre.

SOME USEFUL EXOTIC PLANTS.

I. *The Bassia Latifolia.*

Among the plants which Mr. J. P. William of Henaratgoda has grown for sale, there are several very useful ones, which would readily find a home in the Island and prove to be highly remunerative. Among these is the Mahawah tree (*Bassia latifolia.*) The genus Bassia is represented in Ceylon by a widely-growing and useful timber tree, the *B. longifolia.* Apart from the uses to which the timber of this tree is put, we find the villagers making its fruits and flowers articles of food. The sweet syrup obtained by boiling the flower calyices is used by the poorer classes in the interior villages for making certain sweets. It is believed that the hard cement which is met with in ancient structures of Ceylon was formed with the syrup of *Mi*, and the large forests of *Mi* trees which existed at the period would have supplied this article to a large extent. The *Bassia latifolia* is, however, not indigenous to the island. This plant would appear to be of very great economic value, and it is being at the present day introduced into many countries. It grows well in India, and the extension of its cultivation is contemplated by the Indian Forest Department. The tree is a very handsome growth, attaining a height of from forty to sixty feet, and it thrives in dry stony soil, and in fact grows well in all soils at the sea-level and up to very high elevations. The flowers are used in distilling a spirit very much resembling arrack; and a single tree bears from 200 to 400 lbs. of flowers in a season. On account of the large percentage of saccharine matter found in them, they are used as an article of food both for man and beast, apart from their value as producers of spirit. The seed, like our country Bassia, the *Mi* tree of the Sinhalese, contain a large percentage of oil, and this oil is used for lighting purposes and in the manufacture of candles and soap. The oil cake is also valued as a food for cattle and a good fertilizer. The timber of this tree is hard and strong, and is used for carriage wheels, railway sleepers, &c., while a gum is obtainable from the bark.

The cultivation of the plant presents no difficulties, and it recommends itself for growth in any plantation. It would be well if our Forest Department also decided on planting the tree in the different districts of the Island. Not only will it be a means of adding to the food supplies of the villagers, but also as a means of adding to the revenue. Besides, the extension of the railway system in the Island necessitates the importation of timber, and this fact should weigh with the Forest Department authorities in deciding, on the cultivation of such useful exotic timber trees as the Mahawah tree.

W. A. D. S.

THE CULTIVATION OF THE COCONUT PALM.

II.

Having selected the seed nuts, they should be planted in rows in a horizontal position, sufficiently deep to properly cover the germinating side, in beds, which should be divided by narrow paths for convenience in watering. The nuts are generally put down in the nurseries as close together as possible—say with a four finger breadth space between two. The beds may advantageoulsy be repared between two rows of palms, or in the

centre between four trees, or, if in new land, under large trees in well-worked-up soil, which has afterwards been mixed up with decaying leaves and compacted. If the beds are laid down in the open, it is advisable to lightly cover over the planted nuts with a quantity of old straw which will protect the nuts from the sun, and eventually decay and mingle with the soil. The beds when prepared after the first two methods, should be watered three times a week, but if straw be used to cover them, twice a week will be sufficient. If a copious shower of rain fall, 12 or 14 days may be allowed to elapse before again watering. The nuts, if damaged in no way, will begin to sprout from 3 to 4 months after planting, and in six months' time will be ready for transplanting. It generally happens that some plants will be more forward than others, owing to difference in the thickness of shell. Those trees which have nuts with very thick shells are considered very valuable, and are called "fighting coconuts," fetching from 25 to 50 cents each, especially about the 12th of April, the date of the Hindu New Year, when "coconut fighting" is a common pastime.

In former times the rows of plants, when transplanted, where put 24 feet apart, but this plan was found to be a mistake, as the trees did not sufficiently shade the ground. Now all new plantations have the rows 22 feet apart, and the new method not only keeps the ground cooler but at the same time economises space, each acre thus containing about 90 plants. If, from necessity, plants have to be selected from native nurseries, tall spindly ones should be rejected. A good plant should have dark green leaves, a stem inclined to be thick, and 2 or 3 feet in height. Plants with yellow leaves should be avoided—as this is an infallible sign of weakness.

The holes for receiving the plants should be about 3 feet square and 1½ to 2 feet deep. Care should be taken to remove any stones and roots that may be in or near the hole, while just before planting it is advisable to throw in half a bucket of water to keep the soil moist till the regular watering commences. In transplanting the palms the young roots should not as far as possible be injured. A stout-pointed stake may be used as a lever for raising the nuts in the nurseries.

After placing the palms in the holes prepared for them, a quantity of decayed leaves, wood, &c., may be put round each plant before filling in with earth. Stamp the loose earth well, taking care that the plant remains perfectly straight. Then make a circular bed all round the palm to retain any water put in, and conclude by pouring over a full bucket of water.

R. Atherton.

(To be continued.)

THE DAIRY.

Dairy work in Ceylon should receive more attention, and a proper supply of good milk and butter ought to be brought within the reach of the inhabitants of our cities and towns. The residents of Colombo are aware how difficult it is to procure pure cow milk, what is sold as such being very often adulterated with buffalo milk and water in various proportions. The adulteration of milk with water, if the water is good is only a minor evil, the loss being only in pocket, but it is a far more serious matter if the milk has been obtained from a diseased cow, and what guarantee have we that the milk offered for sale in our streets is the produce of healthy animals? The milk is also affected by the nature of the water that the cow drinks, or that added to the milk. Microscopic investigations have revealed the fact that if a cow is allowed to drink water containing animalculæ, these minute forms of organised life may be found in its milk.

The ill-effects of drinking diseased milk may not be always apparent especially in the case of adults, but there are instances known where disease and death have been directly traced to the ill-effects of drinking unwholesome milk in the case of children who are the largest consumers of milk. The question suggests itself—what ought to be done to ensure a good and wholesome supply of milk? The mere inspection of the milk would be useless, the only effective and most convenient method being the inspection of dairy cattle and dairies by qualified persons, and prohibiting the sale of milk except by licensed dairymen.

There is a great demand for good milk and butter in Colombo, and this has been to some extent met by the establishment of a dairy on a small scale in connection with the Agricultural School. A year and a half ago we started with only one cow, the whole of whose milk we then found it difficult to sell, in face of the opposition offered by milkmen and bungalow servants, but our hopes have been realised beyond our most sanguine expectations by our possessing today a dairy of 15 cows with an ever-increasing demand for our milk, which we are unable to meet without the small assistance we hope to receive from Government.

In establishing dairies in a country like Ceylon, an important matter is the opportunities they give for the systematic study of the feeding and management of milch cattle, the different breeds, the qualities and quantities of the milk yielded by them, and of the means of improving these breeds, also the necessity for the introduction of improved dairy appliances, &c.

The marvellous dairy results which have been obtained in Europe and America are mainly due to the most careful selection and breeding of good milk-giving strains.

Dairyman.

LATHYRUS SYLVESTRIS.

Lathyrus Sylvestris is the name of a leguminous fodder plant which, from all accounts must be considered nothing less than a boon to the agriculturist, and especially to cattle farmers. Its experimental cultivation is about to be undertaken in India, where, if the experiment prove a success, the plant will no doubt be introduced into, and extensively cultivated in, Ceylon. *Lathyrus Sylvestris* is reported to grow luxuriantly year after year on the most barren arid land, and to be excel- lent fodder for cattle. The plant is a native of Germany, and its merits were first brought to light by Professor Wagner, who improved the wild variety by cultivation for 15 years.

A writer in the *North British Agriculturist* speaks of it in enthusiastic terms as "the plant which in course of years will cover throughout the world the vast areas of arid, uncultivated, and at present mostly uncultivable land, supplying abundance of the most nutritious, sweet fodder to countless millions of horses, cattle and sheep; the plant which will promote the permanent prosperity and progress of stock-farming and agriculture to a certain degree unknown before; the plant which in due course will form the greatest source of national wealth in every land."

According to a report made on *Lathyrus Sylvestris* by Mr. Charles Hope, the plant is said to resemble the everlasting pea in habits of growth and in general appearance, and the blossoms are of a reddish purple colour. The seed takes rather a long time to germinate, and the plant takes three years to come to maturity, multiplying freely by means of creeping underground stems. It is said to yield remunerative crops for fifteen years, when its natural vigour declines, and it is necessary to plough up and re-sow. The expense of seed and labour per annum is consequently very small. The quality as shown by analysis is twice as good as any other fodder plant at present in cultivation, weight for weight, in the natural green state. The small quantity of water naturally present in the green plant is a very conspicuous item, helping not a little towards the foregoing statement. The rest of the extract does not show very much chlorophyll, and is more like oil than wax. The great advantage is in the very high percentage of albuminoids which is the more fortunate, seeing that the natural order is not benefited to a remunerative extent by direct applications of nitrogenous manures. The percentage of indigestible fibre is naturally lower in the young plant, and the tissues of the plant should not be allowed to grow old. The ash is very high, and will no doubt afford plenty of bone-forming material for young animals, and be very suitable to cows yielding a fluid which is intended to nourish the young. The albuminoid ratio is wonderfully high, being as 1 : 4·5, and most nearly resembles the concentration of bran, which shows a ratio of 1 : 4·2, than any other simple food. Hence it must be considered a very concentrated food, *twice* as concentrated as any green fodder in cultivation. It will probably be found economical to dilute the food, feeding along with it some straw or roots, until the desired ratio be obtained. The most approved ratio for cattle is 1·7 at the commencement of feeding for fattening, and this is gradually raised to 1·55 to finish. The albuminoid ratio of oats being 1 : 6·5, and the ratio for a horse according to Wolff being 1 : 9, it follows that *Lathyrus Sylvestris* is more than sufficient to maintain a horse at work. It is customary to purchase concentrated foods, and by mixing to make the ratio for horses and cattle more nitrogenous, but here is a plant in which the reverse process appears to be the proper course to pursue, the hay of which reminds one of the composition of cotton-cake. Cattle are reported to eat the fodder freely and at once, so that there is no question of its palatability. The German reports put the produce at 17 tons per acre. If any manures are to be added with a view to benefiting the crop they should be phosphates and potash, as nitrogenous manures are not likely to yield a profitable return. It is stated, however, that the plant will never require any manure of any kind. As soon as the crop attains a sufficient length for the scythe, it should be cut; the same plot may be cut from 3 to 5 times in a season. It should not be allowed to bloom, and should not be pastured. The plant is being tried at various places, and is surely worth a trial. Especially in this Island where there is almost a total absence of cultivation of fodder crops for cattle, will the introduction of *Lathyrus Sylvestris* prove of incalculable benefit.

THE GRAPE VINE.

(*Vitis Vinifera.*)

7. *Planting out, &c.*—After the soil has been broken up and exposed to the mellowing action of the air for at least a month, the clods should be pulverized and the land levelled before it is ready for planting. If it is flat and free from rocks the iron plough may be used for ploughing it, and the harrow or the native plough for breaking down the clods. If, however, the land is rocky and uneven, the mamoty will have to be used for both purposes.

When the cuttings strike and have grown to a sufficient height, say two feet, they are fit for transplanting. The spots where they are to be planted may be previously marked out by means of pegs, &c. The vines should not be planted too close to each other. No false economy with a view to saving land should be allowed to spoil a vineyard, which is to last for more than a life-time. The Rev. Father Assauw, of Wahakotte, in reply to enquiry made on this head, has kindly favoured me with the following piece of information :—"The vines I have are 12 feet apart; and those planted last year 8 or 9 feet apart seem to thrive well."

An extract from the Annual Report for 1889 of the Agricultural Department of Queensland is also well worth quoting in this connection. Speaking of Mr. Bassett's vineyard it says:—"Mr. Bassett states that, like many others when first entering upon this industry, he was possessed of very little knowledge of grape vines, or the proper method of laying out a vineyard; consequently after planting the first portion, he found that he had placed the vines too close together, and the rows also too near to each other, viz., 5 feet between and 4 feet in the rows. In the second portion of the vineyard planted he improved his system of planting by placing the vines wider apart, viz., 6 feet in and 5 feet between the rows. More experience was gained by his second planting, the result being that in the last portion planted he adopted what he considers to be the proper space in the Roma district, viz., 10 feet between and 6 feet in the rows."

In a country like Ceylon where plants grow so vigorously and luxuriantly, the distance, I daresay, ought not to be any less.

Manure may be used rather sparingly at first. No raw or hot dung should be used at all. Half-rotten cowdung of the appearance of black mould should be mixed up with the soil

to a depth of 1½ feet, in holes 3 feet wide, before the young plants are set. [Subsequent manuring will be considered later on.]

The plants should be removed carefully from the nursery bed without injuring the roots, if possible with the clod of earth holding on; and as soon as each plant is taken up, it should be planted in one of the prepared holes, watered and shaded. The shoot should be supported by loosely tieing it to a stick driven into the ground. Watering should be continued regularly morning and evening until the young vine is well established in the new place. It is however best to avail ourselves of the wet season for the purpose of transplanting.

E. T. Hoole.

Haputale, 24th September, 1891.

(To be continued.)

CRUDE THEORIES REGARDING THE ORIGIN OF CERTAIN PLANTS.

Like most economic plants the jak tree was originally found growing wild, and its value as a food was known to none. It was in fact considered to be a poisonous growth, till the god Sakra made its value known by a strange method. This divine benefactor is related to have descended to earth having assumed the form of an old man, and carrying a large-sized jak, to have presented himself before a village housewife, entreating her to boil for him the fruit he carried. With some persuastion the woman was induced to do the service asked for. After delivering his burden the old man went away on some pretended business, giving the woman strict injunctions not to taste of the fruit. The strange plan of the god succeeded well, for with the proverbial curiosity of a woman, the housewife, like her mother Eve, was most inquisitive to know what the fruit tasted like, for the aroma of the boiling jak rather pleased her. Having gingerly tasted a portion of a seed, she was quite fascinated by its agreeable flavour, and eventually partook of the greater portion of the boiled fruit before the old man arrived. The transformed god on his return seeing what had occurred, accused the woman, calling her *Hera Leeya* (woman thief) and disappeared. Since that time the jak was known by the name of *Heraleeya*, while the fruit (like the roast-pig of Lamb) became a favourite food with the people.

The coffee berry too as it originally grew in its wild state was looked upon as a poisonous fruit. It is related that a certain woman having quarrelled with her husband made up her mind in a fit of anger to put an end to her miserable existence by taking some poison in his absence. Rushing into the neighbouring jungle, she found a tree laden with red berries, and gathering some of the fruit, peeled off the outer husk, and attempted to eat the seeds; but these were so unpalatable that she decided on roasting them first. The roasted coffee, however, proved more bitter and distasteful than the raw beans, and being unable to swallow them, she conceived the idea of reducing them to a powder, and after mixing this with water, drinking it down. By a strange chance there was a pot of hot water near at hand, and this water she poured over the coffee powder, drank off the infusion and prepared herself for death. To her astonishment, however, the enraged wife found that the coffee, so far from acting as a poison, seemed to enervate her, and at the same time to calm her rage, till she felt ashamed of her cowardly attempt to take her life. On the return of her husband she went to him in contrition and confessed all, and he, after mildly rebuking her for her weakness, decided to himself to try the infusion of the berry, which he pronounced excellent. Henceforward coffee became a favourite beverage, and the berry was called *Kopé* (anger), since it was the anger of the woman that was the means of discovering its virtues.

W. A. D. S.

GENERAL ITEMS.

M. Leon Mandereau, a French *savant*, claims to have made the discovery that in cases of "localised" tuberculosis (such as is confined to the lungs, pleura, or liver), the aqueous humour in the eyes contains the characteristic tubercle bacillus in sufficient numbers to be readily identified, in different stages of the disease. In the case of living animals the aqueous humour is obtained by puncturing the cornea.

Ringworm, which commonly occurs among cattle, and especially calves, is due to a vegetable parasite—*Trichophyton tonsurans.* Affected animals should be isolated and taken in hand as soon as they show signs of the disease. The spots should be washed with plenty of soft soap in warm water, but care must be taken not to spread the fungus—scales and scabs being removed by soaking with carbolic acid. Among the remedies commonly employed are solutions of corrosive sublimate and biniodide of mercury, both active poisons and requiring careful use, carbolic acid and preparations of iodine and iodoform. A safe and effectual dressing which should be well rubbed in, is prepared by mixing one part each of tincture of iodine and ordinary paraffin with ten parts of vaseline. This should be applied daily for 3 or 4 days, and in cases of old standing the washing with soft soap and the dressing should be repeated every second day for a week. To destroy all traces of the parasite, all manure and filth about the cattle sheds should be removed, and the floors and woodwork wetted with a one-thousandth solution of corrosive sublimate, with which also all harness, halters, clothing and brushes should be washed or boiled.

A report sent into the Queensland Department of Agriculture deals with experiments in jam and jelly making with mangoes. In Ceylon, jams and jellies made of these fruits are common enough, but whether their manufacture for commercial purposes will pay remains to be seen. The abovementioned report refers to an excellent marmalade than can be made of the fruit, and goes on to speak of "the great possibilities" in connection with the mangoe crop, and declares that if the fruit be put into the market in the shape of jelly and marmalade, it would be certain to come into universal popularity, and that it might be manufactured and sold at a handsome

profit. With its abundant crops of mangoes Ceylon might send almost an unlimited supply of the preserved fruit, but until it be proved that the manufacture will pay—and an attempt has already been made with this object in view—no one is likely to start the industry.

General Fisher, R. E., writing of water required for rice cultivation, says:—"The quantity used in the Godavery and Kistna Deltas, *viz.*, ·015 c. ft. per second per acre, or 2 c. yards per hour, has been found, from many years' experience, to be ample, and immense volumes go to waste for which drainage works have to be provided. So far, then, as South India is concerned, in such localities everything appears to have been done which is at all necessary, so far as relates to the quantity of water required for such irrigation. A correspondent, however, states that in Italy the quantity given varies from ·036 to ·14 c. ft. per second per acre. The former is more than double the quantity usually allowed in India, about 4·05 c. yards per hour per acre, and the latter in upwards of 18·7 c. yards per hour per acre; the question then is how would it be practicable to secure such supplies of water in the dry months in India? To store water for 1,000 acres, say for 120 days' supply at the rate of 7·12 c. yards per hour per acre, we want nearly 50 million c. yards to be stored in order to provide for evaporation, leakage, &c., and for such extent of land as we have in the deltas the quantity required would be 25,000 million c. yards of water. It is quite plain, then, that the Government could never go to such an expense. If the Italians do obtain such quantities it must be from rivers which are supplied in the hot months by natural reservoirs from the snows melting in the hills or lakes. So far as my knowledge and experience go, I should say they use too much instead of too little water in India, and this is confirmed by the practice of the natives in using well-water when it is said a field requires to be irrigated once in 3 or 4 days; and I have always found that it was quite easy in tank irrigation to cut off the supply largely during the nights. The waste which now goes by no one attending at all to the sluices of a tank is enormous; these are allowed to discharge day and night through their appertures, exactly in the same way whether the heads over them are 5 feet or 20 feet. Now the velocity in the one case would be 215·3 inches per second, and 430·6 inches per second in the other theoretically. The loss of water in tanks I believe is not due so much to evaporation as to this huge waste by mere carelessness and negligence. If the rice were cultivated in India as it is in South Carolina, very much less water would be required, and the yield be much greater. There is apparently no difference in the seed as South Carolina had this conveyed there originally from the Mauritius, but the Yankees allow of no such thing as "mamool" to keep them sticking in the mud."

The Cow-tree which is found growing in the rocky arid plains of South America to a height of more than a hundred feet, and first described by Baron Humboldt, yields a rich nutritious milk. The juice is obtained from the stem by making incisions, and is collected by natives in gourds. It is used with cassava and Indian corn bread, and for several months in the year is the principal food of the natives.

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THE QUALITIES AND COST OF THE LEADING FERTILIZERS EMPLOYED IN COFFEE CULTURE

ARE exhaustively dealt with in Mr. Pringle's letter which we publish below. Of course the main principles which apply to coffee culture, apply equally to the tea enterprise; and as but few estates in Ceylon can afford to provide cattle manure on a large scale, planters will do well to give full consideration to the arguments, founded on the enhancement of original price by cost of carriage in favour of taking every precaution to secure artificial manures of the very best quality: those in which phosphates and ammonia are most concentrated. It is interesting to learn which are the best of the mineral (fossil) phosphates of Europe or America, but with so fruitful a source of fresh bones next door to us in India, our business is to see that we obtain the best of these. So with castor oil cake; while, if we use fish, we are bound to see that it contains a minimum of the substance with which some grocers are said to mix their sugar. Large dealers in fertilizers to whom appreciable orders are sent, cannot object to bear the cost of analyses of the substances they sell, so that the buyers may have a guarantee of the real value of the articles they purchase, with the prospect in most cases of considerable cost of carriage by rail carts and on coolies' heads; all of which are as heavy for inert as for active matter.

Coffee is of some considerable interest still in Ceylon, and the enterprise may some day revive. Meantime, Ceylon planters will, if guided by their own experience alone, feel surprise if not scepticism, at the effects attributed to manures in "backing up" trees badly affected by leaf disease. What happened here, when the disease became virulent was that manuring merely enabled an affected tree to put on a fresh coat of leaves for the fungus to suck the life blood out of. But there was a second enemy which was fed, especially by cattle manure, and that was the deadly rootlet-devouring white grub. While much is said in these South of India letters of the ravages of the stem borer (a very minor and rare evil in Ceylon) there is not a word said about THE pest which in our case sapped the life of the tree at its root, while the fungus destroyed crop after crop of foliage, in the elaboration of which the unfortunate coffee bush exhausted its energies.

Happily, tea seems exempt from both of these deadly plagues, and as yet no other of much consequence has visited our staple. But as the estates advance in age, more or less exhaustion of the nutritious elements of the soil will be inevitable. The loss must be supplied, mainly with artificial manures; and the information supplied by Mr. Pringle must be of value to the planter, in his efforts at effective but economical manuring

VALUE AND VALUATION OF MANURES: PART II.

By William Pringle, M. S. C. I.,

AGRICULTURAL CHEMIST TO MESSRS. MATHESON & CO.

(*Under special arrangement for publication in the "Ceylon Observer" and "Tropical Agriculturist."*)

Bones as mentioned in Part I have Phosphates *i. e.* Tricalcic phosphate varying from 39·40 per cent up to 57·08 per cent and Ammonia from 3·01 per cent up to 5·23, taking the cost of standard quality bones on the coast say R60, then the value of the samples would be as follows:—

	Standard.	Highest.	Lowest.
Phosphates	48 per ct.	57·08 per ct.	39.40 per ct.
Ammonia	4 „	5·23 „	3·01 „
Phosphates at R¾	36	43·81	29·55
Ammonia at R6	24	31·38	18·06
Total value	R60	75·19	47·1

The buyer pays R60 for an article that may only be worth R47·61 or it may be worth R75·19; there is a money value of R27·58 between the highest and the lowest.

Supposing that 4 cwt. of standard quality bones are to be used and the poorest quality are supplied it will be necessary to use 4 cwt. 3 quarters and 13 lb. nearly 5 cwt. to make the quantity of phosphates equal; while with Ammonia to make it up to the standard 5 cwt. 1 quarter and 9lb. would be needed: so that to make No. 3 equal to the standard it would be advisable to add 30lb. of 6 per cent oil cake to the 4 cwt. 3 quarter and 13 lb. of bones 3rd quality to bring it up to the equivalent of the standard. With the highest quality the whole is reversed. Roughly speaking, suppose the phosphate value to be set against the Ammonia, the proportion required would be highest 3¾ cwt. standard 4 cwt. and lowest 5 cwt. that is to get the money equivalent on the

basis mentioned; to get the full manurial value the manures would have to be adjusted with in the case of the lowest, by increasing the quantity used and adding some nitrogenous matter to bring up the ammonia. In the case of the highest the addition of a little more burnt earth or cattle manure would reduce it to the standard, the consumer benefiting in the reduced cost of carriage.

The question of carriage is of as great importance in the case of bones as it is with oil cake; and a very little consideration will show that it is worth while to take a little trouble to secure a first rate article; in England if the bones are not up to the standard guaranteed, the vendor pays the cost of the analysis and makes an allowance to cover cost of carriage.

One large firm of manure manufacturers in their annual circular issued in the spring of this year (1891) make the following allowances:—

15/0d per unit for ammonia
3/9d do do soluble phosphate
2/6d do do bone phosphate

The only stipulations of importance being that the surplus value of one element shall be set against the deficit in the others if any exists; and that they have the right if they are not satisfied with the analysis, to have a second one made and to strike the average of the results.

Steamed bone flour as it decomposes more easily is considered to be worth five per cent more than the raw.

The physical condition is in most cases, and on the generality of soils very important, and is worth paying for, as it means a quicker action when finely divided manures are used. If manuring can only be done on one-third of the estate per year, so that the whole is only manured once in three years, a mixture of steamed bone flour, raw bone meal, with if necessary some fish meal and oil cake to supply the extra ammonia would be a suitable manure, as the materials would not all decompose at once nor at the same rate, but would gradually yield up the food to the plant; the proportions should be adjusted to suit the soil, climate, &c. &c. Where possible I would prefer annual broad cast manuring.

Fish when pure and dry is a very valuable manure, it decomposes more readily than either steamed bones or oil cake, when ground down to meal it is a very powerful stimulant, and must be used with care.

The commercial article is often mixed with large quantities of sand; I have examined some that had 80 per cent in it, but the following analyses show that with care the sand and insoluble matter need not exceed 2 per cent. All over this should be deducted from the gross weight, and if it exceeds 5 per cent an allowance should be made to defray expense of carriage. I also give the analyses of two samples by John Hughes, F. I. C. &c., which represent the ordinary article of commerce where no limit is placed on the amount of sand. Mr. Hughes found as much as 62 per cent of sand in a sample and he considers No. 1 to be a fair average of fish usually imported in Ceylon, No. 3 fairly represents the best quality delivered in Coorg, and the supply is practically unlimited; it could be greatly improved by squeezing some of the oil out of it.

Analyst.	J. Hughes No. 1 Fish manure.	Fish Manure Pringle 2 Whole.	3 Fish.	4 Salt fish.
Moisture	5·24	13·12	13·78	12·32
(*) Organic matter	31·18	43.40	54·40	62.09
(†) Phosphoric acid	5·24	8·70	8·22	3·46
Lime	6·20	19·10	17·02	4·54
Alkaline Salts &c.	3.37	5·49	5·35 (‡)	14·96
Sand	48·77	19·10	1·23	2·63
	100·00	100·00	100·00	100·00
(*) Containing nitrogen	4·01	5·84	5·71	4·57
Equal to ammonia	4·87	7·09	6·92	5·54
(†) Equal to tricalcic phosphate	11·44	18·99	17·92	7·54
(‡) Containing common salt				14·75

The value of No. 1 is	R.	R.	Annas.
Phosphates 11·44 at	¾	8	10
Ammonia 4·87 at	6	30	0
Total value...		R38	10

While No. 3 is worth			
Phosphates 17·92 at	¾	13	8
Ammonia 6·92 at	6	42	0
Total value...		R55	8

Hughes' No. 2 sample is worth a little more.

It is usual to consider ¼ per cent under or over the whole number a fair allowance for errors in sampling &c. and to pay on each half per cent. It is a fair give and take arrangement between buyer and seller. Thus 10·5 per cent is paid for as 10 and one ½, 10·3 or 10·7 at the same rate, but 10·8 is paid for as 11 and 10·2 as 10.

So far I have dealt with readily procurable native manures, but where carriage is very expensive, it is cheaper to use more concentrated manures which can be dilated with burnt earth or cattle manure or weed compost, or jungle, or soil &c. as may be thought best.

In other cases a heavy crop is on the trees and they are to be backed up; a quick acting manure must be used to enable them to satisfactorily ripen it, and leave the trees fit for the next one. So with leaf disease or anything else that exhausts, backed up by easily assimilable food not only help the trees to recover rapidly, but minimize the risk of loss of crop.

First let us consider a case where carriage costs say R50 per ton and 6 tons ammonia is to be supplied.

100 tons oil cake 6 per cent at R6 per unit	=R3,600
Carriage of 6 tons of ammonia ...	5,000
Cost of 6 tons on the estate ...	R8,600
Equal to per ton of ammonia ...	R1,433

10 per cent oil cake is worth to the planter quite one rupee per ton more than 7 per cent and a fair price for it would be seven rupees per unit ton; 60 tons will give 6 tons ammonia and the cost is

60 tons oil cake 10 per cent at R7 per unit	=R4,200
Carriage of 6 tons ammonia ...	= 3,000
Cost of 6 tons on the estate ...	R7,200
Equal to per ton	R1,200

A saving of R1,400 by using 10 per cent at R7 per unit ton instead of 6 per cent at R6, equal to R233 per ton of ammonia delivered. Now if 24 per cent sulphate of ammonia costing R10 per unit ton is used only 25 tons are required, one-fourth the weight of 6 per cent oil cake; a consideration of the utmost importance where the manure has to be carried on the heads of coolies.

25 tons 24 per cent ammonia sulphate at R10	=6,000
Carriage of 6 tons of ammonia	1,250
	R7,250
Equal to per ton	R1,208

By using the equivalents of 100 tons 6 per cent oil cake, with 10 per cent, a saving of R1,400 is effected and with sulphate of ammonia 24 per cent R1,350.

Where the carriage is R50 per ton or less, the 10 per cent. "Hindy" has the advantage over the sulphate in cost; it is however so much slower in action that where immediate results are to be produced the ammonia sulphate is decidedly to be preferred. When

the costs are nearly equal the planter must first consider his true requirements, and the suitability of the manure to his working conditions, climate, soil, &c. If it is necessary to assist the trees over a bad attack of leaf disease, which by denuding them of leaf prevents the ripening of crop, quick acting manures are essentials; and though costing more per unit ton are the cheapest in the end, as they will often repair the damage before it is too late; they should be carefully backed up so that the first good effects are not lost. Ammonia and lime may be looked upon as stimulants, and like spirituous liquids must be used with discretion, a little whisky or wine often aids digestion but it is advisable to have something in the stomach to digest, otherwise the results are not satisfactory. So it is with plants if you give them stimulants, you must give them food to digest: they must have phosphates, potash, sulphur, chlorine, iron, &c. &c. As regards phosphates we have a wide choice; there are bones, raw of varying grades of fineness, steamed bones, and bone ash, mineral phosphates, precipitated phosphate, superphosphate, guanos, and fish. Disregarding the native manures we will just consider the phosphates pure and simple; they should be in such a physical condition that they may be easily mixed with burnt earth &c. Bone ash and mineral phosphates should be sufficiently fine to allow of at least 90 per cent passing through a sieve of 80 meshes per linear inch. The amount of phosphates in bone ash according to MacAdam varies from 62 to over 80 per cent; pure or bone ash contains 86·34 per cent and the average of six samples analysed gave 73·5 per cent. It is usually sold on a basis of 70 per cent. It is much more readily taken up by the plants than raw bones, and is an excellent fertilizer where phosphates are required.

Of mineral phosphates high class Spanish, commonly called Estramadurite, has from 75 per cent to 82 per cent phosphates; inferior qualities are often in the market with only 50 per cent or so in them. Canadian and Norwegian apatites and aruba phosphate are generally very rich having sometimes as much as 90 per cent tricalcic phosphate. There are a great number of others but these are the most suitable, and I prefer aruba as it is as soft and easily decomposed as bone ash, and is generally cheaper.

Precipitated phosphates are in a much more beautiful physical condition than it is possible to produce by mechanical means and they are almost as valuable as super phosphate the average percentage of phospates is about 60 per cent. A high class superphosphate with 44 to 45 per cent soluble is as a rule worth twice as much per unit as raw bone flour the physical condition is perfection and the food is at once available for the plant.

Trees bearing a heavy crop suffer from a bad attack of leaf-disease, we wish to assist them, and determine to apply a complete manure; cattle manure at once suggests itself, the weather is favourable and it is applied, the trees slowly feel its effect and recover, but there is a good deal of light coffee and some of the crop has dropped. We try bones, oil-cake, and woodashes; the results are much worse than with the cattle manure, the mixture is too slow in action.

Next superphosphate, ammonia sulphate and kanite are tried, the trees feel the effects at once and throw out a grand flush of leaf, and the leaves fill out in a wonderful manure. If we know the composition of the soil we can proportion the manure to suit it and the plant's requirements and produce the greatest effect at the least cost.

In fact the value of a manure to the tree or plant depends on the proportion in which the constituents are in it; the fertility and suitability of a soil for a given crop depends on the relative proportion that the easily assimable elements bear to one another and its physical condition; from this it follows that if there is a proportionate deficiency of any element in the soil that is not supplied by the manure, the results will be to say the least disappointing.

The heaviest loss of value occurs when the manure applied has the same deficiency as the soil. A soil is rich in phosphates and nitrogen and we feel surprised that bones and oil cake produce no result, commensurate, with the expenditure; cattle manure does much better, therefore the natural conclusion is that it is the better manure for coffee, probably the addition of a little kanite would improve the bone and cake mixture, but it is by no means improbable that if it did so, it would also improve the cattle manure, and an analysis of the soil would reveal the fact that the soil was short of magnesia, chlorine, sodium, potash or possibly sulphuric acid, and it is quite possible that the kainite alone would have given as good results.

If to the cattle manure we add what the soil demands to supply its defects we can manure with the certainty, provided the season is favorable of obtaining good crops, and in bad seasons fair ones and a full return for the money spent on manures, soil analyses such as those given by John Hughes and myself which show the relative proportion of the elements available for plant food to enable the planter to economise in his manuring by applying the necessary manure, avoiding the application of what is unnecessary, and the disappointment and waste of money attendant thereon.

To make manuring a success and to ascertain the value of a manure to him on his estate a planter must consider the following points:—

1. His soil.
2. His produce.
3. Carriage.
4. Capital.
5. Labour.

Without the last two manuring and manures are impossibilities, and if the supply of these two necessaries is limited, the planter must cut his coat according to his cloth; if the supply is insufficient a planter's best efforts are often cramped, and he has to work when he can, not just when he wishes to, and knows he will get the best result.

Work well done at the right season is the cheapest in the end, and the manure best adapted to his soil and produce is the most economical to use.

WILLIAM PRINGLE.

Bangalore, Sept 20th, 1891.

COCONUT AND PALMIRA PALM CULTURE IN THE NORTH OF THE ISLAND.

If it were not that palmiras are so slow of growth, we should feel strongly inclined to advise our correspondent, the Pallai planter (see his letter), to leave the plants to grow amongst the cocoanuts. There would then be a valuable sugar, fibre, and timber yielding property to fall back upon, when the cocoanut palms had passed from maturity to decay, which we suppose they are likely to do at an earlier stage of existence in the Northern portions of the island than in the Western and Southern? This is just one of those cases where the practical experience of a man like Mr. Jardine would entitle him to be heard with respect,—at home as he is in cocoanut, cacao, cinnamon, coffee and tea culture. We fancy he would say, "If the palmira plants *must* be sacrificed, so as to give the cocoanut palms full room and nutriment, and if there is danger of grubs, burn all save the leaves, and bury leaves and ashes round the roots of the cocoanut palms." This is our advice, if there is no doubt of the superior value of a cocoanut grove of 70 trees to the acre, to a dense forest of palmiras at the rate of several hundreds to the acre.

But the letter of our correspondent gives us a new idea of the ease with which the Forest Department could grow palmiras over a large portion of the northern districts of the colony. We suppose the jungle from which our correspondent's estate was formed is a fair specimen of the forest generally. If so, vast tracts of jungle are filled with

"waddlies" the results of palmira fruits carried away by elephants, monkeys, bears and other animals. If such be the case, all that the forest officers have to do, to produce large expanses of palmiras, is to clear away the forest trees, a large proportion of which are not in the region we are referring to, of much value for timber purposes. For good palmira timber for housebuilding purposes, there will be ever a demand, locally and in India. The "waddlies" scattered in the northern jungles ought, therefore, to be cherished and where necessary added to, so that forests of this fine and useful palm may be ultimately available for management by the Forest Department, or for sale or lease to natives. The matter is surely well worthy of serious consideration.

MR. ROGIVUE'S MISSION AND THE MOSCOW EXHIBITION; CEYLON AND INDIAN *VS.* CHINA TEAS.

London, Sept. 11th.

No news having reached the Ceylon Association in London as to Mr. Rogivue's proceedings, a call was paid by me in another quarter in the hope of obtaining the information respecting the success or otherwise of his venture at the Moscow Exhibition in which your colonists have no inconsiderable stake. But although much was mentioned to me of a satisfactory character relating to the prosperity of Mr. Rogivue's general undertaking, it was told me that the London Agency of that gentlemen had not to date heard anything as to what had been done at the Exhibition at Moscow. No doubt Mr. Rogivue is waiting till the Exhibition there finally closes before venturing upon any statement as to what has been accomplished at it. But as regards the general trading carried on by your representative in Russia, this would appear from all accounts to be possessed of a most satisfactory character, and the weight of the consignments made from London in response to his demands have gone far towards determining this. We read so little now in the papers as to what is doing at the French Exhibition in Moscow, that we cannot even learn if the attendance at it has at all approached the estimate of this formed when the idea was first started.

From the best authorities we hear that Mr. Rogivue is so satisfied with the results to his tentative work that he is about to take a partner, in order to enable him to further extend his business. This fact would seem to augur well for the increase of the Russian trade in Ceylon tea; though Mr. Rogivue has himself stated that it has been very uphill work so far. The fact must, however, always be borne in mind that that gentleman is of a most sanguine temperament, and that this should cause all his reports to be received with some degree of caution. Indeed those who are best acquainted with him here tell me that over-sanguineness is Mr. Rogivue's only fault.

A good deal has been written to the papers lately as regards the reasons for the continued supersession by Indian and Ceylon tea of the China varieties, the returns continuing to show a large diminution in the import of the last for the past half-year. The *North British Daily Mail* of September 4th contained the following paragraph:—

TEA—CHINA, INDIA AND CEYLON.—Consul Gardiner thus summarises the advantages of the Indian and Ceylon tea growers:—1.—Command of capital. In India and Ceylon tea estates are generally owned by companies which can afford to carry on business at a loss of time, can purchase expensive machinery and plant, and can spend large sums of money on experiments and on investigating the tastes and requirements of purchaser. 2.—The Indian tea grower can borrow money at from 4 to 5 per cent, while the Chinese tea grower has to pay from 20 to 30 per cent. 3.—In India and Ceylon the land tax is lighter than in China, and there is absolutely no likin, octroi, or export duty to pay. In China the likin and export duty often amount to 30 per cent of the selling price of the tea abroad, and to 100 per cent of the prime cost of its production in China. 4.—Labour is cheaper in India than in China. 5.—The tea planters in India and Ceylon have the necessary knowledge of chemistry and chemical agriculture at their command to produce in the tea by cultivation and manufacture the qualities required by the purchasers, and can vary them with the varying wants of different countries and districts. 6.—Better acquaintance with the tastes and requirements of purchasers, and intimacy with the retail dealers and their mode of conducting business.

Consul Gardiner's name seems to be unknown to the Ceylon men with whom the foregoing article has been discussed by me, and it is evident from that article that he is without acquaintance with some, at least, of the points which he touches upon. Thus, he speaks of a land tax in Ceylon, being ignorant evidently that such a tax does not, as yet at all events, exist in Ceylon. At the same time no doubt many of the facts Consul Gardiner has stated are correct and operative towards the conclusions he has made public. But there is another very vital condition upon which he has kept silence, and this has been given prominent notice in the *Engineer* which lately published an editorial dealing with the advantage of curing tea by machinery. The argument of this latter paper is that in China the tea is not only contaminated by contact with both the hands and feet of the natives, but that these prepare it in such small lots that it does not get into the possession of the native dealers until much of its strength and aroma has been lost by exposure. In Ceylon and India, the article points out, contact with the human hand closes with the plucking of the leaf. Machinery then enables a quantity sufficient to constitute a shipment to be turned out quickly which is packed into the boxes in a warm state as it finally leaves the macinery, and the strength and aroma are thus both preserved. This fact, the *Engineer* contends, may well account for the superiority in strength assigned to the teas of India and Ceylon as compared with those of China.

If we combine the causes assigned by Consul Gardiner with those stated by the *Engineer*, we doubtless obtain all those which have induced the British public to show the preference it has done for the teas exported by yourselves as well as for those grown in India over those of Chinese growth. The chemistry of tea-growing is, as we have learned of late from what Mr. Hughes has told us, still a knowledge too much in its infancy to have had the strong effect assigned to it by Consul Gardiner. That much as to this remains to be ascertained is certain, and the sooner the further experiments proposed by Mr. Hughes are carried out, the better it will be for all Ceylon tea planters.—*London Cor.*

WORLD'S FAIR MINING NOTES.

One of the greatest attractions of the mines department of the Exposition will be the remarkable collection of minerals owned by Professor A. E. Foote, of Philadelphia. He has the finest private collection in the world. It is a complete history of mineralogy, and it will be so arranged at the Exposition that the mineralogy of the States can be shown. This collection was shown at the Centen-

nial, at London, and at Paris, and in each instance received the highest award. It comprises about one hundred and fifty tons of rare minerals, and the exhibit occupies 6,000 square feet of space. At the Chicago Exposition one of the pavilions for this exhibit will be made of glittering mica, which will be procured in South Dakota. Among the additions to the collection is a mass of meteoric iron, weighing 230 pounds, which the professor found in Arizona recently. He sent a specimen of this to Professor George A. Koenig, of the University of Pennsylvania, who discovered in it black diamonds visible to the naked eye. This discovery is new to mineralogists and of great interest. In 1888 a meteor fell in Russia, in which the scientists discovered microscopic evidence of diamonds, but this Arizona meteor is the first to show the diamond formation to the eye.

Professor Foote will also show some entirely new copper specimens from Arizona, and a stalagmite tree, formed by limestone drippings from a mine in New Mexico. He will show the big garnets which he collected in Colorado, some of which are perfect specimens and above six pounds in weight. He has recently collected the finest specimens of celemanite ever found. In the professor's collection are all of the gems, rough and cut diamonds, rubies, topazes, opals, etc. His collection from the Pacific coast of America shows the wulfenite, a rare species of orange-red crystals; the brilliantly red vanadinites, and bright crystal of azurite, associated with velvet tufts of malachite. Alaska shows the deep red garnets, in their dull coats of mica schist. There is silver ore from the famous Bridal Chamber in New Mexico. It is said that a space the size of a bed-room, in this mine, produced $500,000 worth of silver. There is a precious turquoise from Los Cerrillez, New Mexico, where Montezuma got his precious chalchuhutils, which he valued above gold. There are blendes and galenas from the zinc region of Lake Superior. From the North Atlantic coast region is shown rhodonite, in fine crystals which is much used by the Russians in ornamental work. From the New Jersey mines come minerals found nowhere else in the world—franklinite—named after the philosopher—anomolite, trooslite, blood red zincite, etc. The South Atlantic coast region shows amethysts, sapphires, aquamarines, uranolite, etc.

In its exhibit at the World's Fair the government geological survey will place on view a sort of synoptic picture of the mineral resources of this country. Big chunks of native gold and silver will be shown just as they were dug out of the earth, together with remarkable ores of all sorts, particularly those of what are called "economic minerals," such as iron, copper and tin. Accompanying these will be maps drawn for the purpose of assisting the illustration. Several skilled collectors are soon to be sent out with instructions to gather in everything in the mineral line that is worth displaying. Professor Clarke, the distinguished chemist and mineralogist, has been given charge of the whole matter, and he is getting together a wonderfully fine assemblage of precious and semi-precious stones also, which will form part of the display. This collection, although it will be largely composed of gems found in the United States, will not be limited to those. Dozens of big boxes and trays full of such jewels of all sorts are at present being set in order for the purpose at the national museum. There are topazes, emeralds, rubies, diamonds, opals and every other kind of beautiful sparkler. Also these are so many curiosities, such as metals compounded in rare fashions in nature's laboratory—for example, bromide of silver and crystalized carbonate of copper. Examples will be shown illustrating the strange rules by which crystalization takes place, one metal or mineral assuming a certain geometrical shape another some different one, and so on. In addition to all this there will be relief maps, transparencies and photographs of American scenery. This will include most important views in mountainous regions, great deserts and other remarkable localities of interest from a geographical point of view. Photography in this line has been made a specialty by the survey, which possesses a great collection of such works of art. If there were more money to spend it is probable that visitors at the Fair would have a chance to see some of the enormous fossil reptiles of the past, which Major Powell's bureau has been digging up during the last nine years; but presumably only pictures of them will be shown.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Sept. 12.

ARECA NUTS have been very scarce lately. A parcel of 47 packages has, however, arrived this week.

CINCHONA.—At bark sales on Tuesday a very small quantity of cinchona bark was offered—In fact the auction was one of the smallest on record. The catalogues comprised, of—

	Pkgs.		Pkgs.	
Ceylon bark	639	of which	544	were sold
East Indian bark ...	403	,,	388	,,
South American bark	116	,,	—	,,
Jamaica bark	2	,,	—	,,
Total	1160	,,	932	,,

With the exception of a few parcels of Indian Crown bark, there were very few lots of good quality among the barks of Eastern growth. The supply of South American Calisaya also comprised some rich parcels, but all of this was limited too highly, and not a single bale of this kind was sold. There was a fair amount of competition, and the unit remained stationary at an average of 1½1 per cwt.

The following are the approximate quantities purchased by the principal buyers:—

	lb.
Agents for the Mannheim and Amsterdam works ...	75,378
,, Burnswick factory	35,021
,, Italian and American works ...	29,176
,, Frankfort o/M and Stuttgart works..	24,172
,, Auerbach works	12,103
Messrs. Howards & Sons	8,367
Other manufacturers	5,586
Sundry druggists, &c.	
Total quantity of bark sold	189,803
Bought in or withdrawn	46,967
Total quantity offered	236,770

At the last Amsterdam auctions, which were held on the 3rd instant, 248,700 kilos. bark were offered. Of this quantity manufacturers purchased 192,812 kilos., equalling 8,995 kilos. (317,254 oz.) quinine sulphate. Sundry druggists bought 20,784 kilos. bark, and 35,180 kilos., representing 1,448 kilos. sulphate of quinine, remained unsold. The following were the pruchases of the principal buyers: —Auerbach factory, 58,190 kilos. bark; Powers & Weightman, 48,884 kilos.; Brunswick works, 37,775 kilos.; Böhringer & Sons, 15,066 kilos.; Frankfort & Stuttgart works, 14,142 kilos.; Tillandier, 10,829 kilos.; Howards & Sons, 1,474 kilos.; and various buyers, 6,462 kilos. bark.

IMPROVING WORN LANDS.

Major Howard Swineford read a paper on this subject at a Southern institute. Among other things he said as regards green manuring. The practice of growing crops for the purpose of ploughing them under to fertilize the soil is one that, in my opinion, has a very much greater advantage than any other, and there is no better way of cheaply improving it than this. To procure a sufficient supply of manure is at the best a very costly process, but a crop that may be easily grown in a few months and then turned under may furnish to the soil as much fertilizing matter as eight or ten tons of manure per acre and this process may be repeated several times in one year. Manuring with green crops is not only the most economical but, to most lands, one of the surest and most speedy means of improving the texture and fertilizing properties of the soil. Besides furnshing plant-food the soil is made more mellow and better fitted for producing other crops. Various crops are used for this purpose, some of course are more valuable than

others. If we may be permitted to place two at the head of the list as most valuable, we would name red clover and the cow pea, the former for general use and the latter as best suited to this locality. Among the numerous crops used for this purpose are, buck wheat, rye, oats, corn and millet. The Hon. George Geddes, wellknown throughout the United States as a practical and scientific farmer, says of the clover: "If our soils require improving, we turn the clover crop under and repeat the operation until there is sufficient fertility to allow us to carry the clover off. The oftener we can fill the soil with roots and then plough them under and thus allow them to rot, the sooner do we expect to get our land in condition to bear a crop of grain. A very considerable part of the cultivated land in Central and Western New York has never had any other manuring than this clover and gypsum, and its fertility is not diminishing." He states that he had a field which for 74 years had been manuring with nothing except clover grown upon it and ploughed in, and that this field had produced wheat, corn, oats, barley and grass. The clover thus used had, for 50 years, been regularly treated with gypsum, and that the land was constantly increasing in fertility.—*Indian Agriculturist.*

THE CEYLON TEA TRADE: HOW IT IS OUTSTRIPPING THE COMMERCE OF CHINA.

CURING THE LEAF BY MACHINERY.

How the Failure of the Coffee Fields in the Island Led to the Entrance of the English Planters into Competition with the Great Chinese Monopoly—The Mongolians Greatly Alarmed—Some Comments on Dr. Bedloe's Recent Letter.

The reader of Dr. Bedloe's interesting letter on tea, which appeared in the "Times" of the 25th of July, will find certain statements which might be misleading, though much of the information volunteered is only too true. The present writer, a tea and coffee planter of ten years' experience, knows well that it is a fact that tea unfit for use is shipped from China to America. But the fault lies with the American consumer for refusing to pay for a good tea, or, to go deeper in the matter, it lies with the government for allowing inferior teas to be imported. The China tea trade among the lower and, I regret to say, even among the middle and intelligent classes, is demoralized by the "present" or "gift" system referred to by Dr. Bedloe, and this also ought to be stopped by legislation. Tea as an article of diet, ought to be prepared, bought and sold intelligently; not adulterated to sell, sold as adulterated, and bought in the glare of electric lights, fancy glassware, dinner sets or silver spoons.

Green teas ought to be avoided as impure. No tea can look green and be pure. Place any green leaf on the stove in your kitchen. Does it remain green? Of course not; and to keep its clear artificial coloring matter must be rubbed into the leaf after rolling. Moral: Drink black tea, or at least try and educate yourself to do so.

It is useless to quote in full all the appeals made to the Government to stop the importation of teas "too vile to drink." Dr. Bedloe's predecessor sent a dispatch to the Secretary of State in July, 1889, calling attention to the inferior quality of much of the Amoy Oolong tea exported to the United States and advocating protection for the American public.

Allowing, however, that much, very much, of the China tea imported is below the standard of good tea, Dr. Bedloe can scarcely speak with authority when he says there is no fine tea in America. There are not a few gentlemen in this city in old established tea houses who must consider this statement just a little rash. Good houses import "fine" teas which are sold at such prices as Dr. Bedloe quotes, and I have no doubt they would be all very well pleased to sell nothing else if the American people would pay for quality and drink "fine" tea. So much for China tea. Now for "the Briton." "The bold Briton permits patriotism and his purse to guide his palate and uses the vitriolic horrors of Ceylon and India." Now is this so?

Not many days previous to Dr. Bedloe's departure I had the pleasure of meeting him at the Philadelphia Sketch Club, and as he is one of my oldest customers I listened with pleasure to his eulogies on that vitriolic horror, Ceylon tea. Now, alas! Formosa Oolong at $50 per pound reigns supreme with him, while Ceylon "vitriol," lately sold at $125 per pound in the London market, is the memory of a depraved taste. And this brings me to the history of Ceylon as a tea-growing country.

When I first went to Ceylon in July, 1876, a few acres of tea might have been found and pointed out as a curiosity. It was then of no value. Looking from my verandah in Dimboola I could view a "sea" of coffee, green, healthy-looking and bearing one of the heaviest crops known. Today, from the same spot, not a coffee bush can be seen, but only tea! tea! tea! A deadly fungus, attacking the coffee leaf and causing it to drop off, has caused this change. Old King Coffee has gone and Tea reigns in his stead. The old coffee store has become the tea factory, the bagful of ripe red "cherry" coffee is seen no longer; the basketful of green tea leaf has taken its place.

No sooner was it known that coffee was doomed than the Ceylon planter put his shoulder to the wheel and began to change the face of the country and to alter its staple from coffee to tea. This resulted in the most astounding success in the annals of "extensive" cultivation.

Tea is a shrub indigenous to India—not imported from China. It is planted out on the estate generally as a small nursery plant, in line and at measured distance from its neighbors. It grows at any elevation, but quicker at a low elevation. I have known tea grow higher in one year than I could reach at a low elevation, while in the high districts it would take two or three years to attain the height of say six feet. When fully matured it is pruned down to twenty inches, the result being a flush of young wood. This is what is wanted for "leaf," but to allow the bush an opportunity to give us a surface to pluck from it is left for a time. The leaf is then plucked, not from the sides, which increase the surface, but the top. Two leaves and a half are used for manufacture, those lower down being considered too coarse.

In plucking, we have three grades of tea, viz., the terminal leaf bud, and the very small leaf, called "Flowery" or "Orange" Pekoe. Then comes the medium leaf, called "Pekoes," and lastly the largest and coarsest, called "Pekoe Souchong." All are plucked and put in the basket indiscriminately to be sifted out after manufacture.

Twice a day the baskets of tea leaf are taken to the factory and spread out thinly on canvas to wither, that is, become soft and pliable.

The leaf thus spread out in the evening would be ready for rolling next day. It will be observed from the above illustration that the withering takes place in the interior of the factory, not in the sun.

When sufficiently withered the leaf is let down through a funnel into the "roller," which has taken the place of the hands and feet of the great unwashed.

This machine consists of a receptacle for the leaf, on which pressure is automatically applied. The rolling surfaces, which move at right angles to one another, but appear by a peculiar crank motion to be, revolving, are made of wood, so that the tea leaf does not come in contact with any metal.

The tea when rolled is received in a trolley from the bottom of the machine and appears like cooked spinach and green. If fired immediately it would be a pure green tea and would in process of firing turn black. It is, however, laid thickly on a table or in drawers for a season to oxidize, and in an hour it will have commenced to turn from green to a bright brown color. This is a matter which requires careful attention, as over fermenting or under fermenting

alters the flavor entirely. Only the practiced eye can decide, and it decides at a glance, when the tea is right. When it is comes the firing. Several machines have been invented for this purpose, but I presume the sirocco is the one most commonly used. This is a machine which looks like a very large T, and is known as the T sirocco. Along the top are trays upon which the leaf is spread thinly. Below is the furnace and hot air pipes heating, if I remember right, to about 180 degrees. Two coolies tend the machine—one at each end—and pass the trays through until it is black and crisp.

Now comes the classifying of the tea. Three grades have to be separated, and this is accomplished by sifting by hand or machinery, as the case may be. Through the fine sieves we get the fine Flowery Pekoe, next size the pekoe and the large leaf remains, all being cleaned and dusted before packing.

This completes the process of manufacture. There has been no adulteration of any kind, and all the operations have been performed in a factory so clean that one might almost eat his dinner off the well cemented floor. No smoking is allowed, nor is anything permitted which could possibly contaminate the precious leaf.

Therefore, in spite of Dr. Bedloe's denunciation of Ceylon and Indian tea (the latter being equally carefully cured) does not the cleanly process of curing under European supervision commend itself over the Chinese method? It certainly has commended itself in English eyes, as statistics show. In 1878 the exportation of tea from Ceylon was 25,000 pounds; this year the estimate is 61,000,000 pounds, while the consumption of China tea in England fell from 125,000,000 pounds in 1879 to 61,000.000 pounds in 1889.

Such an alteration in trade has so alarmed the Chinese that fully five years ago the Chamber of Commerce at Shanghai sent a commission to Ceylon and India to investigate. The commissioners returned with the warning that if China did not send better and purer teas from her shores and open her gates to the foreigner with his machinery, she must eventually lose her export trade. It is to be hoped that China and Japan will one day tear down these walls of conservatism and open their gates to scientific and modern appliances for the cultivation and preparation of tea. Their export trade is even now in extremities.

J. MCCOMBIE MURRAY.

—*Philadelphia Times*, Aug. 9th.

[In the American paper in which the above article appears, it is illustrated by engravings of the "Tamil girl plucking leaf," "Bringing in leaf," and "Withering."—ED. *T. A.*]

POISONING BY A "WEED-KILLER."—An inquest has been held at Hastings, touching the death of a domestic servant It appeared from the evidence of the employer, that the girl was taken ill, and that he was informed that she had drunk some liquid he had purchased as a "weed-killer." The "weed-killer" he had purchased in the afternoon of the day on which deceased was taken ill, at Mrs. Gilbert's, florist, in Queen's Road. The bottle produced, which labelled "Scotch elder-wine," and also bore a smaller label with the words "weed-killer," was taken by himself to the shop, and the liquid, about a pint, was supplied in it. He had himself labelled it "weed-killer." After he had used a portion of the liquid, he left the bottle with the remainder in a corner of the garden, with the label "weed-killer" facing outwards. Deceased told him in the presence of the doctor that she had taken some of the liquid. He had never used the liquid before, and he was not and did not know that it contained poison, there being many things that are not poisonous which would kill weeds. The sister of the deceased deposed to seeing the bottle on the kitchen-table, and afterwards finding the deceased spitting over the sink. In reply to her inquiry, deceased said she thought the liquid in the bottle was elder-wine, and that she had tasted it, but was certain she had not swallowed any. Mr. E. J. Adkins, surgeon, said that he had analysed the contents of the stomach, and found no arsenic, but had detected it in other parts of the body. He had examined some the "weed-killer," and found it contained a great deal of of arsenic, caustic soda, and methylated spirit. The symptoms observed were consistent with arsenic poisoning. Ernest Barton, assistant to Mrs. Gilbert, florist, said he served Mr. Banks with the weed-killer, and told him how to use it, and Mr. Banks put the label on it in the shop. It was Smith's weed-killer, but although he knew it was a poison, he did not know what it was made of, nor that it was such a deadly poison. His employer purchased it in gallon cans, which were labelled "poison," but as Mr. Banks bought so small a quantity, he did not think it necessary to put on a label. He had never sold less than a gallon before, and when he sold that quantity a label, supplied by the manufacturer, and describing the ljquid as a poison, was put on. The coroner said the death appeared to have been the result of an accident, but it was doubtful whether a florist had the right to sell such a liquid. By the Poisons Act, no poison other than a chemist was allowed to sell arsenic, and the seller was liable to a penalty if he sold it without making an entry of the sale in his book, and labelling the bottle containing it to show that it was a poison. The jury returned a verdict of death by misadventure, and expressed the opinion that more care ought to have been exercised in the selling of a liquid of such a poisonous nature.—*Gardeners' Chronicle.*

CEYLON PINEAPPLE PLANTS FOR NATAL.—Mr. J. Medley Wood, curator of the Berea Botanical Gardens, stated in a report:—

The growth of fruit suitable for the Johannesburg market and for export, is becoming a matter of some importance, and I have been applied to by different growers to introduce in quantity the pine known as "Providence," as the fruit of the variety we have here does not appear to be large enough for export, one of my informants stating that fruit of the smooth-leaved variety had realised in Johannesburg double the price of our common pine. I therefore wrote to the Director of Kew Gardens for information on the subject and in a reply just received Mr. Morris says of the "Providence":—"It is a large-fruited kind, largely grown for export purposes. We have no special facilities for getting suckers of it. No doubt your Government could manage to obtain suckers from the Government of the Bahamas, and have them shipped direct. It would be useless to introduce them in small quantities. You require two or three hundred at least. There is an equally fine and large pineapple grown in Ceylon and Singapore. In the former it is known as the 'Queen' pine. It is quite as large as the Providence pine. You might obtain suckers of these, perhaps, more conveniently than from the Bahamas. As regards flavour and appearance, there is nothing to choose between them." As the pine we have in Natal has always been known here as the "Queen," I wrote to Mr. A. H. Bisset, who has been a resident in Ceylon, and he says "I do not know the Ceylon pine called the 'Queen,' unless it is a pine with small smooth leaves, running to over 10lb. in weight, yet of good flavour and consistency. This pine I have heard called the 'Kew' and sometimes the 'Mauritius.' Apart from this pine, which is a splendid one, almost square-shaped, with large base, I only remember the common pine, which is, as far as I can distinguish, the same as we have here." Mr. Bisset also tells me that steamers leave the ports of Ceylon for Madras several times a week; if therefore, the suckers were shipped so as to catch one of Messrs. King & Son's steamers, they should, if well packed, arrive here in good order. Messrs. A. M. & J. Ferguson, of Colombo, would no doubt be able to procure the suckers if favoured with instructions. We have in the Gardens one, or perhaps two, species of what are called the smooth-leaved pine, or, as I have heard it called, the "Cayenne." They have not done well with us; but I have directed the gardener to remove them to a more favourable situation and, shall observe them more closely during the season. I am writing to Dr. Trimen of Ceylon, on the subject; but the question of importing suckers in quantity, of say 2,000 to 3,000 is a matter to be dealt with by the Committee. Exchanges of plants between here and West Indies are stopped on account of the outbreak of coffee disease in Natal.

PHYLLOXERA.—M. Rommier has ascertained that a solution of bisulphide of carbon, in the proportion of O, 4 gramme, to a litre of water, suffices to kill the Phylloxera as well as their eggs.—*Gardeners' Chronicle.*

PROTECTION IN FRANCE.—The horticulturists of Angers have protested energetically against the protective duties proposed to be laid on plants entering France from foreign countries. The imports of trees, shrubs, and plants into France amounted in value in 1890 to 1,685,900 francs, 1,200,000 francs of which went to Belgium, while the value of these exported amounted to 2,875,000 francs. French horticulture, say the protestors, needs no protection, and demands none. Some few French firms, ten in number, have entered into competition with the Belgium and the English, but with little success, and hence they demand protection. Is it just, ask the signatoris of Angers, that a small number of establishments shall be advantaged at the expense of the large majority? But this is precisely what Protection does all the world over.—*Gardeners' Chronicle.*

CONSUMPTION OF COFFEE AND TEA IN THE UNITED STATES.—It is time Mr. Elwood May commenced his crusade in favour of tea in earnest, for the figures for 1890-91 are by no means encouraging. The per capita consumption was only 1·32 lb. against 1·49 in 1887, a material decrease; and the *American Grocer*, from which we quote two interesting articles, states that cheapness is not increasing consumption. The total consumption was less than 83½ millions of pounds, and there was a slight decrease on the previous year. The figures for coffee are very different: 8·24 lb per capita, the total being 519½ millions of pounds. But most melancholy and alarming is the contrast of the enormous alcoholic drink bill of the United States. The money cost is about $900,000,000, against only $150,000 for tea and coffee. There is much room for further temperance efforts in the United States, and but little hope, we suspect, for the advocates of prohibition.

IMPORTS OF TEA.

The imports for the fiscal year ending June 30th, 1891, were almost abreast of those for the year preceding, as the following official statement shows:

Year ending June 30—	Imports. Pounds.	Value. Dollars.	Av'ge cost per lb. Cents.
1891.....	83,453,339	13,828,993	16·5
1890.....	83,886,829	12,317,493	14·6

The value of the tea trade is less than one-seventh that of the coffee trade, and both combined about one-tenth the liquor trade, and one-fourth the beer business. For beer the United States pays at retail $427,896,167 annually, as against an estimated retail cost of tea and coffee of $150,000,000. Whisky costs the country, at retail price, $395,233,029, the consumption in 1890 reaching 87,829,562 gallons.

All but 1,057,415 pounds of tea imported were consumed in the United States, representing a per capita import of 1·32 pounds, as against 1·33 pounds in 1890, 1·28 pounds in 1889, 1·40 pounds in 1888, 1·49 pounds in 1887, 1·37 in 1886. Evidently cheap tea is not inducing a freer use of the leaf.

COFFEE IMPORTS IN THE UNITED STATES.

The imports of coffee into the United States for the fiscal year ending June 30th, as reported by the United States Bureau of Statistics, compare with the previous year as follows:—

	Imports Pounds.	Value Dollars.	Average cost per pound. Cents.
1891 ...	519,528,432	96,123,777	18.5
1890 ...	499,159,120	78,267,432	15.6

The figures show an increased importation of 20,369,312 pounds and an average cost of 3.1 cents per pound above the average for the preceding year. The United States coffee bill last year was nearly *one hundred millions*, of which Brazil gets three-fourths. Planters have been getting two prices for their product and growing rich remarkably fast. Taking the Government return, the only one showing the total imports at all points, and we have the following statement showing the consumption:—

Year ending June 30th, 1891.	Pounds.
Imports	519,528,432
Exports	8,486,973
Net imports or consumption...	511,041,459

This represents a per capita consumption of 8·24 pounds against 9·61 pounds in 1885, a year of low priced coffee, the average import cost being 8·1 cents.

The following table shows the net imports, value and per capita imports of population for the ten years ending June 30th, 1891:—

Year—	Net Imports. Pounds.	Value. Dollars.	Per Capita Populat'n.
1882... ...	435,579,289	42,815,027	8·30
1883... ...	478,507,125	38,155,251	8·91
1884... ...	508,632,863	46,955,394	9·26
1885... ...	539,264,356	43,389,270	9·61
1886... ...	537,211,781	40,145,304	9·36
1887... ...	500,819,587	53,416,200	8·53
1888... ...	408,562,775	58,670,737	6·81
1889... ...	561,132,100	72,139,897	9·16
1890... ...	490,161,900	76,750,979	7·83
1891... ...	511,041,459	94,628,119	8·24

The above is an interesting study. From 1884 to 1887 there was an era of overproduction, larger imports, low prices and increasing consumption. This was followed by a period of poor crops, high prices and decreasing consumption. High prices have stimulated production and it now looks as if in two or three years more we would reach the point where supply would again overleap demand.

CEYLON TEAS.—The quantity of Ceylon teas brought forward during the week has again amounted to over 20,000 packages, but the market has improved, and a large business has been done in the country. At this time last year such a supply as this would inevitably have depressed the market considerably, but the consumption has increased so rapidly, that even this large quantity is not too much, if actually sufficient, for requirements. Prices have again been higher for every grade, this being well exemplified by common teas, which are ¼d to ½d dearer than a fortnight since, and all other grades have participated proportionately in the advance. The late improvement in quality has been maintained, and Ceylon is by far the cheapest tea on offer.—*Produce Market's Review*, Sept. 5th.

ESSENCE OF COFFEE.—In the annual report of the Glasgow Sanitary Inspector (Mr. Peter Fyfe), issued last week, the following item occurs:—

"Essence of coffee is a manufactured article of diet which I deemed it advisable to inquire into this year. It is much advertised by the vendors, and is, I believe, largely purchased by the public. I took three samples of this essence, as manufactured by the three principal makers, and sent them to the public analyst. As it appears to me to possess public interest, I give here the results of his analysis in each case:—

—	1 Per cent.	2 Per cent.	3 Per cent.
Caffeine	00·22	00·18	00·15
Cane Sugar	41·00	33·85	56·95
Fruit sugar and other organic matter	19·63	29·03	11·22
Mineral matter in ash ...	1·52	1·42	1·32
Water	34·62	35·52	30·36
	100·00	100·00	100·00

His notes attached to the certificates show that the caffeine in the samples is very low—in No. 3 absurdly low—and the analysis of the best one shows that 98¼ per cent. of this concoction is water and sugar.—*Chemist and Druggist*, Sept. 12th.

THE BERMUDA JUNIPER.

The principal tree of the Bermuda flora is the Juniper, which covers the islands and makes the conspicuous feature of their vegetation. A few other trees grow naturally on these islands, and several others have been carried to them by man and have now become more or less firmly established. No tree but the Juniper, however, makes much show on the islands, which, from a distance, seem to be completely covered with it.

This Juniper has been growing on Bermuda for a long time. The wood, in the condition of lignite, was found at the depth of fifty feet below low-water mark during the dredging operations undertaken by the British Government in connection with the building of the Bermuda dry-dock. Subsidence of land is slow unless it is the result of some violent catastrophe, like an earthquake, and the fact that this Juniper grew on ground which is now far below the surface of the ocean is conclusive evidence that it has occcupied these islands for a period so long that the mind of man, accustomed to measure time by years or by centuries, cannot form a clear notion of its immensity.

How did the Juniper first get to Bermuda? By what process did this tree, which is unlike other trees of its kind, first appear on these minute islands remote from all other land, and raised from the bed of the ocean by the patient toil of insects, long after the neighbouring continent had assumed very nearly its present aspect? These are questions which present themselves to the student of nature as he sails into the harbour of Hamilton and sees the low islands about him everywhere clothed with this peculiar tree. It was not a case of separate creation, for the idea of the old philosophers, that plants and animals were created as they now appear in the different parts of the world where they occur, is no longer tenable. Man certainly did not bring the Juniper to Bermuda, for it is not quite four hundred years yet since man first saw these islands; and it is not improbable that trees are still standing which were growing when Juan Bermudez sighted the islands which Oviedo, the first naturalist to write on the New World, and a passenger with Bermudez on his ship "La Garza," described as "the most remote of all the islands yet found in the world."

Fifty years ago these questions would not have been easy to answer. Now the light which Darwin and Hooker and Wallace and other naturalists, working on the lines laid down by Darwin, have thrown on the origin of insular floras makes it easy to find a simple and, probably, a correct solution of the presence of the Juniper on the Bermuda islands. There is a Juniper in North America growing in nearly all parts of the continent, from Canada to Florida, and from Cape Cod to Vancouver's Island; this is our so-called Red Cedar (*Juniperus Virginiana*), a tree which, in all important respects, is very similar to the Bermuda tree. It is a well-known fact that several of our birds are very fond of the berries of the Red Cedar and devour them in large quantities. To this is due the fact that this tree is so generally scattered and multiplied through the country, as birds void the hard stone-like seeds without injuring their vitality, and so spread them far and wide. There is evidence enough that our Red Cedar was growing on this continent long before Bermuda rose above the surface of the ocean; and a bird, with his crop full of Cedar-berries, may have been blown off from the mainland and found a resting-place on the then barren coral rocks, where the seeds he had brought found conditions which favored their germination. Our continental birds, in several species, now visit Bermuda every year in considerable numbers, and this habit must have had its origin in accident. The Red Cedar once established in Bermuda, it is easy to imagine that the climate and soil conditions of its new environment would gradually change its appearance, just as all plants are gradually modified by the influences of their surroundings; and that in time, after the lapse of countless years, that it would take on its present appearance and stand for what naturalists call a species, that is, a modified or differentiated form of some other form or species. And, after all, the differences which distinguish the continental Juniper from its insular descendant are not very great. The branches of the island tree have grown stouter and tougher through their long struggles against the ocean gales; the roots have learned the secret of holding on to bare rocks or of penetrating deep into their interstices. The foliage has lost its dark green tints and is now a pale blue-gray. The leaves are blunter and are furnished on the back with a gland or resin duct. The fruit is somewhat larger, and the heartwood is not so bright a red and is rather less fragrant than that of the Red Cedar.

An interesting thing about the Bermuda Cedar is its ability to grow apparently equally well in different situations. It flourishes on the dry porous limestone-hills and grows as freely on the brackish swamp-lands which occur in some parts of the islands. It is not unusual to find trees of a wide geographical range, and therefore subject to different climate surroundings, which seek to adapt themselves to them by selecting situations which in one region are at the sea-level and in others are at the top of high mountains. Many conifers which grow at the north at the sea-level are found in the south only at considerable elevations above the Ocean; and the Red Cedar itself, which grows at the north on high dry uplands, inhabits, in Florida, swamps which are inundated during a considerable part of the year, and in the dry climate of the western part of the continent occurs only at high elevations. But the Bermuda Cedar grows as well in one place as it does in another, although climatic conditions do not, of course, differ perceptibly in different parts of this small group of islands.

Large individuals are no longer common; the axe of the wood-cutter and the ship-builder long ago swept them away. Here and there a venerable trunk may still be found, but among the large trees still growing on the island very few probably are much more than a century old or are large enough to possess any great commercial value. Formerly the wood was much used in ship-building; and it is interesting to note that Henry May, an English sailor, who was wrecked on the Bermuda Islands in 1593, and who afterward printed the first account of them, escaped with his companions to the banks of Newfoundland in a vessel which they were able to make from the Cedar-wood. This same wood, twenty-seven years later, furnished the material from which Admiral Sir George Somers, who the year before had been wrecked while in command of the "Sea Adventure" on the islands, constructed the vessel which carried him to the relief of the infant colony of Virginia, and in which his body was afterward borne back to his native land. Beautiful and very lasting furniture, too, was once made on the islands from the Cedar-wood, and old cedar chests and cabinets 200 years old and more are still held as heirlooms by the descendants of some old Bermuda families who still live in houses finished with this wood, which grows with age rich and dark in color like old mahogany.

Two portraits of Bermuda Cedars are printed in this issue. That on page 274 represents the stem of a very old tree standing in the Devonshire churchyard close by the ivy-covered parish church, which resembles in architecture and surroundings one of the little churches of the older Devonshire. The tree, which recalls one of those venerable Yews of England, hoary with age, and familiar inhabitants of many an English churchyard, probably led to the selection of this particular spot as a place of worship. The tree must have been a very old and large one when the little church was built; it may well have been standing when human eyes rested on these islands for the first time, and probably it has changed very little in the last 200 years. The diameter of the trunk is now fifty-nine inches, and the height of the tree is some forty feet. Only two larger specimens are now known to extst.

The second view represents the tree as it grows in the moist black soil of the Devonshire marshes, a large tract of ground covered with Cedars of large size and springing from a dense undergrowth of Wax Myrtle,

or Myrica, identical with the species so common on our Atlantic sea-board, and of Baccharis, similar to, although distinct from, our sea-board species. Tall specimens of the Bermuda Palm which, next to the Juniper, is the most interesting plant of the islands, appear here and there among the Cedars, and the ground beneath the shrubs is covered with a luxuriant growth of Ferns—with the Bracken (*Pteris aquilina*) with fronds four or five feet tall, with numerous clusters of the great Marsh Fern (*Acrosticum aureum*), and with the rare and local Devonshire Marsh Fern (*Aspidium Capense*). These marshes and their inhabitants are very beautiful, more beautiful, certainly, than any other part of the islands, and as the sunlight plays through their open glades on the pale trunks of the great trees, they offer contrasts of color and afford effects of light and shade which our picture does not convey and which words cannot paint.—*Garden and Forest.*

OUR FRESH-WATER FISH AS FOOD—I.

(*By* WYVERN.)

Seeing that we possess in the rivers and tanks of Southern India several varieties of fish which, if properly treated, would form most certainly a valuable addition to our food, it has occurred to me that a few words on the subject may be useful. That the capabilities of our fresh-water fish—from a gastronomic point of view—are practically ignored by the majority of my fellow countrymen in India will, I think, be admitted. To many such food is distasteful on account of its alleged muddiness, lack of firmness, and the nuisance often caused by its numerous bones. Most, if not all, of the evils which cause these objections can be overcome with a little care, and I hope to show that many a tasty dish can be concocted with fishes which have hitherto been looked upon as not worth the trouble of cooking. It goes without saying that the observations I am about to make cannot be very interesting to those who live within immediate reach of the "harvest of the sea," or to whom sea-fish is brought by the railway. They are, of course, addressed most particularly to the large number of Anglo-Indian exiles who do not enjoy either of these advantages, to inspecting officials, tourists, and sportsmen, whose duty or pleasure takes them into remote districts, and obviously to those who live permanently at a distance from cantonments.

Mr. H. S. Thomas who, as everyone knows, has done yeoman's service to his brethren of the angle out here by his able instructions in regard to the capture of fish, gives in Chapter VIII of his less expensive work on *Tank Angling* a very complete *résumé* of their "names, description, and habit." This compendium should be studied carefully by all who desire to add fresh-water fish to their ordinary diet, for independently of the valuable information it affords as to the vernacular names of fishes it frequently indicates the varieties which posses a reputation for their edible qualities. I believe that I am right in saying that there is not much difficulty in obtaining fresh-water fish in this part of India. If the tourist be no angler himself, the chances are that there is a member of his retinue who can catch fish easily enough. Mahomedans are often clever fishermen, and among peons, watchmen, and pensioned sepoys you frequently find a man of this disposition. Netting is, of course, practised in all directions by the villagers, and in many places for a few annas a miscellaneous draught of fishes can without difficulty be brought into camp. Let us now see what can be done with them. Few men who have ever practised the gentle craft of angling have failed to read that most excellent work, *The Complete Angler*, by Isaak Walton, and Charles Cotton (1676); and in doing so must surely have observed the care with which the authors described the methods of dressing the various fish to the capture of which they devoted themselves. Their recipes, now more than two hundred years old, can scarcely be improved upon, notwithstanding the advance that has been made in culinary science. In the first place, they continually insist upon the necessity of dressing fresh-water fish as soon as possible after capture, and there can be no doubt that this is correct notwithstanding a strange idea that some people entertain that salmon, pike, and certain other varieties of English fresh-water fish, are better if kept for at least a day. Another point is the speedy removal of the viscera. The fish intended for the table should be killed at the water-side at once, and then emptied, the liver alone being saved. It should then be wiped dry with a cloth, and sent up to the camp or bungalow forthwith with directions to the cook for its treatment. If large enough, fresh-water fish should certainly be crimped as soon as killed, *i. e.*, scored with a sharp knife, transverseiy from head to tail, on each side nearly to the bone, the cuts being about two inches apart according to the size of the fish. A douche of the coldest water available should follow, and a plunge in the stream in a cool shady spot for a quarter of an hour. Crimping should be carried out before the fish stiffens. The process renders the flesh "firmer and crisper," (says Sir Humphrey Davy) "by preserving the irritability of the fibre," while the speedy removal of the intestines, and the grass and weeds, on which the fish has been feeding, from its throat goes far to destroy the muddy taste, and to nullify any unwholesome effect that may arise from the sort of food it may have been eating. Old Isaak inveighed very strongly against allowing a fish to soak in water after it had once been cleansed, pointing out that such a practice "abated much of its sweetness." Speedy cooking after cleaning was his maxim.

Boiling fresh-water fish is less to be recommended than baking, stewing, broiling, roasting, or frying it. Sir Henry Thompson shows in his admirable treatise on *Food and Feeding* that much of the nutritious element is lost by this process, notwithstanding that you plump the fish into *boiling* salt and water to secure as much as possible its juices and flavour. Nevertheless, it may occasionally happen that you have no other alternative. If so, remember the *boiling* salt and water. If instead of water you can prepare a *court bouillon* so much the better. This is a species of stock with vegetable flavouring and wine. For the stock I would use the trimmings of fish, heads, fins, tails, and any sort of fish that may on account of its boniness be considered to be beyond the pale of cookery. Onions, and any available vegetable, should be boiled with the fish, and a little white wine, such as chablis, sauterne, or hock, may be added. Instead of white wine a glass of claret can be used, and, if that be impossible, one of vinegar. In camp there may be difficulties in regard to some of the ingredients I have named, but the principles can be observed as far as possible. A bottle of dried sweet herbs ought always to be included in the camp storebox. In cantonments, of course, matters can be managed simply enough. If the supply of milk be cheap and plentiful, *court bouillon à la Nantaise* may be tried, *i. e.*—milk and water in equal parts, with pepper and salt to taste.

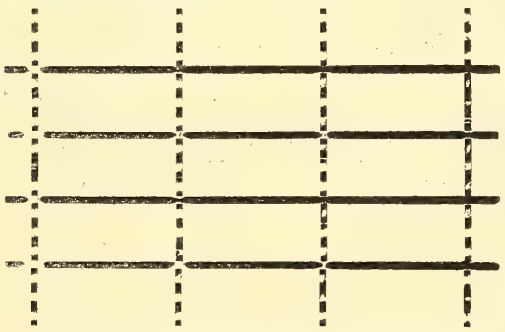
Baking can generally be accomplished by Ramasawmy in camp under difficulties that would petrify his European brother; roasting on the spit, too, he can manage successfully; while stewing and broiling cause less trouble than either of the two former processes, and may perhaps suit his appliances more readily. In camp there is, as a rule, no little difficulty in frying fish, for the medium can rarely be got in sufficient quantity. Ghee will probably be the only kind procurable, and if perfectly fresh and sweet this may be used for dressing small fry such as the *Chela argentea* (Tam: *Vellachee*), *C. clupeoides* (Tam: *Netteli*), the gudgeon, *Gobius giuris* (Tam: *Ulave*), and fillets of various fishes. Dipping in milk and flouring will be found far better than bread-crumbing, and bid your cook to be good enough not to spoil "the fry" by the condiments he loves to introduce when frying fish, the delicate flavour of which cannot withstand the interference of *turmeric*. For example, an old Anglo-Indian recipe for a "frying batter" propounds that

some garlic, onions, green ginger, and salt should be pounded and mixed with the flour of gram or dhal; to this tyre and turmeric should be added, and when sufficiently moist applied to the fish which should then be fried in ghee! Surely this elaborate preparation would disguise any fish completely. If you want to Orientalise fish for a change, curry it, or serve it as *môlé*. Filleting fresh-water fish is generally a wise proceeding. The Native cook performs the operation well, and you are thus protected as much as possible from swallowing bones, and the unpleasantness of catching one in your throat. All the trimmings which are left after this process has been carried out come in usefully for the stock required for the pie, stew, or sauce, as the case may be.

The Indian *murral* (Tam. *Verarl*) may be likened to the English jack, and be cooked in like manner. Let him be carefully killed, and cleaned as hereinbefore advised. Do not boil him if you can avoid it. If under two pounds in weight *bake* him, if bigger than that *roast* him on the spit. In either case he must be stuffed, pike-like, and this preparation can of course be varied at pleasure. Experience seems to show that ordinary fish derive in cooking the greatest assistance from the essences of *shell*-fish. Thus oysters, shrimps, prawns, lobster, crayfish, &c., are most valuable in sauces and stuffings. Out in a "tanky" district you often can procure quantities of little fresh-water shrimps and cray-fish. With these well cleaned you can compose a very tasty stuffing, using bread crumb, eggs, the minced shrimp, a little anchovy sauce to strengthen them, a pinch of mace, salt and pepper. Suet or butter in the proportion of one quarter (or one-third if you can spare it) of the whole preparation is most essential, because it preserves the moisture within, so necessary to prevent the fish being too dry. Tinned oysters, and the liquor with them, can of course be used instead of the fresh-water shell-fish, or *with* them if the fish be very large. Here is a good receipt for baking a *murral*. See that the fish is perfectly clean, and thoroughly dry before stuffing it. Take sufficient bread crumbs to fill the fish nicely without overcrowding, put them into a bowl, break into the bowl two, three, or more eggs according to the quantity of crumbs, which is of course decided by the size of the fish. The eggs when added should moisten the crumbs throughout. Add about a teaspoonful each of thyme and marjoram from the bottle, and enough chopped suet to represent one third, or not less than one quarter of the whole mixture, salt and pepper in proportion. Instead of suet, tinned butter can be used, or minced cooked fat bacon. Two or three anchovies, wiped free from oil, may be minced and added, or a slight allowance of anchovy sauce; if the liver of the fish has been saved it should be minced, and put in also. In deciding the exact amounts of these ingredients you must be guided by discretion remembering that the crumbs give bulk, and the eggs cohesion; that the suet, butter, or fat provides the necessary internal basting, so to speak, and the herbs, seasoning, and anchovy, flavour. Having thoroughly blended the whole composition like a pudding, fill the *murral* with it carefully, sewing up the opening in which it is confined. If by chance you have made a little too much, the stuffing that is over can be divided into portions, cutlet-wise, and fried, to be served as a garnish. The fish having been thus prepared should now be set in the baking-dish (which should be well buttered) in a circular from, if liked, with its tail secured in its mouth; and thus far our proceedings are complete.

During the mixing of the stuffing and the arrangement of the fish, a broth should have been simmering on the fire made of fish trimmings, an onion, some herbs, &c. Any fish that may be superfluous—(assuming that several have been caught, and that after giving some away a few can be spared for the purpose)—ought to be used in this stock. As already mentioned, a glass of chablis, sauterne, or hock, if by any chance available, should be thrown in; or if no light white wine can be given, a glass of claret, failing that a sherry glass of vinegar. The stock is not required in very large quantity; about a pint and a half,—that is to say an ordinary quart bottleful,—will generally, unless the fish be very large, be found enough. Use it in this manner:—Pour as much of it as will moisten the dish round the fish to a depth of about two inches. Put a little butter on the fish, and then set the dish in the oven. Baste it every now and then with its own liquor, and use your best endeavours to keep it moist. After about fifteen or twenty minutes' baking the fish will be done. Mix in a saucepan separately a *roux* with half an ounce of butter and half an ounce of flour; stir together over the fire for two minutes, then add a salt-spoonful of salt, a pinch of pepper, and a breakfast cupful of the fish stock previously made; now empty the liquor that may remain in the baking-dish round the fish into this sauce, boil one minute, add half an ounce of butter and stir till it is melted. Put the *murral* carefully on a hot dish, pour the sauce over it., and serve. Be very careful in moving the fish: indeed, if you think that it may break during that operation, leave it alone, pour the sauce over it, and wrap a napkin round the baking-dish in which it should be served.

If the fish be over threee pounds in weight it is well worth while to roast it. The preparations in regard to cleaning, drying, and stuffing are the same as those just described for baking. The operation of spitting, however, requires great care, for if carelessly done, and the fish be at all over-roasted, the chances are that it will fall off the spit, and break to pieces. To guard against this catastrophe you should make a cradle for the fish in this way.—Take four strips of thinly split bamboo, cut them a little longer than the fish, lay them in rows four inches apart, and tie across them, at intervals of six inches, four tapes as in the following diagram:—



The tapes, which are represented by the dotted lines, should be knotted to each strip of bamboo at the points of intersection. Thus we have a cradle large enough for a fish eighteen inches long, and a foot or a little more in girth. It is secured to the spit by the ends of the tapes, which are left over for that purpose. The arrangement is in principle something like the cradle which is placed round a horse's neck to prevent his tearing himself when under treatment for a wound. Having thus attached the fish securely to the spit the roasting should be conducted before a clear charcoal fire, and basting should be kept up continually. To facilitate this work, place a tin baking dish under the fish, put into it four ounces of butter, and when that has melted, a glass of vinegar; catch all the liquid that drops from the fish, and use this with the melted butter and vinegar for the basting. When done, detach the fish carefully, lay it in the hot dish prepared for it, and pour over it a sauce composed in the same way as that recommended for the baked *murral*.

The recipes given for baking and roasting the *murral* can be applied to several other fish:—the various carps and labeos, the *wallagu attu* (freshwater shark) &c., but very large fish are better prepared in fillets than whole, the treatment of which must form part of another article.—*Madras Mail*.

WONDERFUL TREES.

The subject of *wonderful trees* is an almost inexhaustible one, abounding in interest and curiosity. In our own State are found the most famous groves

of gigantic trees in the world, perhaps. One who visited the Mariposa Grove last year writes: "They are not trees at first sight. You can neither measure them with your eye nor sit in their shade—only take in a portion of the brown trunk as large as a good-sized house. It is only by an unusual effort of looking up that we see either foliage or limbs. They are not beautiful—simply enormous." Imagine one tree measuring 90 feet in circumference; this is true of "Grizzly Giant." "Wawona," sometimes called "Tunnel Tree," has a roadway cut through the solid heart which is 27 feet through, 10 feet high and 10 wide, and yet the tree is vigorous and growing. There are many others equally as wonderful in this famous California forest.

The cypress, in ancient times, was considered a sacred tree, and idols were carved from it. The Pacific Coast Indians were found using it in their ceremony of purification in their wildest savage state. The mulberry has been called the wisest of trees from the fact that it never puts forth its buds and leaves till the season is so far advanced that there is no inclement weather to be apprehended. Rosewood is said to owe its suggestive name to the fact that when the tree is first cut the fresh wood possesses a very powerful rose-like fragrance. There are several varieties of this wood and all very valuable. The Quinnepiac oak at Woodbridge, Conn., which was cut in 1882, was pronounced the oldest tree on the Atlantic Coast. Gen. Lafayette and other officers of Washington's army once rested under its spreading shade while on the march, and a visit to the tree by Woodworth is said to have inspired the poem, "The Old Oaken Bucket." In front of Macedonia Church, in Columbia county, Georgia, is a quivering tree. Every limb, large and small, on the tree trembles as in fear, or as a suffering animal would quiver, and this occurs when not a breath of air is stirring.

The Scotch fir is a blessing to the country in which it grows. The poor man's hut is lighted by torches made of the branches, which burn most brilliantly owing to the resinous nature of the wood. In the barren parts of Sweden and Lapland the peasants select the oldest and least resinous of the branches, take out the inner bark, which they grind and mix with their scanty supply of meal, making it into cakes called bark-bread.

In the islands of the West Indies grows a tree resembling an apple tree in height and size, known as the calabash tree. It has wedge-shaped leaves, large, whitish, fleshy blossoms that grow on the trunk and big branches. The fruit is much like a common gourd, only a good deal stronger, and often measures 12 inches in diameter. The hard shell of this is cut into various shapes by the natives and is sometimes handsomely carved. It is made into drinking-cups, dishes, pails, and even pots, and can actually be used over the fire for boiling water. But the calabash pot gives out after a few trials over the fire, and is unfit for further service.

Probably the only trees which grow ready-made whistles are those found in the forests of Nubia. When this tree is swayed by the wind, strange sounds may be heard like the notes of a flute, a fife, or a penny whistle. The vocal tree was a wonder to all who heard the mysterious sounds, untill explanation was given by a scientific traveller who investigated the matter. He found that at certain seasons of the year hordes of insects deposited their eggs on the young shoots and ends of branches. When the young insects emerged, small holes were left in the galls. The wind blowing through these openings caused the strange noise.

In New Zealand is a tree fatal to birds. The seed vessels give off a sticky fluid, and many a fly finds himself on the gummy stuff. These flies attract small birds, and they too get so covered with the fluid that they are unable to fly. They are also attracted by the clusters of ripe fruit, which they intend to eat, but when once covered by this fatal gum they remain, not to eat, but to be eaten by other animals.

The most important article for illuminating purposes in Japan is the candle made from the fruit of a tree which very much resembles the common sumac of this country, and is called "the vegetable wax tree." The berries are the size of a small pea, of a whitish colour, hanging in clusters, and contain the wax as a thick, white coating of the seed. The wax is obtained by the berries being crushed, strained and pressed in hemp-bags, or by boiling the bruised seeds and skimming the wax from the top. From experiments made, this tree can be readily grown in this country. It is highly ornamental as well as valuable for its production.

In a part of Africa not frequently visited by travellers, the discovery has been made of a tree which yields butter. Under no system of treatment can it be made to equal that churned from milk, but by salting it is somewhat similar. By heating with a solution of potash or soda it is easily converted into soap.

The "stinging tree" of Queensland is a luxurious shrub, pleasing to the eye, but dangerous to the touch. It grows from two or three inches to 10 or 15 feet in height, and sends forth a very disagreeable odor. Its effects are curious; it leaves no mark, but the pain is maddening, and for months afterward the part when touched is tender in rainy weather or when wet in washing.

A marvellous palm grows in the village of Pedur, in India. Some children plucked its fruit at five o'clock one afternoon and flocked early the next morning to gather more, but they found the branches now far above their heads. Observation showed that the tree had been changing its position every morning and evening. It is 11 feet in height. One who has seen it writes: "At 5·30 the tree was almost lying toward the west. The foot of the tree was at an angle of five to seven degrees with the ground, and we were given to understand that it had already commenced to rise from four o'clock. A handkerchief which had been tied to one of the leaves, so that its other end just touched the ground, had risen six inches. At 8 p.m., the handkerchief was eighteen inches from the ground, and at 3 a.m., nine feet."*

One of the greatest wonders of Madagascar is the "Traveller's Tree." Its stem resembles that of a plantain; but it sends out its two wing-like leaves (which resemble a large expanded fan) on opposite sides of the stalk. In an aged tree the lowest of these leaves will be from 20 to 40 feet from the ground. The fruit grows in large bunches, with three or four such bunches to a tree. The leaves are used for roof thatching, and the leaf stalks twirled together serve for the walls of the islanders' huts. The most remarkable property of this, and the one which gives its name "traveller's tree," is its leaf stalks, which, even in the driest seasons, always contain water; and the wayfarer, if he be thirsty, has only to pierce the thick base of a stalk to obtain fully a quart of pure and refreshing liquid.

Newton, N. C., has a curiosity that beats by a large majority the rain tree which gained such notoriety in Charlotte in 1886. It is a smoking tree, and baffles all efforts at explanation. It is a white mulberry tree, was brought from Illinois a year or two ago, and is now about 12 feet high, with a bushy top and many lateral branches. Puffs of smoke, identical in appearance to cigarette smoke, are seen starting every now and then from all over the tree; sometimes from the leaves, sometimes from the bloom, sometimes from the bark of the limbs or trunk. The puffs are at irregular intervals; sometimes two or three at once from various parts of the tree, and sometimes they are several seconds or a half minute apart. They just come haphazard from any part of the tree, and as they ascend in the air, look exactly like the smoke from a cigarette.

Professor Schelwisch, the well-known naturalist of Bavaria, while travelling with the Stanley expedition in the heart of Africa, noticed a plant with a peculiar steel-colored foliage. It was growing like other plants from the soil, but on examination was found to be practically composed of iron. The leaves, although very thin, were bent with great difficulty,

* We confess to scepticism.—ED. *T. A.*

and in order to secure one, it was found necessary to separate it from the branch with a file. On further examination and experiment, it was found that the plant, or tree, eagerly devoured any metal its roots might come in contact with, and changed its color to the color of the metal last absorbed. [? ED. *T. A.*]

Major Quincy A. Steele, who has been with an engineering corps surveying railroads in Central America for the last two years, gives an account of some very curious trees he met with there. Among the funniest are the electric-light tree, which gives milk, and the dough-producing tree. The electric-light tree gives a light so strong that you can read or write by it by night; this tree is not a large one but very conspicuous, and scores of them may be seen over the country, like beacon lights set in the hills.

The milk tree has a big tough skin that can be used for half-soleing shoes. To milk the tree, a hole is bored in the trunk; then it lets down sap as white and as sweet as any even milked from a cow.

The bread from the *bread tree* is not exactly bread when picked, but it is a nice stiff dough inclosed in a nutshell about the size of a goose egg. The nut is cracked, the dough taken out and kneaded a little, then is ready for baking. By thinning it down with a little milk from the milk tree, it makes excellent pancakes.

In behalf of those who are interested in trees, I have collected the foregoing from what appears to be reliable literature, and without doubt truthfully describes these forest wonders.—*Cal. Rural Press.*

THE CULTIVATION OF THE PINE-APPLE.

(*Ananas sativa*, Sch.)

The pine-apple is a native of tropical America, but having become naturalised and growing in great abundance in the warmer parts of Asia and Africa, some authors have written of the plant as being indigenous to those countries. Dr. Lindley, in treating of Bromeliaceous plants, affirms, however, that it is a native of the continent and islands of America. The pine-apple is exceedingly tenacious of life, and, owing to this circumstance, was probably one of the first tropical fruits transplanted successfully from its original home to other warm countries. It has been grown successfully for very many years in most of the warmer parts of the earth. The plant has already proved itself to be well adapted to the Australian climate. It frequently ripens its fruit in sheltered positions in the vicinity of Sydney; but to grow the plants as a commercial product it requires a warmer part of the Colony than the latitude of Sydney. From the Clarence to the Tweed Rivers, however, there are numerous eligible sites for pine-apple plantations, which would, under careful management, return handsome profits on the outlay, not only by shipping the fruit to market but also by growing it for canning purposes. A cannery need not be an expensive affair, and one might very well be started by farmers on the co-operative principle in some central position on the Clarence, Richmond, or Tweed Rivers. If the cannery were supplied with plenty of fruit during the season (and this could be easily done), I can safely say that, with good management, it would turn out to be a commercial success. About twelve months ago, I visited a large cannery in Melbourne, where pine-apples were being imported in great numbers from Queensland for canning purposes. If it paid a Melbourne firm to import pine-apples from Queensland and can them, how much more would it pay New South Welshmen to grow them and can them on the spot? Besides the ordinary profits made on canning the fruits, the amount paid in freight and customs duties by the Melbourne canners could be added to the profits, which would be considerable if the industry were properly started here. The canning process is withal so simple that it does not require a great outlay in machinery or a great amount of skilled labour. It is necessary for canning that the pine-apples should be ripe, and as near the same size round as it is possible to get them; so that when they are cut, the slices will fit evenly in the cans; this will save syrup, and, besides, the preserves will present a better appearance when opened. The operation of peeling and slicing is done on tables by either women or boys. The pine-apples are cut across into slices about a quarter of an inch thick; these are carefully laid in the cans until they are a little over three parts full; a thick syrup is then poured out of a ladle into the cans, but they are not quite filled. The tops of the cans are then soldered on, and the cans are then put into an iron framework holding about fifty, and are lowered with a block and tackle into vats containing boiling water. After boiling for several minutes, the cans are taken out and perforated at the top to allow the steam to escape; then they are hermetically sealed and put somewhere to cool. When the cans are labelled they are ready to be placed on the market.

Varieties.—There are numerous varieties of pine-apples. I once had twenty-two under cultivation; but for all practical purposes the number could be reduced to three or four. I subjoin a list with description of those that I consider best for general cultivation.

Black Jamaica.—Leaves small, narrow, dark green; spines small and thinly set; fruit oval, somewhat pyramidal, dark brownish yellow; pips middle-sized, prominent, flattened in the centre; flesh firm, pale yellow, rich, juicy, and highly flavoured. Its weight is generally from 4 lb. to 5 lb.

Charlotte Rothschild.—Leaves broad, with strong spines; dark green above and mealy underneath; fruit large, colindrical, or slightly barrel-shaped; pips large, flat, golden yellow; flesh yellow, and very juicy. Its weight is generally from 7 lb. to 10 lb.

Queen.—Leaves very short, broad, of a bluish green, very mealy; spines strong, set widely apart; fruit cylindrical, or a rich deep yellow; pips middle-sized, prominent; flesh pale yellow, juicy, sweet, rich, and excellent. Its weight is generally from 3 lb to 8 lb. This variety is undoubtedly the best to cultivate for a summer crop; it is very hardy and matures early.

Smooth-leaved. Cayenne.—Leaves long and smooth, or with very few spines; fruit very large, pyramidal, dark orange yellow; pips large, flat; flesh pale yellow, rich and highly flavoured. A very handsome fruit weighing from 6 lb. to 9 lb. It is essentially an autumn and winter fruiting variety. This variety is largely grown in the Azores for the purpose of supplying the English market during the winter and early spring months.

The site of a pine-apple plantation should be fully exposed to the sun, but sheltered against prevailing winds—especially the southerly and westerly ones. The land should be well broken up with a strong plough, drawn by bullocks, to a depth of at least 15 inches, exposed to the influence of sun and air for sometime previous to the planting taking place, and be scarified occasionally. The soil best suited to the growth of the pine-apple is one that is fairly rich in humus (which can be easily found in the north-eastern portion of this Colony), and affords a free passage of water through it, with a well-drained subsoil; nothing harms the pine-apple so much as stagnant moisture.

The Propagation of the Pine-apple.—This is effected by seeds, crowns, cuttings of the stem, and suckers. The latter, however, is the best and most expeditious way, and the one generally adopted. Suckers not only fruit much quicker than those propagated by other means, but also produce the finest fruit. Therefore, I shall only treat of that mode of propagation. Suckers will form at the base of the plant when it is in fruit, and, after the latter is ripe and cut off, they will grow quickly. The best time of the year to take them from the parent plant is in March, or at the latter end of September. March is the best month, however, for the young plants will have a better opportunity of making considerable root action before the hot weather sets in, and, consequently, they will come to a fruiting state much earlier than those that are not planted till spring. The suckers should be carefully removed from the parent plant, by taking hold close to their base and moving them from side to side, besides twisting a little at the same time. Their bases should be pared with a sharp knife, and a few, only a very few, of the lower leaves taken off. They will now be ready for planting.

Planting.—The pine-apples should be planted in rows 3 feet apart, and 3 feet apart in the rows; at this distance an acre will take 4,840 plants. When laying out the land for planting, 9-feet stakes should be fixed in an upright position, about 50 feet or more apart, to mark the lines where the pines are to be planted. This will ensure the rows being straight; this not only facilitates working the land, but the fruit, when ripe, is easier to gather. When everything is ready for planting, lines should be strung between each stake, then with a spade or hoe take out just sufficient soil to make a mark close to and parallel to the line. A straight line might be made, however, with the aid of stakes and a very light plough, yoked on to a pair of horses driven by a good ploughman. After the line is made, a man should then come along with armsful of young plants, and lay them at 3 feet distances; another man should follow and plant them. In planting, see that the soil is made considerably firm about the young plants; neglect in this particular will prevent them making roots as quickly as they otherwise would, which, of course, would also retard their growth considerably. After the planting is done, the stakes may be taken out. The only attention that the plants will require, until the fruit is ready for cutting, is to keep them free from weeds, and the soil kept loose between the rows by means of the hoe.

Age of the Plant when the first crop of fruit is ready for gathering.—This may safely be reckoned to be at from 18 to 22 months, according to the size and strength of the suckers when planted. The first crop will be quite 4,000 marketable fruits to the acre; but considerably more would be procured from the second and third year's crops, because the suckers that have formed round the parent plant would bear fruit. If we calculate the return per acre at 4,000 pines, these would, at 3d. each (both very low estimates), return a handsome profit of £50. The working expenses to be set against this sum are not heavy, and our farmers are cultivating crops at the present time at far less profit. If the fruit is required for market, and it has to travel some distance, it should be cut before it is quite ripe; but if it is required for canning purposes, and the cannery is not far distant, the fruit may be left on the plant until it is nearly ripe. A convenient contrivance for bringing the fruit out of the rows is a light hand-cart, made of lattice-work, and set on two wheels with broad tires. Its size should be such that it will go between the rows of plants. After a plantation has been in bearing for four or five years, the plants will cease to bear fine crops of fruit, and it will hardly pay to keep them on the ground. The next best thing to be done is to break up the plantation, save the best of the suckers for planting a new one, and put the land under another kind of crop, or give it a rest for a time, and, if suitably situated, plant it again with pine-apples.

Fertilisers.—If the land is not very rich at the time when the pine-apples were planted, some manure should be applied to after the first crop of fruit is taken from the plants. I have found nothing better than bone dust or super-phosphate of lime applied in moderate quantites, and with discretion. For instance, the manure should not be applied when the fruit is forming on the plant, neither should it be applied when the fruit is near ripening.

Insect Pests.—The only insects which I have seen preying upon the pine-apple are the Mealy Bug and the Scale; but neither of these pests are very troublesome to the plant when it is under good cultivation. If these insects should, however, establish themselves on the plants, spray them with a strong solution of tobacco water, at any time except when the plant is in bloom and the fruit is near ripening.

Pine-apple Fibre.—Besides the splendid fruit that this plant produces, it has another important economic product in the capital fibre that can be obtained from its leaves. But it would not pay in Australia to cultivate the plant for its fibre alone. However, it would be a very good thing to take in hand as an auxiliary product, for the preparation of the fibre for market; since it is claimed that machinery can be brought into use to clean and turn it into a marketable commodity. We could never hope to separate the fibre from the spiny leaves of the pine-apple by hand, as it is done by the Chinese, and then compete with them in the market with the produce. Neither is it desirable that we should; for not only is the process a tedious one; but the spiny leaves will, on coming in contact with the flesh, often cause sores. Leaves that are wanted for making fibre from should be taken from the plants soon after the fruit has been gathered. Cut the leaves as low down as possible; but, at the same time, care must be taken that the suckers are not interfered with, because it is from these that the future crops of fruit are expected. Pine-apple fibre is remarkably strong—as has been proved from some tests conducted at the arsenal, Fort William, with a rope made of this fibre 3¼ inches in circumference. The Government proof was, that a rope of this size should bear a weight of 42 cwt.; but it bore no less than 15 cwt. more, that is, it broke with a weight of 57 cwt. The following extract from a Singapore paper describes the process that the Chinese follow in preparing the pina fibre for market:—"The process of extracting and bleaching the fibre is exceedingly simple. The first step is to remove the fleshy or succulent sides of the leaf. A Chinese, astride of a narrow stool, extends on it in front of him a pine-apple leaf, one end of which is kept firm by being placed beneath a small bundle of cloth on which he sits. He then, with a kind of two-handled plane made of bamboo, removes the succulent matter, Another man receives the leaves as they are planed, and with his thumb-nail loosens and gathers the fibre about the middle of the leaf; this enables him by one effort to detach the whole of them from the outer skin. The fibres are next steeped in water for some time, after which they are washed in order to free them from the matter that still adheres and binds them together. They are now laid out to dry and bleach on rude frames of split bamboo. The processes of steeping, washing, and exposing to the sun are repeated for some days, until the fibres are considered properly bleached. Without further preparation, they are sent into town, for exportation to China. Nearly all the islands near Singapore are more or less planted with pine-apples, which, at a rough estimate, cover an estimate of 2,000 acres. The enormous quantity of leaves that are annually allowed to putrify on the ground would supply fibre for a large manufactory of valuable pina cloth. The fibres should be cleaned on the spot."—*Agricultural Gazette.*

TEA AND COFFEE SUBSTITUTES.

LAURINEÆ.

67. *Sassafras officinale*, Nees.—A large tree of North America, well-known for its aromatic bark, which is used in medicine as a tonic. A decoction of the root is used in America under the name of Sassafras tea, as a warm, mucilaginous, aromatic drink, especially in fevers, bronchitis, catarrh, &c. In military encampments in America, Sassafras tea is said to have been at one time in almost daily use both by officers and men as a favourite substitute for green tea. It has a reputation as a blood purifier, and was many years ago used in this country for the same purpose, and as a warm aromatic drink, being sold in the early morning at the temporary coffee-stalls which then existed at the corners of the streets in the southern and eastern parts of London.

PROTEACEÆ.

68. *Brabejum stellatum*, R. Br.—A shrub 8 to 10 feet high, growing in thickets and woody ravines on the east side of the Table Mountain, and in many other localities at the Cape of Good Hope. It is known as the wild Almond, in consequence of the fruit and seed being Almond-shaped, the latter, after being soaked for some days in water, are eaten by the natives who also roast and grind them and use them as coffee.

SANTALACEÆ.

62. *Osyris arborea*, Wall.—This plant is described as being very common around Simla. In Kumaon it is known as Bakardharra, bakarja; in Belgaum, as Popli;

and in Nepal, as Jhuri. The use of the leaves as a substitute for tea in India is said to have been noticed as far back as 1821. Dr. Watt says the leaves are used, here and there throughout the Himalayas, from Almora to Sikkim, in place of tea. When specially prepared they have a strong tea-like smell, but the infusion has powerful emetic properties which require long usage to overcome. Dr. Royle suggested that experiments should be made in the cultivation of the plant in order to discover if this emetic property could be removed by careful cultivation. The discovery of tea proper in Assam, and the greatly extended cultivation of that plant, have left the matter of Osyris tea in the position in which it was at the beginning of the present century, when it first attracted the attention of the public. There is a good sample of this tea in the Kew Museum.

URTICACEÆ.

70. *Ulmus campestris*, Sm.—The common Elm, Johnson, in his *Useful Plants of Great Britain*, a book published many years ago by Hardwick, without date, says:—"Some years ago an immense quantity of dried Elm leaves were used for adulterating tea, and for manufacturing a substitute for it. They are astringent, but contain a considerable quantity of mucilaginous matter."

71. *Missiessia corymbulosa*, Wedd.—This plant, which is now sunk under the genus Leucosyke, is a straggling shrub from 6 to 8 feet high, growing in Fiji, where it is known as Matadra. Seemann, in his *Flora Vitiensis*, says:—"Some of the white residents in Viti have drunk a decoction of the leaves without perceiving it to be different from Chinese tea. The natives do not seem to use the plant in this way."

72. *Pilea argentea*, DC.—The leaves of this plant are stated in Rosenthal's *Synopsis Plantarum Diaphoricarum*, to be used in Greece as a substitute for tea, though nothing is said about the extent of its consumption or of its peculiar properties.

MYRICACEÆ.

73. *Myrica asplenifolia*, Endl.—An American plant, native of the mountainous parts of N. Carolina, and extending northwards. It is known as Fern Bush or Sweet Fern, and from the plant a pleasant aromatic astringent drink is made, and generally used in the summer complaints of children. The dried leaves are said to make an excellent tea. The plant is frequently known as Comptonia asplenifolia. There is a good sample in the Kew Museum.

CUPULIFERÆ.

74 *Betula alba*, L.—The white Birch. Among the uses to which this valuable tree has been put, is the adaptation of the dried leaves for tea, a use to which it is said they are commonly put in Finland.

ORCHIDEÆ.

75. *Aeranthus fragrans*, Rchb.—This Orchid is perhaps better known as Angræcum fragrans, Thouars. A native of Mauritius and Bourbon, where it is known as Faham. It was first brought to notice as a tea in this country in 1866, having been brought from Paris, where it had been sold for some time. The leaves are simply dried and packed in small boxes, and from the label it would seem not to have been introduced for the purpose of supplanting Chinese tea, but to afford an opportunity of choosing between two beverages equally beneficial and useful.

The following notes are from an account of Faham tea which I gave in the *Gardeners' Chronicle* for April 7, 1866, p. 315. It is a translation of a circular which accompanies each packet:—"Faham is not a new production. From time immemorial, the natives of the Islands of Reunion and Mauritius, situated as it were at the very gates of China, have preferred it to tea; every traveller has partaken of their preference. One of our most illustrious writers, Georges Sand, eulogises it in the midst of the fine description which she gives of the Isle of Bourbon, a eulogy which cannot be suspected of puffery, inasmuch as it was written thirty years before the introduction of Faham into France was thought of. Every work on botany of any importance similarly places it in the foremost rank of the beneficial productions of this favoured clime. The difficulties experienced in the gathering and manufacture of Faham on a large scale, and consequently the almost impossibility of procuring a sufficient quantity to recompense the labour of obtaining it for consumption, and also its very high price, have alone prevented until now this valuable article of diet from being imported into France. After many fruitless attempts, these obstacles have been overcome.

"Faham tea possesses a taste differing greatly from that of true tea, and is preferred by the majority of persons who have tasted it. It can be used as a substitute for tea on all occasions, as it combines its tonic and digestive qualities, free from the sleepless effect. It possesses an aroma of great delicacy, capable of being rendered more or less pungent, according to the quantity used, and it gives forth a most agreeable perfume. After being drunk, it leaves a lasting fragrance in the mouth, and in a closed room the odour of it can be recognised long after. This beverage has the further advantage over tea, which requires to be drunk at the time of making, that it can be reserved for a future occasion, if required, and may be either taken cold or made hot again. Milk or spirits in small quantities, especially rum, serve to develop its aroma, and, lending it additional delicacy or greater strength, render it a delicious drink. Lastly, this valuable plant is made use of to flavour custards and ices, to which it communicates its delicate fragrance.

"To be taken as a warm beverage, the leaves and stalks should be placed in cold water in about the proportion of 1 gramme to a tea-cup, more or less, as the consumer may desire it of a greater or lesser degree of strength. The water should be immediately made to boil for about 10 minutes in the tea-kettle or other closed vessel. It should then be emptied into the tea-pot or tea-cups, and sweetened accordingly."

In the so-called tea, the leaves are simply dried without being curled or roasted, and in their dried state, as well as in infusion, they emit a strong fragrance, resembling that of the Tonquin Bean. There is a good sample of this tea in the Kew Museum.

LILIACEÆ.

76. *Similax glycyphylla*, Smith,—A glabrous climbing plant, with the stems and branches more or less armed with scattered prickles. It is found in N. Australia, Victoria, New South Wales, and Queensland. A decoction made from the leaves has a sweet taste, and is used in Australia under the name of Sweet Tea or Botany Bay Tea. It would seem, however, to be used more as a medicine than a tea proper, for it is stated to have similar properties to Jamaica Sarsaparilla, which is a nearly allied plant.

PALMACEÆ.

77. *Phœnix dactylifera*, L.—Date Palm. Under the name of Date Coffee, the hard, horny seeds of this well-known Palm were roasted and ground, and largely advertised a few years ago as a substitute for true coffee. A company was formed for the exclusive manufacture and sale of this article, which is now seldom or never heard of.

GRAMINEÆ.

78. *Andropogon citratum*, DC. (Lemon-grass).—This scented-leaved grass occurs only in a cultivated state, and very rarely flowers. It is cultivated in Ceylon and Singapore for the sake of the fragrant oil which is distilled from the leaves, and used in perfumery. In the fresh state these leaves are said to be sometimes used as a substitute for tea, under the name of Citronelle tea; a warm infusion made from them is likewise stated to be a valuable medicine in febrile affections.

FILICES.

79. *Aspidium fragrans*.—The fronds of this Fern, which have a scent similar to that of the Raspberry, are much esteemed in the north of Asia for their anti-scorbutic properties, and are used as tea by the Mongols.

80. *Adiantum caudatum*, L.—A widely-spread Fern throughout the Tropics of the Old World, is used as tea in Réunion, under the name of Capillaire.

81. *Pellea flexuosa*, Link.—In Fournier's *Mexicanarum Plantarum Enumeratio*, it is stated that the fronds are used as tea in Mexico.—JOHN R. JACKSON, Museum, Kew.—*Gardeners' Chronicle.*

(To be continued.)

THE FOREST PRODUCTS OF MADAGASCAR.

Among the forest products of Madagascar, caoutchouc is found all over the island, but, says the Chancellor of the French Residency at Antananarivo, in those places which are easy of access, it is beginning to be scarce, and the prices have considerably increased, particularly on the markets of the east coast. On the west coast, where business is less brisk, and where the population is sparser, it is still low priced and abundant. The diminution in the supply is to be attributed, among other causes, to the negligence and indolence of the natives, who, regardless of the future, cut the trees at the foot, in order to more easily arrive at the milk. It is prepared in different ways, and, in those places where there are Europeans, it is possible to obtain it treated with acid, but in many places, either because the cost of sulphuric acid is too great or on account of the fact that numerous accidents in the manipulation of this substance has rendered it unpopular, tea, salt, absinthe, citric acid, or an extract of tamarinds are substituted. The prices vary according to the locality, and also according to the system adopted and the care taken in its preparation. Caoutchouc enters, to a very great extent, into the exports of the country, and, in order to encourage this industry, the Government ought, in M. Anthouard's opinion, to look carefully after the preservation of the forests, endeavour to prevent fires, and to induce the natives to abandon their habit of cutting down the trees bodily. In these circumstances, Madagascar caoutchouc might realise high prices upon European markets, and successfully compete with the Para product. Gum copal is exported in considerable quantities from the ports on the east coast of Madagascar, and, up to the present, it is only on this coast that the product has been obtained, although there appears to be no reason why the west coast should not furnish its quota. A far more important business might, it is said, be done in this article if greater care were only taken by the natives in its preparation, and if it could be cleansed of its impurities; the quality would then be equal to the Netherlands East Indies. Similar reasons to those which haue brought about a reduction in the prices of caoutchouc, have caused a diminution in the volume of business carried on in honey and wax. This product, gathered without any care, and full of foreign substances which have the effect of deprecating it, is neverthless quoted on the European markets at the same rates as the Senegal product. The natives, to obtain a few pounds of honey or wax, frequently destroy an entire hive, and consequently the swarms of bees are becoming much scarcer. It will be necessary to introduce considerable improvements in the method of gathering this product in Madagascar before auy rise in prices can reasonably be hoped for. There is a considerable export of rafia fibre from the ports of Tamatave, Vatomandry, and Majunga. The principal centres of production are on the east coast, between Tamatave and Vatomandry, and in the interior, towards the west of the route, from Antananarivo to Majunga. The exports of this article from the latter district, which, some few years ago, were almost nil, have of recent years largely increased. The principal markets in Europe for rafia fibre are London, Haver, and Marseilles. The fibre is largely used by wine growers in tying up their vines, and it is also employed for many other purposes. Attempts have been made to weave it. Ebony, at one time, was exported in considerable quantities from the north-east coast, but at the present day the trade appears to be entirely confined to the west coast. The forests of Madagascar abo undwith timber, eminently adapted for building purposes, furniture and cabinet making. —*Journal of the Society of Arts.*

THE TEAK TRADE OF BURMA.—With regard to the teak trade of Burma during 1890-91, Rangoon again takes the lead. There were exported from Rangoon during the year 110,555 tons and from Moulmein 64,167 tons, as compared with 103,459 and 80,765 respectively the preceding year.—*Pioneer*, Sept. 15.

THE PLANTERS in British North Borneo are loud in their praise of their Governor, who has just arranged, among other things, for the importation of coolie labour to that Colony. The Governor's strenuous and unremitting efforts to secure this boon for the planting community around Sandakan have now been crowned with success, and His Excellency's thoughtful policy is much appreciated.—*Colonies and India.*

DR. JOHN DONGALL, of St Mungo's College, Glasgow, has a letter in a recent issue of the Glasgow *Herald* on the banana, in which he quotes from Stanley's "In Darkest Africa" to show that "for infants, persons of delicate digestion, dyspeptics, and those suffering from temporary derangements of the stomach, the flour, properly prepared, would be of universal demand." During Stanley's two attacks of gastritis a slight gruel of this flour, mixed with milk, was the only material that could be digested. It is odd, also, as pointed out in Stanley's book, that in most Banana lands—Cuba, Brazil, West-Indies—the valuable properties of this fruit as an easily digested and nourishing food have been much overlooked. Dr. Dougall has made some experiments in making banana flour. He concludes that it should be made from the ripe fruit at its place of production. In trying to make it from bananas purchased in Glasgow, he obtained on drying the pulp a tough sweet mass like toasted figs, an appearance probably due to the conversion of starch into sugar. Bananas contain only about fifty per cent. of pulp, and of this about seventy-five per cent. is water. They would yield, therefore, only one-eighth part of flour.—*Garden and Forest.*

In an article called the "Evolution of Patent Medicine," published in the *Popular Science Monthly* for May, Mr. Lee J. Vance traces that belief in the efficacy of such nostrums back to those ancient times when no distinction was drawn between the physician and the magician, and when all remedies were looked upon as charms—a condition which prevails, of course, among savage and half-civilized tribes in our own times. The names of plants, Mr. Vance explains, shows how general was the belief in their inexplicable virtues. "Some plants have animal prefixes, as, Dog-elder, Dog-rose, Cat's-tail, Cow-bane, etc. Other plants derive their name from religious sources. Thus they are associated with the Virgin Mary, Saint John the Baptist, Saint James. Likewise the latter-day Saint have particular plants dedicated to their memory. Most of the plants with mystic names were supposed to have magical virtues, and so they were largely used in folk-medicine. The weired associations clustering around many roots and herbs were enough to invest them with great repute," and in folk-medicine even at the present day, "herbs are used not so much for their inherent medical properties as for their reputed magical virtues. . . . Another stage in the evolution of patent medicine is typified in the therapeutics of medieval mystics and alchemists. The great plant in their pharmacopœia was the Mandrake. Why? Simply because the roots of this plant were shaped like the human body. . . . The magical element in patent medicines actually won scientific repute in the 'doctrine of signatures'—a doctrine which held that plants and minerals, by their external character, indicated the particular disease for which Nature had intended them as remedies. Thus the Euphrasia or Eyebright, was good for the eyes; the Wood-sorrel, being shaped like a heart, for the heart; the Liverwort for the liver, and so on. Pettigrew, in his history of medical superstition, says that this fanciful and magical notion 'led to serious errors in practice' and often to fatal results. Observe that at this stage of its evoluti on patent medicine is herb medicine, and so it remained for a long time. The materials of the healing art were all vegetable. The patent-medicine man was a dealer in herbs."—*Garden and Forest.*

THE QUALITY OF OUR TEAS, AND SUGGESTIONS IN THE DIRECTION OF IMPROVEMENT.

INDIA TEA PRODUCTION AND EXPORT.

We continue to receive complaints as to the quality of our teas which have of late reached the London market, and it is asserted that their inferiority has been the main cause of the low prices of late obtained for them. The complaints have been of so strong a character, and have been received from quarters occupying so high a position in the trade, that it seems to be most desirable that attention should be forcibly directed to the matter. It is all very well, exclaim our home friends and mentors, to say that at certain seasons of the year the leaf produced in Ceylon is of a quality inferior to the general average, and that it is from this cause that the complaining in question has arisen. But the point should then be considered whether it may not be possible to obviate this, for it must manifestly be of great harm to the reputation of Ceylon teas that whole shipments should be received in London of an undesirable quality. Our London correspondent has informed us that it was within his knowledge that very recently a large purchaser returned to the broker fully one-half of the quantity bought by him as being far below the quality of the samples upon which he was induced to buy. Herein we see the element of uncertainty introduced independently of the inferior quality of the break dealt with. If buyers cannot rely upon their purchases being up to sample at least, however poor that sample may be, further great harm must result. It may be said, perhaps, that the selection of the samples rests with the broker or his agents, but it must be exceedingly difficult to discriminate in the case of a larger break which is of uneven quality. The blame, therefore, in such a case cannot be said to be wholly due to the agent at home, and it is manifest that more care should be exercised in keeping distinct and separate portions of shipments which may be below the standard of the tea generally. But quite apart from this view of the matter is the question of seasonal general inferiority upon which we first touched. Some time ago it was determined upon, as the result to the prices obtained in London, that it would pay our planters better to produce teas of a description below the standard of the highest class. Against this conclusion we could find nothing to urge, the difference between the prices obtained for medium and higher class teas being not sufficient to render it worth the while of the planter to incur the extra cost involved in the production of the higher descriptions. But what has now to be considered, in view of the recent depression in prices obtained for our teas in London, is whether at the season which is known to be that at which our leaf degenerates, it would not be wiser for our planters to pluck it at earlier stages than is usual and so maintain a standard at least level with that of the teas shipped during seasons more favourable to the quality of the leaf. We cannot see that there could be any insuperable difficulty in doing this. It is true that shipments at such times would have been more costly to the planter than the average of the production of the year taken all round; but two great advantages would be gained which must go far, we should say, to compensate for the extra outlay. In the first place we should not annually have to look forward to the serious dimunition in prices obtained which, under present conditions, we seem to be fated to expect; and in the second place, the reputation of our teas would be steadily maintained, and all concerned with the tea trade in London urge that this is a most important factor in regard to the tea trade generally. If plucking the flush at an earlier stage of development than is usual, is objected to as hard on the bushes, then every effort should be made to have space and appliances for good withering available. Mr. Jackson claims for his Britannia drier that it is a most effective witherer. Some extra expenditure in this direction would be well applied. For we can realize that the consumer who, we will say, is just making trial of our tea and has had every reason to be satisfied with his first two or three trials of it, would be very likely to discontinue the use of Ceylon tea if he found that his next purchases were of quite a different quality and flavour to those of his first essay. It may be, as we have already indicated, that practical planters may say that there would be difficulties in carrying out what we suggest, namely finer plucking during what may be termed the off-season of our tea bushes. But if there be such difficulties, it is, for the reasons that we have pointed out, only the more necessary that measures should be sought for and adopted to overcome them, or to improve watery leaf to the utmost my extra care in manufacture. The matter as it stands is an exceedingly serious one, and one that needs active measures to redress if the reputation we have earned is not to suffer materially. We hear much complaint of the insufficincy of the prices of late obtained to give a fair return for the cost the grower has incurred. But, we would ask, is the latter not himself largely responsible for this very disagreeable fact? We feel quite sure that unless a uniformity of quality—not necessarily in the highest classes of teas—can be maintained all the year round, much of the ground that we have gained will be lost. We ought never to hear of Ceylon teas being spoken of as "rubbish," and yet that is the unfortunate term, we are assured, applied to many of the shipments which have recently been sold in Mincing Lane. We do not profess to have proposed an infallible remedy against the evil, but what we have written seems to us likely to afford some hints in that direction.

After all is said and done, however, it is the Ceylon tea which is finding chief favour in Britain and her Australian colonies, in the face of all the clamour about occasional descents in certain conditions of weather, from the high standard of quality to which consumers had become accustomed. The deliveries of Indian as well as China teas in Britain showed at latest date a comparative falling off, while the whole of the increase was in Ceylon. For the three months from June 1st to Aug. 31st the proportionate deliveries were:—

Indian	.. ..	21,000,000 lb.
China	.. ..	19,532,000 ,,
Ceylon	.. ..	16,000,000 ,,

Deliveries of Ceylon at the same rate for the twelve months would total 64,000,000; and even if this figure were not increased, deliveries would be well up to our rapidly increasing production. Then, we may take it for granted that Australia will take 5,000,000 lb. at least and other countries 1,000,000 more. We quoted, when it appeared, Mr. O'Conor's general review of the Indian tea trade; and now the more detailed report has reached us, from which we quote significant figures and deductions. Reviewing the export trade of 1890, the Assistant Secretary of the Indian Commercial and Statistical Department wrote regarding Indian tea:—

"The exports amounted to 107,014,993 lb., which was but little more than 3 per cent in excess of the quantity exported in the previous year. This is a slower rate of progress than has been made in

previous years, but possibly the present year may see a further advance.

The exports of the last eight years are given below :—

	(000's omitted.) lb.	R.
1883-84 ...	59,912 ...	4,083,880
1884-85 ...	64,162 ...	4,044,759
1885-86 ..	68,784 ...	4,306,133
1886-87 ...	78,703 ...	4,727,992
1887-88 ...	87,514 ...	5,174,440
1888-89 ...	97,011 ...	5,267,315
1889-90 ...	103,760 ...	5,277,650
1890-91 ...	107,015 ...	5,219,233

The heavy fall in price which marked the year 1889-90 was succeeded by a further fall last year for the higher qualities of tea, the fall occurring during the months when exchange was raising. The average prices realized at the auction sales in Calcutta during the last three years were as follows, in annas and pie per pound:—

	1888 89.	1889-90.	1890 91.
Orange (and broken orange) Pekoe ...	12-4	11-8	11-2¾
Broken Pekoe ...	10-3	9-9	8-10¾
Pekoe	8-1	7-5	7-2
Pekoe Souchong ...	6-3	5 7	5-8¼
Broken ditto ...	5-10	5-0	5-3½
Pekoe Fannings ...	6-6	5-7	5-10
Other low class ...	4-11	4 8	5-2

The London market continues to absorb the bulk of the exports, but there is a noteworthy increase in the exports to Australia which have more than doubled in four years. An export of five million pounds is not much after ten years of exertion to secure a market in colonies which consume tea very largely, but it may be taken as an indication that the merits of Indian tea are now understood there and that the Australians will no longer be content to drink China tea merely because it is cheap.

The exports are as follows, in pounds (000's omitted:)—

	1887-88.	1888-89.	1889-90.	1890 91.
United Kingdom	84,182	93,222	98,731	100,209
Australia ...	2,472	2,880	3,419	5,119
Persian Gulf ...	324	467	1,200	1,311
United States...	54	155	103	79
Canada ...	...	14	85	61
China ...	6	19	33	61

While the imports of Indian tea into England continue to increase, those of Chinese tea continue to diminish, but while China is being gradually but surely thrust out of the English market, another and perhaps a more formidable competitor has stepped in. The advance made by Ceylon tea in recent years is little short of marvellous. It is interesting to note how completely the position in England of Indian and Ceylon teas with respect to China tea has been reversed. Seven years ago the imports of China tea were more than double the imports of Indian and Ceylon teas. At the end of seven years we find the imports of China tea to be about half the imports from India and Ceylon. The following are the imports from India, Ceylon, and China into England in the last seven years (quantity stated in lb, 000's omitted):—

	From India	From Ceylon	From China
1884 ...	63,208 ...	2,211 ...	143,771
1885 ...	64,382 ...	4,242 ...	139,673
1886 ...	73,467 ...	7,144 ..	145 308
1887 ...	84,645 ...	13,062 ...	119,799
1888 ...	89,874 ...	22,509 ...	105 735
1889 ...	95,384 ...	32,673 ...	88,558
1890 ...	101,771 ...	42,491 ...	73,743

Thus India and Ceylon furnished last year two-thirds of the imports, India's share being about 45½ per cent while China furnished only one-third. Twenty years ago China's share was as much as 88 per cent; but twenty years ago Ceylon sent no tea to England and it had only one per cent of the imports as lately as 1884. It is said, with reference to the remarks in paragraph 21 of this review, that the quality of Ceylon tea is deteriorating and, with a poor soil, will continue to deteriorate; and that therefore the Indian planter has nothing to apprehend from his Ceylon competitor. It is undesirable to be over confident in commercial competition, and it may be expedient to reflect that the Ceylon planter, who has already made such a success of his business, is hardly likely to make the mistake which is destroying the Chinese tea industry. There is also no sufficient evidence as yet that quality is deteriorating: on the contrary, Messrs. Stenning and Inskip, in their review of the tea trade of 1890, say in regard to Ceylon tea: "Quality has shewn a distinct improvement on that of last year, the fermentation having been better than hitherto. Flavoury teas have commanded very satisfactory prices."

The increase in the exports of Indian tea (and all but a fractional portion is exported) was in round numbers, for the eight years ending June 1891, from 60 millions of pounds to 107 millions, a good rate of increase, but entirely distanced by the Ceylon product, which showed an export in 1883 of only 1,641,810 lb.; while the figures for 1890 were 46,901,554 lb. Of course our ratio of increase will now diminish, although we are going ahead at a rate which demands every possible effort to keep up quality and open new markets. In the Customs value of the Indian tea exported, the increase in the eight years has been little more than a million of 10-rupee pounds,—Rx5,219,000 in 1890-91 against Rx4,083,000 in 1883 84. The downward course of prices in the past three years has been at least as severely felt by Indian producers as by our own planters. All *wise* economies must be exercised by the latter, and we have emphasised the word "wise," because we believe that a wise liberality in regard to the best manufacturing appliances and also in the application in many cases of the best fertilizers to our soil, will be our best policy, even in the light of economy. Of course our friends across the water take the most unfavourable view of our soil; and it cannot be denied that in cases where old coffee plantations were converted into tea estates, the soil does want fortifying, and so with some of our older estates opened in forest. But we are persuaded that a forcing and damp climate was, more than defective soil, the cause of the deterioration in quality of our teas exported early in this year. The meteorological conditions favoured quantity at the expence of quality.—Of Indian tea sent to the United States direct, the account is as "beggarly" as in the case of the Ceylon product, the quantity being only 79,000 lb., against over five millions to Australia. We do not know what quantity of Indian and Ceylon tea reaches the United States from Britain, but it cannot be much, in view of unfavourable fiscal laws. Tea is passed free of duty, we believe, only when imported from its source of production. It is amusing to find that while China tea is still imported into India (chiefly for consumption beyond the bounds of the empire), Indian tea to the amount of 61,000 lb. went to China in 1890, an exactly equal quantity being taken by Canada. Of the tea sent to the Persian Gulf, to which some Ceylon tea also goes, all is not consumed in Turkish or Persian districts. The foolish as well as iniquitous exactions by the Amir of Afghanistan as well as the prohibitive policy of the Russians has diverted much of what was formerly an important trans-frontier trade. Mr. O'Conor thus notices the export trade of India with Persia :—

"Exports of foreign goods to Persia are very much larger than those of Indian goods.

	Foreign. Rx.	Indian. Rx.
1889-90 ...	1,225,603	497,102
1890-91 ...	1,319,957	420,986

The increase under the first of these heads was mainly due to an expansion in the tea trade, Chinese

Java, and Ceylon tea having been shipped to the extent of nearly three million pounds to Persia from Bombay. This trade is to a large extent a diversion from the overland route by which Chinese tea used to (and still does in diminishing quantity) go to Central Asia through Afghanistan. The region which is traversed northwards from Bushire and Bandar Abbas forms in itself a better and freer market than Afghanistan, and the transit of the tea to Meshed and places beyond is not so expensive and so subject to tolls and extortions as transit through Afghanistan.

The quantity of Indian tea sent to Persia also slightly increased, but it amounted to only 1,221,478 lb. compared with the 2,973,817 lb. of foreign tea exported."

The "foreign tea" alluded to is China, Java and Ceylon. In the notice of the export trade to Australia it is stated:—

"Our exports to Australia consist mainly of gunny bags, tea, and castor oil; bags being the staple of the trade, of the value of which they represent about 60 per cent. The exports of these have kept fairly steady since 1887-88 when, with good wheat harvests and wool clips, they more than doubled in one year. Last year there was another substantial increase. There was an increase also in castor oil, and a very satisfactory development in the export of tea. The exports of tea to Australia in the last five years may be noted here:—

		Pounds.
1886-87	...	1,645,888
1887-88	...	2,471,927
1888-89	...	2,880,596
1889-90	...	3,419,139
1890-91	...	5,118,714

Rapid and large as this increase has been recently it is not so rapid as the increase in the exports of Ceylon tea to the Colonies. On this subject the following extracts are taken from a review of the tea season in the *Melbourne Argus* of the 24th July: "From Calcutta we find a large increase in shipments. * * Large as this increase has been, it does not fairly indicate the increase in public favour of these full teas * * From Colombo we have even a more rapid development of the exportations of teas to the colonies to chronicle, the shipments running up to 2,900,000 lb., as against 1,500,000 lb. and 146,000 lb. for the two preceding years respectively. The public taste has certainly taken rapidly to the more flavoury and softer teas of Ceylon, and there can be no doubt that not only China, but also India, has much to fear from the competition from Ceylon. The well-cured Ceylon teas are certainly most attractive, being remarkably flavoury, with good strength. Ceylon teas, however, have one serious drawback, and that appears to be their inferior keeping qualities; and, judging from the present year's receipts, this trade is certainly 'the jam tart trade' in tea, they are all better sold fresh than stale and flat, which, in many instances, from inferior manufacture they soon become."

We ought to supersede Chinese tea in Australia as we are doing in England, and it is not too much to anticipate that in another five years or so our exports of tea to the colonies, if the business is judiciously and perseveringly worked, should reach 15 or 20 million pounds."

In denouncing the fiscal régime of the ruler of Afghanistan, which has practically suppressed the transit trade from India to Central Asia through Afghanistan, Mr. O'Conor gives the following illustration, which casts even Chinese *likin* and other exactions into the shade:—

"Dues on Kangra tea, first quality, purchased at four annas per pound, per camel load of 450 lb., average value of the load R140.

10	Kabuli rupees	at Dakka.
15	do	at Butkhak.
37½	do	at Kabul (town or import duty)
37½	do	,, ,, (export duty)
19 or 12	do	as the tea takes the Shaikh Ali or the Bamian route
7	do	at Kalum
9	do	at Khulm Tangi
7	do	between Khulm Tangi and Khilif
Total 138	Kabuli rupees	equal to R106 or about 76 per cent.

The tea has further to pay 2½ per cent *ad valorem* at Bokhara, the value being the value there not what was the value at Peshawar. Adding the cost of the conveyance by camel between Peshawar and Bokhara (the hire of a camel from Peshawar to Khilif is R81·4) it is manifest that it is cheaper to ship tea from Bombay up the Persian Gulf and send it through Persia (where a 5 per cent duty clears it through the country.)"

Here we have the usual self-punishment of inordinate greed exemplified; but surely the patience of Britain with her "faithful ally" of Afghanistan seems to border on weakness. When Russia resolves on a transit trade through Afghanistan to India (and it may pay to send the kerosene of the Caspian by this route) she will adopt a different tone, we suspect.

As the conclusion of the whole matter it may be well for us to ponder the value of the criticism on the painting, that it would have been better, if the painter had taken more pains. We know what the difficulties are and that planters generally do their best with the means available to them. Those means, in the shape of improved machinery, especially air-changing appliances, ought to be multiplied and improved.

PHOSPHATIC MANURES.

Our planting readers have doubtless observed that a Colombo mercantile firm has advertised superphosphate of lime and dissolved bones at the identical price of R100 per ton. The most important ingredient of each, the soluble biphosphate of lime, is only as 12·53 per cent in the bones to 21·85 in the superphosphate. Otherwise stated the equivalents of ordinary bone phosphate rendered soluble is only 19·62 in the bones to 34·21 in the superphosphate. In plant food immediately available, therefore, the superphosphate (bone superphosphate, we take it for granted) has greatly the advantage of the dissolved bones. How the bones are entitled to be called "dissolved," when they contain 17·06 of insoluble phosphate, is a problem which, no doubt, chemical science can answer, as well as the fact that 3·20 per cent of insoluble phosphate resisted the action of sulphuric acid in the manufacture of the superphosphate. The insoluble phosphates in the bone (not really insoluble, but only becoming soluble slowly to the action of soil, moisture and plant rootlets) so far place the dissolved bones on a level in value with the superphosphate. But much more, we suppose, is the superiority of the superphosphate in soluble bi-phosphate and hydrated calcium sulphate (bone 31·68 to super-phosphate 47·21) counterbalanced by the fact that while the superphosphate contains only ·29 per cent of ammonia, this valuable constituent in the bone is up to 2·78 per cent. Both are "valuable manures for tea," as claimed, but, in application, they would be improved by admixture with white castor cake and such humic matter as may be available on the plantation. As the superphosphate is deficient in ammonia, we should suppose a small quantity of ammonia sulphate, or good fish manure would be a valuable addition to it. Otherwise, we should feel inclined to advise a proportion of at least twice as much castor cake to be mixed with the superphosphate as with

the "dissolved bones"? Besides estate rubbish and fresh jungle soil, if available, we have no doubt that burnt clay or peaty matter would be a valuable addition to the manures. The magnesia and alkaline salts, not of essential importance in themselves, are in nearly equal proportion in the superphosphate and the bones.

THE PRICE OF CIGARS AND TOBACCO GROWING.

A correspondent writes:—

"It is passing strange that, despite the low price of tobacco leaf, such extreme rates as those advertised in your paper of the 1st should still be obtainable for Manilla cigars, the advertised price in one case being as high as R9 per box of 50, or 18c. each.

"It is a great pity, I think, that those who went in largely for the cultivation of tobacco here, and lost heavily by it, did not introduce a few experts in the manufacture of the leaf from Manilla. Had they done so I feel sure they would have had no reason to complain of the results of their enterprise.

"Another mistake made by Ceylon growers was in not selling their leaf in the local market, instead of sending it home. I believe they would have got as much for it in the island as they did in Europe, and the cost of the long transport and home agents' charges would have been saved.

"But no one can feel surprised that recent attempts to grow tobacco profitably should have ended in failure, when he comes to consider the expenditure incurred, which was in many cases extravagant to a degree."

Then follow details of alleged reckless expenditure, which we should not be justified in publishing except on authenticated evidence.

THE CONSUMPTION OF TEA, COFFEE, AND COCOA.

A correspondent of the *Grocer*, writing about the consumption of tea, coffee, and cocoa, says:—Statistics as to the quantity of tea consumed in this country are somewhat conflicting. It is roughly estimated that 200,000,000 lb. are imported into this country, the value of which is £12,000,000. Mr. Bell, of Somerset House Laboratory, gives the amount of tea imported in the year 1880 as 208,500,000 lb. The abstract of the Customs report states the consumption per head for 1890 to be 5 lb., or 5·14. The consumption of tea has, from its first introduction into this country in the middle of the seventeenth century, steadily increased, and its price has also been steadily reduced. Coffee was first introduced at the same time as tea, but, unlike tea, its consumption has fallen off. In 1847 we are told that the quantity of coffee imported was 37,441,373 lb., but in 1880 it was only 32,480,000. Cocoa was introduced nearly at the same time as tea and coffee, and the consumption has continued to increase, though not to the same extent as tea. In the year 1840 the quantity of cocoa imported was 2,645,470 lb., in 1880 it was 10,566,159 lb. The great improvements in the methods of preparing cocoa are supposed to be certain to increase its consumption. In handling a small quantity of tea one would scarcely imagine that it was composed of volatile oil, wax, resin, gum, extractive matter, &c. Yet so it is. By distillation, boiling precipitation, filtering, and other chemical operations, the component parts can be learned and the chemical and physiological effects of tea as an article of diet can be correctly specified. Mr. Bell states the chemical composition of tea to be moisture, theine albumen, extractive matter, gum, pectine, tannin, chlorophyll and resin, cellulose, and ash. Mr. James Paton, in the *Encyclopædia Britannica*, gives nearly the same parts in the same quantities. The composition of both coffee and cocoa is not very dissimilar from that of tea. Their dietetic value may be tabulated thus—tea is the most refreshing, coffee is the most stimulating, and cocoa is the most nourishing. The solid food taken with these beverages will alter their dietetic value relatively; the solids being the principal source of nutrition. Theine is the most important part of tea; its chemical formula is $C_8 H_{10} N_4 O_2$. Mr. Bell states that theine contains nearly 29 per cent of hydrogen. Many hundred years ago a Chinese writer (Lo-Yu) gave his ideas on tea, which agree pretty much with the experience of tea-drinkers of today. Lo-Yu says:—"It tempers the spirit and harmonizes the mind, dispels lassitude and relieves fatigue, awakens thought and prevents drowsiness, lightens or refreshes the body, and cheers the perceptive faculties." As theine is the most important part in tea, so caffeine is the most valuable constituent of coffee; its chemical formula is exactly the same as tea. Coffee is more stimulating than tea, and has been long used by studious men to prevent sleep. Cocoa is more nutritious than either tea or coffee. In the form of an emulsion there is more of its solid parts utilised for nutrient purposes. Theobromine is the principal alkaloid of cocoa; its chemical formula differs slightly from tea and coffee —$C_7H_8N_4O_2$. Cocoa contains over 31 per cent of nitrogen, and is, therefore, more nutritious than tea or coffee. Mr. Paton says tea, coffee, and cocoa supply a want found to prevade all parts of the world; hence their increased consumption.—*H. and C. Mail.*

THE CEYLON TEA CROP OF 1891.

The figures for the first nine months of the year being complete, we are in a position to estimate with pretty near approximation the probable outturn of the year. We have had the quantities for each quarter added together, which, with the total for the nine months, are as follows:—

1891.

January-March...	...14,913,082
April-June	...20,795,648
July-September...	...16,986,499
Total...	52,695,229

It will be seen that the average monthly totals for the first quarter were very close on five millions of pounds; then came a great increase in the harvest, raising the monthly average of the second quarter to close on seven millions, the highest figure yet being 7,075,081 lb. in June. The monthly average in the third quarter fell to 5,662,000 lb. The question now is what the quantity exported will be in the quarter on which we have entered. In the last quarter of 1890, the percentage of the whole year's exports sent away was 22·07. Our belief is that a larger expanse than ordinary has been pruned this year and so will not be largely productive in the last quarter; but let us suppose that the conditions are fairly similar to those of the last quarter of the previous year. Then we think an average of 5½ million pounds for each month of the quarter, or 16½ millions total, will be about the figures realized. This would make the grand total export 69 millions. But the round figure of 70 millions may possibly be reached or slightly exceeded. This will be an unexpectedly great jump from 45,390,000 lb. last year, an excess of 24,610,000. It looks as if consumption would increase in fair proportion; but as increased production is likely to go on unchecked for years yet, efforts to push our teas and find new markets for them must not be relaxed.

ECHOES OF SCIENCE.

The past severe winter killed one of the white mangrove (*Avicennia nivea*) sent to the Gardens of the Royal Botanic Society by the late Duke of Buckingham, when Governor of Madras. The dead plant has been turned into a museum specimen,

and the peculiar character of its roots can be well seen. The plant grows in the mud on the borders of tropical rivers, and it reclaims a good deal of dry land by collecting the mud about its stilted roots. To aid in this work the roots actually throw projections upward out of the water, which look like the teeth of rakes, and appear to serve the same purpose—that of gathering and retaining the mud and flotsam of the river.

A curious example of the natural "inarching" of trees is reported form Lawrence County, Illinois, where two elm trees, standing 20ft. apart, have bent over and coalesced into one tree at a point some 20ft. above the ground. The united tree is very symmetrical and nearly 100ft. in height. Waggons are driven easily through the triangular arch of its base.—*Globe.*

FEED FOR EGGS.

An egg is largely nitrogenous. The white is albumen, the yolk contains phosphoric acid and mineral substance and the shell is composed mostly of lime. The hen is a small animal. Eggs are not a miraculous dispensation, as they come from the food a hen gets and converts into eggs, the same as any animal converts its food into products. Corn alone is not a suitable food for the production of eggs, as it does not possess enough of the constituents to make eggs. Hens fed on such food will get fat. Hens like every other animal must have coarse food to distend the stomach and bowels and for this purpose cut clover, hay and cabbage are largely fed by many. These also contain material to made eggs. Skimmilk is also just the thing for an egg food. To get eggs feed hens to produce eggs.

COL. F. D. CURTIES.

—*Rural Californian.*

[Bits of meat and minute fragments of bone are also good.—ED. *T. A.*]

LEMONS AND EGGS.

Simple things are often of much benefit, and lemons and common table salt have much that is useful about them. Lemon juice and water, without sugar, will oftentimes relieve one of a sick headache in a short time, and a half gill of lemon juice three times a day in a little water is said to be good for rheumatism. Nothing is so acceptable to a feverish person as lemonade, and for cough that refuses to be quieted, I have tried the following preparation with success: Take the white of an egg, beaten stiff; then add the juice of a lemon in which two or three lumps of sugar have been dissolved, and keeping it near at hand, take a tablespoonful of it at a time until relieved. A very good way of preparing lemons when they are plenty is to put them in cold water, letting them boil until they are soft, then squeeze the juice from them, getting more than in any other way, and adding the sugar to the taste, or to every half pint of juice put one pound of loaf sugar, and bottle. Another comfortable use for lemon is to bind a thin slice upon a corn that is troublesome at night, and repeat once or twice. It will greatly relieve the soreness. Then if the hands are stained from medicine, or any other cause, rubbing them with lemon after the juice is extracted, will restore them. Table linen or any such articles that become stained can be restored by the application of lemon juice and table salt, then placed in the sun, and stains removed by rubbing dry starch in at once, and repeating it.—*Good Housekeeping.*

NEW PLANTATIONS.—Tea is being planted rather extensively in the vicinity of Labugama, a well known dubash of Colombo having opened up a large extent of land for the purpose. The cultivation of pepper and arecanut is also decidedly on the increase, these products having, evidently, found a genial home. On one place especially, at the 20th mile post, pepper is looking grand; the young vines are loaded with green pepper.—Local "Independent."

NOTES FROM OUR LONDON LETTER.

CEYLON PLANTERS' ASSOCIATION AND PROSECUTION OF OFFENDERS IN THE PACKET TEA TRADE—FRAUDULENT TEA MARKS—LOW PRICES FOR, AND BAD QUALITY OF CEYLON TEA—MR. ROGIVUE'S MISSION—THE TEA TRADE BETWEEN CHINA AND RUSSIA—CEYLON PLANTERS' ASSOCIATION AND MR. LOUGH.

LONDON, Sept. 18.

Some disappointment is felt here at the determination of your Planters' Association Tea Fund Committee, recently conveyed to the Ceylon Association in London, not to approve of the proposal made by the latter body to prosecute a certain number of the offenders in the packet tea trade, who are in the habit of affixing misleading labels to their so-called packets of Ceylon Tea. We believe that no less than fifty such packets bearing different labels were sent out from home to your Planters' Association, and it was Mr. Gray's opinion that it would be a wise course to select a certain number of these issued by different traders in a single metropolitan district, and try a prosecution in a batch, so as to call prominent attention to the rogueries by the magistrate of the district. The letter now received from your Planters' Association states that it does not think it desirable to follow Mr. Gray's advice, or, indeed, to take any present steps whatever. Of course, we know that there is an indisposition to "worry" the trade; but really the evil complained of has assumed such proportions of late that we here in London think it would have had a very valuable effect if some dozen or so of these offenders had simultaneously made their appearance in the Police Court to answer for their misdoings. We fear that if this growing evil is allowed to go on and assume larger proportions very serious injury may result to the reputation of your teas.

And this would have the more to be regretted because just now it is certain your teas are not advancing in popular favour, if we may judge from the low prices which have for the last two months been obtained for them in Mincing Lane. Speaking on this subject during the present week with a very old and influential member of the trade, I asked him how it was that Ceylon tea fetched such low prices now; and his curt reply was: "Because they're all bad." We read in our *Observer* that your planters say that at certain seasons the leaf they pluck is very inferior; but the case seems to go worse every year, and the season alone does not account for this annually increasing deterioration Cannot some of you suggest some remedy? for, the state of things is very bad indeed. Everyone in the trade is calling out, and much Ceylon tea received is pronounced to be "rubbish." I heard of a case only this week of a purchaser who had bought largely of your tea, and who returned half of it on the brokers' hands as not being up to sample, and that sample itself was far below the average quality. Surely some of your planters might find a remedy for this state of things; for we on on this side, although admitting a seasonal influence, do not think it can account altogether for the present state of things as regards our imports from Ceylon, some of the stuff sent home being really a disgrace to the island, and the greater part of it of a quality that the brokers will hardly look at.

A further subject upon which your Planters' Association has written relates to a desire for intelligence as to the progress making by Mr. Rogivue and for an account of his expenditure of the funds with which he has been supplied. My former letter told you all that could be learned by myself of Mr. Rogivue's proceedings, and I

should almost think that by this time he will have written direct to the Secretary of your local Association. It occurs to me that in this connexion you would be interested in the following extract given you with reference to the state of the trade between Russia and China in the teas grown in the latter country. The information seems to show that the endeavours making to introduce Ceylon tea into Russia are being met by increased activity on the part of the Russian agencies in China, which have evidently succeeded in stimulating the trade between the two countries to a very great extent. There is truth, no doubt, in the consular statement that the falling-off in the imports of China tea into London are to no inconsiderable extent due to shipments now being made direct from Chinese to Russian ports. This has been confirmed to me by several traders with whom I have conversed on the subject :—

THE TEA TRADE BETWEEN CHINA AND RUSSIA.—Russia is regarded at the stronghold and mainhope of the Chines tea trade; while the British islands are consuming Indian and Ceylon teas, and the United States those of Japan, to the injury of China, Russia continues faithful to Chinese teas. The Commissioner of Chinese Customs at Hankow, in his last report, says that the tea trade with Russia is increasing annually, while it is decreasing with England, because while in former years tea was shipped first to England and thence to Russia, the tea dealers in Russia now have their teas shipped direct from China. Last year the trade with Russia would have been very large if the supply of suitable kinds had equalled the demand. Only the better kinds of tea can now be sold in Russia at a profit, as the demand there has undergone a complete change. Between 1877 and 1888 the exchange of the Russian paper rouble was very low; good teas were therefore dear, and the mass of the people could only afford to purchase inferior kinds. Since 1888, however, the rouble has steadily risen, and has now reached a value higher than any of the past 15 years. Tea, with other foreign goods, became cheaper and the people began buying tea of good quality, which, in spite of having cost higher prices in China, realized large profits. The market in China last year was entirely governed by the demand from Russia, which was very large and much in excess of the supply of the suitable qualities. In fact, the very best tea of the season (Keemuns) sold very cheaply, simply because they are a kind not consumed in Russia.

Quite a batch of letters came to hand by the last mail from your Planters' Association in reply to queries, &c., sent from here, and among these was one in which an attempt was made to soften down the annoyance felt by the Tea Committee of the London Association at the letter first received which had rebuked the action taken by it in the matter of Mr. Lough's appointment as agent in Paris. The general feeling is, however, that although your local Committee disclaim having had any intention of judging the action on this side, that it really did so on insufficient and unsupported representations. Your Committee state now that it only invited reconsideration here at home on the basis of information conveyed to it; but we think that no one reading its first letter would limit their conclusion with respect to its tenour and purpose to any such view.—London *Cor.*

THE SALE OF COFFEE AND CHICORY.

Coffee planters will, no doubt, read with interest though not with pleasure, the following ingenious defence of the adulteration of coffee with chicory under certain conditions. It appears in a letter to the *Grocer* signed "Old Mocha." The law upon this subject, as upon many others connected with our trade, is an unknown quantity, throwing discredit upon the Imperial Government. The administration of this law and of the Weights and Measures Act, and others, is left in many important particulars to the discretion of the Great Unpaid, causing a vast amount of uncertainty in different districts. The contradictory decisions arrived at are sufficient to breed contempt for the presiding justices, and the system of rewards to informers and prosecutors is a temptation to unscrupulous persons to misrepresent the facts in order to get a conviction.

Now, how do many of the magistrates arrive at their decisions? They hold that a large percentage of profit amounts to fraud. But is this really so? We deny the right of magistrates to fix our profits. In the absence of a fixed limitation of the amount of the mixture, who is to decide the actual value of the article or the amount of profit under certain circumstances a person shall or shall not charge?

It is a singular fact, but none the less true, that the greatest number of prosecutions and convictions are obtained from litt'e hucksters' shops, and it is the exception that respectable good-sized grocers are caught or trapped. Now I maintain that these little hucksters' shops are entitled to a greater percentage of profit than a large establishment would require, because they do not sell a large quantity of goods in a week, neither do they sell a considerable quantity at one time, but mostly sell in the smallest quantities possible, such as halfpennyworths. They may really not buy their goods in wholesale quantities, but perhaps at actual retail prices to sell again.

Now, I will show that the fraud found by the magistrates really does not exist, except in their own misguided imagination. Take the article tea: the keeper of the huckster's shop may buy one pound of tea at 1s 4d per lb. to sell at 2s per lb. If he should sell the whole of this quantity in a week, certainly the profit would not be an exorbitant amount towards paying rent and taxes. But in the case of coffee, what would be the component parts and the quality in an article purchased in the same way to yield the same results?

A coffee to sell at 1s per lb. would have to be bought at 8d per lb., and perhaps this quantity would take twice as long to sell as the pound of tea; so that if half a pound of this 8d coffee were sold in a week, the profit thereon would amount to 2d. Having arrived at this point, just picture to yourself the bright intelligent smile lighting up the careworn countenance of the proprietor or his wife if a real ready-money customer should come in and actually ask for a whole two ounces of coffee at 1s 4d per lb. Do you think it is in human nature to turn away such a splendid opportunity of obliging a new customer? The inspector's assistant thus procures the coveted article, and in comes the inspector, when explanations follow, and the inspector is now sure of his case. The usual proceedings are taken, and, rightly or wrongly, a conviction and fine are imposed.

Now a few words upon the component parts of the mixture usually sold. I think the fact can be proved by the best authorities that grocers buy a high-priced coffee to use for mixture. They hold that a high-priced coffee with a larger percentage of chicory produces a better beverage than a low-priced common coffee with less or without any chicory. Also, it is a fact, going to prove the same thing, that families grinding their own coffee buy a high-priced, and not a common low-priced coffee. Thus they would not be so foolish as to pay 1s. 8d. and 1s. 10d. and 2s. per lb. if one at 1s. per lb. could be procured to give them satisfaction.

Therefore what kind of coffee can we suppose the keeper of the little huckster's shop could obtain for 8d. per lb.? The only wonder would be, that there was any coffee at all in it. And yet these worthy magistrates, when trying the case, lift up their hands in holy horror at the dreadful fraud perpetrated!

This is the unvarnished truth of the majority of cases got up. It is somewhat amusing how these people scuffle out of the shop when they are really served with the article they ask for; sometimes they say, "Oh, I don't want to see it ground,"—which is perfectly true: they would rather see it mixed, and then buy it without notice of the fact.—*H. and C. Mail.*

FISH-CURING.

During the year 1890 91 there were 143 fish-curing yards at work in the Madras Presidency against 142 in the previous year. During the year two new yards were opened at Puthu-Ponani and Vadanapalli, and the Mannapuram yard was closed, but since then five other yards at Bypilla, Konada, Kanuparti, Madialogam and Nambiankuppam have been closed, so that the current year opened with only 138 yards. 1,366,412 maunds of fish were brought to the yards to be cured against 1,184,058 in 1889-90, for which 196,426 maunds of salt valued at R1,32 114 were sold against 176,111 maunds valued at R1,16,278 in the previous year. The quantity of salt sold to each maund of fish cured was 11·82 lb. in 1889-90. The increase of 6,698 tons of fish or 15·3 per cent brought to the yards to be cured is a very satisfactory development of the industry in spite of a bad fishing season on the whole of the East Coast. The rapid strides in the improvement of the fish-curing industry is evidenced by the following figures of fish brought to be cured for the past five years :—

	East-Coast. Tons.	West-Coast. Tons.	Total. Tons.
1886-87 ..	9,526	20,847	30,373
1887-88 ..	12,637	24,858	37,495
1888-89 ..	15,781	25,830	41,611
1889-90 ..	15,233	28,263	43,496
1890-91 ..	16,426	33,768	50,194

The quantity of salted fish manufactured locally in the several districts in the Madras Presidency during the year was 796,500 maunds, 30,787 maunds were imported by sea, and 1,592 maunds by rail, making a total of 828,879 maunds. Of this quantity 98,275 maunds were exported by sea and 4,614 maunds by rail, leaving a balance of 725,900 maunds for consumption in the Presidency, exhibiting the fact that the bulk of the salt-fish cured is consumed in the Presidency. In South Canara and Madras the imports by sea are in excess of the exports, while in South Arcot, Tanjore, Tinnevelly, Madura and Malabar the exports exceed the imports. The quantity carried by rail both inwards and outwards is very small, but the latter is much in excess of the former. The expenditure incurred by Government on fish-curing operations was R52,963 against R45,031 in 1889-90 or an increase of R7,925. The increase is attributed to the expansion of operations and to the conduct of experiments in fish-curing on a larger scale. The gain to Government was R15,189-12-5 during the year and a total gain of R53,268-13-0 from the period of the commencement of the operations. A series of experimental operations in fish-curing was carried out by the Salt Department during the year, and 2,452 maunds of fish were operated on, for which about 397 maunds of salt were used against 541 maunds of fish and 103 maunds of salt in 1889-90. Government incurred an expenditure of R3,033-10-0 and realised R3,335-3-2, showing a small profit. The experiments were conducted on an extended scale and were undertaken to find out the quantity of salt required to properly cure fish.—*Madras Times*, Sept. 18th.

LONDON TEA LETTER

(From the *Inidian Planters' Gazette*, Sept. 12th.)

HONOUR LIST.

		s.	d.
Jokai (Hukanpukri)	.. 30 Boxes Fly. Or. Pek.	4	8
" "	.. 20 hlf-chts. Or. Pek.	2	9½
" "	.. 13 chts. Pek. Fanings	2	2¼
" "	.. 30 " Pek.	2	0¼
" "	.. 12 " Pek. Sou.	1	8¼
Darjeeling Co.	.. 20 " Bro. Pek.	2	9
Tukvar ..	.. 28 hlf-chts. Bro. Or. Pek	2	4
Bishnath ..	.. 20 do. do.	2	3½
Mim Tea Co.	.. 20 do. Bro. Pek.	2	1½
Jhanzie ..	.. 14 chests do	2	0¼

FANCY LIST.

Mertings ..	.. 2 lb. Golden Tips	5	0

It needs no excuse that the Hukanpukri 12 chests of Pekoe Souchong at 1s. 8d. should be found in the Honour List, considering that these 12 chests complete the finest Invoice of the size ever received and sold together from India. The Flowery Orange Pekoe, was simply perfection, and had a beautiful glaze, showing great care in manufacture. Its weight for bulk was also very remarkable, indicating excellence in the rolling. In fact, it was ovident, that every detail of manufacture had received the utmost possible attention, and that to begin with, the system of manufacture had reached the height of perfection. There is a similarity in the Teas of all the Panitola group of the Jokai Company's gardens which is a very striking illustration of how far one capable, directing mind, can go in stereotyping, so to speak, a certain type of quality and appearance, in the Teas of gardens situated miles apart, and upon very different varieties of soil; and possessing bushes of various *jâts*, and of course, different Tea-makers. This similarity, and excellence, common to all these gardens under one Superintendent, whose instructions are thus faithfully followed, go far to indicate that the "*system* of *manufacture*," as long ago hinted in these columns, has more to do with the quality of the Tea made, than all other conditions put together, provided the district be a Tea district, and the bushes not worn out. This is further borne out by the remembrance, that this very district (Sadiya Road) once upon a time was spoken of in Calcutta as having a soil which could produce quantity, but never quality.

JAMAICA CINCHONA.—A small consignment of cinchona from a private plantation in Jamaica was offered at this week's bark sales. This is the first shipment from that island that has been put up for auction this year. The total weight of it was only 67 lb., and if the offer had been accepted that was made for it, the total would have realised about 17s. As freights are high from Jamaica, and no less than 14s 6d carriage was paid for this little lot, cinchona growing in Jamaica does not seem to be an industry of much promise.—*Chemist and Druggist*, Sept. 12th.

TEA IN CHINA.—From Foochow we have the following tea news under the 22nd ult.:—The calling steamers during the past fortnight have been the "Patroclus," "Gleneagles," "Kintuck" and "Nomoa" for the German Mail, About ¾ of a million lb. were shipped by these steamers, making the export to Europe to date 11¾ million lb. against 10½ millions to the same date last year. The settlements in the interval have been 19,000 chests Congou, which, looked at in conjunction with the above mentioned fortnight's export, shows that there must be a considerable quantity of bought tea in the port unshipped, representing probably an accumulation for the next Australian steamer to sail about 5th proximo. Prices show but little change. Quiet though the market has been, the sales have been in excess of the arrivals, and with a moderate stock teamen have been generally firm. Common, however, must be quoted a mace or two lower. The teas being settled at Tls. 8 per picul (5¾d per lb.) are barely up to "type" standard on the average. The determined run on common teas at this time of the year is naturally having its effect on the question of total supply for the season. The teamen no longer stand to their assurance that it will be limited to 330,000 chests Congou; they admit the possibility of its being 10 to 15,000 chests more. It is thought, however, that this increase in the estimate of the total yield will not affect the probable total export. The latest arrivals include a considerable proportion of tea which can only be characterised "low ordinary coarse and new," a class not wanted in any of the markets to which Foochow ships, and if sold at all, will only fetch such a price as will deter any large supply of it coming down. The arrivals of Congou to date are 292,000 against 339,900; the settlements 203,000 against 187,000; and the stock of Congou is 89,000 chests against 152,000 chests at the corresponding date last year.—*N.-C. Herald*, Sept. 4th.

SPECULATIVE DEALINGS IN INDIAN TEA.

It is now almost a year since the London Produce Clearing House commenced to register future dealings in Indian tea; and we believe that if the opinion of the tea dealers in the London Market could be gauged, they would, with perhaps one or two exceptions, unhesitatingly express their regret that this new element of speculation was ever introduced. Opinions vary no doubt as to the ethics of "future" dealings in produce, as well as in stocks and shares; but we are not at present concerned with this view of the question, which we imagine every man must settle for himself. It is our business to collect information from every reliable source, and focus it so that our readers may form their own judgment, and act as they think best. And it is because we see at present some symptoms in the market of a disposition to make what are called "bear" sales of Indian tea that we venture to draw the attention of those interested to the necessity of combined action to avoid an undue disturbance of values.

There are those who say that there is a moral difference between a "bull" purchase and a "bear" sale; but as we said before we are not concerned with the ethics of the question at present, and we will merely say that the conduct of a "bear" after having sold what he never possessed is generally directed to circulating injurious reports and otherwise seeking to batter down the value of stock held by *bonâ fide* owners—in short, he tries to depreciate other people's property to make thereby a profit for himself. It is somewhat unfortunate that just now the large supplies of Indian and Ceylon tea have tended to depress the legitimate market and rendered the "bear" game more easy. It is an open secret that some of the brokers in the market are operating for themselves in this direction. And it becomes, therefore, most important for planters and importers to consider whose advice they accept as to how and when they should offer their imports. It is manifest that if the market is overdone with nearly 20,000 packages in one sale and only 5,000 packages the next, there will be more or less irregularity in the prices, which will injure the interests of those importers whose teas are offered in the larger sale. It is known that the shipments from Calcutta were very heavy for the last fortnight of August and the first fortnight of September, and naturally the "bears" are jubilant at the prospect of covering their shorts in the anticipated panic and utter demoralisation which they reckon on if all the weight of tea is put upon the market with unreasoning haste. There was last season an attempt made to regulate the supply in public sale, so that it should not exceed 15,000 packages in one day or 35,000 packages in one week. The 35,000 total for the week has not yet been reached this season, but this week nearly 20,000 packages passed the hammer on one day with a manifest tendency downward. No time should therefore be lost in coming to some similar arrangement, as importers cannot be constantly in the salerooms watching the fluctuations of the market or the nature of the buying; consequently an "automatic feed regulator" (as somebody styled it last season) seems in every way a desideratum. The situation is no doubt somewhat peculiar as regards heavy supplies of Indian and Ceylon teas, but they are both steadily displacing China teas. The stocks of all kinds of tea on Aug. 31 were only 1¾ millions greater than last year. Shipments have practically ceased from the Chinese ports for this season, and it is exceedingly probable that the home and shipping demand will be quite equal to taking off every pound of Indian and Ceylon tea that comes here this season, especially at the low rates now ruling; but the supply should be regulated.—*H. and C. Mail*, Sept. 18th.

MESSRS. GOW, WILSON & STANTON'S TEA CIRCULAR.—In the circular dated Sept. 25th, our readers are requested to note the following correction:—The total Indian average for the week should read, 28,151 pkgs. at 9¾d; the Sylhet and Cachar average should read, 10,715 pkgs. at 8¼d.

A NEW MATERIAL FOR TEA PACKING.

A new material for lining tea chests has long been talked of, and it is now introduced. In an advertisement which appears in our columns, planters and tea importers are informed that the new material "costs half the price" of tea lead, that it "answers the purpose admirably," and that it has been "tested and approved by experts." Our representative called upon the makers, Messrs. Edward Saunders & Sons, Limited, of 81 and 83, Cannon Street, and from them we learn that in addition to the advantages thus claimed for this new material, it is impervious to damp, will bear boiling without injury, it does not break nor crack, and, of course, is very much lighter than lead, weighing but one-fifth the weight, an important matter where freight is concerned. The makers claim that they have been testing its thorough efficiency for years and now that they have proved the new material, they place it in the market with confidence.—*H. and C. Mail.*

HOW LEAF DISEASE HAS LESSENED THE PRODUCTION OF COFFEE IN JAVA, notwithstanding the advantage of rich volcanic soil, is shown in the following figures, given by Dr. Burck, in his paper suggesting remedies:—

Average yearly production	Samarang.	Cheribon.	Madiven.
In 1864-1868 ...	52,700 pikuls	24,900 pikuls	60,300 pikuls
„ 1869-1873 ...	51,550 „	22,500 „	61,700 „
„ 1874-1878 ...	49,200 „	22,700 „	58,600 „
„ 1879-1883 ...	50,500 „	24,600 „	66,400 „
„ 1884-1888 ...	27,300 „	11,760 „	33,275 „

COFFEE AND CINCHONA IN JAVA.—According to information received lately the coffee crop in Java will be much more than in the preceding year. The Government crop will be about 365,000 piculs, against about 160,000 in 1890; and from private undertakings in the east portion of Java the report of larger crops are given, which will be above the estimate. An interesting statement shows the increase of the cinchona bark cultivation in Java by private planters. The following figures exhibit the exports from Java for the last five years:—

	Private lb.	Government lb.
1890-91 ...	6,386,561 ...	553,255
1889-90 ...	4,579,787 ...	541,481
1888-86 ...	3,599,525 ...	815,506
1887-88 ...	3,124,924 ...	617,101
1886-87 ...	1,569,842 ...	660,433

—*L. & C. Express.*

INDIAN TEA OF LOW QUALITY.—We suppose it is the generally good quality of Ceylon tea which led to such severe denunciations on recent descents below standard. But, due to similar causes no doubt, Indian has also been of inferior quality and has sold at prices as low as the lowest Ceylon. Confirmatory of this statement, we quote as follows from Shepard & Co.'s circular of September 25th:—

Indian.—Offerings have exceeded those of the previous fortnight by some 4,000 packages. The general quality of supplies fails to show improvement, and prices for all common and ordinary liquoring Teas have been gradually tending downwards, so that quotations of 5½d, 7d and 8d have now been recorded for the lowest grades of Souchong, Pekoe and Broken Pekoe respectively. Good medium to fine kinds are generally well competed for at about previous rates, and for a few parcels of very choice Darjeeling Tea long prices have been obtained.

We take this opportunity of correcting a mistake in a paragraph on Ceylon tea which had sold at 5½1 inserted in yesterday's paper. The extract was from a Melbourne letter.

COFFEE PRODUCTION IN INDIA.

Although in India, as in Java, leaf disease has not acted so suddenly and disastrously on coffee, as has been the case in Ceylon, it is evident that much mischief has been done as is still being done by the leaf fungus. Mr. O'Conor's notice of this article of export in his review of the export trade of India is as follows:—

Notwithstanding the stimulus of prices in the European market which have ranged very high during the last few years, and still continue to range high, the exports of coffee do not increase as will be seen from the figures subjoined :—

	Cwt.	Rx.
1886-87 ...	370,458 ..	1,502,251
1887-88 ...	273,775 ...	1,529,680
1888-89 ...	365,299 ...	1,884,243
1889-90 ...	239,795 ...	1,489,872
1890-91 ...	233,451 ...	1,454,985

The trade during the last decade remained stationary, until the last three or four years when it began to decline, although helped by high prices in London and the low rate of exchange which, it is still supposed by some, is advantageous to the tea and coffee planter. Indian coffee, however, has doubtless difficulties to contend with. Unlike Indian tea, it is not superior to the coffee of other countries with which it competes in Europe, and the ravages of leaf-disease have been very serious.

It thus appears that the exports have gone down from 370,000 cwt. to 233,000 in 6 years. Mr. O'Conor is mistaken as to the quality of Indian coffee. It is far superior to the generality of Java and Brazil. Indeed Mr. O'Conor himself shows, in dealing with the trade to Arabia and Turkey, that South of India coffee finds its way via Bombay to those countries, and is there drunk by visitors as superior to anything of the kind in the world.

A DECOCTION OF TOMATO LEAVES AS A CURE FOR TEA BLIGHT.

We know that the tomato fruit possesses active properties, beneficial in the case of torpidity of the liver, we believe. But we were not aware that any special alkaloid existed in the leaves. This would appear to be the case, however, judging from correspondence which we quote from the Calcutta journal *Capital*. Can any correspondent help us to an analysis of the tomato plant? If the decoction of the leaves suffices to destroy red spider, there can be little doubt that it would prove equally destructive to the spores which it touched of *Hemileia vastatrix*. But there is not only the expense of the application but the question of infection from neighbouring plantations not similarly and simultaneously treated. From Mr. Weston's limitation of "creeping things" it seems doubtful if the cure would reach the case of the far more formidable helopeltis. Happily our tea is exempt generally from any of the pests which are often so destructive in India; but, in case of eventualities, we consider it our duty to lay before our planting readers all information of this nature which reaches us. Planters can judge for themselves of the probable value of the antidote now submitted to public notice. As red spider is only "a creeping thing" the exemption of tea for eighteen months can be understood. Such exemption could not, probably, be calculated on, were the plagues operated on either helopeltis or *Hemileia vastatrix*.

"Singell," whence Mr. Weston writes, is an estate in the Kurseong division of Darjiling, at an altitude of about 3,500 feet.

THE CLARENDON AND CARLABECK TEA FACTORIES.

Upper Abbotsford, Nanuoya, Oct. 9th.

Last Wednesday afternoon I had the pleasure of visiting the two fine factories of Clarendon and Carlabeck. The former is fitted up with turbine, 16-tray sirocco, rollers, sifters, &c.; but its great charm lies in its perfect finish. All the pillars are of dressed stone cut to exact sizes, so that whichever way one looks a perfectly level row meets the eye. From top to bottom the factory, like the estate, is as spick and span as a new pin, and does Mr. Black the greatest credit.

A Carlabeck we found Messrs. Jackson, Halliley and Cassie up to their eyes in oil erecting new machinery. The factory has practically been all built anew under Mr. Jackson's own supervision, iron uprights and girders having been got out from England. The dimensions of the house are about 100 ft. by 50 ft., and it is to be *the* model factory of Dimbula, I believe. I was fortunate enough to see the smaller Britannia at its second day's work, and the perfection of the work was simply marvellous. As we five Europeans and some hundred coolies watched the automatic action of the revolving trays, each turning upside down when its work was done and being banged by a batten to thoroughly empty it, we looked at the maker, and (he 'll excuse me if I say that) "still the wonder grew, that one small head should carry all he knew." The popularity of the Britannia is proved by some *thirty* having already been booked. The fans send a perfect hurricane of draft through the house. I need hardly say that turbine, rollers, sifters, and all else, are erected on a thoroughly scientific and methodical system throughout. Who says Ceylon tea is not paying?

Only 0·13 of rain yesterday.

Seismic cyclones simply scorning,
Today 's a glorious *north-east* morning;
No rain, no mist, no horrid hazes,
But cloudless sunshine, hot as blazes!

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Sept. 17th, 1891.

ANNATTO.—For a parcel of 65 bags of rather dull and somewhat damaged seed an offer of 1¾d per lb was declined today. The price is 2d per lb.

ARECA NUTS.—The parcel which was recently imported came up for sale today. The quality was rather disappointing, the seeds being rather worm-eaten and evidently badly dried. The whole of the 59 bags shown was bought in at prices ranging up to 37s 6d per cwt.

CINCHONA.—Very little South American bark was offered today. For 30 bales genuine flat Calisaya, 1s 4d per lb was refused, the limit being 1s 5d per lb. Good mossy broken Guayaquil quills were bought in at 1s 5d to 1s 6d per lb. A parcel of 12 bales badly damaged flat and split quill Maracaibo sold at from 2¾d drawn to ¾d per lb. The case of Jamaica bark in red quill, rather broken, offered at the last bark auctions, sold at 3½d per lb today. Cablegrams from Batavia state that the exports of cinchona bark from Java in July were 1,300,000 Amsterdam lb., and in August 750,000 Amsterdam lb. The total shipments of cinchona from Java for the season ending June 30th are now to hand, and show that the estimates hitherto given were much below the mark. The official figures are as follows:—

Season	Private Plantations	Government Plantations	Total
	Amsterdam lb.	Amsterdam lb.	
July 1st 1890 to June 30th,	1891...6,323,561	553,255	6,876,816
'89 do	'90...4,579,787	541,481	5,121,268
'88 do	'89...3,599,525	815,506	4,415,031
'87 do	'88...3,124,924	617,101	3,742,025
'86 do	'87...1,569,842	660,433	2,230,275

Up to the present a total of 826 packages bark only is announced for next Tuesday's auctions. It is composed

of 151 Ceylon, 325 East Indian, 77 Java, and 273 South American Calisaya barks.

ESSENTIAL OILS.—Three quart bottles of fine oil of Lemongrass from Dominica (W. Indies) sold with furious competition at the fancy price of 1s 9d per oz. Native East Indian is worth 1½d to 1¾d per oz. A transaction of 100 cases September-October steamer shipment at 1 11-32 d per oz "c.i.f. London" has recently been reported. Citronella oil remains dull at ¾d to 11-16ths d per oz on the spot, with very little business.

QUININE.—No business whatever has been reported this week; but on Friday last a lot of 5,000 oz Pelletier's brand, in tins, sold at 9¼d per oz, which is the lowest price on record.

NOTES ON PRODUCE AND FINANCE.

A NEW TEA COMPANY.—The latest addition to the London tea companies is the Doodputlee Tea Company, Limited, which has just been registered, with a capital of £40,000 in £20 shares. The object is to acquire the estates known as Burra Doodputlee (including Chulta Kandy) and Chota Doodputlee, with the several tea plantations or gardens thereon, situate in the District of Cachar and sub-district of Silchar, province of Assam, India, and to carry on the business of tea and coffee planters in all its branches. The first subscribers, who take one share each, are:—D. Macneill, 50, Old Broad Street, E. C.; J. Mackinnon, 50, Old Broad Street, E. C.; S. MacLeay, 50, Old Broad Street, E. C.; C. Reiner, 50, Old Broad Street, E. C.; E. A. Jack, 85, London Wall; J. Hutton, Oakleigh, Perry Vale, Forest Hill, Kent; J. B. Taylor, West Hall, Upham, Bishops Waltham. There shall be not less than three nor more than five directors. The first shall be James Davidson, E. A. Jack, and J. Mackinnon. Qualification, fifty shares. Remuneration, £300 per annum, with an additional 5 per cent after payment of 8 per cent dividend.

LAST WEEK'S TEA SALES.—Commenting on last week's tea sales, the *Grocer* says:—A rather gloomy view pervades the whole market, and dealers are looking for lower prices. The reason is, we believe, there is too much tea on the water at the moment. Export demand is very quiet, and further smash-out sales are expected. As regards low-priced teas, we doubt if we shall see them much cheaper, and the losses on the finer grades are so great that those who can afford to hold on will do so, in anticipation of better times. We have already begun the season on a very low level. Monings are agreed on all sides to be good, while Foochow kinds began with such a bad character that buyers cannot see the good value that is being offered them considering the price. Such a market must affect the total export from China, and many people say that present value will commend itself to the retail grocer, and to some extent stop the increasing consumption of Ceylon tea, more particularly when one takes into consideration the very poor quality of the bulk of the heavy offerings of Ceylon tea for the last two or three months. The Canadian and Continental demand for Foochow teas has been very small as yet, but there are signs of better times from these quarters. Russia does not help us yet much, but the value of the rouble is increasing, and holders of Ningchows here are plucking up courage. Dealers are holding no stocks, and if a demand does spring up later on, we should see a lively market. The supplies of Indian tea brought to auction have again been extensive, numbering in all 30,670 packages, which, in view of further considerable quantities to be put forward next week, met a very sluggish demand, and it was with unusual difficulty that the greater part was sold. The quality of several invoices was extremely poor, notably that of those from the Sylhet district, which showed a marked deterioration, and for many lots it was difficult to extract bids, so the teas were bought in or "passed." The dealers evinced no inclination to go into stock at present rates, but mostly contented themselves with merely looking on, and buying only such qualities and quantities as were suitable for their immediate requirements. This attitude on their part naturally caused the public sales to be more than usually tedious, and the weather being hot and stifling, many persons who had been in the room all the while found it a positive relief when the auctions were over. Prices consequently received no uniform support, and in a majority of cases tended rather in favour of the buyer. Growers of Ceylon tea would do well to turn out a better class of tea than the trade have been accustomed to for some time past, as it is bound to pay in the long run. Larger breaks and fewer different qualities from each estate would also be desirable.

DOWN ON ADULTERATION.—In view of the work before it in connection with the Food and Drugs Act, the special laboratory long established at Somerset House for carrying out the analytical work required by the Excise Department, has been considerably developed of late. Other Governmental departments, recognising the utility of chemical analysis for the conduct of their business, have had recourse to the laboratory for such assistance as they required in that way. The total number of samples analysed during the past year ending March 31 last, has been greater than in any former year, and amounted to no less than 48,426, or 1,246 more than in previous year. In the large majority of instances the results obtained supported the conclusions which had been arrived at by the public analysts.

THE LATE M. GREVY AND COFFEE.—The following story, published years ago, concerning the late M. Grévy, whilst yet President of the French Republic, may today bear repetition. He was returning home one morning after an unusually long ride in the country, and dismounting at a small roadside inn he asked the hostess to supply him with "a cup of coffee." Just as she was leaving the room he recalled her and asked if she had any chicory, being told that she had, he said he would like to see it. On her returning with it he asked her if she had any more, and learning that she had, he said "bring it here—bring me all you have in the house"—when this was done he said "now go please and make me a cup of coffee."—*H. and C. Mail*, Sept. 18th.

TEA TALK.

Writing from Hongkong, Mr. Edward Bedloe says:—

When I left Philadelphia, I thought I was a fair judge of tea. I had imbibed both it and the knowledge of it in large quantities from George C. Boldt, John Chamberlain and Delmonico. Now after having visited Ceylon, Formosa and the Amoy district I find that I knew nothing and the three worthy gentlemen named knew even less.

We Americans don't know the first principles of making tea. The delicate leaf should never touch metal. It should be kept in paper, wood, glass, or porcelain.

To make it, put a small quantity in a porcelain cup, fill the latter with boiling water, cover it with a porcelain saucer and let it stand three minutes. Then if you desire to be an epicure, drink only the upper layer of the golden liquid, throw the rest away, rinse the cup and begin drawing the nova.

Don't use sugar any more than you would sweeten Chambertin or pour molasses into Mumm's Extra Dry.

Don't use milk! It ruins the flavor of the tea and injures the stomach. The cloudiness produced by adding milk to tea arises from the action of the tannin upon the casein, and is, chemically speaking, pure leather. An old maid who drinks a dozen cups of this mixture a day swallows a hundred pairs of boots and a section of extra long leather hose during her lonely life of fifty years. Above all things don't boil tea. The heat drives off the perfume, spoils the flavor and extracts the tannin, the astringent principle. If the boiling be done in a tin or iron pot the tannin attacks the metal and makes the liquid black, this fluid is simply diluted ink. Never let the tea stand except in a tightly closed porcelain pot. Standing changes it from a delicious, wholesome beverage to an ill-tasting bitter liquor. Rather make it in small quantities and make it often. Methinks I hear many good housewives say, "It needs no ghost to tell us this," and yet there are thousands who do need advice on this simple subject. In summer,

when you want to cool off quickly, sip the tea boiling hot, with a slice of previously peeled lemon, or nicer still, of orange, without the rind, floating in it. In winter, especially when you have a cold and require a sudorific, add a wineglassful of arrack to it and drink it down as hot as you can stand it. It brings out a profuse and healthful perspiration when punch or hot Scotch fails to thaw you out.

Beware of green tea! It is an abomination and a fraud. A Chinese coolie wouldn't give it to his pig. He will give that patient porker dead rats, old boots and other offal and such unconsidered trifles, but he draws the line at green tea. In the first place it is simply the unripe leaf and bears the same relation to the real article that the "little peach of emerald hue" does to Delaware's delicious fruit in its richest ripeness. It has the same effect upon the stomach and abdominal nerves as in the case of poor "Johnny Jones and his sister Sue." The green tea of commerce derives its rare color from being cured or rather killed, on dirty copper pans, from being mixed with weeds and shrubs, from being stained with indigo and chrome yellow, from being colored with verdigris, grass-juice or chlorophyl. Every green dye known to commerce has been used to produce the much admired but death dealing color excepting it may be Paris green. As soon as the use of that poisonous substance will give a profit of a cent a pound you can wager it will be liberally used by the mercenary Mongolian merchant and the much more mercenary cultured European tea trader.

I'll venture the statement that there is no fine tea in the United States. What goes to our country is the cheap stuff used here by the coolies and jail inmates.

When an American housekeeper pays $1 per pound for her Oolong or English breakfast she is buying what is sold here for 25 cents. No really good tea is sold here for less than $1 per pound by the wholesale. If laid down in the market at home it could not be sold for less than $1·75.

This $1 tea is the usual article for clerks, poor tradesmen and mechanics. For the well-to-do, the official class and notability are finer pickings that run from $1 to $50 per pound. The only Europeans who purchase these high-priced leaves are Russians and a few connoisseurs in France, Germany, Austria, Spain and Turkey. The bold Briton permits patriotism and his purse to guide his palate and uses the vicious, vitriolic horrors of Ceylon and India. Good Uncle Sam patronizes a Cheap John, who gives away to each purchaser a $2 cup and saucer with every 25 cent pound of tea.

The tea plant is as sensitive and delicate as a West Walnut street belle. It flourishes best on a mountain side, where it is neither very warm nor cool, where the soil is dry, but the rains and dews are frequent, where the force of the wind is broken by adjacent woods or hills, where there is a maximum of sunlight and, according to the Celestials, of moonlight and where the surrounding ground is kept free from weeds or other vegetable growths. There are farms in Formosa, Fo Kien and other tea districts where these conditions exist unchangingly, whose tea crop is as famous and distinctly known in the eastern world as the various chateaux of France are to the wine experts of Europe. Just as the millionaires of Europe control certain vineyards, so do the millionaires of the Flowery kingdom control tea plantations whose annual output is worth a king's ransom.

Another point of the many we have to learn from the Chinese, is the proper mode of packing the leaf. That which goes to America is dumped as soon as it is "fired," burning hot, into a lead lined box, the lead is soldered and the airtight coffin is sent around the globe in the hot hold of a steamer. The tea sweats and undergoes many changes which alter its flavor and vitiate its quality.

The Mongolian packs the poorest kind in strong paper packages and these in turn in mortuary lead; better kinds in soft-tin paper-covered boxes; still better ones in silver-foil inside of one pound cases made of split sun-dried bamboo, and the best in porcelain jars and vases.

He packs in eighths and quarters of a pound, so that if a few leaves are improperly treated or not cured, they will not contaminate much surrounding tea. The Russians compress the tea into bricks, or cover it with silver-foil and many paper wrappings; or else put it in glazed jars.

The principle is the same—the sub-division of the tea, and the prevention of risks attending larger packages or in bigger bulk, such as heating, sweating and moulding.

This principle we have yet to learn and apply. But ah, the exquisite pleasure to be found in a cup of truly fine tea. The colour is a delicate gold; each leaf unfolds into a perfect olive oval; its fragance fills the banqueting-hall, delicate and yet penetrating, dainty but distinguishable above all other perfumes; and the flavour! The famous Clover Club Punch pales into dim distance in comparison to this "cup that cheers." Words cannot describe the delight in a brew of fresh Formosa tea. It fills the system and makes every nerve thrill with joy. It lingers on the palate for hours. And "the next day," think of it, O votaries of Bacchus, the brain is clear, the body all alert and the soul ready for the battle of life.

I never taste the fragrant leaf without recalling Edna Standard's lines,

> "With kindreds souls in many a spot
> I've had good tea; from urn and jar,
> From caddy, Cha-boi, English pot,
> And fiery Russian samovar.
> But none so fragrant or so sweet
> As that which from thy hands today,
> With some enchanter's art replete,
> Drove every thought of care away."

PREVENTION OF BLIGHT IN TEA.

(From *Capital*, Sept. 30th.)

We are indebted to the Acting Secretary to the Indian Tea Association for a copy of the following correspondence on a cure for red spider and possibly other blights :—

From J. BUCKINGHAM, Esq., to J. H. H. ROLFE, Esq., Secretary, Assam Branch, Indian Tea Association, (dated Amgoorie, 21st July, 1891).

I have been favoured by Mr. Bruce, of Messrs. Kilburn & Company, with some correspondence between Mr. Simson of Messrs. Hoare, Miller & Company and Mr. Weston of the Singell Tea Company regarding a cure for red spider and probably for other blights.

I send you the letters for publication, and it would be interesting if experiments were made and the results communicated to you.

From A. J. SIMSON, Esq., to W. WESTON, Esq., dated Calcutta, 6th October 1890.

I should be much obliged if you would, when you have leisure, let me have a report on the tomato decoction prevention against blight. You will know better than I do what points should be specially mentioned, but I may say I should like them to include :—

1. What blights may be prevented by it?
2. To what extent each is affected and for what period?
3. When is the decoction applied, how, and in what quantity?
4. How is the flushing of the bush affected?
5. Is the health of the bush impaired?
6. Is the leaf affected in color, taste, or otherwise?
7. What labor is required to apply the decoction?
8. Is the tomato leaf easily obtainable?
9. How is the decoction made?
10. What are the advantages, if any, that can clearly be attributed to the use of the decoction?
11. What are the disadvantages of the same?

I hope this list will not appal you, and that you will frankly give your opinion as to the value of the treatment. While on the subject I should much like to know whether you think the outturn of your garden has been affected in any way by your experiments, if so, to what extent, and whether you look for any further result. I am sorry to give you so much

trouble, but am anxious to know whether the system is worth developing.

From W. WESTON, Esq., to A. J. SIMSON, Esq., dated Singell, 30th October 1890.

I now send you my report on the tomato decoction as a cure for certain blights. I will answer all your questions first, and then add a few remarks after.

1. I have only treated "red spider," but am of opinion that all blights which crawl (have no wings) could be prevented by this treatment.

2. So far the block of bushes treated last year and this for "red spider" have not been attacked again. The 1889 block has now been free for seventeen months.

3. I consider the decoction should be applied as soon as the first signs of the blight appear. The best and quickest method of applying the decoction is with syringes with rose heads. Syringe the bush thoroughly morning and evening. The quantity depends on the size of the bush.

4. By the destruction of the blight, the bush is enabled to flush or throw out new shoots quicker. That is, it continues to flush in its natural manner.

5. In no way is the health of the bush impaired by the use of this decoction.

6. The leaf is in no way affected in color, taste, or otherwise.

7. Taking 4,840 bushels to the acre, the cost of labor would be not more than R10 per diem (an acre) this is giving 50 large bushes to each child to thoroughly syringe morning and evening.

8. Yes, in this district one might say it grows wild, for when once planted, the plants come on with very little attention.

9. Take 80 lb. of tomato leaves and stalks (bine), throw a portion into a cask, and pulp well with a long wooden mortar. Continue adding till the whole of the 80 lb. is pulped, then add 40 quarts of water and mix well. The decoction is now ready for use. *Old leaves* and *bine* which are stringy are useless.

10. The advantage derived in treating "red spider" is most important:—

Firstly, it prevents the shedding of leaves by destroying the spider before it wears them.

Secondly, by preventing the shedding of leaves the plant is enabled to gather its necessary quantity of dew at night during the dry months, and consequently it has the strength to flush.

11. The disadvantages are nil.

My experiments have not been on a large enough scale for me, to form an idea as to what extent the outturn has been affected, but there is no doubt that it would be greatly benefited by the prevention of the spreading of the blight on its first appearance.

I consider the tomato decoction as a preventive is better than the tobacco decoction used at home for the destruction of blights in "hop gardens." With reference to my answer to your question No. 2, of course we have had an unusual year of weather in every way, which undoubtedly has affected all blights as well as the quality of the leaf; and taking this into consideration, as well as the small area at present treated, I would not like to say more without making another experiment on a large scale, say 10 acres next year. But one thing I am certain of is, that the decoction of the strength given in para. 9 kills "red spider."

No. 6. The leaf from which tea is made can in no way suffer by using the decoction; for as long as the bush is suffering from "red spider," it does not flush, and as soon as the pest is destroyed the treatment is discontinued.

If I have not answered all the questions to your satisfaction, let me know, and I shall only be too pleased to give you any further particulars you may wish for.

From A. J. SIMSON, Esq., to W. WESTSON, Esq., dated Calcutta, 11th November 1890.

I must apologise for not having yet thanked you for the full report you have sent me on the tomato treatment of blight. It is very complete, and I am much obliged for the trouble you have taken to make it so. One point strikes me, however, and that is the expense which you put at R10 per acre per diem. This, at first sight, appears prohibitive as it seems for a garden of 500 acres R5,000 per diem or per annum R18,25,000. But I know it has not to be done every day even during the season, and should therefore like to know how many days' treatment on an average you find sufficient in the first instance, to rid attacked bushes and how often the decoction has to be applied afterwards to keep them free. You say 1889 block has been free for seventeen months, from which I infer that the effect carries on beyond one season even. In reference to this question it would be interesting to know what you considered the average expenditure on the treatment per acre per annum, and whether you think such expenditure compensated for by the increased yield of leaf, if so, to what extent.

I am sorry to trouble you further, but think my information will be complete if you can kindly reply to these points.

From W. WESTON, Esq., to A. J. SIMSON, Esq., dated Singell, 3rd December 1891.

In answer to your question how many days' treatment I found sufficient in the first instance to rid attacked bushes?

Eighteen to 27 days' treatment entirely got rid of the spider, but I believe if a stronger decoction was used, it would act quicker, and at the same time not injure the bushes or leaves. The bushes when once treated have not been attacked again, and so far the treatment shows a perfect cure.

In answer to your question referring to duration of time the effect lasts, and the average expenditure on the treatment, I take the average expenditure on treatment per acre, R130 per annum, and if this means a permanent cure, which it so far shows in the 1889 block, which has been free for over 17 months. I consider the expenditure would in every way be compensated for by the increased yield for no red spider would mean one's getting the proper outturn from each acre of tea every year after the cure has been effected, which cure so far seems permanent.

With reference to your figures of expenditure on a 500 acre garden treated for "red spider," it would be impossible for the whole area to suffer at once, as red spider starts on a portion of a block or blocks, and spreads if left alone; therefore, if the attacked parts are treated with the decoction on its first appearance, the spreading is prevented, and the expenditure in consequence is brought down to a minimum.

Should we suffer from red spider next season, I intend trying a strong decoction which, I have no doubt, will cure in a smaller space of time, and of course reduce the expenditure per acre.

If I have not answered all your questions as you wish write and let me know, for I am only too pleased to answer them.

THE CULTURE OF COFFEE, &c., IN SINGAPORE.

Mr. Ridley, the Director of the Straits Gardens and Forests, in noticing Dr. Burck's papers on leaf disease in Java, writes :—

All who have seen a view of the coffee fields in Ceylon, must have noticed the entire absence of any hedges or jungle breaking up the enormous tracts of coffee cultivation. The ground is, it is true, very undulating and hilly, but there is no attempt made to separate the fields at all by hedges. The whole country is open to the sweep of the prevailing wind to carry the fungus spores from end to end of the island, and, indeed, the undulating nature of the ground is in favour of the spread of the disease. Professor Marshall Ward, when he was investigating the disease in Ceylon, pointed out this very thing, and urged the formation of hedges. It is not probable that this simple method would have so far arrested the disease as to save now ruined cultivation in Ceylon, but it would, doubtless, have lessened the violence and rapidity of the attack, and given some chance of combating the disease, by breaking up the

whole into more manageable plots. It must be remembered that it is very rare to find any one species of plant growing in masses together unmixed with any other in a natural state. The effect is somewhat like that of herding many animals of one kind together in the same space. However, for crops such as coffee it is essential to do this. They require to be grown under unnatural conditions but as this is unavoidable, it is still possible to break up the plantation at least to a small extent by having belts of jungle, here and there, running through the plantations. The quantity of coffee lost by not putting these belts under cultivation is trifling compared with the advantage to be derived from them. These belts will arrest the spread of fungus spores, and blight. They will also be of signal use in attracting the insectivorous birds which will aid to keep down the insects which injure the coffee, and they will also be useful as supplies of sticks, poles, &c. required from time to time in the plantations. It is of course possible that monkeys and musangs will resort to these jungle patches, and sally forth at night to devour the coffee, but they are tolerably easily kept down in small woods and it is usually when there is extensive forest near the plantation that they are so injurious. Where the jungle has been destroyed, and where there no bushes to make screens, I would suggest the planting of such trees as *Adenanthera pavonina*, *Saman*, *Jambus*, *Erythrinas*, Jacktrees, etc., in thick rows, so as to break up the plantations. Nor would I restrict the use of Jungle belts to the cultivation of coffee only. With all crops cultivated on a large scale here, I think it would be advisable to break up the plantations, if possible. It may be that with some cultivation no enemy worth considering is yet known, but no plant is entirely free from enemies either fungal or insectal, and although it may seem strange to say that a small jungle belt can and will act as a defence against strong winged insects, yet such is the case for the insects when they rise in the air high enough to clear the jungle, are very liable to be borne far away over the plantation, and if even they do invade the plantation they come but a few at a time and can be easily dealt with. The peculiarities of insect attacks on crops here must, however, be treated of at some future time.

But with respect to Dr. Burck's treatment with the sulphuric acid and scissors, and also the tobacco water treatment. At present the disease in the Straits does not seem to be sufficiently destructive to require such elaborate attacks upon it. For although it is very difficult to find a tree entirely free from attack, yet the Liberian coffee, unless a weak plant, seems capable of resisting any ordinary outbreak. Nevertheless, we may expect, should the cultivation ever become extensive, to find, as years go on, the disease becoming in time virulent, and this is the more likely as the soil in which we have to cultivate coffee is immensely poorer than that of Java.

Dr. Burck, it appears, does not attribute much of the violence of the disease to poverty of soil, yet I have doubts as to whether this may not have played a great part in the ruinous catastrophe of Ceylon. For a long period the same land had been under coffee. There was no rotation of crops, which indeed is impracticable for the the most part with any crops except those of annuals or biennials. This constant growth of the same species of plant on the same soil, cannot but remove a large portion of the most valuable salts, and the plants must get gradually weaker, nor does there seem to be any reason to doubt but that weakly plants are more liable to succumb to disease, whether animal or vegetable, than healthy ones. There is abundant evidence of this throughout both the animal and vegetable kingdoms. Of course thoroughly healthy plants may also be attacked, but they have a much better chance to throw off the disease.

I do not think Arabian coffee can ever be successfully cultivated in the Straits Settlements. It seems here to be very liable to produce "brush," that is to say, abnormal flowers, with minute, green, irregular sepals and petals, no stamens, and the pistal very small and apparently effete. I imagine this is due to the permanent dampness of the climate, and absence of any period of rest from growth. It appears to be a preliminary stage of what is known as phyllody of the flowers, *i.e.*, conversion of the part of the flower into leaves, instead of reproductive organs. This is common here also in certain orchids as *Phalænopsis Schilleriana*, which produces bulbs and leaves on the flower spike instead of flowers.

Besides the fungus, hemileia, the coffee suffers to a smaller extent from several destructive animals, among which are monkeys, musangs, a species of locust, the caterpillar of the bee-hawk-moth and a scale insect.

Of the monkeys the most destructive are the golden monkey (*Macacus sinicus*) and the black monkey (*Semnopithecus sp.*). The latter does not occur in Singapore but is common in Johore. These monkeys eat the fruit whole, passing the seeds uninjured, and the seeds passed by them are stated to be the best for cultivation. If this is correct it is perhaps due partly to the animals selecting the best fruit, but it is possible also that the seeds are absolutely improved by passing through the animal's body and so being manured, as has been shown to be the case with seeds of hawthorn trees swallowed by turkeys.

The musangs (*Viverra malaccensis*) are even more destructive than monkeys, and a good deal harder to destroy, as they are strictly nocturnal and very skilful at avoiding traps. They may, however, be caught in traps baited with pieces of bananas. On one estate, I am informed, that these animals eat a pikul of coffee per diem.

The locust is a large species of grasshopper not yet identified. It is about 3 inches long, yellowish green spotted with black. The hind wings are pink and very conspicuous when it flies, which it does very briskly. It does not eat the coffee leaves, but injures the bushes by laying its eggs in the shoots. This it does by making a series of slits in the bark of the shoots spirally, in each of which cuts it deposits a long narrow white egg. The larvæ do not appear to injure the shoot at all, and probably leave the plant as soon as hatched. The shoots, however, soon wither and turn black and finally fall off, and this is certain evidence of the presence of the locust. As a rule it does not do much harm, but under certain circumstances it may become exceedingly abundant and injurious. It is quite a common insect here, but I have seen it most abundant in Johore. It must be caught in butterfly nets, and destroyed.

The bee-hawk-moth (*Cephonodes hylas*).—The caterpillar of this insect is very destructive to the coffee by devouring the leaves, and clearing bushes with astonishing rapidity. The moth lays its eggs upon the leaves of the trees and the caterpillars quickly emerge and commence the work of destruction, usually attacking weakly plants. When full grown the larva is about three inches in length and of a bright green colour. The head is small and dull green, the next segment is ornamented with a number of raised yellow dots, the rest of the body is smooth bright green, bluish above, along each side is a raised pink line and down the middle of the back runs a double white line from the head to the tail meeting behind the horn which, like most of hawk-moth caterpillars, this animal has upon its tail. This horn is curved and sharp, yellow with raised black dots. The last segment and hindmost feet are ornamented with raised yellow dots. The feet are furnished with tufts of hair, but otherwise the caterpillar is quite smooth. When full grown the caterpillar spins a web between the leaves and becomes a chrysalis. It remains in this state for about a fortnight and then emerges as the moth. The perfect insects is very beautiful, it is about 1½ inches long, the body dark green, the tail fan-shaped black and yellow. The wings are perfectly transparent except along the edges, which are of a dull dark red. It is very active and not very easy to catch, flying briskly about in the evening shortly before sundown, and may be seen sucking the honey from the coffee flowers, which it probably fertilizes, but as there are many other harmless insects which do this equally well it may be destroyed whenever met with without detriment to the fertilization of the coffee. It is most easily destroyed in the caterpillar state. The larvæ should

be picked off by hand and destroyed. They are most abundant in January, but I have taken it full grown in December, and seen the perfect insect at several different periods of the year.

The scale insect commonly called black blight (*Lecanium coffeae*) is also very injurious at times especially to weak plants. It may be destroyed by the application of phenyl, diluted with water till it is of the consistence of milk or by shaking powdered lime over the leaves with a flower dredger. Phenyl water can be applied with aid of a squirt of bamboo, or an ordinary syringe. Many of the scale-insects are protected from most liquids suitable for killing them without injury to the plants, by the waxy secretion with which they are covered, which prevents the liquid actually touching the insect's body, but phenyl will penetrate the wax and attack the animal. The phenyl should be poured into the water and stirred up till it assumes the appearance of good white milk. A kerosine emulsion is recommended by the Editor of "Notes on Indian Insect pests," vol. i. p. 7. An emulsion resembling butter can be produced in a few minutes by churning with a force pump two parts of kerosine with one part of sour milk or soap solution in a pail, emulsions made with soap solutions being generally found to be more effective. The liquids should be at about blood heat. This emulsion may be diluted with from nine to fifty parts of water which should be thoroughly mixed with one part of the emulsion. The strength of the dilution must vary according to the nature of the insect to be dealt with as well as the nature of the plant, but finely sprayed in twelve parts of the water to one of the emulsion it will kill most insects without injury to the plants. It should be applied through a spray nozzle.

The white or mealy bug (*Pseudococcus adonidum*) is not as common here, but is also injurious. It should be treated in the same way.

I have received some specimens of coffee branches attacked by a fungus from Johore. This is quite a different kind to the hemileia. It seems to invade the ark of the branches filling them with a white mycelium and eventually forming a flesh-coloured crust on the outside of the twigs, which are then become black and rotten. It appears to be rather consequent on the death of the twigs from some other cause, and though it might perhaps spread a little to healthy parts is not much to be feared. It generally appears where the bushes are very crowded, and where the branches overlap, or where the locality is very damp. The dying and infected branches should be cut off and burned.

Mr. Ridley says nothing of a pest only less destructive than *Hemileia vastatrix*, viz. the white grub, which eats the feeding rootlets of Arabian coffee.

EXPORTS OF COFFEE AND PEPPER FROM THE WEST COAST.

Elsewhere we publish Messrs. Alston Low & Co.'s very interesting statement of the exports of coffee and pepper from the West Coast during the twelve months ending 30th June, 1891. Coffee and pepper form the chief staples of trade at Tellicherry and Calicut, and on the extent of these crops the prospects of business may be said to hinge. * * *

These figures show very clearly that it was not without some show of reason that the cry went up early in the year that "Arabia" was played out; At Calicut, the part of shipment for Wynaad, the Nelliompathies, Naduvattum and part of the Nilgiris. the exports of plantation dropped from 38,800 cwt. to 20,742 cwt. or by not far short of 50 per cent. Such a serious decrease may well have caused people to take the gloomiest view, for, if we are correctly informed, it is unprecedented in the history of the coffee industry in Southern India and ominously like what happened in Ceylon in the seventies. The present season, we are glad to say, has removed all doubt about coffee dying out in Wynaad, and the latest reports to hand tell of fair crops generally, and in some districts of first rate ones. Further, as in Mysore, new land is being cleared and put under cultivation, Of course when dealing with Wynaad, it must be borne in mind that coffee is only one of the products cultivated in that district, and last year the return from cinchona equalled if not exceeded the return from the berry. From Beypore coffee from the Ouchterlony Valley and the Nilgiris is shipped, and here we find that although the exports of plantation coffee were 8,800 cwt. below 1889-90, and they were only exceeded by 330 cwt, in 1889-90, which shows that in those districts the season was not abnormally bad, still it is a terrible falling off from the 38,000 cwt. which were exported in 1886-87 and 1887-88. Turning to the northern ports, we find at Tellicherry there was a steady and serious diminution in the amount of plantation shipped since 1887-88, when it totalled 36,000 cwt. Both that season and in 1885-86 some 10 000 cwt. found its way to this Malabar town, to be cured, which, if crops had been smaller, would have gone to Hunsur so that Tellicherry shipments cannot be looked on as a fair criterion of the crops in South Coorg during the past six years. Statistics from the Curing Works at Hunsur and Bangelore are necessary to complete them. Coming to Mangalore we find nothing that calls for unfavourable comment. This season was the alternate one in which, in the natural order of things there should be a small crop, and it is in excess of that of 1886-87 and only 60 tons behind 1888-89. After a small yield in the previous year, it might have been expected that a large one would result, but judging from Messrs. Alston Low & Co.'s remarks, the order is to be maintained and 1891-92 is to see the big crop.

The worst portion in these statistics in the serious diminution in the exports of native coffee from Tellicherry, which is not in any way compensated by an increase at any other port. Hitherto the seasons have not affected native gardens in the same way as they have done the plantations of Europeans, and this tremendous drop of 12,000 cwts. must be taken as evidence either that a large amount of native coffee has died out, or that leaf-disease has taken a firm hold on the native gardens, and native crops henceforth will be as variable as plantation. Pepper, like native coffee, is almost entirely cultivated in native gardens, although it is attracting the attention of Europeans more and more every year. Tellicherry is *facile princeps* the chief mart of this produce, exporting 83,000 cwt., of which by the way it imported no less than 12,000 cwt. We would here draw the attention of the railway authorities to imports of coffee and pepper into Tellicherry, a port which has no particular facilities either for shipping or warehousing, but merely possesses wealth and enterprise, and if these qualities enable it to import from other sea-coast towns by country craft 36,000 cwt. of produce during a dull slack season such as that of 1890-1891, we can without the least hesitation affirm that if it were connected by railway with the interior it would very shortly work up a trade that would be only second to that of the Presidency town. While most of the towns shipped their pepper to Bombay and other Indian ports Tellicherry supplied the continental mart, France taking 57,500 cwt. through Havre and Marseilles. London, it will be seen, only imported 2,860 cwt. of pepper, for it is a curious fact that while the English taste demands the finest quality of coffee, it prefers the inferior grades of pepper, which the Straits Settlements supply. Out of the 64,700 cwt. of native coffee shipped from Tellicherry, France took 59,000 cwt. Before concluding this hasty review of these interesting statistics, we may mention that the value of the coffee may be set down at 105½ lakhs and the value of the pepper at 30 lakhs.—*Madras Times*, Oct. 6th.

HAUTEVILLE FACTORY.

Abbotsford, Nanuoya, Oct. 12th.

When I wrote about the Carlabeck factory the other day, (see page 321) I had not been to Hauteville; and now I must say, without any depreciation of the former, the latter will take a lot to beat. It has been erected under *the other* (W. B.) Jackson's superin-

tendence; and what money and brains could do, brains and money have done. Imagine first of all half of the river being bodily built up into a watercourse 660 ft. long and protected throughout its length by a rubble bank. All this for a turbine which develops 30 horse-power from a fall of 8 ft.,—the lowest fall in Ceylon, I believe. The building itself is, I should say, 150 ft. by 60 ft., with side pillars of stone, and central uprights of iron, and is asphalted throughout. It has three lofts, and is fitted up with an enormous engine, two Excelsiors, two Brown's rollers, two Victorias, one Davidson's down-draft Sirocco, roll and tea-sifters, and four Blackman's fans. A simple calculation from the driers shows that this factory can easily turn out 1,500,000 lb. of tea annually. On asking Mr. Jackson his opinion, he said he liked Davidson's down-draft Siroco as well as any he had had to do with. But then he had never seen the Britannia! I must reserve further details for another letter.

TEA MACHINERY ON THE AGRA PATANAS: REMINISCENCES OF THEIR PRISTINE SYLVAN BEAUTY.

The same correspondent who described the equipment of Carlabeck and the working of the Britannia Drying Machine now tells us of a similar triumph of engineering skill at Hauteville, on "the Agras." The river which rises on the side of the majestic Kirigalpotta and is with its tributaries finally lost in the ocean near Trincomalee, is compelled, at Hauteville, to turn a turbine; and the power thus obtained is used to work a formidable array of rollers and down-draught siroccos and Victoria driers and sifters and cutters. "All on wheels! All on wheels!" as the Turk in Eothen exclaimed. But what a contrast since the time (and it does not seem so very long ago) when, in company with poor L. St. George Carey and our good friend A. H. Thomas, we explored and gave way to poetic raptures over the then virgin beauty of the gem-like patanas, in a setting of unbroken "forest primeval"; the stream, with its mirror-like pools, where the waters seemed to be

"To their own far off murmurs listening,"

adorning both forest and grass land as with traceries of now frosted and now polished silver. "Here," said poor Carey, then in the prime of his energies and the flush of his sanguine schemes, "Here" [where Hauteville now shows its cultivated fields and its factory resounding with the whirr of machinery], "here I will have my bungalow, and there," pointing to a long, glassy reach of the river, "there I will have my boat. These lots I *must* have." We were then meditating "going in" for an Agra lot; but in view of our companion's enthusiastic utterances we felt, as turned out to be the case, that success was hopeless. The Agra lots, of some of the finest of which, distinguished for indescribable sylvan beauty, Mr. Carey became the proprietor, went at prices beyond our modest means. One of Mr. Carey's lots was named St. George and another Hauteville; and as cultivated estates and the scenes of busy human labour as well as of labour-saving machinery of the highest order, they have a beauty and interest of their own. But to life's latest hour we are not likely to forget the views on and from the emerald patanas, ere the forests of a thousand generations had been felled, and while their shade provided the mountain stream with conditions for a game at hide-and-seek on which the archaic mountains looked down with solemn complacency. But while recalling reminiscences of the natural beauty of the Agras and the life and action and hopes now centred on them in connection, with the great tea enterprise, let us not forget the coffee episode which came between; an episode ending in too many cases in broken fortunes and broken hearts. Such vicissitudes are common to human pursuits, but not so common the brave perseverance with which the majority of the planters turned to the retrieval of their fortunes with the new staple tea. Long may it flourish, and may all connected with it have reason for thankfulness in continued prosperity! The tea planter can feel beyond doubt that in supplying the world with his product he is conferring high benefits on his fellow-men, a consolation denied to those who fill the world with alcoholic beverages, fatal to a very considerable proportion of those who drink them and injurious to the bodies and souls of a further large proportion who are able to resist or postpone their fatal tendencies. The more they are superseded by

"The cups which cheer but not inebriate,"

the better for humanity.

CEYLON TEA FUND.

Minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held within the Local Board Room, Nuwara Eliya, on Friday, the 9th day of October 1891, at half past 4 o'clock, (4-30 p.m.) in the afternoon. Present:—Messrs Giles F. Walker (Chairman Planters' Association of Ceylon), A. W. S. Sackville (Chairman, Maskeliya Association), F. C. Gubbins (Udapussellawa District), W. D. Gibbon (Kandy Committee), A. L. Cross (Kandy Committee), J. H. Starey (Kandy Committee), and A. Philip (Kandy Committee, Secretary, Planters' Association of Ceylon).

The notice calling the meeting was read.

The minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Kandy on Friday, the 18th day of September 1891, were taken as read and were confirmed.

Resolved that Mr. Gubbins's name be added to the Standing Committee of the "Tea Fund."

Read letter from Mr. Alexander Tait. Read letter from Messrs Walker, Sons, & Co., Limited, enclosing cheque for R50 for the "Tea Fund" for current year, recognising the good work the Committee is doing and the fact that all are interested in increasing the consumption of Ceylon Tea.

Read letter from Mr. Hugh B. Roberts. Resolved:—"That it be pointed out to Mr. Roberts that the money expended upon the Tea Kiosk and its fittings does not yet amount to R15,000, and that this sum will cover the total cost; that the building is being leased to both the Ceylon Tea Company, Limited, and the Syndicate Boat Company, Limited, with the sanction of Government, and that the total rent amounts to between six per cent and seven per cent upon the sum voted by the Committee, and security has been taken that the basement of the building will not in any way be used to the detriment either of the Kiosk or those using it."

Read letter from Mr. Sholto G. D. Shrine, Chairman, Dikoya Association.

CEYLON TEA AT THE WORLD'S EXPOSITION AT CHICAGO IN 1893.—Read letters from Hon. Mr. L. H. Kelly enclosing a communication from His Excellency the Governor stating that the following gentlemen had been asked to form a Committee for the Ceylon representation at the Chicago Exhibition:—Mr. Saunders, Mr. Dawson, Mr. Grinlinton, Mr. Giles F. Walker, Mr. Henry Bois, Mr. Haly, and Dr. Trimen.

Read letter from Mr. A. E. Wright. Resolved:—"That a special fund be started to augment the sum already voted by the Standing Committee of the Tea Fund for furthering the interests of Ceylon Tea at the Chicago Exhibition, and that subscriptions be generally invited for this purpose."

CEYLON TEA IN PARIS, AND THE CORRESPONDENCE WITH COMMITTEE OF LONDON ASSOCIATION.—Resolved:—"That in view of the opinion expressed by the Tea Committee of the Ceylon Association in London in the letter of the 24th July as to Mr. Lough's position and capabilities the Standing Committee of the Tea Fund being desirous to introduce Ceylon Tea into France will favourably consider any feasible scheme that the London Tea Committee recommends sufficient guarantees being taken that Ceylon interests would not be subordinated to Indian."

ANALYSES OF SAMPLES OF TEA GROWN AT VARIOUS ELEVATIONS.—Resolved:—"That consideration of the matter be postponed."

The Standing Committee of the "Tea Fund" then adjourned.

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

THE NEW TEA DISEASE.—Simultaneous with the publication in our columns yesterday of the paragraph which had appeared in the *Madras Times* concerning the new tea disease which Mr. Montague Barton, late of the Assam Company, had professed to have discovered and to be able to cure, the gentleman arrived in Ceylon by the Goalpara quite unexpectedly from Coonoor where he is engaged in planting, and he proceeded almost at once to Kalutara to see his brother who is superintendent of Mr. De Soyza's estate, Ingeriya, Mr. Barton declines at present to speak about either the disease or the cure for it, not having completely satisfied himself yet, but he intends making a few researches in Ceylon and then making known the result of them. He will be in Ceylon probably three weeks. The new disease, whatever it is, he says he first discovered in the low country here, after which he found it again in Assam and then in high-grown tea on the Nilgiris. We may hope to hear more about the matter when Mr. Barton returns from Kalutara.—Local "Times."

THE CEYLON TEA FUND.—From the minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Nuwara Eliya on Friday last, (Oct. 9th) it will be seen that in reply to a letter from Mr. Hugh B. Roberts it was resolved to point out to Mr. Roberts that the money expended upon the Tea Kiosk and its fittings does not yet amount to R15,000, and that this sum will cover the total cost; that the building is being leased to both the Ceylon Tea Co., Ld., and the Syndicate Boat Co., Ld., with the sanction of Government, and that the total rent amounts to between six per cent and seven per cent upon the sum voted by the Committee; and that security has been taken that the basement of the building will not in any way be used to the detriment either of the kiosk or those using it. We hope that this will satisfy Mr. Roberts and other dissentiants. The Committee also resolved that a special fund be started to augment the sum already voted by the Standing Committee of the Tea Fund for furthering the interests of Ceylon tea at the Chicago Exhibition, and that subscriptions be generally invited for this purpose. We have no doubt that the appeal will meet with a liberal response. With regard to Ceylon tea in Paris and the correspondence with the Committee of the London Association it was resolved:—"That in view of the opinion expressed by the Tea Committee of the Ceylon Association in London in the letter of the 24th July as to Mr. Lough's position and capabilities the Standing Committee of the Tea Fund being desirous to introduce Ceylon tea into France will favourably consider any feasible scheme that the London Tea Committee recommends, sufficient guarantees being taken that Ceylon interests would not be subordinated to India." On this subject we would call attention to the letter from Mr. Whitham on page 329.

A NEW USE FOR EUCALYPTUS LEAVES.

In the last Reports on the Horticultural Gardens at Lucknow and Saharunpore reference is made to the marked increase in the demand which has arisen for eucalyptus leaves. The publication of the Report of Mr. Ryle, the Locomotive and Carriage Superintendent of the Bengal and North-Western Railway, and the remarks made thereon in last year's report on the Gardens regarding the efficacy of the extract from eucalyptus leaves in removing incrustation in boilers of locomotive engines, has attracted widespread attention, and led to numerous enquiries for further information on the subject and also to demands for supplies of leaves. Nearly all the indents for the latter were satisfied, and 78 maunds were sent out during the year. A demand has also arisen for seeds and plants, but as a result of applications to botanical and other public gardens in India and Australia for seed was that only sufficient for the requirements of the Lucknow Gardens was obtained, though hopes are entertained of a larger supply being received from Australia. Leaves were forwarded to three Locomotive Superintendents in the north of India, and also to the North-West Soap Works at Meerut, and the action of the infusion of eucalyptus was briefly reported on by the District Locomotive Superintendent of the North-Western, and the Oudh and Rohilcund Railways. The former says the process he adopted to obtain the infusion was to boil the leaves in water twice or three times, and then draw off the liquid, which had then become of a dark peat colour. When an engine has run three or four hundred miles it is washed out and in filling up the boiler again ten gallons of the eucalyptus infusion is added every shed day. This process he has tried for six or eight months and the result he considers fairly satisfactory. The fluid is an assistance in loosening the scale which accumulates on the boiler tubes and stays; but he is personally in favour of kerosine oil, as, though more expensive than the eucalyptus infusion, it is more rapid in its action. The District Superintendent of the Oudh and Rohilcund Railway at Chandausi says the result of the experiments with the fluid was most encouraging. The Railway Companies appear to have favourably viewed the results of the experiments, for they have indented pretty heavily on the Lucknow and Saharunpore Garden authorities for seeds and plants for sowing in their own ground. The eucalyptus grows most luxuriantly on the Nilgiris, and a profitable trade might be carried on in the sale of the leaves of this tree. The oil which is extracted from the leaves is of benefit to those troubled with chronic thickening of the mucous membrane of the fauces and throat; with intermitent fever, ague, bronchial or phthisical affections, ulcerated throats, migraine or other forms of neuralgia, asthma, bronchitis, etc.—*Madras Mail.*

TEA GOOD FOR DIGESTION.—Tea is persistently condemned as a pernicious herb by the great body of our physicians, but quite another opinion has been expressed by Professor German Sée, a very able hygienic physiologist. The Professor declares tea to be the best digestive, and the surest means of maintaining the intellectual energy. He recommends, however, that it should be used weak at a moderately high temperature, and in the quantity of half a litre or a little more at a time.—*Scotsman*, Sept. 19.

DELIVERIES OF CEYLON AND INDIAN TEAS.—The figures from 1st January to 31st August show Ceylon as rapidly gaining on Indian. In the eight months of 1887, Ceylon showed only 6,203,000 lb. to 51,895 Indian, Ceylon being only one-ninth of the Indian. By 1890, the deliveries of Indian culminated with 66,591,000 lb., Ceylon in proportion being 24,116,000 or more than one-third. In 1891 Indian has gone down to 62,844,000 lb. while Ceylon has risen to 33,798,000, or considerably more than equal to half the quantity of Indian.

Correspondence.

To the Editor.

THE BRITISH NORTH BORNEO CO. AND THE BRITISH BORNEO CO., LD.

Kew, Bogawantalawa, Sept. 23rd.

DEAR SIR,—Your editorial paragraph in your issue of the 21st *re* the British North Borneo Co. is calculated to lead your readers to believe that there is something wrong with the Company which administers the Government of British North Borneo. The Company, whose proceedings you criticize, is a private one called the British Borneo Co., Limited, and has nothing whatever to do with the governing Company, of which Sir Rutherford Alcock is Chairman, and in which Mr. Henry Walker holds the post of Commissioner of Lands.—Yours truly, W. D. GIBBON,
Special Representative, British North Borneo Co.

[We are glad to find that we fell into an error (a very natural one) in confusing two companies with such similar titles; and we are additionally glad to learn that it is not the big governing company that is in difficulties. The latter company ought to absorb the smaller body in order to prevent confusion.—ED. *T. A.*]

THE LONDON AND LOCAL MARKET FOR TEA.

Central Province, Sept. 26th.

DEAR SIR,—"Superintendent," in his letter of the 21st, omits to include his Colombo agent's and Broker's commissions and sale charges, which will amount to 1½ cent, as against the ½ cent for shipment by ordinary shipping agent. Why not fix the rate for exchange on the one parcel sent home instead of giving us the rate for the year? Why also fix twopence a lb. London charges! 1¾ pence per lb. is a stiff price even to pay for London charges on such carefully bulked and packed teas as "Superintendent" has the handling of. Let "Superintendent" bear in mind that out of say 8,000,000 lb. tea sold locally only about 3,000,000 lb. have been sent to other ports than London, so does he expect the Colombo buyers to look for a less profit than a penny or 5½ cents per lb.?—Yours truly, ONE WHO HAS TRIED BOTH.

COFFEE IN NORTH BORNEO.

Kandy, Sept. 29th.

DEAR SIR,—The following extracts from a letter dated North Borneo, 29th August, and referring to coffee, may interest your readers,—Yours faithfully,
W. D. GIBBON.

The young clearings planted (in coffee) December 1889 and January 1890 are now bearing crop which will be ripe in say March 1892, and then the picking season will be twice a year, in quantity; and in small quantities nearly every month. The trees are from 4 to 7 feet in height or say average 4 feet 9 in to 5 feet. The four year old coffee is bearing heavily and looking well.

The land chosen for our new clearing (100 acres) is close to the bay and runs up to 1,000 feet in a long easy slope—the water supply is very good and a launch can go up to the village.

PALMIRAS AND COCONUTS.

DEAR SIRS,—I should feel ever grateful if you would kindly give me the following advice:—On one of the estates under my management, there are, I should think, nearly as many waddlies, or young palmiras, as there are coconut trees. My intentions were to cut all these waddlies down and manure the estate with same. The leaves I should put round the trees dug in, but the stem or body of the tree can I manure with, by digging trenches and putting them in, and how far would I have to put them in the soil? The trench would be dug between the lines of the coconut trees; the waddlies put in with other rubbish etc., and filled up again. Do you think this would be beneficial to the estate or would you advise me to burn the stem and apply ashes round the tree.

For any advice as regards this given me I should feel greatly obliged, as I think the sooner the waddlies are rooted out and cleared from the estate the better, as the amount of young plants are increasing year by year.

It will no doubt be a very expensive process cutting down all the trees. Do you think it is advisable for me to cut the top off and let the tree rot? That will be beneficial as the roots of the coconut tree will suck all the substance from the waddlies. The only thing I am afraid, of is beetle attacking the waddlie when it is so far decomposed. When the top or head is cut out the tree rots away in a few weeks and the juice is abundant inside the tree, which would, I should think, benefit the coconut.

Awaiting your reply, I remain, yours very faithfully, PLANTER, PALLAI, N.P.

THE HISTORY OF THE LOUGH CASE AS DEALT WITH BY THE CEYLON TEA FUND COMMITTEE.

Aranayaka, Oct. 10.

SIR,—I have been to some extent the medium of a certain amount of friction between the Ceylon Tea Fund Committee and the Tea Committee of the London Association: as my name has been brought into the matter both by your London correspondent and that of the "Times of Ceylon"; and as the former in his letter of Sept. 18th states the general feeling to be that the action of the Ceylon Tea Fund Committee was taken "on insufficient and unsupported representations," I think it only fair to that Committee to make public, with your leave, a history of the affair as far as I am concerned in it.

Mr. A. S. Hutchison wrote to me on April 10th and at the same time sent out a parcel of sundries which he asked me "to kindly place before the Tea Fund Committee when Mr. Lough's proposition comes forward." As he addressed me "Dear Sir" and wrote of absolutely nothing but this one matter, it did not occur to me for an instant to look upon his letter as private, and indeed it is not easy to imagine how Mr. Hutchison's object could have been attained by my treating his communication as one intended for my eye alone. So as I am not and never have been a member of the Tea Fund Committee, I placed the matter with one who is; and when I tell you his name (as I do privately) you will agree with me that it could scarcely have been in abler or more discreet hands. I suppose he did at the meeting what I should have done myself, and either read the letter or handed it round for perusal. At any rate I am quite sure he did not say: "Here is a letter which, taken in connection with the sundries I place on the table, contains very ample reasons why you should not carry out the recommendation of the London Tea Committee,

but I am unable to divulge the writer's name or to tell you what he says"; for this would have been wasting the time of the meeting.

I quite agree that the letter was not intended for publication; but it has not been published, and has only been seen by or read to the men who were asked to give a verdict on the evidence contained in the letter. This verdict seems to have been precisely the one asked for and expected by Mr. Hutchison, but he seems to have been rendered nervous by the very measure of success which he had achieved, even as we now see our Tea Fund Committee alarmed at having secured the conviction of those prosecuted for fraudulent description, and to have tried to soften things down a bit, but whether he (unconsciously) encouraged in any way or not your London correspondent's belief in the private nature of his letter to me I cannot say. Apart from this question, which I hope these lines will settle, the matter seems very simple. The statements on which the Tea Fund Committee acted were either correct (and I myself firmly believe they were), in which case that body was fully justified in the course taken; or they were incorrect, in which case—well I 'll let the London Association settle this, and remain,—yours obediently, HENRY WHITHAM.

COFFEE AND PEPPER EXPORT FROM THE WEST COAST OF INDIA..

Tellicherry, Oct. 2nd.

DEAR SIR,—Along with this we have the pleasure to hand you our annual statement of exports of coffee and pepper from the West Coast for the year ending 30th June 1891.

COFFEE.—Our gloomy anticipations of the past crop were fully confirmed by results, the export showing a decrease of *22,585 cwt.* Plantation coffee and *36,459 cwt.* Native coffee or *59,044 cwt.* in all as compared to season 1888-89 when the smallest crop was shipped from the West Coast since we commenced to keep these statistics in 1879-80; so the past season is a record one in its most disappointing sense. The largest quantity of plantation coffee was shipped from the northern port of Mangalore which is the outlet on the coast of Mysore and North Coorg crops, and as usual the bulk of the native coffee was attracted to Tellicherry, but the exports from these two ports cannot be taken as a fair criterion of the actual crops of coffee from Mysore and Coorg, as a portion cured at Bangalore and Hunsur is eventually shipped from Madras. The Calicut and Beypore exports include the crops from the Neilgherries cured at Coimbatore. Fortunately good prices prevailed in all markets.

We are glad to be able to report that prospects of coming crop are much more encouraging especially in the northern districts of Mysore and Coorg where owing to shade, leaf disease is not virulent. A considerable quantity of land is being opened up in Mysore and seeing that nearly all the older properties in that district which for some years past have been undergoing a state of transition from the old "Chick" plant to that of the "Coorg" type are almost entirely planted up with the latter, we have every right to expect bigger crops from that district at least.

PEPPER.—Although the quantity shipped of this article from Tellicherry was considerable, total exports from coast were less than last year, and prices are comparatively speaking so low, that it is doubtful if the increased acreage of cultivation which has been a characteristic of the past few years will be maintained.

It is hard to obtain reliable information in regard to the crop now on the vines, but from what we can gather it will be an average one.—Yours faithfully,

p. pro. ALSTON, LOW & Co.,
RALPH TATHAM.

To	Mangalore. Coffee. Plan.	Mangalore. Coffee. Nat.	Mangalore. Coffee. Total.	Mangalore. Pep. per.	Tellicherry. Coffee. Plan.	Tellicherry. Coffee. Nat.	Tellicherry. Coffee. Total.	Tellicherry. Pep. per.	Calicut. Coffee. Plan.	Calicut. Coffee. Nat.	Calicut. Coffee. Total.	Calicut. Pep. per.	Beypore. Coffee. Plan.	Beypore. Coffee. Nat.	Beypore. Coffee. Total.	Beypore. Pep. per.	Cochin. Coffee. Plan.	Cochin. Coffee. Nat.	Cochin. Coffee. Total.	Cochin. Pep. per.	Quilon. Coffee.	Quilon. Pep. per.	Alleppey. Coffee.	Alleppey. Pep. per.	Total. Coffee. cwt.	Total. Pepper. cwt.
London Cwt.	28,251			227	7,722	122	7,844	2,860	11,295		11,295	282	10,459	...	10,459	...	112	...	112	43	842	...	164	...	58,972	3,752
Marseilles ,,	...	3,631	3,631	...	301	18,089	18,390	11,250	...	...	...	200	...	...	...	...	...	...	...	...	...	...	...	...	22,022	11,950
Havre ,,	...	...	...	...	602	40,973	41,575	46,399	324	1,566	1,890	3,574	...	...	...	...	...	...	...	...	...	...	...	...	43,465	50,823
Bordeaux ,,	...	...	...	...	...	100	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	300	...
Hamburg ,,	..	...	...	...	1,144	102	1,245	1,456	297	...	297	150	...	...	...	...	...	...	...	...	...	...	...	...	1,543	1,606
Trieste ,,	...	491	491	...	7,762	239	8,001	5	1,643	...	1,643	...	4,620	...	4,620	...	...	...	...	...	...	...	...	...	14,755	5
Genoa ,,	...	...	...	...	...	11	11	1,171	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	1,171
Naples ,,	...	...	...	...	...	...	...	1,165	...	...	...	400	...	...	...	...	...	...	...	...	...	...	...	...	...	1,565
Antwerp ,,	...	...	...	...	206	458	764	125	...	...	...	100	...	...	...	...	...	...	...	...	...	...	...	...	764	225
Melbourne ,,	...	...	...	...	...	695	695	...	183	...	183	...	...	...	...	...	...	...	...	...	...	...	...	...	878	...
Sydney ,,	...	...	...	...	...	98	98	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	98	...
Turkish, African & Arab ,,	...	6,852	6,852	453	15	1,144	1,159	3,356	...	271	271	1,032	...	...	...	...	...	...	...	...	...	...	165	...	8,282	6,231
Ceylon [Ports ,,	...	...	...	...	1	1	2	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	300	...	2	430
Bombay and other Indian [Ports	2,046	33,461	35,506	326	889	2,381	3,270	14,896	6,999	7,527	14,526	5,743	572	...	572	20	...	11	11	928	...	35	16,646	53,934	52,621
*					18,742	64,715	83,457	83,106																	205,383	130,772
Less Imports					8,611	25,861	44,472	12,001																	44,472	12,001
1890-91 cwt.	30,787	43,946	74,733	1006	10,131	28,854	38,985	71,105	20,742	9,422	30,164	11,481	15,651	...	15,651	20	112	...	112	43	842	84	199	17,111	160,911	118,771
1889-90 ,,	39,739	58,579	98,338	888	12,475	52,541	65,016	68,206	38,815	11,344	50,159	13,800	23,488	...	23,488	...	...	826	826	9,356	3,120	149	871	17,478	241,890	141,257
1888-89 ,,	31,900	36,896	68,796	1242	15,986	53,034	69,020	37,408	25,447	23,236	58,683	11,514	15,996	1,423	17,421	500	677	959	1,636	22,432	2,483	36	1,916	4,858	219,955	101,177
1887-88 ,,	67,405	67,505	134,910	855	36,329	65,036	101,365	66,692	29,224	21,243	50,467	14,311	38,059	57	38,116	64	2,357	2,948	5,305	16,486	4,174	112	1,293	14,965	335,759	136,605
1886-87 ,,	29,388	30,610	59,998	913	24,981	65,526	90,507	39,482	42,836	11,442	54,278	10,668	38,109	2,511	38,620	...	7,883	1,804	9,687	24,217	2,922	18	268	11,678	256,255	106,976
1885-86 ,,	48,084	64,774	113,858	968	42,836	48,888	91,724	56,944	49,641	15,475	65,116	14,174	...	...	36,790	...	7,780	965	8,745	10,168	7,732	115	1,510	18,437	325,475	100,804

* Also the following :—For London, 340 cwt. Cannanore Pepper. For Marseilles, 500 cwt. Cannanore Pepper. For Bordeaux, 200 cwt. Cannanore Plantation Coffee. For Ancona, 325 cwt. Tellicherry Pepper For Venice, 302, cwt. Cannanore Native Coffee. For Messina, 68 cwt. Tellicherry Pepper. For Bremen, 55 cwt. Calicut Native Coffee. For Turkish, African and Arab Ports 1,125 cwt. Cannanore Pepper. For Bombay and other Indian Ports, 14 cwt. Cannanore Coffee, 13,663 cwt. Pepper and 496 cwt. Badagherry Pepper.

THE PROSPECTS OF CEYLON TEA IN AUSTRIA.

All the way up from Brindisi to Venice, but more especially from Venice to Karlsbad, we have, without intruding the subject unpleasantly, preached the merits and 'economy' of Ceylon tea! Without venturing to anticipate great results, we may at least say that we have thoroughly interested a large number of persons, among our fellow-travellers, and still more residents in Vienna, Prague and among the floating population of Karlsbad, in the subject. "The planters of Ceylon want everybody in Austria to drink Ceylon tea" was usually the semi-jocular remark with which interesting conversations closed. "Oh," said a Styrian vineyard proprietor, one of a group of eager listeners and questioners on the Semmering, "that is what we desire and have not yet managed for our wines."

To several tea-dealers we have ventured to give the address of Colombo firms, and more particularly of that (Messrs. Volkart Bros.) representing the Austro-Hungarian Consulate and Lloyds, when the question was asked where they could get samples and prices, or a certain quantity of the tea on trial. This was the case with the principal tea importer in Graz (the capital of Styria) who, fortunately, travelled with us to the neighbourhood of Vienna. He expressed himself as especially interested in all we told him, and as determined to make a trial of the tea among his customers.

IN VIENNA.

In Vienna we devoted a day to a round of visits among the principal tea importers and dealers. We found their addresses readily enough in the City Directory. In the case of the town dealers, even those doing business on an extensive scale, the curious combination holds good, which prevails all over the Continent, of "Tea and Rum" as the two articles to be imported, distributed and sold together. The fact is that, save in Russia, tea is regarded more or less as a medicine—so we found it in Central France procurable only at the Apothecaries',—and although it is not so in Paris or Vienna, yet the addition of some rum is evidently considered needful to render the tea palatable or to counteract its effects on the nerves! At any rate, we have everywhere to face in business here—wholesale and retail—the combination which will be so shocking to teetotallers, of "Thee und Rum." Our first visit was a most pleasant one and gave us a pre-taste of the courtesy and attention which awaited us everywhere in Vienna. Very soon, several members of the firm and staff were listening and questioning on the subject, interested especially in the news of the vast expansion of the Ceylon tea production, and, alas! in the falling off in coffee. By-and-bye, a partner turned up who spoke English well and he took us the round of their stock of coffee which included a considerable number of barrels of Ceylon finest—Dimbula, Udapussellawa and Haputale marks. I noted especially "Meeriabedde" and they were interested that I should know the very plantations from which their coffee came. Austria takes a very large quantity of the very best coffee in the world, and let us trust that the day is not far distant when she may require an appreciable stock of the very best tea. Our friends directed us for our second visit to the firm who, they said, did more in importing and distributing tea than any other in Vienna. This house (I give no names all through) we found did a large if not all its business through Mincing Lane; and we were introduced to the Austrian gentleman who acted as their agent or buyer in London, and who was known familiarly to them in Vienna as "Robertson," because as I inferred he bought through the well-known Colombo house of the name. That must refer chiefly to coffee, for though Ceylon tea was not unknown, there was not much in stock, nor did it seem in such favour as Indian tea, their stock of which included some Darjiling. These teas were, however, for blending, and we could not here get much encouragement to the hope that Ceylon tea would soon take its place, on its own merits and be drunk pure in considerable quantities. "A good article will make its way by degrees, but there is no use trying to force it by new plans and new ways" was the sum of the opinions expressed by the chief tea importer here, who is clearly a thorough conservative, as most merchants with a sound, well-established and prosperous business are inclined to be. We, however, instanced what had happened in the United Kingdom, in Australia, and what Ceylon planters were trying to do in America and Russia, by new and revolutionary means; and we parted with the assurance that they would probably get an increasing quantity of Ceylon tea, but for blending purposes rather than for distributing by itself, we inferred.

The third firm on whom we called, though in a smaller way, evidently did an extensive distributing business in tea and rum, and the managing partner was the most interested yet, in all my interpreter had to tell about Ceylon tea. He had heard and read somewhat about it, but as yet had bought none. He was much more of our opinion that so good and comparatively cheap an article might well be brought before the Austrian public by every possible means, by advertising even, distributing information in pamphlet form, opening a Ceylon Restaurant or Retail Store, &c. As regards the first, he instanced very appositely, the case of "VAN HOUTEN'S COCOA," which, as we had noticed, is largely placarded all over Vienna, and is perhaps the only tropical product so advertised and no doubt with profitable results. There can be no doubt that if CEYLON TEA were similarly advertised, the attention of the people could not fail to be drawn to it, and if the needful information and supply were simultaneously made readily available, enquiry and demand would follow. [I found the readier access to the opinions of the different merchants being able to announce that I was not a tea dealer or planter, but a journalist interested in the welfare of Ceylon's chief industry.]

Our fourth visit was to a dealer of a lower class—a respectable family grocer in a big way, but who kept his teas for sale in very large glass-stoppered bottles and who retailed China and blended teas at from 5s to 8s the lb., the demand being for small quantities. He did not think much of a sample of Ceylon high-grown we had with us; said it was too much of a hay flavour, and that the decoction would be far too bitter and strong to suit the Austrian taste.

Far more encouraging was the opinion of a dealer in a more fashionable street, who might be called an Austro-American, he having been several years in Chicago before opening in Vienna. He knew a little about Ceylon tea, was much interested in our sample, had indeed sold some tea got from London, as "Ceylon," very freely among his customers and he would certainly go in for more, and try if possible to make a business with Colombo direct, though his requirements would be small to begin with. He had introduced Californian "preserved fruits" into Vienna, and it was his intention to have a stand at the approaching Exhibition with Food-

Products; but he was afraid he could not get a supply of Ceylon Tea in time to exhibit. He approved very heartily of Ceylon planters advertising; distributing samples to hotels, restaurants with information, or of opening a Café at which good Ceylon tea properly prepared could be drunk.

On this latter subject we had a good deal of conversation with the Commercial Secretary to the Handels (Trades) formerly Oriental Museum, who promised to communicate with Baron von Scala and let us know the result at Karlsbad. As already mentioned, this institution is now managed after the fashion of a Limited Company, and is associated with a Trades or Mercantile Association, a large number of offices occupied by business men being let on the lower floors of the extensive block of buildings in which the Museum is located. The idea was suggested as to whether a Restaurant might not be opened in this same block, having for its main object the distribution of pure Ceylon tea, by drinking or selling in packets, and that so located it could not fail to catch the attention of influential business men whose good opinion, if obtained, could not fail to be very valuable. Although not empowered by the Ceylon Tea Fund, or instructed by them, I thought there could be no harm in getting information as I was on the spot, which might, or might not, be utilised in the future. Then again, I thought it would be well to have among the Ceylon Exhibits at the Museum, samples of our different teas which if made up in small boxes with, say, glass tops, could be seen in good order for a long time to come. On both these subjects, I have been favoured with an official reply from Baron von Scala which I hope the Committee of the Ceylon Tea Fund will not take amiss to receive through your columns. Had I been empowered to enquire for them, I should, of course, have communicated direct. Baron von Scala's letter is as follows:—

Vienna, 29th August.

John Ferguson, Esq.,
Posts Restante, Karlsbad.

Dear Sir,—In reply to the proposal you made with regard to exhibiting a Sample Collection of Ceylon Tea at the Museum, we shall be very glad to receive the samples.

As to your second proposal to promote the sale of Ceylon tea in Vienna, we offer you the following arrangements.

We should open a separate room at the Museum for the sale of Ceylon teas and a tea bar, where Ceylon tea may be given away to visitors of the Museum on certain days. The cost of installation would be about £10 and other expenses, including wages of two bar-maids etc., would come to about £10 a month, of course not including value of the tea and other Ceylon produce to be given away. Freight to Vienna and customs duty would also be at your charge.

Should you wish to report this to the Ceylon Tea Planters' Association, we shall be pleased to have your earliest advice.

Meanwhile we remain, dear sir, yours faithfully,
The Directors of the I. R. Austrian Commercial Museum,
A. v. SCALA.

I am not sure from the above whether the idea of having a restaurant after the ordinary fashion, with Ceylon tea as a main feature, was considered feasible. What seems to be contemplated above is a room for the retail sale of Ceylon teas in packets, and a bar where cups of tea could be given gratis to visitors, so as to induce a sale; or it may be that a sale in the cup even is contemplated to other than visitors and on certain days. It is, however, not worth while enquiring further at this stage; for I am not sanguine that the Tea Fund Committee will care to go in for a "Ceylon-Vienna Tea Fund Bar" just at present, and yet the cost for one year's experiment in this way—£130 in all—would seem comparatively moderate apart from the cost of the tea supplied (with duty and freight paid) but which ought to be nearly covered by the proceeds of sales?

But whether the Tea Fund Committee take up this proposal or not (communicating if they do with Baron von Scala and the directors direct, or with me if they wish me to move further), I do trust that they will not lose sight of the advantage of sending nicely-made up samples with average prices noted, of the different kinds of Ceylon tea for exhibition in the museums. Baron von Scala and his directors, indeed, deserve a vote of thanks for the readiness and courtesy they have shown in considering and agreeing to proposals intended to benefit Ceylon planters, by promoting the sale of their teas in Vienna, and I hope this will not be overlooked.

WHAT HAS BEEN DONE FOR CEYLON TEA IN VIENNA.

But it was not till after I got to Karlsbad that I recalled the fact that the Ceylon Tea Fund, through Mr. Charles Osswald, a Swiss merchant, had already done something to promote the sale of our teas in Vienna; and finding the address of the gentleman whom Mr. Osswald had appointed agent, I thought it well to write to him enquiring as to progress, and mentioning what we had done by way of interviewing in Vienna, asking his opinion too about advertising, disseminating information and a café. I was also anxious to know if he, or anyone else, was doing anything for tea in the Food Products Exhibition opened after I had left Vienna. The result was a very long letter in German (the language used for my enquiries) some parts of which the writer does not want published for good reasons; but the substance of his report may be given as follows for information of those interested in Ceylon and specially of the Tea Fund Committee:—

Vienna, 6th Sept. 1891.

Honored Sir,—In receipt of yours of the 2nd inst, I do myself the honor to reply that the Food Exhibition was already opened on the 1st, and is to remain open till 1st December or January, also that it is in the saloons of Garden-Erections Company on the "STABENRING."

I have seen the Exhibition and send you now by post the catalogue of the Exhibits (free), As the whole Exhibition is included within 5 large rooms and their galleries, you will understand that, comparatively speaking, it is not a large one. It is visited by about 2,000 persons daily and on Sundays by perhaps five times that number.

Tea appears to be only exhibited by three firms and by them only as a secondary article. Cognac and rum are brought by the same firms well to the front and they would seem to consider these far more important than tea.

In the "Tasters'" or Refreshment Room where various Exhibitors can hire stalls for the sale and tasting of their goods, only wine, cognac, liqueurs, &c., are sold, but *no* TEA. The spaces for exhibits are by no means all occupied, and there is still plenty of room. The better opportunity for the exhibition of Ceylon Tea would have been last year. Now similar exhibitions of tea occur, and if only I had the necessary support that is the money (for alone I cannot undertake anything), I might advance the Ceylon tea interest in them.

With regard to the distribution of Ceylon Tea, I must tell you this: I myself am no merchant, but so employed that I can devote my time from 3 in the afternoon till 9 next morning exclusively to the Tea business. I am further able, if specially necessary, to get the time from 9 to 3.

My brother-in-law, Mr. C. Osswald, in the winter of 1890 sent me the first sample chest of Ceylon tea, upon which, in August, three further chests followed; and after the business had got into order, I had a

relative formally registered in January this year, who thus can pay the duty &c., as well as any merchant. I, however, am still the soul of the business.

A short outline of our activities will show you whether, in view of the fact that Ceylon Tea is a foreign and unknown article as compared with Russian and must therefore first win for itself the general confidence, the quantity which has so far been supplied by my brother-in-law may not be regarded as satisfactory.

			lb.	
In January 1890	1st	Despatch	50	about
August ,,	2nd	,,	150	,,
December ,,	3rd	,,	400	,,
Beginning January 1891	4th	,,	1,600	,,
July middle ,,	5th	,,	1,700	,,
Now being sent	6th		600	,,
			lb. 4,400	

To these I hope many more despatches will follow with increasing rapidity. If you look at these figures and consider that only an outsider and not a regular dealer in so comparatively short a time has succeeded so well, I think you will acknowledge that it is not necessary to be a regular merchant in order to be a successful Agent.

But as far as the trade connections are concerned these will also in course of time arise, especially as I have only to do with one branch, and can therefore devote more attention to that. Another advantage on my side which the dealer has not is this: that I am independent and there is no need for mutual favours as is the case between members of one fraternity or profession. I have arranged with a number of persons to supply an unlimited number of pound packets which will be sold to others, and as they and their friends find out the excellence of the tea, the sale will greatly increase. In one department of Government where there are some 15,000 employés, besides day labourers; so it will take some time before I can get the article known to them all. I have further taken steps and attained results through personal representations in various official and public offices, with different Unions, Banks and Insurance Societies, finally with a large business house. All this work has cost me at least 100 guldens from first to last. It will cost still more yet to introduce the tea to separate corporations to make the acquaintance of a great many more employees, and all the expenses I must meet, including that of numberless samples. One Union here has very kindly allowed me the use of their paper free for the insertion of articles and advertisements; also my circulars with description of tea and directions for its preparation can be sent with that paper while the article is recommended by the paper itself in separate paragraphs of the journal. Since June this year I have been elected member of the Central Committee of this Union and at their meetings several times in a month, I meet representatives from different parts of Austria. If I wish to put my advertisements in both papers it will cost 20 g. a month, a round sum for postage. If I had to send it separately the postage would be ½ kr. per piece, but these Unions will do it free, only Government make this postage charge. But who is to pay all this? not I—as I give the tea very cheaply. And only to spread it can I venture to do so, and for the same reason my brother-in-law cannot undertake the expenses.

When I have got a great number of customers on my side, for which I may want about 2 years, then I will come forward with my advertisements. After a greater number of officials and acquaintances have become accustomed to the foreign Ceylon tea, then will no tea dealer or "Delicatessen" dealer have anything to say against it; but then will the time come when these will have to provide themselves with a supply of Ceylon tea.

I could, dear sir, also tell you in greater detail in what offices, &c., I have already got a footing, but this would be of no interest to you. But I will tell you that my supplies of tea have hitherto gone to Vienna, Lower Austria, Bohemia, Moravia, Galicia, Hungary, Upper Austria, Tyrol and Vorarlberg, also that some business houses through other channels have been supplied. In the town of Meran (Tyrol) is a mineral water cure; one confectioner has taken it up. I should like also to have Karlsbad, but I know no one there.

That I have enough to do to get tea introduced on all sides, even though in small quantities, you ill acknowledge. Besides the employees already referred to (perhaps 15,000) there are also others perhaps 20,000 more added to these, professors, teachers, doctors, ministers of religion, friends of these employees, and you will see how many I may say. If one considers that the cost of sending out circulars that has to be met every month is undertaken by one single person, one will come to the conclusion that this cannot be just or right: one will much rather incline to the opinion that insofar as the business opens up and promises to the Tea Planters' Union of Ceylon a rich field in Australia, the latter should render the material help needed.

If in consideration of all the trouble and work I have had and efforts put forth, which in many direction have proved fruitless and useless, the members of the Tea Fund Committee would now consider whether they could allow me a fixed sum half-yearly, I am sure they would reap 10 or 100 fold profits thereby.

Say if they could give 600 to 800 guldens equal to £50 to £66) a year, I should then devote myself with all my strength and energy to the matter and should be able to show "colossal" success such as already has crowned my efforts in another branch of work. I beg you sir, to consider the matter and to give the Tea Planters' Committee your opinion as quickly as possible that they may soon arrive at a decision.—I am &c., ————

I am not at liberty to publish this gentleman's name yet: he must be known for the present as the relative of Mr. Osswald; but it can be judged that he is certainly taking a special interest in Ceylon tea, its distribution and sale; and although only "the day of small things" is indicated by the 4,000 lb. he mentions; yet I am sure the Tea Fund Committee will agree that this Vienna resident is deserving of some special support on his own account. A free grant of tea—say 1,000 lb. —would probably do more to encourage him than a money payment and I have asked him in reply to say whose name should be given to the Committee, if his own cannot be used for the present; or whether Mr. Osswald should still be the medium. As regards Austria generally, however, the field is so wide and the people are so well disposed, that I do not think attention should be confined to one agent. In Vienna alone, with its enormous population, there is encouragement to work in a much more public way for Ceylon tea. I am hopeful that the regular tea dealers may at once be stirred up to import the new tea —several promised, as the result of our interviewing, to send for samples and prices; others to try a small quantity for their customers at once. I think the Exhibition of Samples at the R. I. Austrian Commercial Museum under the care of Baron von Scala and his Secretary Mr. Röhn, could not fail to draw the attention of business men and other visitors; while the question of a Sales Room and Ceylon Tea Bar for free distribution (in the cup), as a temporary measure, may or may not be considered worthy of undertaking. In any case, after the samples are sent to the Commercial Museum, and there is time for dealers to provide themselves as promised, I think Vienna is quite ready to be placarded (*a la* "Van Houten's Cocoa") with "Buy" or Drink the new tea"—"Pure Ceylon Tea," or some such combination—perhaps the last, "ECHTER CEYLON THEE" would answer as well as any. This placarding would not cost much I fancy, and could be arranged for through Mr. Osswald, or his relative,

Premising that, so far as I can learn, the Austrian Customs duty on tea is equivalent to 10d a lb. or at present exchange about half a gulden or florin which contains 100 kreutzers, the following price list of a wholesale tea-importing Vienna house will be of interest. The price is given per kilogramme of 2¼th lb. on which the duty so far as I can make out, would be equal to 1 florin and 10 kreutzers, which sum should be deducted from the prices in each case, the florin being counted equal to 1*s* 7½*d* to 1*s* 8*d* each. The price-list then is as follows (the only other two articles imported and sold by this firm being "Rum" and "Cognac"!)

	THEE.	Pr. Kilo fl.	kr.
	(Customs Duty paid about 1s 10d kilo or 10d a lb.)		
Nr. 0	Bruch-Thee (Broken tea equal to 1s 8d a lb. ..	2	20
„ 1	„ fein (fine)	2	80
„ 2	Moning-Congo	2	80
„ 3	„ „	3	10
„ 4	„ „	3	60
„ 5	„ „	4	50
„ 6	Pakling-Congo	6	50
„ 7	Kaysow- „	5	50
„ 8	„ „	8	—
„ 9	Kintuck	9	—
„ 10	Ningshow	10	—
„ 11	Souchong	3	30
„ 12	„	4	—
„ 13	„	5	—
„ 14	Mandarin	8	—
„ 15	Caravanen (Caravan tea)	9	50
„ 16	„ feinst (finest, equal 8s a lb. without duty)	11	50
„ 17	Peccothee (Pekoe tea, 8s a lb.)	7	—
„ 18	„	9	—
„ 19	„ (equal to 8s a lb.)	10	50
„ 20	Peccoblüthe (Pekoe blossom)	12	50
„ 21	Caravanen-Peccoblüthe (Caravan Pekoe blossom 12s a lb.)	15	50
„ 22	Wirthschafts-Melange, schwarz (Hotels' mixture, black)	4	30
„ 23	Monopol-Melange, schwarz	6	—
„ 24	Feinste Melange, schwarz (finest mixture, black)	6	80
„ 25	Kaiser- „ geblümt (flowery)	7	—
„ 26	Kaiser-Melange, geblümt, feinst (Imperial mixture, flowery, finest)	8	50
„ 27	Moskauer Melange, geblümt (mixture, flowery)	10	—
„ 28	Caravanen „ schwarz (black) ..	11	—
„ 29	„ „ geblüm (flowery) ..	12	50

It will be observed that the "Pecco-thee" (Pekoe) ranges from 5s to 8s a lb., inclusive of 10d a lb. duty. Now the finest Ceylon "Broken Pekoe" could, I suppose, be laid down at Trieste for a gulden, say 1s 8d a lb.; or with duty 2s 6d, so that the profits to be made on pure Ceylon tea, if only a demand were created, are very large in Austria. For, let it be remembered that the above are *wholesale* prices. Retail tea is seldom sold beyond quarter lb. packets and these probably range from one gulden (1s 8d) upwards, if indeed "Pekoes" are used save for blending.

Before leaving Tea in Vienna, I will give a list of the exhibits I find in the Catalogue of interest to Ceylon planters. They are, translated, as follows :—

CLASS VI., SPICES, SUGAR AND GROCERIES.

55. Cacao manufactory of C. J. Van Houten & Zoon, Weesp, (Holland). Van Houten's Cocoa, 34 Diplomas and Medals.

56. Collective Exhibition of sugar, coffee and tea.

58. Franck, Heinrich, Sons' private factory, Linz. Coffee surrogate (additions), chicory and malt fabrications, 25 Medals and Diplomas.

59. Gottlieb, E., Chinese Tea Depot, Krakaw.

61. Haecker & Meissner. Coffee Import, Coffee Peeling Establishment, Trieste. Coffee samples from all the coffee-producing countries of the world.

66. Kathreiner's successor, Munich, Bavaria. Malt Coffee.

70. Mendl Heidrick & Co., Importers of Tea, Rum and Cognac, 1, Schottenring, Vienna. Tea speciality, legally protected labels on packets for retail sale at 10, 18 and 35 kreutzer (10kr.=2d).

72. Perloff Wassily & Sons, Court Purveyors, 1 Kaertnerring 15, founded 1787. Caravan Tea, 4 medals.

73. Pischinger, L., & Son, Chocolate Manufactory, Vienna, VI. Stiegengasse 8 and 10. Speciality Pischinger Chocolate Extracts.

74. Pomm, Josef, Raab-Ujvarcos, Racutca, 46 Art Coffee.

78. Sobtrick, Franz, Chocolate Manufactory, Ratibor, Breslau. Cacao in lump, Chocolate packets in larger and smaller blocks, powder loose and in packets, Chocolate Sweetmeats, instructive Exhibition of the different stages in the preparation of the cacao from the raw bean upwards. 3 Medals.

79. Stollwerck Bros., Imperial, &c. Chocolate Manufactory, Cologne on the Rhine. Stollwerck's "Heart" Cacao, Chocolate in tablets, Chocolate fancy objects.

81. Tauber, Josef, Ld., Wien, Semmering. Coffee "Surrogate" (mixture), coffee and ground spice preparation. Diplomas.

82. Voelcker-Coumes, Daniel, Bayon, Meurthe u Moselle, France. Chicory and Acorn (Eicheln) Coffee.

83. Weiss, Julius, First Vienna Coffee Extract Manufactory, I. Getreide Market 14. Coffee Extract and Coffee Cream in bottles.

CEYLON TEA IN BOHEMIA.

The largest tea importer in Prague, the capital of Bohemia and a town of over 200,000 people, is Mr. Wilhem Stanek, Wradislaw Gasse, and who, I fancy, had the Russian Tea Agency referred to in Ferdinand Strasse, where I see his office was formerly held. Mr. John Fraser of Aberdeen estate had referred me to the Rev. Dr. Pirie for all information and he again introduced me to Mr. Stanek, whom I found a very enterprising man; he had commenced life, I think, as travelling agent for a Paris house, and in that capacity had visited the Far East. Mr. Stanek evidently imports large quantities of tea; but almost all "China", the common kinds from Hamburg and the "Caravan" teas from Russia. Though I did not question Mr. Stanek on the subject, I rather think Mr. Fraser had experimented through him with a consignment of Ceylon tea, without profitable results to the Ceylon planter. This is strange, for at retail shops where we enquired, the commonest China could not be bought under 4s to 6s per lb. But Mr. Stanek repeated what some Vienna large tea dealers said, that for "Ceylon tea there was no taste—it was little thought of." One piece of information I got here seems to throw light on difficulties in the way of a tea trade through Trieste apart from the heavy Customs duty. Questioned as to why he, an Austrian merchant, got his China tea through Hamburg, rather than through Trieste, the one great port of the Empire and the one so much nearer the Far East, Mr. Stanek mentioned that the charges for "handling"—I infer for landing, clearing at the Customs and despatching—were very much heavier at Trieste. I fear too that there may be difficulties through corruption of public officers there: not long ago there was a great disturbance about the discovery that certain officers had to be regularly fed by large Vienna importing houses (dealers in general goods), and it was supposed that the latter had been getting their imports passed for less than the proper Customs duty; but on examination it was found that the fees, gifts or bribes, were simply to enable the firms to get their imports passed promptly at the proper and full duties—an additional levy on trade in fact. Whether this be the case or not, I think it is scandalous to the Austrian authorities, that any of their merchants even in Bohemia should prefer doing business through Hamburg, rather than Trieste for Asiatic products; and I cannot understand how the Directors of the Austro-Hungarian Lloyd's S. N. Co. have not seen this put right long ago. I have thought it well therefore to address a letter on the subject (and referring as well to the heavy Customs duty on tea and to the subject of Ceylon

tea generally at some length) to the Editor of the Vienna "Neue Freie Presse." The letter has just gone, and I will send you a copy by next mail.

I did my best to interest Mr. Stanek of Prague in Ceylon tea, pointing out to him how it was bound to become the great tea of the future for consumption, even on the Continent of Europe. His business is a very extensive one, and among his staff I found a negro assistant who seemed to have the faculty of picking up readily every language of the Continent, he having already the command of some half-dozen.

So far as the retail and use of tea in Vienna and Prague are concerned, however, one might well despair of making any impression on the taste of the Austrian people in respect of tea-drinking. Tea, unlike coffee, is regarded either as a luxury rarely to be indulged in, or as medicine to be taken only occasionally; and we might suppose it impossible to effect a change were it not for what Mr. Osswald's friend has told us of the distribution of his "pound packet" and still more from what I have seen of

TEA-DRINKING IN KARLSBAD.

Just as the "afternoon teas" which have of late years become fashionable in Paris, may gradually lead a large proportion of the French people to appreciate and use tea freely as a refreshing beverage, so may we have very great confidence that the universal custom of drinking tea at this, the most popular of continental Spas, may gradually spread a taste for the infusion not only among Austrians (including those of German, Magyar, Czech, Slavonic race) but Germans, who of course make up between them the larger proportion of visitors. The difficulty elsewhere on the Continent is to get anyone to look at, much less drink, tea. Here at Karlsbad from April till September at scores if not hundreds of cafés, restaurants and hotels, the cry every morning between 8 and 9 o'clock from visitors who number altogether 35,000, is for "*Ein*" or "*Zwei*" *Thee*, by the individual, or couple! And considering that only a very ordinary "China" or "Melange" (Blend) is used, it is wonderful how drinkable a cup of tea one gets. The proper infusion of tea has, in fact, been thoroughly learned at Karlsbad no doubt, in the first instance, under medical direction; for as I have said, the diet and regimen of those seeking a "cure" are infinitely better regulated here than in Vichy where indeed "tea" or one thing was never heard of. We have given our "Ceylon tea" to the waiter at an hotel to get infused, in entertaining friends to a cup of "high-grown, delicate tea," and the result was a perfect infusion and every justice done to the superior aroma. Here then in Karlsbad would be the place to introduce Ceylon tea, for the benefit of the restaurant-keepers (in giving them a better and no doubt cheaper article) as well as of the visitors. But it is not easy to see how a start in the business is to be made. The result of our enquiries goes to shew that at the beginning of each season, a Hamburg firm sends a large consignment of tea (valued according to our authority at 150,000 marks say £7,500) for sale to the cafés and hotels. I have not been able to learn exactly at what rate this is sold to these establishments, but I do not suppose any of it at less than the equivalent of 7s to 8s and for a tea which could be better supplied from Ceylon at 3s 6d duty, freight and charges all paid! I have only discovered one considerable tea-dealer-importer in Karlsbad—and on entering his office and asking for "Ceylon tea" we were told "there was no such description!" The information that we came from Ceylon which would this year perhaps send 70 million lb. of the article into consumption, changed the answer into "We do not know Ceylon tea here"; and most interested then did the comparatively young Austrian principal of the firm become in all we told him of the new tea. He had a considerable stock of China which he sold in various classes—Congou, Souchong, Melange, &c. He had exceedingly neat boxes (made in Vienna) lined with lead, daintily papered with Chinese pictures outside, sliding lids, for forwarding 1 lb., 2 lb., or 5 lb. to customers—just as we had seen in Vienna itself exceedingly neat paper and lead packets for ¼ lb. and ½ lb. with English and German inscriptions:—"Real China Tea—Extra choicest—New Season's First Crop China Tea—The China Tea Company, Limited." This is no doubt from a London distributing house. On another side of the package we read:—"This packet contains the choicest Chinese Tea selected with greatest care and experience. The tin foil and parchment packing is entirely free from lead, or other deleterious substance." And then on the fourth side, come very full and minute instructions in German as to the proper making of the tea, with, of course, a great deal of praise of the description enclosed. I have had a translation made and here it is, showing how well the Austrians are instructed to make tea:—

THE PREPARATION OF TEA demands the greatest attention in order to make it agreeable to the consumer to utilize its essential properties, its aroma and theine, and to make it valuable in point of economy, hygiene and taste.

THE FOLLOWING METHOD IS RECOMMENDED.—Soft water of pure taste, every time fresh is most suited for the extraction of the aroma and theine of the tea leaves. Hard water contains minerals in solution, such as iron, copper, saltpetre, salts of all kinds and other substances, and is therefore unsuited for tea-making which process is simple but must be carried out rationally and precisely. A tea-spoonful (about 2-2½ gram is sufficient for a large cup or glass, the water must be boiling hot, until all frothiness has ceased and then poured on; by this means the drink is clearer. The tea-pot which is used for tea only must first be rinsed out with hot water, the tea must be left 5 minutes after the water is poured on to it, but avoid any further boiling of the water after it is poured over the tea. If one requires weaker tea, then 3 minutes will suffice for extracting the aroma and theine and the strength can be regulated by adding boiling water. Properly prepared tea must be golden yellow and quite clear. The brewing of tea beforehand, that is the pouring away of the first infusion of boiling water, which is so often done, is certainly not to be recommended as thereby much aroma is drawn from the tea.

To return to the Karlsbad dealer: he seemed very free from prejudice and ready to apply for samples and a small consignment of Ceylon tea to begin with, to the Colombo house (whose address we ventured to give him—Messrs. Volkart Brothers as representing his country, Consulate and national Steamer Company there.

The more I think of it, the more I am completely puzzled as to the enormous difference in the prices at which Coffee, Cocoa and Tea are respectively retailed, or even sold wholesale throughout Austria. The difference in duty does not account for more than a fraction of the proportion. Nothing but habit, and the custom of treating tea as a "medicine" can account for it, along with the fact that the import business is confined to a few who are quite content with their position. [The parallel case is to be found in the treatment of "quinine" in England, still retailed at 1d a grain equal to £2 an ounce!] For instance, we went into a leading grocer's here this morning, and asked him for the relail price of the three products. Here is the

result:—

TEA (China, almost entirely) 5 to 8 gulden (8s 4d to 16s 8d per lb.)

COFFEE (Ceylon 1·10 gulden 1s. 10d) 1 to 1·20 gulden (1s 8d to 2s per lb.)

COCOA (prepared in Vienna) ·80 to 1 gulden (1s 4d to 1s 8d per lb.)

COCOA (Van Houten's imported) 2·50 gulden (4s 2d per lb.)

I have further learned that the Hotels and Cafés even when laying a comparatively large stock of tea, pay not less than 5 to 6 guldens or 8s to 10s per lb.—the duty being but 10d. Now let the charges for "handling" at Trieste be what they may—the railway freight we know is very moderate and great facilities exist in Austria for sending even large packets or parcels by post—it is impossible that Ceylon tea retailed at *half* the current rates would not show a large profit. And can it be any wonder that the people never use tea? Again and again, our answer when pressing the virtues of tea, has been "Who can afford an article for household use at 6 florins (10s) the lb? While doing the *cure* or out on holiday at Karlsbad, we enjoy our little pot of tea (costing 5d to 6d for less than two cups of tea); but no housekeeper could go on at that rate." Again, one Dalmatian lady friend has said:—"I am very fond of tea; but a kilo is about all I use in a year," against I suppose some cwt. of coffee; for her husband holds a high official position in Sppolat. Again, a poor fruit-seller's view of the matter is worth giving:—"For 3 kreutzers (little more than ½d) even, I can buy an appreciable number of beans of coffee; but to get an equal proportion of tea, I should want 40 kreutzers!" Of the poor agricultural population, of course "drinking coffee" really means the slightest flavour from a very few beans to the sugar and a large quantity of milk. But if once they got to know *good cheap Ceylon tea* the same thing—and even greater economy—would hold good. I have done; but before closing I should like to make one or two suggestions more to the Ceylon Tea Fund Committee. I think the publication, and wide though judicious dissemination of a pamphlet in German giving an account of Ceylon Tea, its growth, preparation, analysis, different kinds and corresponding qualities, together with information respecting tea generally, in a popular form, could not fail to do much good, more particularly throughout Austria—in Vienna and Karlsbad especially—but also throughout Germany and all the German-speaking parts of Northern Europe. If illustrated, the pamphlet would be all the more useful in aiding the sale and use of Ceylon teas. Again, before the opening of the next Karlsbad season, or early in 1892, I think the Committee should arrange to send free packets (as samples) of Ceylon Tea to every Medical Doctor, Hotel, Café or Restaurant in Karlsbad, with their compliments and perhaps one of the "Tea Circulars" prepared in the *Observer* office, wrapped round each.

THE INDUSTRIAL FUTURE OF AUSTRALIA.

At a time when political changes are going on in our Australian colonies—when in a sense they are approaching political manhood—"An Australian" takes occasion to survey their condition and cast their horoscope. We need to be reminded of the things described in the articles entitled "The Commonwealth of Australia," the second of which we publish to-day. They make us understand the pardonable impatience of colonists at the ignorance of Englishmen as to the great Island Continent, peopled by their own kin, and they give the impressions of an Australian, who, visiting England and seeing its industrial achievements, is not the less pleased with them, because he knows that in his own land the same race is repeating the triumphs which made England what it is. Our contributor takes stock of the resources of his country, at a time when its political future may be uncertain, but when its industrial future is assured. In days when Australia was very little known, it was supposed, for slender and fantastic reasons, to be doomed for the most part to sterility. Its fauna and flora seemed to be imperfect monstrosities. The gum-tree and the kangaroo were products of Nature bungling or at her worst, and geographers wrote learnedly about the invincible barrenness and inherent poverty of the land. Even after the gold discoveries had given an impulse to Australia, it was taken for granted that it could have no feature comparable to that of the United States. But all such predictions have turned out erroneous; a vigorous race, full of resources, has set them at nought. The whole of Australasia is more than 26 times as large as the United Kingdom, more than 15 times as large as France, and almost equal to the Continent of Europe or the United States. Such are the figures, as given by Mr. Coghlan, the Government statistician of New South Wales—whose investigations respecting the amount of crime in the different colonies have made him known here, and our contributor shows that, far from being stricken with barrenness, very much of that tract may be utilized by Englishmen. The whole of New South Wales, South Australia proper, half of Queensland, more than half of Western Australia, all Victoria, Tasmania and New Zealand—that is, about 1,985,500 square miles—lie in the temperate zone. About two-thirds as much is within the tropics; but no small part has proved to be fit for Englishmen to live and labour in. "A tropical temperature," our contributor observes, "has never yet deterred gold-miners from working on a payable field. The quality of the wash-dirt or quartz, not the story told by the thermometer, decides their movements." And so he writes with confidence of the ease with which difficulties of climate can be overcome; and undoubtedly there are scarcely limits to the capacity in this respect of an industrious race. The Lombard peasant works longer, harder, and to more purpose, under a fierce sun, than the Irish peasant farmer. The industry of the fellah or the ryot is scarcely surpassed by that miracle of pertinacious thrift, a French peasant proprietor. Moral causes have as much to do with the matter as physical; the "white trash" in South Carolina and Georgia, who did not work because—as was said in slavery days—of the climate, now begin to do so, when slavery, is gone and the opprobrium connected with work has passed away. We should give no heed to the pessimist views about the capacity of Australia, and indeed all parts of Australasia, to be the homes of a vast people, if tropical heat were the only obstacle. But the tabular statement of the rainfall of Australasia reveals a more serious difficulty. "More than one-third of Australasia has to get along as best it can with an average annual rainfall of less than 10 inches. More than a fourth can only boast of between 10 in. and 20 in. And throughout all this dry country the rainfall is irregular as well as scanty." Even within the 10 in. line irrigation can do, and has, in fact, done, much; sheep are reared, and the finest wool is grown, where once was only a desert, varied by sparse, stunted vegetation. Tanks and wells are being dug; in New South Wales alone a sum of four millions sterling has been expended upon the construction of tanks. The

water-carrying strata have been tapped, with good results; and such is the promise of this source alone, that the death of stock by the thousands, by reason of drought, will soon be impossible. And, after all, if this be too sanguine, there remains a tract of nearly two million square miles, within which men and all that men feed upon grow and thrive, some parts of which are the most favoured in the world, and all of which may be utilized. Surely a magnificent heritage, fit habitation for a race with a great future.

And that such is before the Australians, they may well be confident. Of the four millions, in round numbers, who occupy Australia, the great majority are of our own stock; scarcely even is New England, as to race, more a part of Great Britain, accidentally detached, than is Australia; and nowhere have Englishmen laboured more stoutly and to better purpose. Mr. Coghlan's computations record rapid progress, of which the colonists may well be proud. In much less than a century of activity, Australia has accumulated a stock of wealth, which, he estimates, far exceeds that of Belgium, Holland, or Canada, each a comparatively old State. Such figures, however, can be but rough approximations—at best only very intelligent surmises. More trustworthy, and equally impressive, are the returns as to sheep-farming and other kindred industries. In the year 1889 there were one hundred millions of sheep, nine-and-a-half millions of cattle, one-and-a-half million of horses, and more than a million of swine. The value of the wool grown in that year, is put at twenty millions; the value of the year's produce to the growers, at thirty-five millions; and to this must be added the dairy produce, reckoned at over seven millions sterling. We all know the vastness of the flocks possessed by Australian millionaires; the conditions of economy under which they are fed are less understood. There is no need of artificial grasses; that which grows wild on the runs is generally sufficient. Labour is dear; therefore labour is reduced to a *minimum*, and, in place of the shepherd, who has all but disappeared, are wirefenced paddocks, within which the sheep roam at their will. The wool, too, is of the best; the original stock was good, and the climate has improved the qualities of the fleece.

These are magnificent results; and yet our Correspondent admits that agriculture is still almost in its infancy. It now takes about nine-and-a-half acres to produce annually a single fleece of wool; but this, he explains, is owing to so much land being completely unstocked. If it all carried as much as New South Wales, there would be six hundred millions more sheep than now exist. No wonder the Australians are hopeful, when their statisticians and agriculturists tell them that they may soon expect to have a clear addition to their present flocks of as many sheep as are now fed in Europe, five times the number in Asia, six times the number in Africa, and more than exist in North or South America. Economists have explained that agriculture in its development follows certain laws: that when population is small and land plentiful, stock-raising is remunerative and necessary; that, as population increases, agriculture becomes more "intensive," and huge flocks become things of the past. At no great distance from Melbourne and Sydney this evolution has long been completed. Elsewhere agriculture is still in the earliest stages. Even in Victoria and New Zealand the cultivated area is only 3·73 and 2·07 of the whole, while in Queensland, South Australia, and Western Australia it is the insignificant proportion of ·05, ·39, and ·01. If our Correspondent's hopes are well founded, the greater portion of what now lies useless, except for stock raising, may be put under crops; and, when this transformation takes place, the wealth of Australasia will be immensely increased. It is a simple calculation; if the value of agricultural produce was seven-tenths of that of the pastoral produce, when, to speak generally, only one-third of one acre out of every hundred was under cultivation, what will be the value of the former when the country is cultivated as Scotland or Ireland? Of the future of Australian commerce one must speak only with diffidence. Economists and historians have not discovered the complex laws governing its growth. But the results so far entitle one to hope the best. Seven tariffs, more or less hostile to British goods, have been in operation; but everywhere, even in Victoria with its high protective duties, trade has expanded by leaps and bounds. The total external trade of Australasia in 1889 was valued at £76,384,000, of which no less than 77 per cent. was with Great Britain. In a single decade the colonial external trade increased by more than £24,000,000. It will surprise many Englishmen to be told that, as to shipping, "within the Empire Melbourne is exceeded in absolute tonnage only by London, Liverpool, Cardiff, and Newcastle,"—with the addition, as Sir William Des Vœux has pointed out, of Hongkong—and that within the same limits "Melbourne is exceeded in population only by London, Calcutta, Liverpool and Glasgow, while only Birmingham and Madras are to be added to the list before Sydney is called." These things are outdone by no achievements of industry in the same space of time. In the last century, poems would have been written about them. In glowing heroics would have been described the silent, lonely and miserable land, becoming, as if by magic, rich, prosperous, people with flocks and herds, and vocal with the sounds of human industry. In still earlier ages, had such things come to pass, the story would have been, after the manner of Herodotus, of some people driven from their homes, finding a strange land, pleasing by propitious sacrifices the gods, who poured upon the new-comers the best that Heaven could give. Such accounts, the poem as well as the legend, would have been true; for it is the magic of courage and enterprise, the propitious sacrifice of unremitting toil, which has triumphed over all difficulties, and worked the marvels described in "The Commonwealth of Australia."—*Times Weekly Edition*, Sept. 1.

[We had the pleasure of a visit from Mr. Ward, the author of the able articles referred to, when he was on his way home. He had been associated in Australian journalism with Mr. Gullett, who some dozen years back was in Ceylon.—ED. *T. A.*]

PERSIA AS A FIELD FOR ENTERPRISE.

* * * *

Persian commerce affords us a very striking example of what may be attained by perseverance, and a resolve to tenaciously hold on to a definite scheme of working. The British India Steam Navigation have persistently pushed business in the Persian Gulf, and have created by their efforts a valuable stream of commerce which before their advent did not flow, although the materials for it existed. This point was fully brought out by Major-General Sir R. Murdoch Smith in the address he read before the London Chamber of Commerce in February, 1889, and a full report

of which appeared in this *Journal* of March that year. Those who would wish to trace it more closely, and also to ascertain in detail the great wealth and variety of the natural products of Persia, may find a mass of information brought together in "The River Karun: an opening to Britsh Commerce," of which Mr. W. Francis Ainsworth is the author (and Messrs. W. H. Allen & Co. publishers), and who speaks from personal acquaintance of the district surrounding the Karun. One fact is evident from the writings and remarks of all authorities on the subject of the prospects of British trade in Persia, and that is—that whilst competition with Russia in the more northern parts may be difficult owing to her exceptionally favourable geographical situation seconded by the "iron road" developments which she is ever pushing eastwards and southwards, yet, in the southern, and far into the central portions of Persia, British commerce may penetrate with success under fair conditions, and defy the competition of northern traders. * * *

An idea of the progress which has been made latterly is afforded by the statistics given in the report by Mr. Consul-General Ross above quoted, which relates to the trade of Southern Persia and the Persian Gulf for the year 1889. Taking the bare totals alone we obtain the appended comparison for the various places of import and export, with the value of the trade in 1888:—

	All Imports.		All Exports.	
	1889.	1888.	1889.	1888.
	£	£	£	£
Shiraz	327,657	258,522	340,515	449,780
Bushire.. ..	791,823	527,235	515,907	378,148
Lingah	620,496	732,445	542,960	536,056
Bunder Abbas..	344,386	277,128	323,799	271,719
Bahrain.. ..	276,823	251,083	317,913	307,162
Arab Coast ports	157,464	138,046	289,692	348,552
Total	2,518,649	2,184,459	2,330,786	2,291,417

—*Chamber of Commerce Journal.*

A TALK ABOUT TEA.

The weather recently in Assam does not seem to have been as favourable for tea-making as it might have been. Upper Assam, in particular, has apparently been suffering from something very like a drought, if such a word can be applied to the rainy season. From Tezpur I hear "we have had a very, very dry time since the commencement of August; only six inches of rain during the whole of August, and 1·33 inches up to the 10th of September." This is an abnormally small quantity of rain for what is generally the wettest month in Assam. There were very heavy falls of rain during July, but this will not carry on indefinitely. A hot August, with little or no rain to speak of, soon dries up the soil, and a heavy consequent drop in the outturn is to be feared. Planters seem to think an early cold weather is impending. Notwithstanding the unusual heat in the day, due to want of rain, the mornings are already assuming a "cold weather" feel and appearance; and the "snows"—as the distant snowy mountains' peaks are locally called—stand out in the early morning as close and clear as they generally begin to do about the end of October or beginning of November. Every-one is complaining of the heat in the day; and the now poplar Blackman's fans for withering leaf are at a discount; the leaf withers in the lofts only too quickly without their aid, owing to the abnormal heat. Yet up to date most of the gardens are keeping up to, if not ahead of, last year. One big garden in the now well-known Daputa Valley is over 1,000 maunds ahead of last year, on a crop of 7,000 maunds for last season; and its manager hopes to turn out nearly 9,000 maunds, notwithstanding the scanty rainfall. But to this increase a good deal of young tea coming into bearing is contributing. Other gardens without new extensions coming in to their aid will probably feel the unusual weather severely; and a considerable drop on the estimated outturn of tea will probably have to be faced by many concerns in Upper Assam.

Dibrugarh tells the same story. Spasmodic showers, occasionally heavy, but very much localized, are the order of the day. Heavy clouds, thunder and lightning all round, but very little of that good, steady, soaking rain, that fills the heart of the planter with joy, and covers his boots with mud, is reported. Everything seems to foretell an early cessation of the rains, and all but very low-lying gardens are sure to suffer in outturn in consequence. But "every sorrow has its twin joy." If the comparative failure of the rains is general, the general, outturn of the district will fall considerably below estimates; and when this fact is publicly appreciated, a rise in prices may be looked for in the home market. There is considerable room for a rise in prices at present. Just now they are tending to such an average that the planter may be forgiven for parodying the much-vexed question "Is life worth living?" by querying "Is tea worth making?" And yet it goes on being made, and new extensions and new gardens are being opened out as freely as in the palmy days of old, when a twelve-anna average was as common as a six-anna one is now-a-days, which brings forward the great question "Does tea pay?" There is an enormous amount of capital sunk in tea, and a great number of anxious shareholders would like a satisfactory answer to the question "Does tea pay?" There is no doubt that, for some of the old gardens, put out on bad or unsuitable soil, with poor *jat*—wretched China plant incapable under the best management of making over four maunds per acre—it will not pay. And the numerous extensions one hears of are recognition of that fact, for gardens that, owing to bad soil or inferior class of plant, cannot be kicked or coaxed into more than three to four maunds per acre, the only hope is to extend on better soil with higher class seed, with a view to eventually abandoning the old unproductive area that does not pay the cost of keeping up. But for the latter class of gardens opened out on good rich soil with high class plant, capable of yielding anything from eight to twelve, or in some cases even fifteen maunds per acre, tea will pay handsomely, and go on paying even in the face of a lower market than has yet been reached. Some of the statistics of private gardens opened out within the last eight or ten years would, if published, be deemed incredible by the general tea shareholding public, or if believed in they would create a frantic rush to "get into tea;" for these gardens which pay such handsome profits, and of which one hears little or nothing, have been opened up by practical, experienced planters who have chosen their land with ample local knowledge, and in some cases bought their experience pretty dearly. And to make a concern that pays as some of these private concerns do, or to get into them when made, is only given to the initiated few. We hear or read in the published share quotations of dividends of fifteen and twenty per cent. But of the plums and prizes of tea-planting the outside public hears nothing at all: and, if told of tea gardens that pay twenty-five and thirty per cent,—or of a garden that, in its tenth year, gave a clear profit of over one hundred per cent on the original capital invested,—would turn a deaf and incredulous ear. And yet such a profit has been made, although, it is not quite so good as it appears on the surface. It was a matter of foregoing any intermediate profits for nine years. After the third year, at an outlay of some R70,000 roughly, the garden began to pay. The partners agreed to put all profits back into the concern instead of drawing them out, thereby extending area, increasing plant block and labour force considerably. The first division of profits took place, say, in the tenth year, when a lakh and-a-half of rupees clear profit on the season's working was divisible. Thus an original out of pocket outlay of R70,000, with its earned increments for nine years, brought back the original capital and something over a hundred per cent to the pockets of the fortunate partners. This seems to be a very satisfactory answer to the question, "Will tea pay?" and it is a fact. Everything comes

to those who know how to wait. It must not be inferred that tea always pays like this, very much the other way. But this is an instance of what tea in experienced hands and under exceptional advantages can do. This extraordinary profit has been made in tea, in the face of the enormously increased outturn and consequently heavy fall in prices which has marked the last decade. It by no means follows that every planter with a few year's experience and local knowledge can take up a grant of land, open out, and do likewise. A good many have tried and failed. Nothing succeeds like success; the few succeed, the many fail. But it has been done, and it will be done again; and though cent per cent is not to be looked for, as in this one special case, still tea as a business will make, as big, if not bigger, profits than any industry under the sun. —*Englishman.*

MR. JAMES TAYLOR'S REMINISCENCES OF THE TEA AND CINCHONA ENTERPRISE.

Mr. Baker of the Assam Tea Company, mentioned by Mr. Taylor, was here during the heavy rains of the north-east monsoon of 1874; and they made such an impression on his mind that he told us he could not see how, with so wet a climate and no winter, tea could flourish in Ceylon. The result shows how even experienced and acute observers may be mistaken. And so as regards climate. Our visit to Darjiling was in March 1877, at the culmination of seven months of drought; and we might, as our good friend Mr. Gammie of the Moungpoo Cinchona Plantations said, have formed the impression that it never rained on the Eastern Himalayas; while Mr. Taylor, judging by *his* opposite experience, might have reported that it never ceased raining. The late Mr. Crüwell accompanied Mr. Taylor on his trip to Darjiling and wrote a very interesting account of the Sanitarium and the tea estates for the *Observer*. Mr Taylor's experience of actual tea cultivation and manufacture at Darjiling must have been of great value to him. Mr. Taylor's gratitude to those who have recognized his services in first manufacturing Ceylon tea in appreciable quantity and of good quality is very creditable to him. But his own bashfulness, which he describes as of even more than ordinarily Scotch intensity, might have induced him to spare the blushes of another notoriously modest man, Mr. George Wall. This gentleman is notorious for never regarding differences from his opinions as criminal. When people assert opinions different to his he merely says, like Mr. Toots, "It 's of no consequence." How distressed this model of modesty and self-depreciation will feel at being supposed capable of permanently occupying the chair of the Planters' Association. Charles Lamb said he could sit against anything except a hen or a tailor; but Mr. Wall bears no resemblance to a sedent Buddha. There were great generals before Agamemnon; and Mr. Robert Boyd Tytler and "Sandy Brown" were for many years the life and soul of the Association. Statistics of the various crops in Ceylon, which we furnished to Mr. Tytler, were embodied in the paper announcing the formation of the body which has done so much for the planting enterprise and Ceylon. Then the Birds, or Byrdes as they now call themselves; and others, notably Mr. Leake, and now that Prince of Secretaries, Mr. Philip, have rendered good service, which Mr. Wall would be as ready to acknowledge as Mr. James Taylor must be. Gratitude is a fine quality even when expressed rather gushingly; and we are all grateful for the work done for the colony by Messrs. James Taylor and George Wall. But others have done their part, amongst whom Mr. James Taylor, if he had not exhausted the English language in glorifying his special idol, might have mentioned the conductors of the *Ceylon Observer*, but for whom Mr. Taylor's merits would not have been so well-known to the world as is the case. But returning from this digression, necessary in the interests of impartial history, let us express the hope that Mr. James Taylor may live long to enjoy the well deserved honours conferred on him by his brother planters, not for introducing either tea or cinchona, but for the service rendered to the colony by a series of intelligent, careful and successful experiments in the cultivation and preparation of both.

THE TAYLOR TESTIMONIAL.

The Secretary of the C. P. A. sends us the following correspondence:—

Copy. Secretary's Office, No. 42 King Street,
Kandy, 19th August 1891.

To James Taylor, Esq., Loole Condera.

Dear Sir,—I am requested by the Committee of the Planters' Association to inform you that the Silver Tea Service which forms part of the Testimonial to be presented to you has arrived from London and I am to ask you whether you would prefer to have the testimonial presented to you at next meeting of the Planters' Association or to have it handed to you privately.—I am, dear sir, yours faithfully,

(Signed) A. PHILIP,
Secretary to the Planters' Association of Ceylon.

Copy. Loole Condera, Aug. 21st.

A. Philip, Esq., Secy., Planters' Association, Kandy.

Dear Sir,—Your letter of 19th current received. I am very much obliged for the suggestion that the Tea Service Testimonial can be handed to me privately. I would much prefer that course and I would write a letter of acknowledgment to you and thanking the subscribers, &c. and giving some short and general account of our beginning of the Tea industry. Were the testimonial to be presented at a meeting of the P. A. I should have to speak something of that nature. It would be my first attempt at "public speaking" for which I am certainly not fitted, and I would rather be allowed to write what I should try to say.—Yours faithfully,

(Signed) JAMES TAYLOR.

(*Copy*) Secretary's Office, No. 42, King Street,
Kandy, Aug. 31st, 1891.

To James Taylor, Esq., Loole Condera.

Dear Sir,—I beg to acknowledge receipt of your letter of the 20th instant and have now only to perform the pleasing duty of handing you on behalf of the subscribers the accompanying tea and coffee service. On the silver salver is engraved the following inscription:—

"To James Taylor, Loolecondera, in grateful appreciation of his successful efforts which laid the foundation of the Tea and Cinchona Industries of Ceylon 1891." and no words are needed to express the hearty and representative nature of the testimonial.

You are doubtless aware that a portion only of the "Fund" subscribed has been devoted to the silver tea set; a cheque for the balance will be sent to you so soon as the accounts have been received and closed.—I am, dear sir, yours faithfully,

(Signed) A. PHILIP.
Secretary to the Planters' Association of Ceylon.

(*Copy.*) Loole Condera, Sept. 28th 1891.

To the Secretary Planters' Association, Kandy.

Dear Sir,—In acknowledging receipt of the Testimonial I feel that I do not know how to express my thanks for the honour and reward it gives me for my original successes in Tea-making and Cinchona cultivation. It had been publicly mentioned on several occasions that I was the first successful tea-maker in Ceylon or in the beginning the most successful. I was fully satisfied with that, and it was a startling surprise to me when I saw mention made in the newspapers of this testimonial.

The credit for the starting of the tea industry as well as cinchona planting in Ceylon belongs to Messrs. Harrison and Leake as Keir, Dundas & Co. who were my employers and proprietors of Loole Condera. It was they who allowed me to plant cinchona and ordered me to plant tea, and it was they who paid for these things and stood the risk of failure. I took much interest in these cultivations, for I had before thought myself that surely something else besides coffee could be profitably grown on our estates.

With regard to the manufacture of tea I learned that mainly from others and from reading, but it took a lot of experimenting before I was very successful. About the time we began planting China tea from seed got from Peradeniya Garden a Mr. Noble, an Indian tea planter from Cachar, passed through to see a neighbouring coffee estate that some of his friends were interested in, and I got him to show me the way to pluck and wither and roll tea with a little leaf growing on some old tea bushes in my bungalow garden. It was all rolled by hand then. He told me about fermenting and panning and the rest of the process as then in vogue, showing me the fermenting and panning as far as circumstances permitted. After that I frequently made experimental lots as I got leaf to pluck.

Afterwards when Mr. Jenkins of the Ceylon Company, an old Assam tea planter, came to the country he called on me and I made a batch of tea under his direction. A sample of this and samples of seven lots that I had made before were then sent up to Calcutta together to be reported upon and valued. Mr. Jenkins' sample was valued a little higher that any of mine, but mine were also pronounced good except one indifferent and one spoiled. With these exceptions both Jenkins' sample and the rest of mine were said to be better than the most of the Indian teas that were being sold in Calcutta at the time. From this I saw that I had been making tea rightly enough, but as I could not get it to taste like the China tea of the shops I had been always varying my process and spoiling batches of it in various ways sometimes purposely to see the nature of the results and throwing away lots that were no doubt really good tea, some of which was used by other people and pronounced good. Nevertheless I benefitted largely by Mr. Jenkins in various ways, and that sample of his being better than mine settled me as to the degree to go to in the different parts of the manufacturing process and gave me confidence.

Up till this time all my makings of tea had been made with arrangements in the bungalow verandah and godowns. But I got a tea house finished soon after and regular tea making then became a necessary part of the working of the estate. Afterwards Mr. Jenkins put up a temporary tea house on Condegalla which I was surprised to find was a copy in all its working parts and arrangements of the one I had built which was according to a plan of my own and different from the style of Indian tea houses, and Mr. Jenkins did not like it when he first saw it.

But Mr. Jenkins did not then make as good tea as I did. On visiting his tea house I found his tea very different from the lot he made with me and very different from what I was making; and his fermenting which I saw by ramming the roll as hard and tight as possible into a box was a plan that I had tried in the beginning of my experiments but long before given up as a failure. The lot Mr. Jenkins made with me at Loole Condera was not fermented that way. One day I was in the coach going up to Nuwara Eliya with Mr. Parsons, Government Agent of Kandy, and some apparently stranger friend of his, Mr. Parsons did not know me but I knew who he was. When we were passing the old patch of tea in Condegalla Mr. Parsons pointed it out to his friend as being tea. His friend then asked if they made tea there. Mr. Parsons said: "Yes, they make tea here but they do not make good tea here, the favourite tea is made on another estate they call Loole Condera," and from other quarters I heard the same.

A Mr. Baker, a tea planter from Assam, called on me after my original field of Hybrid Tea was well grown up and showed me that I had not pruned it sufficiently in the pruning I had just then finished and I pruned it all over again. I also saw light pruning and heavy cutting down of Hybrid tea in the Darjeeling Terrai in 1874 just before their plucking season commenced. Afterwards when Mr. Cameron came and took to visiting tea estates I was pleased to find that his pruning so far as I saw of it on Mariawatte seemed to entirely agree with what I had done.

But Mr. Cameron started finer plucking than I had been doing and began to top the sale lists which I think we began to get about that time or very shortly before. When I found this I also took to weekly plucking and topped the sale lists for a time. That finer plucking largely increased the selling prices of my tea and still more largely the profit per acre. So I was greatly indebted to the example of Mr. Cameron though I only met him two or three times casually about Kandy and Gampola.

Regarding cinchona we were not the first to plant a few trees or even a small patch but we were the first to regularly cultivate a few acres and to test the value of the bark in the market and then to start the cultivation on a large scale. Our experiences as to raising seedlings in field nurseries and that the bark of diseased trees if taken in time was valuable, and so on, must have been useful to others who planted later.

Looking back to the beginning of our Cinchona and Tea experiments and recollecting how little they were generally thought of at the time, expecially by some of my acquaintances whom I most respected as in various ways superior to myself, and now seeing this testimonial makes me feel that the battle is not always to the strongest. The first person I believe who thoroughly appreciated our experiments and who really foresaw the necessity of new cultivations in Ceylon was Sir William Gregory; and Ceylon Tea is more indebted to Sir Wm. Gregory who so patronised it and gave it fame than we can ever know.

Now I thank all who have helped towards this testimonial and the office bearers of the Planters' Association who have taken trouble with it and Mr. P. R. Shand who as I learned from the newspapers took part in initiating the matter, and especially I thank Mr. Wall who first proposed it to the Association in words which are of themselves a grand testimonial and who has taken a leading interest in it all through. It made me feel confused and surprised that I should be thought worthy of such honour as well as of the kind things said of me at that meeting by its Chairman and Mr. W. Mackenzie.

The Testimonial is not only a valuable one but one of a kind to make me remembered after I am not here. It will make my name and that of Loole Condera live in the history of Ceylon. I shall be proud of it though abashed in the receiving of it.

But if I may be allowed to make remarks about one so much my superior and so far above me Mr. Wall is the man who deserves a memorial from the Planters' Association. He has been by far its most conspicuous and leading member from the first, until latterly perhaps that he has not been so much amongst us for some time. It has seemed to me that but for his own will he might have been permanent Chairman of the Association; and he was one of the leading men connected with our planting industry before the Association was formed. I suppose few of the men of old who knew Mr. Wall in the earlier years of his labours now remain. But I from reading of them in newspapers have known of his ceaseless exertions for the good of our planting enterprises and of the Association for a very long time.—Yours truly,

(Signed) JAMES TAYLOR.

NOTES ON PRODUCE AND FINANCE.

TEA DIRECT TO LIVERPOOL.—We print in another column some suggestions made by the *Liverpool Journal of Commerce* in favour of the direct shipment of tea to the Mersey. The journal from which we quote

remarks that it seems strange in view of the fact that the shipowners of Liverpool are the largest carriers by sea of any port in the world, that Liverpool merchants should buy their teas in London. It is undoubtedly strange. Indian and Ceylon tea planters would, however, be very glad if the idea suggested in the *Journal of Commerce* were acted upon, anything tending to increase the sale of tea in the north of England and in Wales being greatly to their advantage. London brokers and dealers, no doubt, see the matter in a very different light.

A PAT ON THE BACK.—Ceylon planters have no cause to complain of the amount of advice gratis showered on them. The *Financial News* says: "Since we last referred to Ceylon and Indian teas the new season's imports have assumed large proportions, the excess over last year of the Ceylon product alone being 50,000 packages, and the increased shipment from Calcutta 30,000 packages. The hopes of British tea planters, and those of Ceylon particularly, must rest less upon a large output than an improvement in the quality and 'keeping' properties of the leaf; and from that point of view it is satisfactory to find that the more recent shipments are marked by an advance in quality, and are realising better prices than the earlier parcels."

LAST WEEK'S TEA MARKET.—Discussing last week's tea market, the *Grocer* says:—The market is suffering from a state of uncertainty. Supplies from India up to date have been some 4,000,000 lb over last season, and the total outturn for 1891-92 is estimated to reach some 10,000,000 lb more. China export up to date is also some 400,000 lb over last year, but there the season has been earlier, and we are told that the total export from China will be from 10,000,000 lb to 15,000,000 lb less than last year. The present state of the market is most unsatisfactory, and ruinous losses are already being faced, but such a state of affairs must materially affect the ultimate supply. Ceylons are at last beginning to come in in moderate quantity, and as the quality is improving, so are prices, and there is no getting away from the fact that Ceylon tea is carrying everything before it. We are suffering greatly from the want of an export demand in the open market—yet export figures are good up to date. Dealers say they are doing no trade, yet the weekly deliveries are splendid, and continue to show increase upon increase. The general position is a puzzle, and it makes one come to the conclusion that the trade is going into a few hands. Supply and demand hold the key to the position—two or three millions too much may lower prices pence per lb. and *vice versa*. The bulk of the supplies from all parts are of poor and undesirable quality. Taking into consideration the circumstance that this has been another week of excessively heavy supplies, and that the trade requires more breathing time to work off the extra large quantities that have, as it were, been forced upon them of late, it must be admitted that the market for Indian tea has maintained great steadiness since our last report, for no less than 31,966 packages Assam and other kinds have been offered at public sale, and have been nearly all cleared. The common qualities, as usual, have been the sorts to suffer more from the effects of over-supply than most other descriptions, and as even some of these have been rather worse than better than the ordinary run of New Season's teas, their disposal has not been completed without holders occasionally submitting to lower prices; otherwise the almost too numerous auctions have passed off fairly well. Supplies of Ceylon teas coming forward are getting smaller, and the market is firm. Finest grades are scarce, and sell at hardening prices. Low and common kinds continue to sell at very low rates. Much of this tea would be scarcely saleable if it was not Ceylon, and proves what a hold in has in the country. The depression in the market has been due to the almost entire absence of fine grades. The *Produce Markets' Review* says:—The large imports have amply supplied the market with a good general assortment of Indian tea. The demand for most grades is active, and prices, excepting for the commoner sorts, have on the whole been maintained. For the lowest grades the marke has now touched a point which will enable them to be more generally used in the commoner blends, and buyers have purchased more freely, as these teas now compare favourably with the values of the lower kinds of Ceylon growths. However, as the proportion of the lower grades bids fair to be large, and quite sufficient to meet any reasonable increase in the consumption, the market will no doubt continue favourable to buyers for some time to come. For the meddium kinds there has been a good enquiry, and excepting for teas giving a poor infusion, which sold at easier rates, prices have remained steady. The fine and finest descriptions continue to meet with brisk competition, especially the Assam and Darjeeling growths. The supplies of Ceylon Teas have again been comparatively small, and prices have been well maintained; there is, however, so far, no appearance of a repetition of the large advances in rates which took place last and the preceding year, and buyers have not apparently purchased in advance of requirements, except, perhaps, of the lowest grades, and these not to any great extent. The shipments for the present month bid fair, however, to be small, and the stock at the end of the month will probably be reduced some two million pounds. The quality of the present supplies still maintains the late improvement, and the demand for the country is consequently quite satisfactory.—*H. and C. Mail.*

SPECULATION IN TEA.

To the Editor of the *Home and Colonial Mail.*

SIR,—In your article entitled "Speculative dealings in Indian Tea," in last week's issue, you suggest the necessity of "combined action" on the part of tea importers to avoid an "undue disturbance of value."

You do not discuss the moral difference between a "bull" purchase and a "bear" sale; but your readers will, I should think, fail to note any nice distinction. You invite importers to lay their heads together to regulate supplies, but you reflect on what you call the "bear game." I should say that one transaction is as moral as another. If I have reason to believe that prices will be lower this day month I can make plans accordingly. If another man thinks that by holding back his tea he can affect the price let him do so. As the rumours for and against the market they count for nothing. Statistics are open to all and each must judge for himself. Any number of arguments about regulating the supplies will not affect the law of supply and demand. It is impossible to "bull" the tea market to any appreciable extent, although as you say an attempt is occasionally made to "bear" it.

Tea, like the other products dealt in in Mincing Lane, must take its chance. It is part of an importer's business to study the market and do the best he can with his produce; but I doubt if he will effect much by endeavouring to regulate the supplies. My opinion, as a constant reader, is that your Journal has done much for tea planters, but I do not see how the latter are to gain by taking your advice in this instance.—I am, Sir, yours obediently, OBSERVER.

[We publish the above letter, but decline to discuss the speculative operations in tea from their moral standpoint, although we should give a "bull" operator the best of it on a question of the kind. Our argument in the interests of Indian and Ceylon tea growers was that a "bear" of either stocks, shares, or produce does his best to depreciate the market, and that this, so far as tea is concerned, is an important matter to planters and importers who rely upon disinterested advice from London as to the state of the market. In the interest of the tea grower we deeply regret that tea has been introduced into the game of speculation. Our correspondent's contention that no useful purpose is served by regulating the supplies placed on the market must be taken for what it is worth, and in our opinion this is very little. It does not require the exercise of remarkable wisdom to arrive at the conclusion that if a commodity is rashly hurled on a market already overstocked, the effect on prices is not stimulating, nor is it calculated to give them an upward tendency.—ED. H. AND C. MAIL.]

PRICES OF TEA.

The one engrossing topic just now is the market, and how long extensions will be carried on at the present unremunerative prices! What! We hear some people say, unremunerative! but, we shall say, unremunerative! for, if some gardens with a big yield per acre can stand the present range of prices and give good results, there are far more that cannot possibly *live* at them! In the Annual Administration Report on tea the outturn for the whole district is put down at 362 lb., or say, four maunds, and, in the Habeegunge Sub-Division, the outturn is estimated at 591 lb. per mature acre, so that, when the average only works out four maunds per acre, there must be a number of gardens only yielding between two and three maunds per acre, and, at present prices, what does this mean? Let us examine and we will soon find out. What is a moderate estimate for local expenditure? is naturally one of the first questions to be answered, and although there are slight variations from local causes, yet we hardly think any one will consider R90 per acre a high estimate, in fact, our idea is that it is seldom, or ever, done at this figure. However, let us take this figure as fairly approximate, and, we find, that at six annas per lb., it takes a yield of three maunds per acre to cover local expenditure, not to speak of Agents, Brokers, and other charges in Calcutta, or London. At present rates of exhange six annas represents 8d to 8¼d., and if one turns up the Home sale lists there are not many Sylhet and Cachar gardens getting anything over this, and we have the other charges alluded to above to add on; so that a very large number of gardens must, just now, be turning out their teas at a dead loss! Were Ceylon differently situated as regards labour, the fight for supremacy, which is now only beginning, would have been a much tougher one than it is likely to be.

Hitherto Ceylon has to some extent scored by having factories &c., made to hand &c., but now that such strides have been made further into the interior new factories must be built, and labour imported, to meet the increasing area being brought into cultivation and the shoe will pinch now, where it did not before. True, Ceylon may score a little by cheaper freights, but it cannot get its labour cheaper, hoe cheaper, roll, or fire cheaper, or, as cheaply as Assam, Cachar, or Sylhet. And outturn, so far as one can judge, is about the same average scale as in India. The chances then are, viewing the matter from an unprejudiced light, that, in the long run India will beat Ceylon in growing tea as a paying industry, but, there will be a tough fight before this is established.* The Ceylon men have a great knack of advertising, and pulling together, which adversity will teach their Assam brethren, and the day is not far off, now; but it is to be hoped, that the Assam planter will not be so sanguine as the Ceylon one; and rush any new industry to such an extent, as to reduce it in a few years, from a safe investment, to a dangerous speculation. Unfortunately, if any one follows the history of the spicy isle a record is found of either great success or great disaster; and the characteristic of the Ceylon planter is not originality, but a stubborn persistence on a road which experience has proved practical. In spite of all the go, &c., displayed by the Ceylon planter, there is no record to relate of any original industry† in the island being a success. Coffee was known and cultivated in many other countries before it was introduced into Ceylon. Cinchona, had a rush for a time, but it has, more or less, been abandoned of late years, although it still continues to be successfully cultivated in India. Coca, has never done much, India-rubber is now almost unheard of, and lately nothing but tea has been talked of and is likely to be for years to come, as many hundred acres planted out lately, unless the tea market improves or other outlets are found for the produce, will never be plucked, and Ceylon, will again be to the fore as it was a few years ago.‡

It is absurd to think that banks will go on financing tea concerns against a certain dead loss, and this is what it will come to with many concerns by the end of the season. Concentration and amalgamations may, in some instances, stave off the evil day to a few concerns, but this will not be general, and 1892 will see many concerns in the market, without a buyer even at nominal rates. How many gardens can turn their teas out at four annas per lb. local, and Calcutta, expenditure included? Very few we say—and yet this must be done, if a fair profit is to be reaped. Improved machinery has done a great deal to cheapen the cost of tea per lb. but there is a limit in even this, and although economy has been effected in this way we are much afraid that as long as tea exists, cultivation will cost the same; for the coolies wage does not get cheaper! In Cachar and Sylhet, doubtless, were the railway a *fait accompli* there would be a slight reduction in cost of importing a coolie, but it would be fractional per acre; and the only hope in view is a limit to extensions, which is now we think looming in the near distance.—*Indian Planters' Gazette.*

* No doubt of it, and we suspect Ceylon planters are not prepared to concede the victory to India.—ED. *T. A.*

† What *is* an original industry, and how is India superior to Ceylon in this respect?—ED. *T. A.*

‡ The wish being father to the thought. The snarling at Ceylon is despicable and unworthy.—ED. *T. A.*

NOTES BY "WANDERER."

October 15th.

Our American cousins seem to be keeping to the front as manufacturers of BOGUS TROPICAL PRODUCTS. Nutmegs formerly had their attention, but coffee now seems to be favourite. It is calculated that 90,000,000 lb. of bogus coffee are sold in the United States. The Germans followed suit, but a cruel Imperial Government has nipped this industry in the bud, for an Imperial decree has been issued in Germany forbidding the manufacture and sale of machines for producing artificial coffee beans, which certain German newspapers have of late been exensively advertising. Would that the British Government took equally strong measures to protect the pure Ceylon tea industry against the unscrupulous villains, who so cunningly hoodwink their customers, generally of the poorer class.

RICE.—I note the following in the *Indian Agriculturist's* summary of trade in Calcutta:—"The quantity of rice exported rose from 5,366,807 cwt. to 7,066,443 cwt., the increase being chiefly due to larger supplies drawn by Ceylon." When are these wonderful irrigation works in Ceylon, on which so much money has been spent to the prejudice of reproductive works, such as railways, roads, education, to be of use in enabling Ceylon to keep the money she sent to India for her food supplies? Echo indeed answers where?

ROYAL BOTANICAL GARDENS IN CEYLON.—Is Dr. Trimen now in a position to give an equally favorable account of his gardens as is given of the Indian gardens in the following extracts. Dr. King is a practical as well as a Scientific Director.

"In spite of the heavy rainfall, the number of cinchona plants, destroyed by landslips in the Bengal Governments plantations was less last year than in previous years of smaller rainfall, and no damage was done by hail. The outturn of the factory, which is generally regulated by the demand, was four thousand pounds of cinchona febrifuge and the same number of pounds of sulphate of quinine, as against six thousand five hundred, and one thousand eight hundred pounds respectively in the previous years. The revenue derived was a little under one lakh and twenty thousand rupees, and the net profit showed seventeen thousand rupees, 'a result which may be considered as satisfactory and quite sufficient.' Profit is no object with Government. It desires to secure a cheap remedy for fever for use of the people. The Lieutenant-Governor has discovered by personal enquiry that many dispensaries instead of buying the drug direct from Dr. King at one rupee per ounce, purchase from private stores at R1·2 and R1·4 per ounce which, as the resolution rightly says, 'is an obvious absurdity.

"The Botanical Gardens maintained by the North-West Provinces Government at Saharunpore and Mussoorie afford an excellent example of the public advantage of such institutions. As regards cost, it appears that the gardens are virtually self-supporting. The expenses last year amounted to R20,143-14-10. On the credit side we have cash receipts to the extent of Ri6,323, and the Director-General of Agriculture remarks that allowing for the seeds and plant distributed to soldiers' gardens and supplied to public gardens and societies in addition to the direct saving to Government on drugs grown and manufactured for the Medical Department, there would be a balance in favour of the credit over the debit side of the account. On the benefits to agriculture and the prosperity of a province mainly dependent on the cultivation of the soil, many proofs could be quoted. Mr. Holderness says generally: 'The beneficial effect of the Saharunpore and Lucknow Gardens on horticulture in Upper India is capable of easy verification by anyone who moves about the country and notes the progress which gardening and fruit growing are making among the native community.'" The extract that refers to cinchona is especially interesting. Here are we, with large reserves of cinchona, sending ultimately our produce to England to the manufactures there, who will buy it for a mere nothing; our Government buying their febrifuges at a high figure, when it might, as the Indian Government does, buy cinchona on the spot and manufacture it.

CEYLON TEA FUND COMMITTEE.—Mr. Roberts, I think, was quite right to bring to the notice of the Committee what some busybodies are suggesting to the detriment of the Standing Tea Fund Committee and the new Tea Company. The Tea Fund Committee had a good answer to give such snarlers.

TEA AT TENPENCE and low rates of exchange pays, but the genius who averages 5½d is not the one to lead us on to victory.

COFFEE is falling in a most extraordinary way, which points to its being an article for the speculator, so I fancy there will be soon a sharp rise, more especially for Ceylon.

THESE INVENTORS OF TEA DISEASES should be deported at the expense of the Colony. Let the Governor use one of his Prunes and Prismatic measures—say Promptitude—to get Dr. Trimen's answer to those Indian Quacks.

NATIVE TEAMEN of our acquaintance inform us that the profits they have made out of common tea will not go half way towards covering the losses they sustained on their finest grades. They are greatly put out this season to find that the high district teas fetch such a comparatively small advance on those from the low districts, and declare that the business in fine kinds is not worth following. They assure us emphatically that next season's supply of Congou will show a further falling off of fully 50,000 chests.—*Foochow Echo*, Sept. 26th.

AN INTERESTING TOUR of the principal botanic gardens in the world was recently made by an American botanist, in order to procure from these establishments specimens of the useful products of the vegetable kingdom for the University Museum at Cambridge, Massachusetts. The botanist visited on his tour Genoa, Ceylon, Adelaide, Dunedin, Sydney, Brisbane, Java, Singapore, Saigon, Hong Kong, Shanghai, and Tokio. The traveller was particularly struck with the Botanic Gardens in Ceylon. Plants from Australia are quite at home with those of the West Indies, Japan, or England. "Once for all," says the American, "it may be said that botanists are made welcome (to these gardens) in every way, finding every facility for carrying on systematic work."—*L. and C. Express.*

TEA AND EXCHANGE.

In reviewing the sea-borne trade and navigation of Bengal a few months ago, Mr. Scobell-Armstrong referred briefly to the question in how far the tea industry is affected by a fluctuating exchange. In his opinion an alteration in the relative value of gold and silver cannot in the long run either stimulate or check the production of tea in India, since the change neither affects the desire for tea on the part of the consumers nor reduces the amount of goods which he is willing to give in exchange for it. Mr. Armstrong illustrated this argument by a sketch of what in his opinion would be the effect if silver should rise, say, to 1s 9d and stay there or thereabouts. In the first place, he said, the rupee price would fall, but there could be no immediate increase in the price of tea, since the amount of tea put on the London market would for some time remain as great as ever. If the depression became sufficient to check production and the extension of gardens, "there would no doubt be some rise in sterling price, but it would only be for a time" assuming of course that the rise in silver were due to its becoming dearer. If it were due to gold becoming cheaper, gold prices would rise at once and to the full amount and there would be no depression at all. In the event then, that silver itself had become dearer, there would, Mr. Armstrong admits, be a depression in the tea industry. "Profits," he says, "would not be so great for a time," but the tea planters would eventually reduce their outgoings, for since their rupees would have risen in value they might fairly claim to pay less of them. When the planter's outgoings had been reduced in proportion to the new value of the rupee, his profits, Mr. Armstrong contends, would be as large as ever. With a sudden rise in the value of the rupee the depression would be severe, but the adjustment would be effected sooner; with a slight rise the depression would be slight, but it would be longer before it disappeared. In any case, however, the final adjustment would be only a matter of time.

In an official resolution published, on Wednesday, Mr. Armstrong's argument is examined both from a practical and theoretical point of view. In the former respect it is contended that the explanation suggested by the Collector of Customs does not agree with the tea-planters' experience. "It is true," the resolution admits, "that he will pay less for machinery, European stores and other articles purchased in England. It is also true that, as all tea-growing countries use a silver currency, the tea planter is free from the special disadvantages which hamper the Indian wheat-grower in his attempt to compete with rivals in gold-using countries. As, however the bulk of the planter's expenditure is incurred in India, where fluctuation in the value of the rupee is comparatively inconsiderable, he cannot protect himself, as Mr. Scobell Armstrong suggests, by reducing his payments for wages and articles produced locally. It would seem, then, that "the gardens which fail year after year to gain the normal profit of capital must sooner or later go out of cultivation, and only those will survive in which the cost of production is cheapest. "The price of tea in London is the resultant of so many causes that it cannot be supposed that the contraction of output caused by the closure of the more expensive gardens will so reduce the total supply as to cause the price of tea to rise to a figure at which it will pay to re-open and work them." The fallacy, indeed, of Mr. Armstrong's argument lies in the idea that the expenses of a tea garden can be automatically adjusted with the rise and fall of Exchange. Even if the suggestion were correct in theory it would still be opposed to all the results of practical experience.—Calcutta *Englishman.*

THE JAVA BUDGET.

(FROM OUR AMSTERDAM CORRESPONDENT.)

The Java Budget for 1892 has been introduced in the Second Chamber of the States-General. It appears that the profit balance of 1889 amounts to f. 1,222,164 more than estimated, the total profit being thus f. 3,116,738. The service of 1890 will probably exhibit

a profit of f.8,048,775, or f.3,500,000 more than the estimate. As regards 1891 it is expected that the estimated deficit of f23,333,333 will be about f.16,500,000. The final figures for the Budget for 1892 are as follown: Expenditure in Holland, f.25,573,217; expenditure in India, f 110,780,123—or total, f.136,353,340. The revenue in Holland is f.21,751,268, in India f.97,798,445—or total, f.119,549,713, the Budget closing thus with a deficit of f.16,803,627. When compared with 1891 the revenue is estimated at f.5,697,368 more, and the expenditure f.825,502 less. The following revenue is estimated higher:—The sale of coffee, f.1,460,000; the sale of tin, f.395,000; the opium farm, f.1,340,000; the sale of salt, f.305,000; the working of railways, f.697,000; post and telegraph, f.130,000; banking business, f.327,400; import and export duties, f.540,000; excise, f.382,000; license duty and other duties, f.327,000; and revenue of the Departments of War and Navy f.146,000; the revenue from the trade tax is estimated at f.250,000 lower, and that from the sugar cultivation f.325,000 less. The increase of the revenue is totally absorbed by the expenditure, chiefly by that of the department of home Government, in consequence of the lower estimated purchase of coffee. The deficit on the Budget is caused by an amount of f.3,500,000 for the purchase of 190,000 piculs coffee more than the quantity estimated for sale, which amount will be an advance in favour of following years. On the other hand the production of tin is estimated at 80,000 piculs, while the quantity to be sold will be 100,000 piculs. The price of purchase for those 20,000 piculs more is about f.500,000 by which the deficit is to be increased in order to know the exact amount of it, which will be thus: —f.13,800,000 or f.14,000,000 in case the export duty on sugar remains suspended. An amount of f.7,335,000 is proposed for the construction of harbour works near Batavia, and for Government railways and f.3,105,000 for new irrigation works. Against the extraordinary expenditure there appears some extraordinary revenue, the difference of which is f.9,819,000. If this amount is deducted from the deficit it is reduced to f.3,981,000 on the ordinary expenditure. It is not improbable that the Budget for 1892 will close later on with a less unfavourable final figure, but the minister will not agree with the opinion that this Budget is to be considered as not being a normal one. The revenue from coffee is estimated for 1892 at f.13,510,000, but it is not to be expected that the average of following years will be larger. Although an increase of revenue is probable out of the Bullion Mines and the Ombilien Coalfields, a decrease of the production of the Banca Mines is anticipated, and in the event of larger proceeds from the license duty there will be on the other hand an increase of other expenditure, such as remunerations, pensions &c. The Minister therefore considers the condition of the finances as being unsatisfactory, and he states that India should independently provide for its finances is for this reason an urgent necessity. In order to arrive at this an economical administration is required, for which efforts will be made, and an inquiry will take place into the whole organisation of the Government. Besides this measure the revenue is to be increased, for which proposals will be made shortly. Moreover, the strengthening of the productive power in India must be taken up, and in connection herewith the Minister proposes already an amount of f.3,105,000 for irrigation works, to which he intends to add to commence with the construction of the works for the irrigation of the Solo Valley. As soon as he has received information he will propose the improvement of the means of communication. Going on to the items of the Budget the Minister asks f. 600,000 for the construction and equipment of two fast steamers for an effective restraint of the opium smuggling. The question what ought to be done with regard to opium will be considered by the Java Government in connection with the report of Mr. Groeneody. In anticipation of advices from Java an appropriate packing of the quantities asked by the consumers is wanted, the great importance of which, in connection with the preparation by the Government is acknowledged, as well by the promoters as the opponents of the farm system. As to the Government's coffee cultivation, the Minister has followed in this Budget the existing regulation, but it is his intention to make a proposal, as soon as the advices from India upon the report of the States Commission have been published. An amount of f. 756,700 is proposed for waterworks at the east side of Sourabaya; f. 630,000 for a dock in the harbour of Tandjong Priok; f. 6,565,100 for the construction of railroads, of which f. 3,772,500 for the line Warong-Bandong-Tjilatjap; f. 225,000 are required for the completion of vessels for the Indian Navy, while f. 1,100,000 are asked for the construction of two other vessels for the Military Navy in India. The condition of the material of the Indian War Navy, in connection with the necessity to blockade a part of the coast of Acheen, does not permit of any delay for the decision upon the report of the States Commission. The quantity of coffee to be sold in 1892 is estimated at 235,000 piculs, the probable proceeds of which will be about c. 48 per ½ kilo, As the temporary freedom of export duty on sugar will expire on June 1st, 1892, the proceeds are estimated at f. 300,000 more than the proceeds in 1890. The question is still considered whether it is not necessary in the present circumstances, to propose a prolongation of the suspension for one year. In the meantime another pending question could then be solved, whether it is possible to introduce another tax, which would burden not so heavily, but compensate the loss suffered by the Exchequer.—*L. and C. Express.*

THE TEA FUND COMMITTEE AND THE PROSECUTION OF FRAUDULENT TEA DEALERS.—We have been asked to contradict the erroneous report that has got about to the effect that the Tea Fund Committee will not sanction further tea prosecutions. It appears to have originated through some careless reading of the minutes of a former Committee meeting. The Committee declined to advise any *further* prosecution *at present*—a very different thing —and will no doubt be ready to prosecute again, whenever good reason exists. Such prosecutions are always expensive things, and only to be indulged in on good cause shewn, but this false rumour may do harm if uncontradicted

THE QUININE SYNDICATE RUMOURS.—The rumblings of the recent outbreak still reverberate through the pages of the *Indische Mercuur*. Mr. Kessler, a Java planter now in Holland, gives it as his opinion that the way to establish a successful combination is for the planters to place the sales of all their bark into the hands of a central body in Europe, which shall have the control of the analyses, in order to avoid the uncertainty which now attaches to these, and which often causes two lots of the same parcel of bark to be sold at 25 per cent difference in price because the analyses have been made by different people. The central body would also fix the total quantity of bark to be harvested by estates forming the syndicate, and it should agree to sell no bark below a unit of say, 12 cents, or about 2¼d per lb. which is fully double the present price. A joint committee of the two great planters' associations in Java would be asked to lay down after personal inspections the quota which each individual plantation should contribute to the total amount fixed by the central body. The combination, it is thought, would be sufficiently powerful to leave the two or three estates now making direct shipments to the Brunswick works out of account, the more so as those estates would be sure to join the syndicate as soon as they regained their liberty. If no combination is effected, Mr. Kessler foresees a further considerable decline in the price of bark, to be followed either by the wholesale uprooting of plantations or by the gradual purchase at rubbish prices of most of the cinchona estates by some individual financier, who will in this manner succeed in obtaining ultimate control of the market.—*Chemist and Druggist*, Sept. 26th.

GRASS OILS AND THEIR VARIETIES.

SUMMARISED BY J. CH. SAWER, F.L.S.

Of the genus of grasses belonging to the tribe *Andropogoneæ* about twenty-five species are met with in India; of these, four or five are of commercial interest as yielding the oils known as "grass oils."

The greatest confusion has existed in the identification of the plants yielding the essential oils from this genus, and much uncertainty yet appears to exist in Europe in the assignment of each oil to its proper botanical source—that is to say, in the identification of nearly-related plants which afford distinct oils known commercially under various names in London, Paris, and the East. The trade-names in London of the four principal oils being known in Egypt, in Turkey, and in India under such a great variety of names, and the plants they are derived from being known in the various provinces of India under such a quantity of local dialæcts, it is not surprising that errors creep into the literature of a subject so difficult as that of the identification of the plants which yield the four oils known on the London market as "citronella," "lemon-grass," "ginger-grass," and "vetiver." Had I not personally known one of the largest growers and distillers at Singapore, who was as well versed in the Malay and Indian dialects as he was in the cultivation of the plants, I might have been led by text-books to believe in the existence of a great number of plants yielding various oils under many names.

The European and vernacular names are very numerous, but the oils are four (unless rectified or adulterated oils be counted), and the plants yielding them are four (unless a sub-genus, *Cymbopogon*, or varieties somewhat modified by cultivation, be counted).

There are writers who refer back to Dioscorides—even to Jeremiah—but those Ancients mixed up many plants under one poetical name, and led us Moderns into much confusion and dispute (instance, "Spikenard"). Their writings, in language not over rich in botanical terms, are misty and abrupt in expressions, and they have been mauled in translation and re-translation. To Watt's "Dictionary of the Economic Plants of India," published in Calcutta 1889—a very valuable work philologically, botanically, and commercially—I am principally indebted for the vernacular names given in this summary. I only quote a few, as a complete list would be too lengthy.

There certainly is great difficulty of expressing by any combination of the Roman characters or by accentuation the guttural pronunciation, peculiar aspiration, &c., of Arabic, or of the languages and dialects of the East; possibly they might be more easily rendered in German.

A museum-specimen of essential oil should be distilled by the exhibitor himself, as all Oriental oils are adulterated; it should be accompanied by a dried specimen of the plant taken when in flower, a sample of the root, and a drawing of the living plant, also a description of the aspect of the place where found, and its exact local name written in Oriental characters—then, in London, we know it.

However, to summarise on the evidence at present available, the commercial oils derived from the five plants are as follows:—

1. OIL OF CITRONELLA.—This is the *Andropogon nardus* of Linnæus, and is figured in Bentley and Trimens's "Medicinal Plants," tab 297. Synonyms: *A. flexuosus* and *A. coloratus*, Nees; *A. Martini*, Thwaites ("Ency. Ceylon Plants," 361); *Cymbopogon nardus*, Linn. (Pharmacopœia of India). In Rimmel's "Report of the Products Exhibited at the 1862 Exhibion," he wrongly assigns citronella to *A. citratus*; and he is wrong in his names of three out of four of the grasses.

This grass is very common in the plains of the Punjab and North-West Provinces. It is extensively cultivated in Ceylon and at Singapore for the manufacture of the oil from its leaves, and it is abundant at Travancore. As cultivated in Ceylon on Winter's estate near Jalli,* it often attains a height of 6 or 8 feet. The oil from this estate is considered as fine as, or finer than, that from Singapore.†

In Ceylon the citronella grass is raised from seed and planted like guinea-grass. It yields two or three crops a year.(*a*) It is distinghished from the other species by its peculiar reddish tint, short spikes, and narrow leaves. The pure oil is thin, almost colourless, or of a pale greenish-yellow, and strongly aromatic. It is to this oil that the well-known odour of "honey-soap" is due. Very interesting details of recent researches in the chemistry of citronella are detailed by Mr. Dodge,(*b*) mention being also made of Professor Fluckiger's discovery of the peculiar property possessed by this oil, and that of *A. citratus*, of solidifying, with evolution of heat, when shaken for ten minutes with a saturated solution of sodium bisulphite. It seems probable that the essential oil from a given plant may not only vary in density and boiling-point according to the age of the oil, but according to the age of the plant, the season when gathered, and the soil in which it was grown.

It is well known to the trade that in the East citronella is largely adulterated with kerosene, large quantities of which are imported in Ceylon, in great excess of the requirements for illuminating purposes. Samples have been found to contain 18 per cent. of this adulterant. Many common fixed oils are also used.

2. OIL OF LEMON-GRASS.—This is derived from the *A. citratus* of De Candolle. Syn., *A. schœnanthus*, Wallich, Plant. As. Rar. III., tab. 280.

The vernacular names, "Gandha-benâ" (Bengal) and "Malutrinukung-bhûstrinung" (Sanskrit), are, by Roxburgh,(*c*) given to a plant he describes as *A. schœnanthus*, Linn. This description may be referable to *A. citratus*, De C., but it seems to agree equally well with the *A. Laniger* of Desfontaines.

It is a large, coarse, glauceous grass found under cultivation in various islands of the Eastern Archipelago, and in gardens over an extensive tract of country in India. It very rarely flowers, but Dr. Dymock, of Bombay, states that he has seen it in flower more than once. It is largely cultivated in Ceylon and Singapore for the odoriferous oil distilled from the leaves, which is called lemon-grass, verbena oil, or Indian melissa oil.

The oil is employed in Europe as an ingredient in perfumes, very considerable quantities being used in the manufacture of eau de Cologne. It is also used for adulterating the so-called "true verbena oil" obtained from the *Lippia citriodora* in Spain. This plant is sometimes called *Aloysia citriodora*, and it is certainly not a verbena plant at all. Oil of lemon-grass is said to be called *Sireh* in Java, but that word may apply to the oil of *Tetranthera citrata*, a Javanese plant of similar odour. This "verbena" odour is also developed in *Eucalyptus staigeriana*, *Eucalyptus citriodora*, and *Backhousia citriodora*, Australian plants, from which oils are distilled.

3. VETIVER OR CUS-CUS.—This is the root of the *Andropogon muricatus*, Retz. Syn. *A squarrosus*, Linn.; *Vetiveria odorata*, Virey; *Anatherum muricatum*, Retz; *Raphis muricatus*, Nees; *Phalaris zizanoides*, Linn.

There is a verse in the Sanskrit language composed of nine words, arranged in two lines,(*d*) purporting to be the nine names under which the plant is known; doubtless they were poetical names, as they are not to be found in the extensive list of local names recently enumerated by Watts.(*e*)

The roots are universally known in Bengal as "Chas" or "Khas-Khas," and in Bombay as "Khasa-Khasa." It is a perennial, tufted grass, very conspicuous, tall and erect. It is very common in every part of the coast of Coromandel, Mysore, also in Bengal and Burma, where it meets with a low, moist, rich soil, especially on the banks of water-courses. It covers large tracts of waste land in Cuttack. It inhabits the plains of the Punjab and North-West Provinces, and ascends into Kumaon, 1,000 or 2,000 feet in altitude.(*f*) It is also found in Mauri-

* Gallo!—ED. *T. A.*

† In the London market "Winter's" oils rank in value somewhat below "Fisher's" Singapore oils.—ED. *C. & D.*

a Tropical Agriculturist, iii. p. 58.
b American Journal of Chemistry, XI., 1889, No. 7, p. 456.
c Rox. Flor. Ind. Serampore Edn., i. p. 278.
d Asiatic Researches, iv. p. 306.
e Dict. Economic Products of India. Calcutta: 1889.
f Duthie's *Grasses of the North-West Provinces.* 1883.

tius and the Philippine Islands, and, excepting lemon-grass, is probably the only species of the grasses under discussion occurring in the New World, being abundant in the Antilles, Porto-Rico, Jamaica, Brazil, &c.

It was observed by Virey,*(g)* that the word *ver* in the Hindu language means "a long, creeping root." The roots of this grass closely resemble in appearance the roots of the "Chiendent-á-balai" (*A. Ischæmum*, Linn.), roots which are used for making carpet-brooms, being long, thin, and creeping, with a bark of a pale yellowish brown or light tawny colour. The roots extend in a fibrous tangled mass. In the "Gazetteer of the Central Provinces" this grass is described as a nuisance to the agriculturists, as it grows on the rich soil and is very difficult to eradicate, but the "Oudh Gazetteer," III., p. 176, says—"it is generally strictly preserved, as it takes time to spread, and proprietors are averse to its being dug up for Khas." This seems to indicate a different value being put on it in the different localities within the wide range of its growth. This plant is alluded to on some copper-plate inscriptions discovered near Etawah, south-west of Agra (dated A. D. 1103 and 1174), as being one of the articles of commerce on which the Kings of Kanauj levied taxes.*(a)*

The leaves are inodorous. The roots have a strong, peculiar odour, somewhat like myrrh, combined with that of some flower. This odour partly dissappears when the root is dried, but immediately manifests itself on the application of moisture, and is retained so tenaciously as to be perceptible after the root has even been scalded, or partly boiled; they contain a resin of a deep brown colour, having an acid taste and an odour like myrrh, a colouring matter partly soluble in water, a free acid, a salt of lime, a considerable quantity of oxide of iron,*(b)* and a powerful volatile oil, which is rather difficult to extract thoroughly in the ordinary way by reason of its high boiling-point and its association with the resin; this difficulty may be overcome by placing the root in a steam-jacketted still with just sufficient water to drench it, and allowing it to stand for a short time, so that the water may penetrate into the tissues. Then, by admitting steam of about 15 lbs. pressure into the jacket, the light oil (for there is a light oil of a lower boiling-point) will come over and may be collected seperately, and a current of steam of 15 lb. gradually raised to 25 lb. pressure afterwards admitted into the still by a pipe at the bottom can be blown through the mass until oil ceases to drop into the receiver. Dr. Piesse, in his work on perfumes, states the yield to be 10 oz. per cwt.; but, according to Watt, (*c*) the yield of 100 lb. of root is only 2 oz. The crude heavy oil is very viscid, of a dark brown colour, consisting mainly of a liquid boiling at 280°-283° C. Dr. Gladstone found that the action of sodium proved this to be a mixture of two bodies, the one decomposable, the other unalterable by that metal. He states the sp. gr. at 19° 5 C. to be 1·007. *(d)*

The uses of vetiver in England are confined to the distilation of the oil, which commands a very high price. The oil enters into the composition of many favourite perfumes, as "Mousseline des Indes," "Maréchal," "Bouquet du Roi," &c., and it is known that in India the roots are woven into fans, screens to cool the atmosphere, ornamental baskets, &c. Dr. Irvine, in his medical topography of Ajmere, mentions the oil in the preparation of sherbet. In India it enters into the composition of several cooling medicines. An aromatic bath is prepared by adding to a tub of water the following substances:—Roots of *A. muricatus*, *Pavonia odorata*, santal-wood, and a fragrant wood called "Padma Kastha."*(e)* The oil is administered in 2 minim doses to check vomiting in cholera. Mixed with benzoin, and smoked in the form of cigarettes, it relieves headeache.—Watt.

4. GINGER-GRASS OIL, OR GERANIUM OIL.—This is derived from the leaves of *Andropogon schœnanthus*, Linnæus. Syn. *A. Martini*, Roxb.; *A. nardoides*, Nees; *A. pachnodes*, Trinnius;*(f)* *Cymbopogon Martini*, Munro; and *A. calamus aromaticus*, Royle. *(g)*, *(h)*. *A. Iwarancusa*, Schultes, is identical with, or a mere form of, *A. schœnanthus*, Linn.

This plant has many names in India, such as Agyaghas, Ganda-bena, Mirchia-gand, &c., fully detailed in Watt's "Dictionary of Economic Products," i. p. 249. The oil is known in commerce under a variety of names, such as: in England, ginger-grass oil, Turkish oil of geranium, Rusa-grass oil, oil of Nimar, or Nemaur. In the otto-producing districts of the Balkan it is known to Europeans as essence of geranium and oil of Palma-rosa; in India it is called Rusa-oil, Roshel, Rusa-ka-tel; in Egypt, Arabia, and Constantinople it appears under the names of Idris-Yaghi and Entreshah, names which may mislead to the belief in a variety of oils produced from several plants. These names seem to be mostly of modern origin, and to indicate the use to which the oil is put. As pointed out by the authors of the "Pharmacographia," these names look very like a corruption from *Rose-oil*, the more so since the principal consumptiou is as an adulterant of otto of rose. It is curious, however, that, as stated by Dr. Dymock, the Indian distillers and dealers know nothing of this use. The name "geranium-oil" has caused much confusion with the true geranium-oil, derived from various species of *Pelargonium* (which will be afterwards described), and has apparently come into existence from the fact that the so-called "geranium grass" oil is used to adulterate the true geranium oil, which, in its turn, is used to adulterate the otto of rose. The grass is found growing wild in large tracts in the northern and eastern provinces, particularly in the north-west provinces of the Punjab; it is abundant everywhere in the Deccan, in Central India, and is cultivated in Kashmir in localities formerly devoted to the rose. Dr. Roxburgh states that he first noticed the plant as grown from seeds forwarded to him by General Martin, collected at Balaghat during the last war with Tippoo Sultan.

The grass flowers in October and November, and is then fit for cutting. Dr. Dymock says that 373 lb. of grass received from Khandesh and submitted to distillation under his own superintendence in Bombay yielded 1 lb. 5½ oz. of oil.

The "Bombay Gazetteer," III., page 251, gives an interesting account of the manner in which Rusa oil used to be prepared at Panch Mahals:—"The grass-oil from the large-bladed aromatic grass known as Roisa, which used to grow over large estates of waste land, was sold in considerable quantities at 4 rupees per lb., and used freely as a remedy in rheumatism . . . The oil was extracted by distillation; a rough stone oven was built by the side of a stream, and in it a large metal cauldron was placed, filled with bundles of grass and water; a wooden lid was put on, and sealed with a plaster of ground pulse. Through a hole in the lid one end of a hollow bamboo was thrust, and the other end passed into a smaller metal vessel securely fixed under water in the bed of the stream. The oven was then heated, and the vapour passing through the hollow bamboo was, by the coldness of the smaller vessel, condensed."

Apparently the first mention of the oil was by Maxwell, in 1825 *(i)*; but it is only within comparatively recent times that the oil has become an article of commercial value.

From the fact that the largest supplies of Rusha oil are obtained from the Nimar district, at Khandesh, Bombay Presidency, the oil has come to bear the commercial name of Nimar, Nimaur, and Namar. Dr. Dymock, describing the manufacture in this district, states that an iron still is used, and only a very small quantity of water added to the grass; when the still is carelessly worked the grass burns, and communicates a dark colour to the oil, which should be a pale-sherry colour when good. Its odour at first recalls that of the rose, but this sensation is almost

g *Journal de Pharmacie*, xiii. p. 499.
a Proc. Asiatic Soc. Bengal, Aug. 1873, p. 161.
b Vanquelin's *Annales de Chimie*, lxxii. p. 302.
c Watt's *Dic. Chemistry* 1868. v. p. 999.
d *Journ. Chem. Soc.*, Jan. 1872.
e *Hindu Mat. Med.*, p. 271.
f *Trin. Spec. Graminum*, iii. t. 327.
g *Illust. of Bot. Himalayan Mountains*, i. p. 425 t 97.
h Ventenat's *Jardin de Cels*, t. 89.
i *Calcutta Med. and Phys. Trans.*, i. p. 367.

immediately followed by a strong odour of lemon or citron. By rectification it is rendered perfectly colourless, and the odour of lemon is less marked. It is exported from Bombay to the Red Sea ports (chiefly to Jeddah), to Constantinople, Trieste, and London. Before being sent to Turkey, which absorbs the great bulk of it, large quantities are sent to Paris for rectification. In Turkey it is subjected to special treatment, which appears to render it more fit to mix with otto of rose without betraying its odour. This consists in shaking it with water acidulated with lemon juice, and then exposing it to the sun and air. By this process it loses its penetrating after-smell, and acquires a pale-straw colour. This process was described by Mr. Baur, of Constantinople.*(j)* As found on the London market, it varies greatly in quality. A distinction is often made commercially between oil of Palma Rosa and essence of Indian geranium, although both are identical products of the same plant. The first is probably only a superior quality, or contains a small addition of oil of pelargonium.

For some years past an essence of geranium has been received from Java, possessing all the characters of Palma Rosa, but its exact botanical origin and method of production are unknown.

An oil termed "Huile Essentielle de Pataque Malgache" has been introduced from the island of Reunion, described as distilled from *Andropogon fragrans*, with an odour identical with Indian ginger-grass oil. *(k)*

Dr. Blondel, in his elaborate work on "the odorous principle of the rose,"*(l)* states that the oil known as essence of geranium (and it may be remarked, in passing, that he wrongly attributes this oil to the *A. schœnanthus*, of Wallich) is largely adulterated in India, in the districts where it is distilled, frequently to the extent of 20 per cent., with the oils of gurjun and coker-nut, and that on its arrival in Europe it is submitted to another adulteration with turpentine.

Dr. Dymock states that he has been assured by the Bombay dealers that all the geranium oil of commerce is more or less adulterated, and a comparison of the commercial article with some oil distilled by himself supported the assertion. The distillers are said to be regularly supplied with turpentine from Bombay. It appears that the Kandesh Rushr oil is also adulterated with ground-nut, rape, and linseed oils. With turpentine and ground-nut the resulting turpidity passes off in a day or two; hence they are preferred, and turpentine is chiefly used because it cannot be detected by the evaporation test. Consequently I aver that whatever tests be applied to otto of rose, in presence of such wholesale *adulteration of its main adulterants*, it is hardly possible to put reliance on such tests. The difficulty of obtaining the otto pure is still increased by the chance of its being even further manipulated in Paris, or in London, with sandal-wood oil, cedar-wood oil, castor oil, stearoptene, and alcohol.

The addition of geranium oil to otto of rose was formerly only made in Constantinople, but now the mixing takes place at the seat of the manufacture of the otto. It is said that in many places the roses are sprinkled with it before being placed in the still. This probably makes a more perfect "blend."

Although the introduction of geranium oil into Bulgaria is now forbidden by the Government, it is still brought in secretly by Jews and Greeks.

If any large dealer or wholesale merchant in London were to establish a rose-farm and good stills in a locality untainted with this Eastern fraud (and such localities might be found near Damascus, or in Tunis, where the climate and soil are eminently suitable to the growth of the rose), it is possible that under competent and honest English management, a business could be constructed which would result in large profit. I am not aware that such has been attempted or suggested yet.

A perfectly pure otto of rose should congeal in ten minutes, at a temperature of 14° to 16° R. The oil of ginger-grass does not solidify by cold, hence the Turkish merchants prefer an otto from mountainous districts, rich in stereoptene, and, therefore, capable of bearing a larger amount of adulterant without interfering with its tendency to crystallise when the sample is placed in cold water. Mr. Baur's paper, above referred to, details these methods of testing the otto.

Medicinally, this oil is used as a liniment in chronic rheumatism and neuralgia, and it is believed to have the property of curing baldness.

5. CAMEL-GRASS.—This aromatic grass seems to be very little known in England by name, and its essential oil does not appear to be known at all. Botanically it is *Andropogon Lanigerum* of Desfontaines. It is identical with *Fœnum camelorum* and *Juncus odoratus*. It has been termed *Cymbopogon Laniger*, and it partly agrees with Roxburgh's description of *A. Ivarancusa*. It has long been known to pharmacists in the East as *Herba schœnanthus*, and is figured by Pomet in his "Histoire des Drogues" as "squenanthe."*(m)*

In Bengal it is known as "Ibharankusha," in the North-Western Provinces (amongst other names) as "Ganguli-ban." The name in Bombay and Arabia (for the culms of the plant, with or without a portion of the root) is "Izkhir." This name, as given in the best lexicons, is derived from the same Arabic root which furnishes the derivative "Zakhira," a common term in India for stored-up forage &c. The name *Fœnum camelorum* signifies its use as a forage for camels. It is a native of Arabia, growing plentifully in the desert and in the hot, arid regions of Algeria. The Arabians call it "Helsi Meccavi" and "Idhir Mecchi." It is said that in the deserts between Syria and Egypt it is the only grass eaten by camels. This plant has a wide distribution, but is not cultivated. It is found growing on the lower Himalayan tracts and in Thibet at an altitude of 11,000 feet, extending through the plains of the North-West Provinces to Sind. Roxburgh says it grows in large tufts, each tuft composed of a number of plants adhering together by the roots. This description corresponds with Pomet's figure alluded to above. It is common about Kurrachee, and is used as a perfume by the natives.

Lemery, commenting on Pomet, says that this "*Fœnum camelorum* is a kind of fragrant rush, or grass, growing plentifully in Arabia Felix at the foot of Mount Libanus, where it serves for fodder and litter for the camels. The stalk is about a foot high, divided into several hard stems, of the size, figure, and colour of barley-straw, being much smaller towards the top. The leaves are about half a foot long, narrow, rough, pointed, of a pale green colour. The flowers growing on the top are ranged in double order, small, hairy, or a carnation colour. . . . . all the plant, and particularly the flower, is of a strong smell and bitter taste." This plant is also figured in Plukenett's "Phytographia," 1691, tab. 109, fig. 1.

"ALGERIAN GERANIUM OIL" is derived from three species of *Pelargonium*:—The *P. odoratissimum* (Willdenow) *(n)*; the *P. capitatum* (Aiton) *(o)*; and *P. roseum* (Willdenow *(p)*—a variety of *P. radula*, (Aiton). *(q)*.

These plants are cultivated in open fields in many parts of Algeria—notably at La Trappe de Staoueli, near the Bay of Sidi Ferruch, at Castiglione, at Sahel, in the good red soil consisting of a decomposition of micaceous schists, *(r)* at Boufarik, at Blidah, at Grand Cherakas and at Guyoville, in the environs of Constantine, and in the plains of Metidja, close to Algiers. The average production of Algeria is about 6,000 kilos; the price per kilo, varies from 45f. to 60f., according to quality and yield. Originally the plants were cultivated on dry, arid slopes, where they were stunted in growth, but yielded a perfume of great delicacy. Now, on the contrary, the plantations are established on low-lying and rather humid soil, which yields three crops annually instead of one. By a system of irrigation which flood the plantations, the proprietors force the growth of the plant to a

j Baur's *News Jahrbuch für Pharm.*, Jan. 1867.
k Schimmel & Co.'s Report for Oct. 1889.
l Blondel's *Les Produits Odorants des Rosiers. 1889.*

m Pomet's *Hist. des Drogues* 1694, p.
n Cavanilles's *Monadelphiæ Dis.*, iv. t. 103, fig. 1.
o Andrews's *Coloured Engs. of Geraniums.*
p Botanists' Repository, 173.
q Botanical Mag., t. 95.
r Exp. de Paris 1878, *Cat. Spéc. de l'Algérie.*

height of about 30 inches, and nearly an inch thickness in the stem. Under these conditions the oil is produced in much greater abundance, but the quality is sensibly inferior.

In my recent article on "Lavender" I pointed out the immediate effect of a moist soil on the secretions of a plant which prefers a dry soil. The above remarks, which I translate from Blondel, not only confirm the observations of my own short experience, but they are in accord with the observations of Linneus.

This irrigation process is now so general that for one hectare of land cultivated "dry," 200 hectares will be found "irrigated." The very superior product of the "dry" method is rarely sold separately, but is generally mixed with common oil (called "Geranium irrigué") to ameliorate the quality.

Ordinary stills are used for the distillation, which is carried on during the whole time of each harvest. It is estimated that 300 kilos. of the plant yield 1 kilo. of oil. "The plant is gathered a little before the opening of its flowers, when the lemon-like odour which it at first possesses gives place to the odour of rose —this critical point is recognisable by the leaves beginning to turn yellow. The oil is formed entirely in the leaves and all the green parts of the plant, the petals yielding no odorous product whatever, but in order to waste no time in detaching the flowers they are put in with the branches." The odour which may be thought to be perceived in the flower is simply due to the secreting organs in the calyx and peduncle. The pelargonium is also cultivated and distilled in other counries: in Spain (near Valencia), Italy, Corsica, the Island of Bourbon, and in Provence. The Spanish oil is considered the finest (probably owing to the fact that the plantations are not "irrigated"); the plant which produces it is not known with certainty, but it is said to be the same as the Algerian plant. The oil from Provence ranks equally as regards quality with the Spanish; a "superfine" oil is also manufactured in Provence by adding rose petals to the still. The Corsican oil is only exported in small quantities, but the Bourbon production annually increases in importance. Oil of pelargonium should be perfectly soluble in all porportions in alcohol of 70 per cent.(*s*) There are other pelargoniums of a rose odour, as *P. graveolens*, Aiton.(*t*) The *Rhus aromatica*, Aiton, or fragrant Sumach, has been described by Harper (in *American Journal of Pharmacy*) as possessing an odour similar to rose geranium. An artificial oil of pelargonium was produced some years ago in London by a German chemist, but the method of production was not, that I am aware of, disclosed. The discoverer presented me with a sample, which now, after about twelve years, compares very favourably with a sample of Provence oil of pelargonium put aside with it. The first has developed a faint odour of chloroform; the second has turned rancid, probably owing to decomposition of a fixed oil adulterated with it.

There are several artificially prepared liquids known in chemistry, possessing an odour somewhat like pelargonium and rose, such as citronellyl alcohol, salicylate of ammonium, and benzoate of phenyl. These compounds are somewhat troublesome to make, and may be more expensive than the natural oils; also they may be unstable and apt to decompose by admixture with other bodies for perfumery purposes; but yet they are suggestive, and an exact knowledge of the composition of the natural oils may lead up to a method of producing them synthetically.—*Chemist and Druggist.*

IRRIGATION COLONIES IN AUSTRALIA.

By Mr. C. G. Palmer, Executive Engineer, N.-W. P., Irrigation Department.

I have been for years on the look out for an opening in a good climate where my sons can be given a good start, and I may spend the evening of life in profitable light work and pleasant surroundings. By the advice of an eminent hydraulic engineer, who has a successful record in both Australia and Europe, I went up the river Murray and looked at the Chaffey irrigation colonies recently started at Mildura (in Victoria) and Renmark (in South Australia). My friend is a man of very wide experience, and was greatly impressed with the material and social advantages obtained by settlers in these colonies. I went up a sceptic and inclined to look upon the whole thing as a gigantic swindle, but careful examination on the spot convinced me, as it convinced my friend, that the scheme is sound in every detail, and those who join in it will get high profits and a most pleasant social life.

Messrs. Chaffey (George and W. B.) are Canadians who emigrated to the States many years ago; they gained experience and made money in the irrigation colony of Riverside, S. California, then founded and made more money in the irrigation colony of Ettiwanda, and again in Ontario, both in San Bernardius, S. California. While working Ontario their attention was invited to Australia, and they came out here, prospected the country, obtained large concessions from the Governments of Victoria and South Australia, and started Mildura in 1887 and Renmark in 1889. Both colonies are on the Murray, the area conceded for each settlement amounts to 250,000 acres, of which about 170,000 is irrigable in each case; the colonies are within 250 miles of the sea in a direct line, situated in south latitude 34½, and have a very large proportion of exceedingly rich land most suitable for irrigation. The rainfall is as a rule just under 10 inches. The climate is absolutely charming for nine months, and hot for three months; but the heat is dry and invigorating, and at its worst is like the early hot weather of the N.-W. P. in April. Settlers there are perfectly satisfied with their climate, and go about in straw and felt hats in their hottest weather. Here, as elsewhere in Southern Australia, the heat makes itself felt, but does no injury, and the sun does not penetrate as it does in India.

The schemes are now made into limited companies, in which Messrs. Chaffey have a preponderance of power, and manage all affairs in consultation with a board of directors. The method worked on is to lay out a thousand-acre township of one-eighth acre blocks, and around it a ring of 2½-acre villa sites, and then lay out the remainder of the country in 10-acre fruit blocks; every fruit block has road frontage of 660 links (435⅓ feet) and depth of 1,515 links (1,000 feet). Two main avenues are laid out and numerous roads; pumping engines of enormous power erected, canals and distributaries or pipes laid everywhere, and as soon as any land is sold water is brought up to the *highest corner* of every 10-acre block, or laid on in pipes to every township and villa block. The company then offers the whole for sale, the township lots at £25 each, the villa sites at £100 each, the 10-acre fruit blocks at £200 per block, less 2½ per cent for cash down. The township lots and villa sites have a separate house supply water-service: the fruit blocks have irrigation water-supply pumping plant on a very large scale. Township and villa lost are nearly all sold; they carry with them shares in their own water supply plant. Fruit blocks are for sale in large numbers. A purchaser may buy one block, or up to eight blocks; but not less than one block nor more than eight can be sold to one person. Of course a man may buy eight blocks for himself and eight more for each member of his family, but it would not pay him to do so, because no method has yet been found of profitably carrying on *intense culture* on a large scale. In practice 40 acres is about the area a man can really work to the best profit. Two partners can buy a single block and divide it. If a man has sons coming on he can profitably take 80 acres or more.

Ample water rights have been secured from the Governments, and the irrigation work of each colony is thrown into the form of Irrigation Companies. Messrs. Chaffey erect pumps and all plant and perform the work, but each buyer of land receives one fully paid-up share in his Irrigation Company (Mildura Irrigation Company or Renmark Irrigation Company)

s Jailard *Journ. de Pharm.*, xxvii. p. 205.
t L 'Heritier's *Geranialopia*, t. 17.

with each acre of land he purchases, and he becomes owner of the plant to that extent. These shares can never afterwards be separated from the land. In process of time the whole management will fall into the hands of the settlers; till then Messrs. Chaffey manage the irrigation. They have already put up about the biggest pumping plant in the world at Mildura, and are lifting their water at a cost of about a penny per 1,000 cubic feet per 40 feet lift. The present annual water rate is 6 shillings per acre occupied, and it will probably not exceed 10 shilling at any time. With each acre sold there goes a share in the Irrigation Company, and to each share is attached the liability to water rate, so that a buyer on speculation may leave his land idle, if he so wishes, but he pays the annual water-rate of 6 shillings whether the land is idle or cultivated: this does not pay the mere speculator.

The Company is making canals, roads and bridges, has put up foundries and workshops; at Mildura it has commenced an Agricultural College, which the Government concession binds it to endow with one-fifteenth of all the irrigated land; the Renmark College will follow very soon. It has imported powerful machinery. A canning and raisin drying and packing factory is already started at Mildura; another will follow at Renmark. Electric lighting and telephones are in use. Telegraphic communication is established with both Melbourne and Adelaide. Special freights are already obtainable by the colonies, and when they are fairly developed they will be able to charter their own fleets and trains.

The Messrs. Chaffey have imported skilled irrigators, fruit canners, raisin finishers, machinery, and packers from California. There are enormous nurseries of vines, prunes, zante currants, apricots, olives, &c., already established. The *mass* of their combined products will give the settlers an enormous advantage in marketing, in freights and cost of handling: the finishing and packing under skilled supervision with the best appliances will give them the first place in every market they enter. * * * *

Thus it is that the purchaser buys not only rich land and all its irrigation plant, but he buys with it good roads and every advantage in preparing and marketing his product. He reaps the rewards of a pioneer and does not suffer the solitude, the hardships, the painful burden of purely individual labour which beset the ordinary pioneer. He may earn money elsewhere while his orchard or vineyard is growing. On the other hand, the promoters concentrate all the work in a comparatively small area, and can do everything very economically, and probably spend under £14 an acre on the land: the remainder of the value is given by their organisation, their careful planning and unremitting work. The Messrs. Chaffey are singularly capable men, as engineers, as financiers, as organisers they are hard to beat; the Californian irrigation colonies founded by them at Ettiwanda and Ontario have been conspicuously successful, even in that country of irrigation colonies, and if they do make £6 an acre by it they not only thoroughly earn the money, but also help others to make a great deal more than that. And mark this; their initial expenses are enormous: for instance they have already expended quite £100,000 on irrigation plant alone at Mildura, and these cannot be recouped if much of the land remains unsold: they *must*, therefore, make it pay the purchaser, and it is to their interest to add every material and social attraction in order to quicken the stream of settlers, for the faster they come in the sooner is the return of money spent: they are therefore ruined if these schemes are not founded on sound lines, and have put their own fortunes to the stake. I am as absolutely sure of the soundness as they are themselves.

Oranges and lemons give about the highest ultimate profits, but cost most to put in and take five years to good bearing, as against four years for vineyards and most other fruits. * * * *

Oranges will cost £110 more to plant, and require another year's outlay before good returns come in; 10 acres of oranges and lemons in bearing may thus be estimated to cost £640. For this outlay you can reckon on a minimum net return of £150 per annum from grapes, and certainly £200 per annum from oranges and lemons, even if you use hired labour for the whole of the work, which no man should do. A man who took over the orchard into his own hands after the first year could save most of the expenditure afterwards, and get a higher return by selling cuttings, growing a little lucerne, &c. Thus a father who lays out £1,000 on 20 acres for his son puts the young man into an assured £300 a year, with light out-door work in a pleasant climate, amid the most favourable social surroundings. A man who lays out £2,000 on 40 acres for his declining years, and spends £1,000 in a house, has a valuable estate bringing in well over £600 a year to leave his children, has interesting out-door work, and a most social life. If he has daughters they will not stay with him long, but need not go far, as the country will be thickly settled with thriving young men who seek for wives, as young men will do.

The social life is a peculiarity of these settlements; nearly all the men have money, some have a good deal, an extraordinary high proportion are men of birth and education. At Mildura Lord Ranfurly has put in about 200 acres for himself and sons, and there are several retired Melbourne merchants and numbers of young college men settled down already. Renmark is behindhand in extent, but Lord Deramore has taken up a large piece, and several retired military men are at work already too. A steady stream of settlers, well-to-do and mostly gentlemen, has set in from England. There is rabbit and duck shooting to any extent; the great cost of fencing is due to the number of rabbits about, as they have to be kept out by strips of 1½ inch galvanised iron wire netting. There is fishing in the Murray (a noble river here, over 1,000 feet wide) mostly bait I fear. I saw several great Murray cod pulled out, 3 to 12 lb., and excellent eating. I saw a lot of smaller fish rising in a back water one golden evening, and there may be a lot to be done with fly and spoon.

It is to be noted that a great number of successful and enterprising colonial fruit and wine growers have started places for themselves or their sons. Taken all in all I have seen nothing like it, nor heard of anything equal to it, either for one's own old age or for a man's sons and daughters. There is one kind of man who must *not* come here, that is the man who cannot get on without first-rate domestic servants; such things are not to be had; the people are too rich, any decent looking girl with housewifely qualities will marry about as soon at she likes, and marry into a comfortable house of her own. A man's great stand-by must be his wife and daughters (till marriageable) if he has no womenfolk he make an arrangement (or marries) for his meals, and wants no servant in the house. Domestic life is simple and rural. For young men there is constant foot-ball, cricket, bicycling and all manner of out-door amusements; for all there are libraries, reading rooms and plenty of society. Every man is busy all day, and busy with a pleasant sense of being uncommonly well paid for it. The current wages in ordinary work are 6*s.* 6*d.* to 9*s.* per day.

Figures regarding Mildwa.—The agreement with the Victorian Government was signed on 21st October 1886, and Messrs. Chaffey began real work on the place in August 1887, having by then got out machinery and put up temporary sheds of sorts. Up to end of June 1891 the company had altogether expended £198,000 on permanent improvements, and their average pay sheets are £7,000 per month for wages alone. One of their pumping engines is a triple-expansion four-cylindered engine of 1,000 indicated horse power, directly driving four centrifugal pumps of 6 feet diameters, with 20-inch inlet and outlet pipes, and from which four such other pumps are to be driven by belts when required, the whole plant being capable of throwing 120,000 to 140,000 gallons per minute when required. There are four traction engines for scarifying, three for grubbing up trees. The Agricultural College foundations are laid, and the building will cost £5,000. The Mechanics' Institute under erection will cost £3,000. There are 300 miles of channels made, 130 miles are from 8 to 25 feet wide and the remainder small distributaries. Cementing the beds

and sides is in hand. The permanent building for a canning factory about to start will cost £2,500. In August 1887 there was but one old squatter's house and a few huts, also 15 tents occupied by intending settlers. There are now over 500 houses and 3,150 inhabitants. The Shire Council, constituted in January 1890, gives the reteable property at £40,000. The customs revenue last year (goods imported in bond) was £3,512. Shipping entered and cleared (river steamers and flats) for last year was 113 vessels of 13,192 tons, employing 798 men. There are a post and telegraph office, customs house, state school (cost £3,000 and enlargements shortly to be made), bank, saving, banks, six general stores, numbers of special stores as saddlers, milliners, &c., a coffee palace (cost £4,000,) a foundry, workshops, and steam printing press. One paper, the *Mildura Cultivator*, got up in excellent style is published there. There is no public-house in the settlement, and the law is framed, both here and at Renmark, to prevent the retail sale of liquor. The effect of this is extraordinary, and furnishes an object lesson which will have wide effect in time. The firm has sold all the town lots, all the villa sites, and about 20,000 acres of fruit land: most of it is sold on a system of instalments spread over ten years and involving heavy interest charges. The areas actually planted by the middle of June were—588 acres oranges, 225 lemons, 368½ apricots, 30 peach, 55 olive, 75 fig, 45 prune, 750 raisin vines, 68 wine grapes, 76½ zante currants, 78 various and nurseries, total 2,359 acres. Planting has been in full swing ever since and will go on to middle of September. At least 3,000 acres must be put in this season, and the Company has ordered 1¼ million cuttings from a single firm in Adelaide alone. Several tons of raisins were turned out this year. The characteristics of Renmark are the same as those of Mildura except that the place is newer and the land is not so high above the river, the irrigation will therefore cost less and blocks near the river are still available for purchase. Of the parts that I saw there was a larger proportion of the very best land in Renmark than at Mildura: and taking it all in all I agree with the more recent arrivals from England, who are mostly selecting land at Renmark. Compare the life of a young man started in one of these, with the man who has made an average start in any profession. Compare the cost of starting a young man here with the cost of bringing him up for one of the professions; and compare the average results of the two starts in life! I do not expect all this to have much weight on my single report and advise further reference to the following papers:—

1.—The Australian Irrigation Colonies: a pamphlet containing reprints from official reports of the Victorian Water Supply Department, and from Australian newspaper reports.

2.—The July number of the Adelaide *Garden and Field* containing the South Australian Agricultural Bureau's report on their recent visit to Mildura and Renmark. The members of this Bureau are all practical men, engaged in growing fruit, wine-making, farming, cheesemaking, &c., or business in connection therewith.

3.—Specimen number, July 1891, of the *Mildura Cultivator*, printed and published at Mildura.

4.—Memorandum of terms and conditions of sale of the Renmark irrigation lands, issued by the Chaffey Irrigation Colonies Co., Ltd.

I commend these to the most careful attention of Anglo-Indians who are looking out for the same sort of opening that I have been. They contain full information. If several of us were to take contiguous blocks we could save the division fences, or about £14 on every 10 acres. By working together those who are present at any time can look after the interests of the absent, and, as the custom of business is, the combined interests representing a large area will get more consideration than the separate units would and can always obtain sundry convenient concessions. With this view I went very carefully over the land around Renmark, and selected a piece of rich, open, sandy-loam of a strong red colour within three miles of the township, and about two furlongs from the main avenue, which will be the first to have a tram line on it. The soil is in every respect better suited for irrigation than almost any I have seen during over twenty years' experience on Indian canals. There is a small ridge just suited for building on above the irrigated land. The land is lightly timbered with Murray pines and other easily uprooted scrub: it will not cost much to clear. The pine is not attacked by termites or borers, and is therefore valuable for fencing and house building.

Messrs. Chaffey are alive to the probable advantage of getting a number of retired Anglo-Indians with fairly good means to settle on the land, and have courteously marked out a block of 20 acres of this land which they will reserve for applicants through me for one year, *i.e.*, up to the end of July 1892, but on the condition that the purchasers of this reserved land buy *for ready money*. Adjoining this is the land of Lord Deramore; in, I think, slightly inferior soil. The map of it will reach me a few days hence. There is no fear of losing by the purchase of this land, it will rise in value day by day with the progress of the settlement, just as similarly situated land at Mildura has already done. I wish I had the money to buy and plant the whole of it. The man who puts in a vineyard or orangery at a cost of £45 to £62 per acre, and then does not care to keep it, can easily sell out at a considerable advance whenever he wishes, for settlers—men with money and meaning to buy, are arriving in numbers, six and eight a day sometimes, and money is circulating rapidly. A mere money profit is a certainty, but the splendid open for permanent settlement is what I am looking to. I will be glad to hear from any persons willing to join with me on this reserved 200 acres. Those who wish for independent inquiries can write to the Chaffey Irrigation Company, Limited, King William Street, Adelaide, for all particulars.

The colonies can be seen in ten days from Adelaide, or a very interesting tour can be mapped out to take in Adelaide, the river Murray by steamer from Morgan to Mildura, doing Renmark *en route*, then up the Darling by steamer to take Merrindi, and across by coach to the great silver mines and rising town of Broken Hill, and then back to Adelaide by railway: about £30 will cover the whole trip, with a large margin for extras.

2, Alexander Terrace Glenelg, S. Australia.
—*Pioneer.*

MUSAS.

This handsome group includes several species and varieties of value for conservatory decoration where space is ample, and during the summer some of them are also useful for out-door tropical effects, for which their bold leaves make them particularly desirable. When planted outside, however, the Bananas should have a somewhat sheltered position, for when exposed to the full force of the wind the leaves are often split and torn. These plants are gross feeders and enjoy rich soil, and respond to liberal treatment generally. Another point in their favour is, that they are but little subject to insect pests, unless surrounded by infected plants of other species.

The true Banana, *Musa sapientum*, is rather too large a plant to be included in a small collection, but the variegated form of this species, *M. sapientum vittata*, is an extremely handsome one, and is not quite so rampant in growth as the type. This variety is perhaps the most striking member of the genus, the leaves being oblong in form and the ground color bright green, on which are many stripes and blotches of white. The fruit is of little value, but when planted out in a warm house, and at the same time encouraged in growth by a moist atmosphere and plentiful watering at the root, it makes a very effective specimen. The propagation of this form is accomplished by means of suckers, which, in common with most of the members of this genus, it produces in moderate number.

The Chinese Banana, *M. Cavendishii*, is quite dwarf in habit, and has been frequently fruited under glass, for when full-grown it seldom reaches more than eight feet in height, and has often been fruited when about six feet. Its leaves are from three

to four feet long and one to two in width, forming a rather compact head of dark green color, and the stem is quite stout in proportion to its length. *M. Cavendishii* is also propagated by means of suckers, the latter being thrown up at the time of fruiting, and frequently before this occurs.

M. coccinea is another highly ornamental species, and was introduced from Cochin China many years ago. This species is of comparatively slender growth, and has bright green leaves about three feet long and six inches wide, the entire height of the plant being from four to six feet. The most striking feature of *M. coccinea* is the flower-cluster, which is terminal and about one foot long, and covered with spathes of bright scarlet, making it the most showy member of the genus in this respect. It may be well grown as a pot plant if it be not convenient to plant it out, by giving it a little extra stimulation in the form of liquid manure from time to time.

The Abyssinian Banana, *M. Ensete*, is now well known as a plant for decorative use, either in-doors or out, and is grown from seeds in quite large quantities in some commercial establishments. This is probably the largest species of this genus, the stem sometimes reaching a height of twenty feet, while the leaves are truly immense. The latter are bright green in color, with a red midrib and stem, and stand out boldly in a semi-erect manner. The fruit of this species is of no value except to furnish seeds, these forming the only means of propagation, as *M. Ensete* does not produce suckers. *M. superba* is also a strong-growing species, and bears some resemblance to the preceding, though possibly more compact in habit, and is a native of India. The two last-mentioned are the best species to use out-of doors, their leaves being tougher than those of most of the others, though *M. Cavendishii* may also be used in this manner if it has not been grown in a close, warm house just previous to removal outside. *M. zebrina*, also from India, is another handsome foliaged species, the leaves of which are oblong in shape, and dark green in color, irregularly blotched with bronzy red and purple. The stem of *M. zebrina* is slender, and the plant seldom exceeds ten feet in height. Its peculiar coloring makes it an admirable contrast when grown in company with *M. Sapientum vittata*.

There are some eighteen species in all, but those specially referred to are the most useful for decorative purposes, and are all worthy of more extended cultivation.

Holmesburg, Pa. W. H. TAPLIN.

—*Garden and Forest.*

COPPER SULPHATE AS A FUNGICIDE.—"The various compounds of copper offer efficient protection to many cultivated crops against the exceedingly destructive ravages of fungous parasites. Without treatment these rots, rusts, mildews, and blights, frequently destroy a large proportion of, or even the entire products of field and fruit plantations. The applications, in the shape of watery sprays, are made so readily, and with so little expense in money and labour, that everyone interested should at once undertake the work. The practical results already attained, constitue the greatest advance made in recent times in the application of science to horticulture. A little well-directed effort may be confidently expected to return a hundred, or a thousand times its cost. Still there is need for much vigilance and careful attention to every detail. Mistakes may be made even then, and sometimes failures may occur, for which existing knowledge may offer no explanation. But we should persevere, gain all possible information upon the subject, and watch well the effects in every test. In this way, every one may hope to conquer, practically, these insidious and, heretofore, invicible, foes." Such are the conclusions, after numerous experiments, made by Dr. Burrill of the Illinois Agricultural Station, and they are in conformity with general experience in America and in France. When *will* our people wake up?—*Gardeners' Chronicle.*

BERMUDA IN MAY.

To the Editor of *Garden and Forest.*

Sir,—It is not surprising that the genial climate of Bermuda should attract so many winter visitors from our northern states. A sea-voyage of less than three days, and one which a fast steamer might easily make within forty-eight hours, suffices to bring them to shores that are green the year through, and yet an air so equable that the fervors of the summer sun are rarely oppressive or enervating, because the heat is so constantly tempered by breezes from the sea. The change in the political and social atmosphere is quite as striking, for the American citizen will suddenly find himself in a loyal English colony where even the negroes—perhaps the most active and intelligent specimens of their race to be found in all the world—speak with a perfect English accent where fleet or fortress is forever in sight to manifest the imperial power of Britain, and where a large proportion of the men one meets on the street wear the uniform of her army or navy.

The great mass of those who flee to Bermuda to escape the rigors of winter return in April, so that the impressions one receives from a flying visit in late May may be worth recording, The islands are not at their best until June, it is said, and, perhaps, the time is not far away when this will be a favorite haunt for the summer tourist from New York, who could hardly find elsewhere a week or a fortnight of rest and change so perfect and so convenient as that furnished by a trip over cool seas to these breezy islands.

One need not expect any touch of the sublime in the landscapes here, for it would not be possible to crowd many natural objects which inspire awe by their vastness or sublimity within a long and narrow chain of islands containing altogether an area of some twenty square miles. But the land, what there is of it, is pleasantly diversified in surface, rising at one point to an altitude of some 200 feet; and the ever-present sea of itself suffices to insure every wide prospect against the charge of being tame or commonplace. One charm of the sea, by the way, is its marvellous and indescribable color, for the water over these coral reefs outrivals the azure of the sky in the richness and depth of its blue. There are occasional inland views where, in happy valleys, the sea is shut out of sight by encircling hills, and here, at times, one is reminded of New England, with roads winding along Pine-woods with an undergrowth of Ferns. No Pines are here, it is true, but the Bermuda Cedar, at a little distance, constantly suggests the Pine, and on a nearer view it shows so close a relation to our common Red Cedar that there is nothing strange or unfamiliar in its presence, although the species is confined mainly to these islands. When Juan Bermudez, nearly 400 years ago, was feeling his way along the treacherous reefs which surround them, he saw the islands covered with forests of these trees, which then attained to stately proportions. These forests have been cut and re-cut since, and yet they form the most conspicuous growth upon the island to-day; indeed, the larger proportion of the surface seems forest-clad, for wherever the land is left to itself the Cedar "comes in." It would be naturally supposed from the shiploads of onions and potatoes that reach our markets from Bermuda in the spring that every rod of the scanty territory was under plow or spade, but the visitor's first surprise, and one from which he can hardly recover during a brief sojourn, is, that he rarely finds these articles of export growing in large fields—indeed, an acre would pass for a codsiderable plantation here—but generally in little pockets a rod or so across, where the red soil is deep enough to furnish root-room for the plants, while all about them the rock is thinly covered or thrusts its massive shoulders quite above the ground.

Next to the forests, clothing the hills which slope toward the shore, one who for the first time sails in sight of them through the tortuous channel which leads to Hamilton is struck with the white houses which nestle in their foliage. These are all built of

the light friable limestone of the island, which is so soft that it can be readily sawed into blocks. Even the roofs are made of thin stone plates, and the whole building is whitewashed till it glitters. In spite of this shining color the houses have no staring or obtrusive effect, but being substantial and low they only serve to deepen the color of green about them, making the landscape more cheerful and investing it with a more home-like and human interest.

Once on the land, the roads are among the first objects to invite attention. Very few level acres can be found on the islands, but these old highways adjust themselves most graciously to the contour of the hills and the curving of the shores, winding in and out apparently without purpose or direction. But in so small an area there is little need of railway directness, and one is glad to lose a little time in travel where there is so much of it in a day. At every turn there is a changing prospect, a new arrangement of sea and shore, of cliff and dell, of Lily-fields and Oleander-hedges. Broken pieces of the soft stone spread upon the road-bed at once pack into a smooth surface over which a wheel delights to roll, and its gray tone blends most happily with the prevailing colors of the landscape. And then the fences, which generally are objects whose ugliness needs some excuse, are here a positive ornament. They are walls constructed of the same sawed-stone blocks and cement which are used in all the island architecture, and they would stand for a century here, where there is no forest to heave them, unless they should chance to be crowded over by the roots of some pushing tree. They seem to have been built along the roads generations ago when slave-labor was abundant, standing everywhere square and firm—now as parapets along the brow of some cliff whose base is beaten by the sea, and again as retaining walls against the face of some cutting—usually bare, gray and honey-combed with age, but often draped and garlanded with Maurandy and other vines, or overhung by huge masses of Cactus. They are always picturesque, and, like all solid, hoary and weather-beaten structures, are agreeably suggestive of antiquity. These, then, are the leading features of the landscape which are permanent: a narrow stretch of land, with a rolling and often a rugged surface; bold shores surrounded by a sea of an unspeakable blue; open fields with scant, coarse grass, which leaves them rather brown than green; forests of Cedar with blue-gray foliage; snow-white cottages and a web of roads in a close net-work, uniting with each other at every conceivable curve and angle. Over all hangs a translucent atmosphere which dims the distance, mellows the outline of objects nearer by, and softens away the glare of every intense color. Very beautiful and impressive are the shifting combinations of these simple elements under such a sky.

The efforts of the Bermudians in the past to improve the scenery by planting do not seem to have been as successful as one could wish. So many treasures for gardens in such a climate could be found by searching that one marvels at the scanty catalogue of materials used in the most elaborate places, and yet the gardens are by no means devoid of interest or beauty. Just now the most conspicuous of plants is the Oleander, which grows and spreads with such persistence that many of the islanders count it a nuisance. To a stranger, however, there are few more attractive objects than the great mass which ultimately forms from a single parent stem in rich soil. These are often twenty feet high, with branches arching to the ground in a circle whose diamter more than equals the height—green mounds starred all over with bright flowers which range from pure white through shades of pink to almost crimson in some cases. All that is needed to start an Oleander-hedge is to place a row of cuttings in the ground, and one often sees a broad belt of these plants extending entirely around the boundary of some estate. The Chinese Hibiscus is, perhaps, next to the Oleander in abundance, and it seems equally luxuriant. In many places these plants are sheared into formal hedges, and the great flowers open on the smooth face of this verdurous walls as freely as on the plants which are left to develop into fair-sized trees. *Tecoma Capensis* is another plant which is largely used in hedges, and, just now, it is brilliant with orange-colored flowers, while *T. stans*, one of the most beautiful of yellow flowering shrubs or small trees, is at the height of its bloom. The Tamarisk, here as elsewhere, shows its sturdiness against the salt-laden gales of the sea-coast, and has been planted very largely and with good judgment in exposed places on the shore. The grogeous blooms of *Poinciana regia* had not yet appeared, but its relative, *P. pulcherrima*, was growing and blooming everywhere. Occasionally fine masses of Bamboo are seen, and these, with the native Palmetto *(Sabal Blackburniana)*, the ever-present Banana, and some of the hardier Palms, are the most distinctly tropical features of the scenery, although the Poinsettias, Pomegranates, Bignonias (especially *B. pentaphylla*, known here as the White Cedar) the so-called Sand-plant, *Erythrina speciosa*, with brilliant scarlet flowers on bare branches, and large specimens of the India Rubber-tree wear a strange look to northen eyes. Of course, this is not meant to serve as a complete list of the garden plants of the island, but only to recall those which were sufficiently conspicuous at this season to impress a casual visitor. Space would fail to mention the striking individual plants, like the two fine "Gru-Gru" Palms *(Astrocaryum aureum)* at Mount Langton, but Roses ought not to be omitted, for, although our hardier kinds do not flourish here, those with some blood of the Teas or other tender strains, like Lamarque, for example, were bearing fine flowers in profusion. In the Governor's grounds a superb specimen of *Rosa bracteata* showed that the soil and climate were well adapted to this beautiful species.

How readily some plants will become naturalized when they find favorable conditions is shown by the case of one of the Jessamines *(J. gracile)* which was brought to the islands in 1840. It soon escaped from cultivation, and now it is clambering over the rocks and making an almost impenetrable tangle in the woods of a broken region near the famous Walsingham tract. It is a delightful vine with glossy and fragrant white flowers, and it seems strange that more general use has not been made of it. It would make a charming addition to the landscape if allowed to clamber over the walls along the highways. Occasionally one sees a European Elder, which grows here with great vigor, and is always a beautiful tree. The islanders seem to have caught the European habit of setting it close to the sides of their houses, and it shows to great advantage against their walls. This masking of the house-foundations with shrubbery, however, is no more generally practiced than it is in the United States, but these stone houses would seem to offer excellent opportunities for making such connections with the earth. By one cottage along the road which winds about the north shore stands a pair of Agaves close to the front wall, one on either side of the entrance of a narrow loggia, and the sharp stiff leaves against the white stone produce an effect that no one who drives by them will forget.

All the world knows how extensively the bulbs of the great Easter Lily are cultivated here, and the more beautiful old Ascension Lily, *L. candidum*, flourishes equally well, while Hippeastrums (Amaryllis) and Freesias grow like weeds. At many seasons the fields are brighter than the gardens, but Bermuda is a land of flowers at all times. Our northern states in late May are so attractive that one hesitates about leaving them even for a short absence. But when a few hours can land us amid the vegetation of the tropics, under a new sky and encircled by a strange sea, the change will prove a pleasing one, and the return will bring a keener appreciation of the rare loveliness of our northern spring.

New York. S.

CARBONATE OF COPPER may be made by dissolving 1 lb. of copper sulphate in 2 gallons of water, and 1¼ lb. of soda carbonate in half a gallon of water; mix the two solutions; a brownish powder will be precipitated; the water should be poured off from the precipitate, which is the copper carbonate.—*Gardeners' Chronicle.*

RECENT PUBLICATIONS.

Description et Emploi des Eucalyptus Introduits en Europe Principalement en France et en Algérie. Second Memoire. Charles Naudin. Antibes, 1891, pp. 1-72.

The first memoir published by Monsieur Naudin upon the Eucalyptus cultivated in Europe appeared in 1883. Since that time the veteran French botanist has continued his investigations, and has been able to study a much larger number of species in the garden of the Villa Thuret, over which he presides, and in which he has brought together the largest collection of these trees which has been formed; and in the present paper he arranges fifty-six of them in synoptical tables according to the shape of the leaves, the flowers and the fruit, so that the cultivator of these trees will be able now much more readily than ever before to determine the different species, which have always proved extremely difficult to understand from the fact that many of them appear entirely different in their juvenile and adult states, producing at first leaves of one sort and then later in life leaves of an entirely different shape and character. To overcome this difficulty in the study of the genus Monsieur Naudin has made a special Eucalyptus herbarium, in which are represented all the species cultivated in Europe, by specimens taken at different periods of their growth, and showing all the different stages through which they pass from youth to maturity. In these studies it may be mentioned that Monsieur Naudin has brought to light among the plants cultivated at Antibes no less than thirteen undescribed species, now first made known in this memoir, a fact which shows the value of arboreta and the importance of studying trees in a living state, where different species can be compared with each other and their differences noted.

A few brief extracts from the general considerations which form the first part of this work will be interesting, perhaps, to our readers, especially as different species of Eucalyptus are destined to play, it seems, an important part in the future of California, where many of then have long been successfully grown. "The most interesting things," Monsieur Naudin remarks, "about the genus from the cultural point of view, is the rapidity with which certain species grow, a rapidity which is unequaled by any of our native trees, and the quantity of wood valuable for manufacturing purposes and for fuel which they can produce in a comparatively short time. To this advantage possessed by these trees must be added that of being able to support themselves much farther south than most of our forest-trees of Europe, even to the southern limits of the Algerian Sahara, although the region in which they can be cultivated is extremely restricted on the north. There are certain species, however, natives of Tasmania and of the high mountains of southern Australia, which will succeed beyond the Mediterranean region, and which can be cultivated on the Atlantic coast as far north as Brittany, and even in the south-west of England. In countries with warm and humid climates, especially in equatorial regions at the sea-level, the introduction of the Eucalyptus has so far been a failure. There is reason to believe, however, that there are certain species of the intertropical regions of Australia and of the Malaysian Islands which might be expected to succeed even in the tropics. More than a hundred species are now known, and it is easy to understand that from this number there is a considerable choice to be made, according to the usages for which they are intended. Most of the species are forest-trees, some reaching in a comparatively short time a colossal size. Their principal value, then, is the production of timber, although the value of their wood for fuel is almost as great—a quality which will be appreciated in countries where the absence or high cost of coal is a serious obstacle to the production of metals or to the use of steam-engines.

"Two species may be distinguished among all the others for the rapidity with which they reach a large size; these are *E. globulus* and *E. Mulleri;* and they grow much more rapidly than any of the native trees of Europe. In twenty years these trees attain to the size and height of an Oak a hundred years old. Other species, without growing as rapidly, are still remarkable for the short time they require in which to grow to a size large enough to produce valuable material. Such species are *E. diversicolor, E. marginata, E. crebra, E. botryoides, E. robusta, E. leucoxylon, E. Gunnii, E. viminalis, E. rudis, E. corynocalix, E. rostrata, E. gomphocephala, E. cornuta, E. amplifolia, E. tereticornis,* and *E. polyanthema.* The wood of some of these species is exceedingly heavy, and might be used to advantage for blocks for paving the streets of cities."

"The climate is not all that is necessary to insure the successful cultivation of Eucalyptus. The character of the soil is important. Many species, it is true, are not particular in this respect; others, on the contrary, are apparently very fastidious, and if the soil is not suitable to them they grow badly or soon die outright, either immediately after the seed has germinated or in the course of a year or two afterward. It is difficult to say with our present knowledge what they need, although experience seems to show that granite or sandstone soils suit them, as may be seen on the shores of Provence, where such soils are the most common. It is also necessary that the soil in which they are planted should be well cultivated and freed of other aborescent vegetation. The Eucalyptus cannot bear the neighbourhood of other trees, disputing the possession of the ground and depriving them of the light of the sun. When it is attempted to grow them in the shade, they become drawn up and give unsatisfactory results. No Eucalyptus can grow on land impregnated with salt, and they all suffer when planted so near the sea that salt spray reaches their leaves. Bright light and a free circulation of air is indispensable to these trees, two conditions made necessary by the large amount of water evaporated from their leaves, for it is well known that the Eucalypti exhale a large quantity of water drawn from the soil drained by their roots. Certain species, particularly those which grow naturally in the most arid regions subject to long droughts, store water in their roots and in the lower part of their trunks, which are sometimes enlarged into a sort of bulb, and from which they draw the water necessary for their existence during periods of excessive drought. It is useless to hope that arid rocky hills can be covered with forests of large Eucalyptus, which require for their rapid growth an abundance of soil."

"The seeds of Eucalyptus may be planted at different periods of the year, according to regions and climates. With us the best time is the spring—in March, April or May—for if the seed is sown at that time, the young plant will have sufficient strength to support the cold of the following winter. In forming a plantation of Eucalyptus, it is of prime necessity to decide upon the object to be attained, that the species may be selected best suited to accomplish it. If, for example, it is desired to obtain timber in as short a time as possible, *E. globulus, E. Mulleri* or *E. gomphocephala* should be planted. If very heavy wood is desired, then *E. marginata, E. rostrata* and especially *E. polyanthema* should be used. If it is a question only of obtaining handsome trees for the decoration of parks or avenues, one would choose naturally the species most remarkable for the beauty of their growth, for the dense shade cast by leaves and by their abundant flowers, such as. *E. robusta, E. carnuta, E. botryodies* or *E. leucoxylon.*"

These short extracts will give, perhaps, an idea of the scope and character of Monsieur Naudin's contribution to dendrological science. For the full account of the Eucalyptus, as known in Europe, however, we must refer our readers to the paper itself, which, it seems to us, might with great advantage be reprinted in this country for the benefit of the rapidly increasing class of people whose homes are in southern California, where the cultivation of these trees is every year becoming a more important industry. —*Garden and Forest.*

THE INDIARUBBER TREE.

To the Editor of *Garden and Forest.*

Sir,—Referring to the article upon the Indiarubber tree published in your issue of November 13th,

it is, perhaps, worth while to call attention to the ease with which that beautiful tree can be propagated for cuttings. As is well known, it is only necessary to take a piece of a branch and insert it into moist sand and to protect the cutting with a bell-glass to secure a rooted plant; but it is less well known, perhaps, that the last articulation of the branch is capable of making roots much more quickly and readily than those lower down. Mr. Gamble, inspector of the forests of Madras, in South India, tells me that when they desire, in his district, to make plantations of this valuable tree, workmen always take the end of a branch with a single leaf for the cutting, as experience has shown that this is the way to obtain plants quickly and surely, and I believe that horticulturists would do well to follow this plan always in propagating *Ficus elastica*.

This tree, by the way, does not demand a real tropical climate. On the contrary, it flourishes outside the tropics in regions where snow falls sometimes and which experience several degrees of frost. I have seen in the beautiful garden of Hamah, near Algiers, specimens of *Ficus elastica*, and of its relative, *F. Roxburghii*, as large as our large forest-trees, casting a shade blacker and thicker than I have ever seen before. Generally, the genus Ficus is hardy and easy to acclimatize.

Ficus australis succeeds admirably in Algiers, and *F. Benjamina* is used in the same city as a shade tree in the suburb of Mustapha. There is a large specimen of *Ficus australis*, already old, on the Italian Rivera at Mentone, which, protected on the north by a house, forms a superb mass of dark green foliage; and at Cadiz there is a handsome avenue of large Fig-trees, with small leaves, not far from the Botanic Garden. These are trees two feet or more in diameter of trunk, with thick spreading heads. There are often severe frosts, however, in all these regions.

With regard to the fruit of *Ficus elastica*, I have once seen it on a small plant cultivated in a pot at Bale, so that it appears that this species bears fruit sometimes in a comparatively young state.

Bale, Switzerland. H. CRIST.
—*Garden and Forest.*

PLANTS OR TREES PER ACRE.

The following table will be found very convenient, as giving the number of plants or trees on an acre:—

6	in. each way,	154,240	6	ft. each way,	1,200
1	ft. „ „	43,500	8	ft. „ „	699
1½	ft. „ „	19,306	10	ft. „ „	430
2	ft. by 1 ft. „	21,780	12	ft. „ „	300
3	ft. each way,	10,890	15	ft. „ „	200
3	ft. by 2 ft.	7,260	18	ft. „ „	135
6	ft. each way,	4,840	20	ft. „ „	110
4	ft. „ „	2,730	22	ft. „ „	90
5	ft. „ „	1,750	30	ft. „ „	50

Rows 6 ft. apart, and trees 1 ft. apart in the row, 7,315 trees per acre.

Rows 8 ft. apart, and 1 ft. apart in the row, 5,434 trees per acre.

Rows 10 ft. apart, and 1 ft. apart in the row, 4,389 trees per acre.

One mile of wind-breaks or shelter-belts requires 4,280 trees or cuttings for a single row, 1 ft. apart in the row.—*Adelaide Observer.*

BOTANICAL ENTERPRISE IN THE WEST INDIES.—The May number of the *Kew Bulletin* is devoted to a record of the steps that have been taken to organise botanical stations for the introduction, trial, and diffusion of plants of economic importance. This *Bulletin* also contains the text of Mr. Morris' report on his recent visit to the West Indies, embodying the results of his visit to the several islands, and the lectures therein given. His mission occupied 106 days, and the distance covered was a little over 12,000 miles. As we shall have another opportunity of alluding to Mr. Morris' work, and of illustrating a new dwarf Palm discovered by him, we content ourselves for the present with this brief mention. —*Gardeners' Chronicle.*

GRASS SEEDS.—Few continental cities can show such beautiful lawns as those of England. The turf at the German exhibition is English, having been sown down with Suttons' Grass seeds. We also learn that the seeds sown to form the velvety carpet of the arena at the Naval Exhibition, which was the only cheerful sight out-of-doors on the opening day, were supplied by the same firm.—*Gardeners' Chronicle.*

SUTTON'S POTATOES IN CEYLON.—We learn that Messrs. Sutton & Sons, of Reading, were awarded a Gold Medal at the Ceylon Agri-Horticultural Exhibition, held at Nuwara Eliya on April 1, 1891, for a collection of Potatoes of excellent quality grown in the gardens of His Excellency the Governor of Ceylon, and included Abundance, Satisfaction, Seedling, Windsor Castle, Masterpiece, &c., all varieties of Messrs. Sutton's raising.—*Ibid.*

STEM-FORM IN CACTI.—A correspondent lately sent us stems of a hybrid between Phyllocactus crenatus male and Cereus speciosissimus as the female parent, with the remark that the seedlings all produce angular stems at first, but that subsequently they become flattened, as in the male parent. It was not unnaturally supposed that this change of form was the result of a dissociation of hybrid characters (a sport); but, unfortunately for this interpretation, we find that the stems of Phyllocactus frequently produce angular branches without any crossing at all.—*Ibid.*

FORESTRY IN IRELAND.—The first special annual return by the Registrar-General of forestry operations in Ireland has just been issued. It appears that 1,488 acres were planted with trees in Ireland during the year ended June 30, 1890, of which 384 acres were in Leinster, 556 in Munster, 329 in Ulster, and 219 in Connaught. The total number of trees planted on the 1,488 acres was 380,280. Larch trees constituted more than one-third, and Fir trees about 12 per cent. of the total number planted. The number of trees felled both for clearance and for thinning plantations, during the year ended June 30, 1890, amounted to 1,256,887. About one-half of the total number felled consisted of Larch trees. The area returned as cleared is 1,399 acres—namely, 400 in Leinster, 786 in Munster, 165 in Ulster, and 48 in Connaught.—*Ibid.*

MILDEW.—Our American cousins find the practical advantage of spraying their trees for mildew and various insects. Mr. B. T. Galloway, of the United States Department of Agriculture, in a circular issued by the Department, says that experiments have proved conclusively that powdery mildew of the Apple, Pear, &c., can readily be controlled at comparatively little expense. Ten millions of young fruit will be treated this year. The Bordeaux mixture, or the ammonia solution (carbonate of copper, 5 oz., to 3 pints of strong liquid ammonia), dissolve, and mix with 45 gallons of water. A suitable spray-pump should be used, such as the knapsack-pump, or a barrel-pump, drawn by a horse. In no case should the treatment be delayed beyond the period when the leaves are half grown. Early treatment, vigilance, and repetition of the spray every twelve days, are the most important points to be kept in mind.—*Ibid.*

CHINA GRASS.—This well-known fibre, the produce of a Nettle-like plant, Bœhmeria nivea, has been re-introduced of late with the idea of supplanting silk, cotton, and worsted in the cheaper class of goods to be used in upholstery wherever strength and durability are required. From the samples before us, it is evident that the fibre is capable of being dyed in a good range of colours. In appearance, it is between fine wool and flax-thread, being less glossy than the latter, and scarcely so rough as the former. At present, the cost of producing the fibre is a bar to its utility, but it is hoped that this objection will shortly be removed, and that it will then take a prominent place amongst materials for weaving, as the plant from which it is produced can be readily grown in many of our colonies. The fabric known as grass-cloth is manufactured from the same fibre. It is a pity the name "grass" should be attached to it, as it has as little to do with grass as it has with Cucumbers; but for persistence of error, there is nothing to beat a popular name.—*Ibid.*

BLACK TEA AND GREEN.

What is the difference between black tea and green tea? Are they produced by different plants or merely by different methods of treating the leaves? And are the Oolong and Japanese teas, so popular in this country, really green teas or black? One so often hears these questions asked, and so seldom gets a reliable answer, that our readers may be interested in the following account of Japanese tea-production which we quote from Mrs. Seidmore's "Jinrikisha Days in Japan."

The Tea-plant, as every one knows, is a hardy evergreen of the Camellia family. It grows a thick and solidly massed bush, and at first glance at a field regularly dotted and bordered with the round bushes setting close to the ground, one might easily mistake it for Box. In the spring the young leaves crop out at the ends of the shoots and branches, and when the whole top of the bush is covered with pale, golden-green tips, generally in May, the first picking takes place. The second picking belongs to the fire-fly season in June, and after that green festival tea comes in from the plantations in decreasing quantities, until the end of August. The choicer qualities of tea are never exported but consumed at home. Choice basket-fired tea, such as is used in the homes of the rich and well-to-do Japanese, sells for one or two dollars a pound. There are choicer, more carefully grown and prepared teas which cost as high as from seven to ten dollars a pound, but such teas are shaded from the hot suns by matted awnings and the picker, going down lines of these carefully tended bushes, nips off only the youngest leaves or buds at the tip of each shoot. The average tea brought by the exporters for shipment to the United States and Canada, is of the commonest quality and, according to Japanese trade statistics, the average value is eleven cents a pound, as it stands, subject to the export duty and ready for shipment abroad.

Japan tea came into market as a cheaper substitute for the green teas of China, those carefully rolled Young Hysons and Gunpowders of our grandmothers' fancy. Europe has never received the Japan teas with favour, but the bulk of American importations is Japanese. . . : For green tea, the leaves are dried over hot fires almost immediately after picking, leaving the *theine* or active principle of the leaf in full strength. For black tea, the leaves are allowed to wilt and ferment in heaps for from five to fourteen days, or until the leaf turns red and he harmful properties of the *theine* have been partly destroyed. The Oolong tea of south China is nearest to green tea, its fermentation being limited to three or five days only while the richly flavored black teas of north China are allowed to ferment for twice that period, to prepare them for the Russian and English markets. . . . The Japanese government made experiments in the manufacture of black tea in the province of Ise, but the results were not satisfactory, and no further efforts have been made to compete in that line with China. Japan will continue to furnish the world's supply of green tea. . . . The young tea-leaves, picked in May and early June, comprise more than half the whole season's crop, succeeding growths of leaves being coarser and having less flavor. Tea which is to be exported is treated to an extra firing, to dry it thoroughly before the voyage, and, at the same time, it is "polished," or coated with indigo, Prussian blue, gypsum and other things, which give it the gray lustre that no dried tea-leaf ever naturally wore, but that American tea-drinkers insist on having. Before the tea-leaves are put in the pans for the second firing, men whose arms are dyed with indigo to the elbows, go down the lines and dust a little of the powder into each pan. Then the tossing and stirring of the leaves follows, and the dye is worked thoroughly into them. . . . This skilled labor is paid for at rates to make the Knights of Labor groan, the wage-list showing how impossible Tea-culture is for the United States until protectionist tea-drinkers are ready to pay ten dollars a pound for the commonest gardens. During the four busy months of the tea-season the firers are paid the equivalent of eleven and four-tenths cents, United States gold, for a day's work of thirteen hours. Less expert hands, who give the second firing, or polishing, receive nine and six-tenths cents a day. Those who sort and finally pack the tea and who work as rapidly and automatically as machines, get the immense sum of fifteen cents. . . . Each year the United States pays over $7,000,000 for the nerve-racking green tea of Japan.—*Garden and Forest.*

[Mrs. Seidmore must surely have been sadly misinformed as to length of fermentation and as to harmful qualities in theine: this is the first we have heard of them.—ED. *T. A.*]

WOOD PULP INDUSTRY.

Extract from the Report of the Chief of the Division of Forestry, U. S. A. for 1890, by E. Fernow.

It can be said, without fear of contradiction, that in no field of industrial activity has a more rapid development taken place within the last few years than in that of the use of wood for pulp manufacture. The importance of this comparatively new industry for the present, and still more for the future, can hardly be overestimated. Its expension during the next few decades may bring revolutionary changes in our wood consumption, due to the new material, cellulose, fiber or wood pulp.

Though rapid in its growth, the industry has by no means reached its full development. Not only is there room for improvements in the processes at present employed, but there are all the time new applications found for the material. While it was in the first place designed to be used in the manufacture of paper only, by various methods of indurating it, its adaptation has become widespread; pails, water pipes, barrels, kitchen utensils, washtubs, bath tubs, washboards, doors, caskets, carriage bodies, floor coverings, furniture and building ornaments, and various other materials are made of it, and while the use of timber has been superseded in shipbuilding, the latest torpedo ram of the Australian navy received a protective armor of cellulose, and our own new vessels are to be similarly provided. While this armor is to render the effect of shots less disastrous by stopping up leaks, on the other hand bullets for rifle use are made from paper pulp. Of food products, sugar (glucose) and alcohol can be derived from it, and materials resembling leather, cloth, and silk have been successfully manufactured from it. An entire hotel has been lately built in Hamburg, Germany, of material of which pulp forms the basis, and it also forms the basis of a superior lime mortar, fire and water proof, for covering and finishing walls.

Ten years ago there were in Europe about five hundred woodpulp establishments, making in round figures 15,000 tons of ground pulp, valued at over $5,000,000. With the development of the chemical processes since then, it is hardly possibly to tell from day to day how fast the production increases.—*Indian Forester.*

TRANSACTIONS in jute fell off to a remarkable extent in Tippera last year. The Commissioner of the Chittagong Division writes that the price of jute in Tippera fell from R5-8 to R1-8 per maund, and that, in consequence, the cultivators were reported in some places to have left the jute uncut. No actual distress was felt, though the extraordinary fall is said to have largely affected the revenue administration of the district.—Calcutta *Englishman.*

INSECTICIDES, ETC.—Our growers, whose general apathy with regard to the employment of remedies, even for experimental purposes, is profound, and who appear to leave unread the evidence that is put before them, are, at any rate, not the only persons similarly affected. This is what is said by the *Colonial Botanist* at the Cape:—"I have urged several importers to speculate in a sample, and done everything except thump them over it. But they, one and all, seem to think the Cape fruit grower will not bother over his fruit trees, or put either money or elbow-grease into the protective measures which the Yankee fruitist finds to pay hand over hand. Let us hope they are mistaken."—*Gardeners' Chronicle.*

WORLD'S FAIR NOTES.

THE GREAT INDUSTRIAL MINERALS AND METALS WILL CONSTITUTE AN IMPORTANT FEATURE OF THE MINES AND MINING EXHIBIT AT THE EXPOSITION.

In no other department of the World's Columbian Exposition, perhaps, will be seen a greater diversity of exhibits than in that of Mines and Mining. Not only will there be a dazzling array of diamonds, opals, emeralds and other gems, and of the precious metals, but a most extensive collection of iron, copper, lead and other ores, and of their products; of coal, granite, marble, sandstone and other building stone; of soils, salt, petroleum, and, indeed, of almost everything, useful or beautiful, belonging to the mineral kingdom. How extensive the mineral exhibits from other countries will be, it is yet too early to know, but the indications are that it will surpass any that has heretofore been made. However that may be, there is no doubt that the mineral resources and products, not only of this country as a whole, but of each state and section, will be of the most complete and representative description.

The coal industry in the United States is of gigantic proportions, involving the investment of many millions of capital and the subsistence of many hundreds of thousands of people. According to recent census bulletins the out-put of coal in 1889 alone aggregated 104,576,299 tons, the value of which at the mines was $131,421,172. Fully two-thirds of the states and territories are coal producing. But great as is the annual production of coal in this country it is insignificant in comparison with the possibilities. Our coal resources are simply enormous. Vast areas of coal measures, thousands of miles in extent, lie distributed between the Atlantic and Pacific and the northern and southern boundaries. Throughout the west and south coal mining is rapidly increasing in importance.

The exhibit of coal at the Exposition, of course, will be qualitative rather than quantitative. Not only will the different varieties of coal, which the different localities produce, be shown, but chemical analyses of each and the results of tests determining economic value and adaptability to various uses. The coal resources of the different states and sections will be shown by geological maps and drawings showing configuration, stratification, etc., which will render apparent the extent and accessibility of the coal beds and veins. For example, it will be shown that coal measures of varying thickness underlie a great portion of the state of Texas—some 40 or 50 counties—and that, although the coal production of Texas has thus far been comparatively small, the supply is practically inexhaustible, and that much of the coal is of excellent quality. Chief Skiff is enlisting the co-operation of large coal exchanges and corporations, and expects to have a very extensive and complete exhibit.

So too, as regards iron. The most strenuous efforts will be made to have an exhibit worthy of that great branch of industry. This country is now the first nation in the world in iron production, having recently forged ahead of Great Britain, its only real competitor. Our production of pig iron now exceeds 10,000,000 tons annually, or nearly four times what it was ten years ago, and the production of steel now aggregates about 5,000,000 tons a year, a growth of nearly 300 per cent. in the decade. The development of the iron resources of the Southern states has been especially great and rapid. The display at the Exposition will be prepared and collected under the fullest appreciation of the magnitude and importance of the iron industry. There will be shown all the many varieties of ores, with full data as to the location and extent of their beds, the analysis of each ore, and, so far as possible the different processes of treatment in the manufacture of iron and steel.

NOTES ON PRODUCE AND FINANCE.

TEA COMPANIES AND INVESTORS.—We reproduce Mr. H. Earnshaw's valuable statistical table of Indian tea companies, and we recommend investors to study it. If there are better investments than well selected tea companies, we have not had the good fortune to meet with them. It is useful, however, to know something about the past and present of the various gardens before making a selection, and if further information than that given in this table is desired it is not difficult to procure, and it is worth taking a little trouble about.

JAPAN TEA.—In his report of the trade of Hiogo and Osaka for the past year Mr. Consul Enske states that, owing to the incessant rains having forced the growth of the leaf, the quality of the first crop proved disappointing, and had it not been for the effect which the marked advance in silver had on exchange (higher rates preventing later teas from being laid down as cheaply), there can be little doubt that the season would have proved an unsatisfactory one to shippers. As supplies increased, prices gradually declined, until they showed a drop of from two to three dollars on the earlier prices paid for the better descriptions of leaf, and one dollar for common to medium grades, the latter being throughout the season most in request. The second crop was more satisfactory in quality than the first, and towards the middle of July some slight concessions on the part of holders, coupled with encouraging advices from the consuming markets, led to considerable business, the lower grades again meeting with most enquiry. Increased firmness on the part of sellers followed, supplies being also withheld with a view to forcing up prices, and as the season progressed a marked deterioration both in the quantity and quality became noticeable. A decline of 50 per cent in Suez freights materially assisted the Japanese in maintaining values, notwithstanding the high rates of exchange then ruling, and business continued on about the same basis until the end of September, holders taking advantage of every opportunity to raise prices until they reached such a point as to render further buying unremunerative, especially in view of the inferior selection and paucity of stocks, which by this time had dwindled down to some 270,000 lb. The financial crisis in Europe, in the fall of the year, put a sudden stop to business in the United States of America, the effects of which was quickly felt on this side, and the season was virtually closed by the end of October, although, as usual, a few desultory purchases continued to be made, amounting to some 530,000 lb. The total business for the season was 21,639,431 lb. that for 1889 having been 18,245,735 lb.

LAST WEEK'S TEA MARKET.—The *Grocer* says:—At last we are beginning to see a little more daylight. The total estimated out-turn from India is now reduced to 108,000,000 lb. Shipments from China have lately been on a very small scale, and instead of being 4,000,000 lb. in excess, is now brought down on a par with last season's, owing to the falling off in the export from Foochow. The news from China is getting more serious, and latest private telegrams say that civil war is imminent. The supply of common tea from China is likely to be very small, and already the terminal market is reflecting the opinion of those who ought to know by a rise of 2 to 3 points; spot has been done at 5 11-16d, and May at 5½d., while Indians are also much stronger. Privately there is no demand, and the public auctions of 17,400 packages showed panic prices. China teas offer most wonderful value, yet dealers say that if they buy them they do not get the retailers to take them, and exporters do not take any quantity. Importers cannot go on taking such ruinous losses, and, we believe, many will hold off their teas for a better market—at present there is none. The public sales of Indian tea have again been on a scale of magnitude, having been even heavier than previously, and unprecedentedly large, reaching 37,320 packages; but a greater portion than preferred consisted of the poorer qualities, which caused the demand to drag somewhat, as if the trade were over-supplied with these, and, although the bulk was disposed of, prices here and there again ruled slightly in favour of the buyer. For the smaller proportion of the finer and more useful grades, however, there was a decidedly firmer tone, and they were taken off with greater readiness at full to slightly higher

rates, especially for strong liquoring kinds. The *Produce Markets' Review* says:—The quantities of Indian tea brought forward aggregated upwards of 37,000 packages, including a good assortment of all grades. The market generally showed greater steadiness, and with few exceptions former rates were maintained. The teas from the Assam district were actively competed for, the quality being up to the average of previous seasons, and so long as this is maintained, a good demand may be expected, as prices favour an increasing consumption. There have been no changes of importance in Ceylon teas, but with a continuance of somewhat small sales, prices show considerable firmness. Good flavoury Pekoes at from 9d upwards are in request, and sell freely, whereas, some two months since, such a price as 9d to 9½d was almost unprocurable for leaf teas. Broken teas have also been in better demand, and those at from 8½d to 9½d show a rise of from ½d to ¾d from the lowest point. Fine to finest kinds also show a distinct improvement, and the finest lots of the season have lately passed the hammer.—*H. and C. Mail*, Oct. 2.

THE INDIAN COTTON INDUSTRY.

The particulars of last month's exports of cotton from Bombay, which our local correspondent telegraphs today, show a decrease on July as July did on June, but this is probably because the season is drawing to a close. Now that the end of the long lane of depression in the markets of China and Japan appears to have been reached, and a brisk revival of trade in those great markets for Indians goods has commenced the prospects of the Indian cotton industry are more hopeful. The development of the Indian textile industries has been remarkably rapid and yet steady, and there is no reason why, with reasonable caution, this advance should not continue. Six years ago the total textile trade represented a value of about 531 lakhs, and it has now increased to 989½ lakhs, or over 86 per cent. There are 134 mills at work or in course of erection in India, containing 33,51,694 spindles, and 24,531 looms. These consume approximately 4,200,000 cwt of cotton and afford employment to 111,018 hands daily. Thirty-three years ago there were only 12 mills in India, with a spindle power of 338,000, and consuming 227,500 cwt of cotton, Bombay is, of course, far ahead of the other Presidencies and contains on Bombay Island alone 67 mills, with a spindle and loom power of 1,909,123 and 14,374 respectively, and employing 61,981 hands for a consumption of 762,562 bales (of 3½ cwt each) of cotton. In the Presidency of Bombay there are further 24 mills, containing 451,064 spindles and 4,140 looms, and employing 16,140 hands and using 130,158 bales of cotton. The "Kingdom" thus accounts for 94 mills out of the 134 in the Indian Empire. Madras comes next, *longo intervello*, with 11 mills, containing 243,512 spindles and 555 looms. Bengal has 9 concerns, with a spindle power of 318,000 and 200 looms. The Bengal mills, however, consume 104,858 bales of cotton against 64,614 in Madras.

The mill industry in this county has recently been read a very severe lesson on the evils of excessive production, which has resulted in a combined short time movement in Bombay. Some steps were absolutely necessary, as the China markets, which are the backbone of the Bombay mill industry, and become glutted with supplies so that sales could scarcely be forced even at cost price. There are only two ways of meeting a crisis like this, namely short time or a reduction of wages. The latter course, however, is impracticable in a country like India, where the wages of the operative are a fixed quantity irrespective of the state of trade; so there was nothing else open to the millowners than to agree to short time. This they wisely determined to adopt, and out of the 66 mills at work in Bombay 59 signed an agreement to suspend work for 8 days and 4 days per month (according to whether they were spinning mills only or spinning and weaving concerns as well) from the 15th September to the 31st December, 1891; and the others were expected to sign in a few days. One great difficulty in unanimous stoppage in varied concerns is offered by the different conditions they work under. Some only spin, others spin, weave and dye; others again have a purely local trade, and some mainly an export one. A refusal to co-operate for short time is thus easily understood, unless all the branches of trade are equally depressed. For example, take a mill which spins, weaves and dyes; and one that only spins. The yarn trade being utterly demoralised, it might pay the spinning mill to agree to short time, but not the other, which could get along with its cloth and dyed goods trade. This trouble has been guarded against in Bombay by permitting spinning and weaving concerns to work four days per month more than solely spinning factories, and the Committee of the Millowners' Association is to be congratulated on the success of its scheme, which cannot fail to place the textile trade of Bombay on a much healthier basis. The China market has already recovered from its stagnation, and large transactions are reported to have taken place at advancing rates. With the safeguard of short time against a second surfeiting of the consuming centres, the prospects of the Bombay mills are decidedly cheerful. All exporters have again entered the markets, and not only has almost all the ready stock been taken up, but extensive forward contracts, in some cases into the year 1892, have been made. Prices have advanced from a 1-16th to a ¼ of an anna per pound from the lowest point touched a month ago, and the sales during the first half of the past month have aggregated some 40,000 bales, mostly 10's. 16's, and 20's. The export yarn trade may therefore be said to be in a flourishing condition. A contemplation of the import trade in piece goods and yarns also offers some food for reflection. The figures show that there has been an immense decrease in piece goods, with a slight increase in yarns. The insignificance of Madras trade in piece goods, as compared with the sister Presidencies, is very remarkable. The statistics of exports of piece goods and yarns from India in 1890 and 1891 up to June 30th are eminently satisfactory, pointing as they do to a large increase in both departments.

Having now dealt with manufactured goods, we will turn to the raw material. No reliable statistical data of the imports and exports of cotton are published in Madras and Calcutta, and we can therefore quote no figures of any value. In Bombay the case is different, accurate statements being regularly promulgated. From these we find that the imports of cotton into Bombay this year, (from 1st January to 16th September) from the interior, show a decrease of over 45,000 bales compared with 1890, spread over all varieties except Madras, Westerns, Khandeish, and Bengals. The exports also are very much less than last year. As the exports to China and Calcutta show an increase of 26 and 162 per cent. respectively, the decline is solely attributable to European shipments, and is no doubt due in a great measure to the extensive adulteration and false packing so often alluded to. The season for cotton all over the country was a poor one, and the prospects of the coming crop are infinitely worse. The area under cotton this year shows a considerable decrease as compared with 1890-1, the main cause of which is no doubt the character of the season, and the deficient rainfall, though the diminished European demand, combined with the poor prices obtainable for the Indian staple (due to large American stocks) may contribute to the result. Statisticians calculate that the yield of the coming crop will be 20 per cent below that of last year, and that the quality will be 5 per cent. inferior as to value. Here in Madras the outlook is not cheerful. In Coimbatore, Kurnool, Dharwar, and Bellary the rains have been so deficient and backward that the crop of cotton is likely to fall far short of last season, and as last season's outturn was about 30 per cent. below the previous year, more than an 8 anna yield can scarcely be counted on. To exporters this is the gloomy prospect, though mill owners can take comfort from the low prices ruling, which will enable them to fill

their requirements at a profitable margin. However taking the cotton trade of India all round, it is in a distinctly flourishing condition, and the enormous strides it has made in the past decade bear evidence to the energy and enterprise of the numerous capitalists who have been engaged upon its development. —*M. Mail*, Oct 3rd.

HAND-WEEDING *VERSUS* CULTIVATION ON TEA ESTATES.

The subject of hand-weeding *versus* cultivation * does not receive the attention which it deserves. The former practice has now for years been observed on many† Ceylon Estates, and it would be interesting and instructive to know the comparative results. Planters generally in India, have all along believed implicitly in *cultivation*, and when, now and again, reference has been made in public papers to the advantages of hand-weeding, as practised in Ceylon, it has been lightly passed over, and has perhaps not received the attention which the subject merits. Now that there are so many gardens in the little sister Colony which have come to full bearing, and may well be supposed to have reached their full limit of production in quality as well as quantity, there must be sufficient data to enable us to get at a complete and reliable comparison of results. The most satisfactory comparison must, of course, be in Ceylon itself, if there be a sufficient number of gardens which have persistently carried out a system of thorough cultivation to set against the great number which have practised hand-weeding from the first; failing this we must fall back for the one side upon the experience gained in Assam, Darjeeling, Dooars, etc., and if it can be shown that our friends who labour in the younger Colony can, as has been o fn stated, produce better results with a smaller expenditure of labour, it is high time that planters in India should "take a leaf out of their book."

There are several points which are patent to all who have had any considerable experience of planting and cultivating tea, and which may be briefly summarized as follows:—

1. A plot which has been kept well dug will invariably yield a much larger quantity of leaf, and better leaf than a plot which has been kept free of weeds by being sickled only.

2. It is exceedingly difficult to make tea grow upon an old road, or a piece of ground which has, for many years, been the site of houses, or otherwise been continually beaten down, and tea grown upon such places will for many years, produce next to nothing.

3. Land which has, by means of cattle passing over it, or otherwise, become trodden down, in course of time becomes (1) less productive of jungle; (2) the *class* of jungle becomes different, and (3) finally as the process goes on jungle disappears altogether. There are some other things such as the following which may have escaped the observation of some planters. Young tea which has been only hand-weeded, and which has had no proper stirring up of the soil from the time of planting till, say, three years old, throws its lateral roots much nearer the surface than tea, which has had a periodical digging *suitable to its age*, it may be the mere breaking of the soil round the plant with the fingers the first year, and digging more or less deeply with an implement afterwards; again on sloping land where the surface soil has been from rush of water, or a bad system of cultivation, carried away from the roots of the plants to a depth of eight inches or more, the lateral roots, of course, become exposed, and on poor soil it usually happens that the plants become sickly, or are killed outright; but it is invariably the case in such instances that if the sub-soil (or the remaining soil) is *good* and *fertile* the plants will (with cultivation) continue to flush vigorously, and, in course of time, look as healthy and well as similar plants which have not lost any soil. On most of the old gardens in the Darjeeling district there are plots where such plants are to be seen; the original collar of the plant standing twelve inches or more above the surface of the ground with the stumps of the old lateral roots sticking out, like the knots on the club of "Giant Despair," and, at the same time, the bush itself is in a high state of efficiency, flushing quite as well as any plants in the particular plot; thus showing that the plant has established *new* lateral roots as required by the altered conditions.

Now it remains to be stated what bearing all these facts have upon the question of hand-weeding *versus* cultivation. With the former treatment, it seems reasonable to expect that before very long the weeding can be done very cheaply, because the soil must become caked and hard from coolies' treading upon it for the purposes of plucking leaf, pruning, etc., but it is reasonable to suppose that the same causes, which result in the killing out of weeds, will also operate towards weakening tea plants and reducing their efficiency. On the other hand, it is a well-established fact that deep cultivation stimulates the growth of the plants, and even if such cultivation is done in such a rough and uncouth way as to cut away many of the lateral roots, the plant does not receive any *permanent* injury, but soon repairs the damage done. Hand-weeding on old tea *has* been done on some gardens in Darjeeling district, and with great success but only during a month or two of very wet weather, and *only* when the soil has previously been dug very deep and thoroughly pulverized.—*Indian Planters' Gazette.*

* Cultivation" in India means a periodical turning down of the weeds into the ground by means of the hoe,—our Ceylon "mamoty."—ED. *T. A.*

† For "many," "*all*" might be read. The leading Ceylon planters are opposed to "cultivation" which involves cutting masses of tea rootlets.—ED, *T. A.*

A REVIEW OF THE PRICES OF QUININE IN THE U. S. MARKET.

The conditions of demand and supply in medicinal articles vary to an extent almost unheard of in many other articles of commerce, and these variations have nowhere been more marked than in quinine. We reprint, on another page, a tabular statement of some interesting facts concerning the range of prices of quinine during a very considerable period. A thoughtful perusal of these tables will serve to bring to the mind of the observer not merely the fluctuations in the price of this valuable commodity, but might furnish a thread on which to hang the history of modern pharmaceutical chemistry.

After passing out of the category of a mere curiosity the alkaloid gradually settled down toward a price which admitted of its general use. Improvement in manipulation and possibly also increased competition sufficed to maintain the general downward tendency for some time until in 1837 a price of $1 40 per ounce was reached. An upward movement then set in which, with an occasional relapse, as in 1842, carried the price to $3 and upwards. The marked decline observable in 1857 was largely attributable to the abolition of the fifteen per cent. duty on cinchona barks. The rise in price from 1866 was due, primarily, of course, to the changed conditions arising from the civil war, including increased consumption, diminished supplies due to the perils of navigation incidental to the war, and an increased cost arising from these combined causes, and from the imposition of a high rate of duty, ranging up to forty-five per cent. for quinine itself, and twenty per cent for the bark. The high range of prices continued to rule for some years, reaching the maximum of $4·50 per ounce in 1877, since which time there has been a gradual decline to the present low values of nineteen cents for foreign bulk. At this juncture the influence of the East India barks began to be felt. In 1876 only 1,777 bales of this bark was imported into London, but the quantity rapidly increased to 6,260 in 1877, 13,460 in 1880, and 20,692 in 1881. In 1879 the alkaloid was also placed on the free list. It is this last

downward movement that has caused tremendous losses, and in many cases ruin, to those who have maintained faith in the market price of the article. The large deals, the excitement, and the final failures occurring when a price of $3 was predicted as the bottom figure in 1880 and thereabouts, will no doubt be vividly remembered by many members of the tread.

A noteworthy feature of the market for large bulk here for some time past is the fact that our prices are below a parity with those quoted in London. There are several theories tenable as to the causes leading to this condition of affairs. One of these is that the foreign manufacturers use this market as a dumping ground for their bulk goods, preferring to sell here when they find it necessary to realize, even at a little under current prices, rather than to demoralize the markets nearer their own houses. Another theory is to the effect that owing to the speculative spirit of Americans much larger quantities of quinine have been carried by outside speculators here than is the case in London. When one of these outside holders becomes disgusted and concludes to pocket his loss he is nearly always compelled to break the market in order to unload. Still another factor in the market is the change which has occurred in the method of handling the alkaloid. While physicians' prescriptions formerly offered an outlet for the bulk of the drug used, now the principal demand is from the public direct, who purchase the coated pills in bottles of 100 each. Where half a dozen or a dozen pills were formerly ordered by the physician; he now merely says "get a bottle of quinine pills," and as a consequence, the pill makers have come to be probably the largest purchasers of bulk goods, and purchasing in a large way, they come to be very close buyers. The gradual increase in the percentage yield of cinchona barks has also tended to reduce the cost of manufacture, and the heavy production of bark has kept the crude material at a low range of values for some time past.

With these agencies militating against an advance the future of the drug looks dull indeed, and it requires a sanguine disposition to be able to predict any material change for the better. It is true that a combination of the half dozen manufacturers might bring about higher prices, but in view of the attitude assumed by some of the largest manufacturers such a combination is scarcely to be counted among the immediate probabilities.—*Oil, Paint and Drug Reporter.*

A TALK ABOUT TEA.

(*By the Pilgrim.*)

The abnormal weather still seems the chief topic among my Assam correspondents. From Dibrugarh a friend writes, "I really believe it gets hotter every day instead of cooler. We are back again into the old blazing heat, and I am nearly done up. I have not felt the heat the whole season as much as I have done the last few days. There has not been a cloud in the sky for a week; the sun just *blazes* from 6 a.m. till 6 p.m."

Energetic rushes round the *Kanjari* are out of the question under such circumstances; and naturally there is a good deal of sickness amongst the coolies. It is very hard to get a full day's work out of them; the unusual heat disposes them to slink into shady spots under convenient trees whenever the "boss-eye" is off them.

From Nowgong it is the same story; everything very much in want of rain, and a very unhealthy season is the report. A correspondent writes: "Thermometer at 96° in the verandah today, and the whole place parched up." One of my Tezpur correspondents says: "The weather I registered in my last continued until the 23rd of September, when we had a fall of 1·11 inches, so we have now had 4·15 inches this month. This with a total of 5·99 inches for August, about beats the record. Surely we must have some rain to come yet: I am sure I hope so."

The most curious part of the matter is that, notwithstanding all this abnormal drought and heat, outturn does not seem to be suffering, to any practical extent, so far, at least. The correspondents from whose letters I have quoted above seem all pretty happy on the subject of their crop for the season. The Dibrugarh man is keeping well up to a revised increased estimate; Nowgong smiles cheerfully as he says "done fairly well, nevertheless; over 300 maunds ahead of last year to date;" while my Tezpore friend talks of thousands in a lordly way, that takes the wind out of poor managers who struggle for tens and only mention hundreds when they are "balking" after dinner. A man who can make 1,800 maunds in a dry month like this September has been, who expected to close over 9,000 maunds, and who placidly remarks "that will average about 13½ maunds per acre" —such a man ought to filter out his information in instalments. It seems a size too large to grasp *en block*. I am very much afraid, however, that unless October turns out pretty wet which there seems very little chance of it doing at present, the dry weather and heat of the past month must tell; and a rapid decrease in outturn and an early "shut up" all round may be looked for.

Prices are very far from being a cheerful subject just now. It is significant of the state of the market that not a single garden in Assam and Cachar, and only one in Darjiling, got an average of two figures in last week's sales. There is only one garden in Darjiling which has scored up to eleven annas. And the solitary two figure Darjiling eleven anna average is contributed by Pekoe and broken Pekoe, no lower class teas. The average of the sale appears to be about six annas, and this is not exhilarating. The home sales are a trifle more cheerful, and average of a shilling and a half-penny for Assam on 8,484 packages having been attained, and some marks, notably the well-known Jokai Company's Panitolla and Hakanpukri marks showing up gradually with averages of 2-4½ to 1¾. Cachar and Sylhet do not come out so well, averaging 8½d. for 3,701 packages. Darjiling, as usual, tops the list with 2,482 packages, averaging 1-1¾.

One consolation, as I remarked in my last letter, is that if this extraordinary weather continues, and outturn consequently suffers, prices must surely rise, as supply will fall below estimates considerably. Every sorrow has its twin joy.

I see "Sam. Hogarth" is to the fore again on the labour question. He did yeoman's service in the "brutal planter and poor oppressed coolie" business a couple of years ago, when the Native press were suffering from an unusually severe spasm of righteous indignation; and his invitation to Gangooly Babu, the secretary to some Association whose august designation I forget, to come and see things for himself choked that gentleman and his colleagues off for a while. I think this is "Sam's" first appearance in print since his return from his trip home. "More power to his elbow." If he can, by stirring up the Calcutta Tea Association, the Districts Labour Association, or any Association at all, only succeed in getting that wretched *arkatti* system of recruiting knocked on the head, he will deserve a statue opposite the Dibrugarh Club. I fear it is impossible, as has been attempted, to retain the system under proper checks and restriction; these look lovely on paper, but they don't work, and there is nothing for it but to abolish the *arkatti*, extirpate him root and branch, and rely upon *sidari* recruiting, pure and simple. There may be, undoubtedly there would be, a great deal of difficulty at first. Garden *sirdars* sent down to recruit are often utterly unsuccessful; but that again is chiefly due to the machinations of the *arkatti*. Labour must be had; and if *sirdars* can't get it, it must be bought somehow. Mr. Hogarth in his para. 3 and the following one clearly shows the utterly objectionable points of the *arkatti* system, and the difficulties the *sidar* labours under, as opposed to him. His last paragraph, too, is deserving of most serious consideration. That this disgraceful system of "man selling" has grown up, and that the planter has to depend on it chiefly for his labour supply, is no fault of his, but is directly due to the native agitations against the then existing

recruiting system—a reasonable, humane, and generally smoothly working system—based on the recruiter who had "been there," been up and worked on the gardens judged what the life was like and the probabilities, of making "life worth living" as compared with life in his native village or elsewhere, and who went down to bring up his own family, relatives and friends, and their families, relatives and friends, as many as he could get. There was no abduction, crimping, no "man selling," only a plain statement of advantages to be gained by emigration, at worst slightly coloured by a sirdar eager to impress his relations and friends with the advantage of the change, and get his bonus per head for a large number of recruits. Put the coloring at its highest, after all, the *sirdar* was taking his own people to share a life that he had himself found by personal experience not only endurable, but profitable and pleasant, and the system forms a striking contrast to the *arkatti* one, which, with its attendant evils of misrepresentations, forcible abductions, and the general traffic in human flesh goes nearly to deserve the stigma of a "slave trade," by which it was designated by a recent writer from the Madras side, when the Ganjam district was thrown open to coolie recruiting. It is to be hoped that Mr. Hogarth's effort will be seconded by united action on the part of the various associations concerned.—Calcutta *Englishman.*

HOW TO SAVE EXPENSE IN PAINTING UPON EXTERIOR SURFACES.

We always expect greater service than we receive from it because our system of exterior painting is a failure. It involves an actual loss each time of painting, of more than two hundred per cent., which in the aggregate for the entire country amounts to a positive loss of many millions of dollars by painting three times where once only is necessary.

This statement may appear exaggerated, nevertheless it is easily proven, as we shall show.

Such waste has been going on many years, and not unnoticed by property holders, but has been endured for the reason that no one has appeared who could solve this mystery. A discovery has been made and verified that by a very small extra expense, paint can be made to last three times as long as it has hitherto.

Experiments have been made with the various pigments, oils and vehicles employed for painting purposes, to ascertain which is the most durable; also the best method of applying it.

The most intricate problem becomes plain and simple, when understood, but without some knowledge of chemistry to enable us to see the various relations of cause and effect upon each other by these things, we cannot accomplish much. Object lessons are also helpful on our study as in this case it is so proved.

The exterior wall of a brick house in process of preparation to receive a coat of what is termed mastic finish attracted our attention. It was being covered with repeated coats of quick drying linseed oil until it became glossy, when the composition prepared with oil was spread with a trowel as plaster upon the surface.

It furnished the idea desired at once; this is the thing necessary to be done: Before painting prepare the surface by filling the pores or grain of the wood with quick oxidizing linseed oil for the support of the paint. Accordingly the experiment was made on a large scale and for a long period of ten years in the following order: The oxide of zinc was selected partly for its having been rejected for outside work by painters generally, on account of its cracking and peeling off, and partly for its being the oxide of a hard metal.

The best Calcutta raw linseed oil prepared with chemicals without heat to cause it to oxidize quickly and thus preserve its natural elasticity like oil when it begins to fatten was employed to coat the bare wood twice before painting, and when dry the same oil was used to mix the zinc, two coats of which was applied upon a large house so as to prepare a fair opportunity for a test to all points of the compass during a period of ten years.

At the expiration of the tenth year on the side exposed to the South, the paint was somewhat bleached, but remained firm without signs of perishing, on the north side it had the appearance of withstanding another ten years test.

This oil possesses all the qualities of very old oil without the expense of storage and accumulation of interest for several years. A single coat of it over old paint is more durable than a coat of the process lead paint. Judging from these experiments it is very evident that we employ too little oil in painting on exteriors, and this is the true method of applying it for great durability.

The manufacturers of liquid mixed paints can now take advantage of this information and relieve their customers of an extraordinary expense from the scaling of their paints.

ASAHEL WHEELER.

—*Oil, Paint and Drug Reporter.*

A NEW WOOD.—Western Australia is producing a wood which is destined to be much in favour with church builders. This is the jarrah wood, which is as hard and durable as oak, but possesses a rich, deep colour like mahogany or very old oak, and is well adapted for panelling and carving. Old Herne Church, in Kent—where the *Te Deum* was first sung in the English language—has just been reroofed with jarrah, and the effect is said to be strikingly fine. The church is now completely restored.—*A. F. Press.*

THE probability of large shipments of fruits to this country being made from our Australian Colonies in the early future, the practicability of which has been so recently demonstrated by the great quantities of excellent Tasmanian apples with which our markets have this year been supplied, is now further exemplified by the arrival of a small consignment of raisins from the Australian Irrigation Colonies, on the River Murray, being the first fruits received from these settlements, the establishment of which, some three or four years ago, has been attended with such remarkable success that their progress has been described by a colonial bishop who recently visited them—Dr. Thornton, of Ballarat—as simply "amazing." A quantity of raisins are now on view at the London offices of the Australian Irrigation Colonies in Queen Victoria Street. They are entirely sun-dried, the clear dry atmosphere of that part of Australia where the settlements are situated enabling the drying of all descriptions of fruit to be carried out in the most perfect manner and without risk of injury. They have been pronounced of excellent quality, both in flavour and appearance, and are very attractively put up in 2 lb., 6 lb., and 12 lb. boxes. The above consignment will, in due course, be followed by others of a no less interesting character, embracing the following valuable fruits of commerce:—Oranges, lemons, raisins, currants, apricots, peaches, figs, &c., together with wine, olive oil, and other products, for which a large demand is anticipated in this country in future years. The total area of land constituting the Australian Irrigation Colonies, and of which some 25,000 acres at each of the two settlements (Mildura and Renmark) are now being dealt with will fall but little short of half-a-million acres; and although the colonial demand will probably absorb the entire production for some years—there being at present a large importation of these fruits, &c., into Australia from foreign countries—an extended reciprocal trade with the mother country will be early cultivated (more especially with reference to wine, oil, &c.), in view of the enormous future production which is confidently anticipated and practically assured.—*E. Mail.*

Correspondence.

To the Editor.

MR MAITLAND KIRWAN'S TEA PAPER.

Billiter Square Buildings,
London, E. C., Oct. 1st, 1891.

DEAR SIR,—I notice the attack made upon my paper linings by Messrs. W. H. Davies & Co., contained in their letter appearing in your overland issue of 4th September.

Wholesome criticism is good if based upon reasonable grounds, but that of Messrs. Davies & Co. appears to have for its foundation the views expressed in a letter to them of a London firm whose name is discreetly concealed. Two reasons are given for endeavouring to show why these linings are a "worthless article" for the purpose in view. *First*, because they are said to be porous, and *secondly*, the supposition that the trade would not give as good a price for tea packed thus, as for lead-lined packages.

With regard to the first of these reasons it appears to me that his proof of the pudding is in the eating, and we have now had these linings pretty extensively tried with complete success. The remarks in Messrs. Wilson, Smithett & Co.'s. Circular from time to time respecting them and the testimony of those who have made trial of them ought I think to be the best proof of their efficacy in protecting and preserving the tea; and as regards the enclosed certificate from perhaps one of the highest authorities on these matters, may prove of interest to any who are still sceptical on this point.

As regards the second reason given for condemning the paper, I may say at once that it is not borne out by facts. It has been found that the trade buy the paper-lined packages as readily as the others, and so far from their giving a lower price, in some instances a farthing more has been secured; and I think I am justified in saying that since these new linings have been introduced there has been a distinct enquiry for teas packed thus, the opinion being that this paper obviates entirely the tinny flavor imparted to all teas to a more or less degree by the lead.

As to the perquisite obtained for the lead, the head partner of a large firm of grocers, with whom I conferred on this point some time ago laughingly assured me that if the quality of the tea was good there need be no fear on that score, and his words have been amply confirmed.

In conclusion let me say, that I am satisfied after repeated trials, that these linings are thoroughly suitable in every respect for the packing of tea; nevertheless I will always be grateful to receive suggestions which might in any way further that to perfect the articles.

With regard however to the wholesale attack made by Messrs. Davies & Co. on the linings, had this firm made trial of them and found them inadequate in preserving the tea, their letter would have assuredly deserved a hearing. As it is, doubtless their remarks will be received at their proper value.

It is I understand generally known that this firm are sellers of the tea lead, and it is not unnatural to suppose that they would dislike seeing any new article brought forward in competition therewith.—Your obedt. servant,

J. M. MAITLAND KIRWAN.

P. S.—Annexed is copy of letter received from the brokers relative to the last shipment in these linings, which speaks for itself.

Copy of letter received from Messrs. Wilson, Smithett & Co., *re* Paper Lining for Tea Chests.

Dear Sir,—Referring to our Report on Elkadua Tea per "Goorkha" we notice that the Pekoe and Pekoe Souchong like the same grades in the "Bengal" shipment are packed in paper lined packages. We have carefully inspected all these teas and find them to be in excellent condition, the paper lining in each instance proving quite damp and air proof.—Yours faithfully,

(Signed) WILSON, SMITHETT & Co.

Messrs J. M. Kirwan & Co.
(Removed from 17, Bloomsbury Square.

Dr. Redwood, F. I. C., F. C. S., T. Horne Redwood, F. C. S., F. I. C., A. J. de Hailes, F. I. C., F. C. S., Analysts and Consulting Chemists.

2, Fisher Street, Red Lion Square, W.C.,
London, 30th Sept. 1891.

Messrs. J. M. Kirwan & Co., Billiter Square Buildings, London.

We hereby certify that we have tested the paper supplied by Messrs. J. M. Kirwan & Co., for the purpose of lining tea chests, and we have found it to be of a remarkably fine and pure quality. We are of opinion that it would preserve to the tea its delicate aroma without imparting any extraneous flavour.—T. HORNE REDWOOD, A. J. DE HAILES.

SUBSTITUTES FOR TEA LEAD.

61, Old Broad St., E. C.

DEAR SIR,—I have observed of late several articles and communications which have appeared in the columns of the *Ceylon Observer* and those of the *Tropical Agriculturist* touching upon the very great difficulty in the supplying of tea lead to Indian and Ceylon planters. As the writers point out, upon the proper solution of this difficulty, the price of tea in London markets is dependent to a very large extent; and its importance, in view of the remarkable growth of the Indian and Ceylon Tea trade, cannot very well be over-estimated. Suggestions have been made for the substitution for tea lead of parchment-prepared paper or an admixture of lead and paper; but while it is claimed for these substitutes that they answer as well as the lead and are to be had at a reduced cost, the advantages do not appear in practice to have made themselves particularly manifest. I have given the matter very careful consideration for some five years past, my attention having first been drawn to the subject at a time when the Indian trade had not attained to nearly its present proportions, and when the necessity for reducing the cost of the lead was not so apparent. The remarkable growth of the tea trade in India and Ceylon coupled with the demand for cheap tea in the London markets has however forced this question very specially upon my attention; and I feel that the time is ripe commercially for the submitting to those interested a practical method whereby the price of tea-lead to the Indian planters can be reduced considerably below its current price. My estimate is based upon personal knowledge of the lead supply and of the tea trade, and also upon the best practical advice as well as the published testimony of exports; and it is very far from being a sanguine one, for I have left the very widest margin for any difficulties which might by any possibility present themselves. I do not myself believe that any satisfactory substiute for tea-lead will be found, and I should like it to be clearly understood that I propose to supply the real article. My project aims solely at the reduction of the cost. In justice to myself however I cannot make this project public property, but as I

notice that the matter is engaging—as well it may—the earnest attention of the Ceylon Planters' Association, I have ventured to communicate to the Chairman of that Association my willingness, under certain guarantees, to disclose the nature of my project, prefectly assured that it only needs to be known to be undestood and appreciated.—Yours truly,

W. G. CARDOZO.

INSECTS ATTACKING *ACACIA MELANOXYLON*.

Albion, Nuwara Eliya, Oct. 15th.

SIR,—On page 313 of the *Tropical Agriculturist* for November 1889, in Mr. Maiden's letter on Wattles, he mentions that "in Australia the wood of acacias is exceedingly liable to attacks by the larva of certain lepidoptera" &c., &c. By this post I send in a match box 2 small twigs of *Acacia melanoxylon* cut off and riddled by some poochies, a few of which are still in the wood. Last week I cut down a five-year-old tree as it was looking sick: the accompanying is a specimen of the interior.—Yours faithfully, ARTHUR KELLOW.

[Up till now we have never seen *Acacia melanoxylon* in Ceylon suffer from any pest except the parasitie *loranthus*, which could so easily be removed by a bamboo pole with a knife or sickle attached to the end, used for the clearing process. But there is no mistake as to the boring by insects of the specimen of wood from Mr. Kellow's five-year-old tree. We have submitted the twigs to our entomological referee, and he reports as follows:—"The numerous small holes in the wood are made by a minute boring beetle, name unknown to me. It probably feeds on the wood as it burrows. The female may lay its eggs in the burrow, and the larva undergo all its changes in it. I am unable to give its life history with any degree of certainty."—ED. *T. A.*]

THE LOCAL *vs.* THE LONDON MARKET FOR TEA.

Central Province, Oct. 16th.

DEAR SIR,—Let me draw the attention of "Proprietor" to the memo. of Messrs. A. H. Thompson & Co. in the "Independent" and quoted in the *Overland Observer*, "Only 1,900 packages sold out of 4,523 offered." The Colombo broker thinks it necessary to account for this wonderful feature in our tiny market, and so he remarks: "The market was somewhat taxed by the unusual weight of the auctions; so a knock out practically occurred." "Buyers," he continues, "showed no inclination to buy except at very low rates." The wily Colombo buyer wanting to snaffle the grower's produce from 8 to 30c. under current value. Now let us turn to a circular issued by Messrs. Forbes & Walker. They state that the total sales in Colombo market to date come to 7,500,000 lb and the exports to Australia &c., reach 2,000,000 lb, so that about 5,000,000 lb. of the tea bought in local market goes to England, probably Mincing Lane. I know that some of that exported tea to other countries than England, never is handled by Colombo buyers, so I think I am giving the local market every justice in giving the buyers in it credit for having bought all the tea that is sent to foreign ports. By foreign I mean other than London.—Yours truly,

ONE WHO HAS TRIED BOTH.

MR. KELLY'S TEA CROP ESTIMATES.

DEAR SIR,—Two things strike me as very strange in connection with Mr. Kelly's speech in Council, in reference to the tea crop of 1894.

If he put that crop at 140,000,000 lb. or double the 70,000,000 expected this year, how was it none of the papers challenged an estimate so rash, improbable, and calculated to do mischief? Our press is generally alive to its duty in such matters.

Then if Mr. Kelly did not speak of double 70,000,000 lb., but only of 120,000,000 lb., what have the reporters to say for themselves? I might also ask why Mr. Kelly was so slow about correcting a mistake of such magnitude—one so vital to our interests at a critical time and one so opposed to all inferences to be drawn from his Castlereagh Co.'s prospectus.

Our crop certainly shows a wonderful increase this year, but perhaps 5,000,000 lb. of it may be ascribed to the abnormal weather early in the year. To reach even 120,000,000 lb. in 1894 would mean yearly increases of 17,000,000 lb. a year:—in 1892 87,000,000 lb., in 1893 104,000,000 lb., and in 1894 120,000,000 lb.

Supposing we have 240,000 acres bearing in 1894, Mr. Kelly's estimate of 120,000,000 is an average of 500 lb. an acre. Is there any good reason to anticipate such an average? I think an estimate bearing the authority of the Committee of the Planters' Association would be of much service at this juncture. Nothing less will counteract the evil effects of the reported 140,000,000lb., as that estimate will become current at home, while the correction to 120,000,000 lb. in a small para will pass unnoticed.—Yours, INTERESTED.

[Mr. Kelly, in his desire to make out a strong case for the contribution of Ceylon tea to the British revenue, may have been over-sanguine in his estimate of 120,000,000 lb. for 1894. 100,000,000 would probably be nearer the mark.—ED. *T. A.*]

THE TEA MARKETS OF THE WORLD.

Colombo, Oct. 24th.

DEAR SIR,—I am about to return to England after a stay of three months in your island, during which I have devoted my time to the study of tea manufacture, going into factories in the different districts, learning the process followed in each and comparing the results in the cup.

My visit has been happily timed, for I have come at a point where the many initial difficulties of a new enterprise being over come the minds of estate superintendents are free to consider details, and some after careful experiment have made great improvements in manufacture in the last twelve months. There are many however who have yet to learn what has been achieved and who continue on the old lines. We are all working together to open up new markets and especially to induce Continental Europe and America to drink Ceylon tea; and careful study and reflection teach me that that which will most assist towards this end is the new mode of preparation which may be described as "*longer and harder rolling with shorter fermentation and with lower firing.*" With longer rolling a fuller liquor is obtained, the fruitiness of which is not impaired by the firing now approved, while the shorter fermentation imparts to the liquor more or less pungency and grip all according as the soil, climate and jât will allow. Compared with China black tea, Ceylon and Indian teas have been marked by a harshness in addition to their meritorious qualities of strength and flavour, and it is to this harshness the

Russian buyers object. Now, we all wish to see the added millions of pounds of Ceylon tea go off each year without further fall in the London weekly average price, and a more general application of the new mode of preparation will assist the end in view. May I suggest, sir, that owners of gardens be asked to publish through your columns full details of manufacture; details of wither, of rolling, fermentation firing and sifting with percentage of each grade and prices obtained and that discussion by letter be invited; such comparison of results obtained over the whole tea area of the island could not fail to be of great value to each manufacturer.

No jealousies ought to arise—the crack gardens will not lose their stand out position because of a possible ten or fifteen per cent advance in other's prices due to improved make: indeed a *general* improvement in Ceylon teas would enhance the reputation of the best Ceylon gardens in the markets of the world.—I am, sir, with much respect, yours faithfully, FRED. WALKER.

[We commend this letter of an experienced broker and tea taster to the best attention of planters; and we shall cordially welcome any communications on new and improved methods of manufacture, such as Mr. Walker suggests.—ED. *T. A.*]

THE PROGRESS OF NETHERLANDS INDIA.—According to the Colonial Report for 1891, the population of natives in Java and Madura had at the end of 1889 increased to 22,806,463 souls, against 22,526,885 souls in 1888. The request made by planters in North Borneo for the immigration of labourers from Java could not be agreed to, owing to the unsatisfactory sanitary condition of Borneo and the considerable mortality among the foreign labourers on the possessions of the British North Borneo Company. Two deputies, charged with a mission, one to French Indo-China to study the existing system of opium, and the other to British India to inquire into the most suitable mode of transplanting sugar-cane, experienced the most ready support from the authorities. In West Java much inclination was shown to undertake a pilgrimage to Mecca, which, as far as it concerns the Preanger districts, proves a better financial position of the population, chiefly caused by the active trade in rice. With regard to Acheen the report observes that during the past year the resistance of the enemy has lost much of its power, which is merely to be ascribed to the blockade of the greater part of the north and west coast. The sanitary condition during 1890 was generally pretty favourable. The number of beri-beri patients among the troops, of which the strength has not changed very much during last year, was in 1890 3,293, and thus larger than in 1889, when it was 2,637. However, the number is less than in the three preceding years. The *States Gazette* contains a statement of the principal articles of import and export to Java and Madura during the first six months of this year, compared with those of 1890, viz.:—

	1890 kilos.		1891 kilos.
Indigo	997,918	...	1,224,293
Cinchona Bark ...	1,013,430	...	1,262,234
Coffee	5,779,363	...	5,875,292
Pepper (black) ...	1,368,802	...	2,152,315
Sugar	98,054,896	...	143,342,389
Tobacco	9,987,879	...	10,301,489
Tea	1,571,913	...	1,722,903
Tin	2,206,747	...	2,645,189
Sundries	1,663,627	...	5,024,969

The above shows generally a considerable increase, but a decrease is exhibited in the following table:—

	1890 kilos.		1891 kilos.
Hides	1,262,706	...	1,209,573
Kapok	1,122,745	...	1,070,657
Rattans	579,760	...	351,297

—*L. and C. Express.*

MESSRS. DAVIDSON & CO.'S CENTRAL FACTORY, COLOMBO.—The local "Times" says that Messrs. Davidson & Company Belfast have at length decided to start a workshop in Colombo with the view of providing skilled superintendence for the erection of any of their machines upcountry and to provide a proper and efficient means of repairing, altering, and correcting any mistakes complained of in regard to their several inventions. Messrs. Davidson & Company have obtained a portion of Messrs. Mackwood & Co.'s Mills at Suduwelle for the purpose, and Mr. Maguire, who will now reside here permanently, will be put in charge of the necessary machinery, plant, stock, &c.; and all castings of the machines and plates and so on will be sent out from home, while, whenever a new machine has been erected up country, Mr. Maguire himself will proceed to the estate and see it put together. This will be a great advantage to planters who intend going in for the down-draft Sirocco, and may be taken as evidence of the large demand which Messrs. Davidson & Co., foresee for their new machines.

A CORRESPONDENT sends the following interesting note:—"A few months ago a new theory was put forward respecting the origin and nature of the moisture found in the morning on leaves and grass. It has hitherto been held by all naturalists, apparently without exception, that this moisture was dew. But a gentleman in Scotland, not known to fame, was not content to accept the current and traditional opinion; and assuming nothing, he investigated the subject *de novo*, with the result that he was able to prove to demonstration that between the dew and the moisture found after a rainless night on vegetation there was an essential difference. He discovered that while dew is but the mere exhalation of the soil, this moisture was an exhudation from the vegetation itself. The theory came as a surprise to the scientific world: but the steps of the demonstration were so clearly worked out that the author of the discovery, though not noted as a man of science, was at once brought into public notice. He was held by the highest scientific authorities to have made a distinct discovery in nature. Now, there are some phenomena not mentioned by him which appear undoubtedly to bear out his theory on the subject, and they may be noted at the present time, because they are patent to the observation of us all at this time of the year. Let a tree overhang a white-washed wall or gateway, and in course of time we shall see the white-wash is covered with green film. On the time-honoured theory that the moisture on leaves was but the exhalation which had risen from the soil during the previous night, it was impossible to account for the colour of this deposit. Mere water would not have produced the phenomenon. The only adequate theory is that the moisture which fell upon the whitewash was chemically a green composition. The theory is further corroborated from the curious fact, equally near at hand to us all, that after a rainless night *mendhi* that was cut on the previous day and is now entirely without green leaves, is dry, while the *mendhi* which is budding and that which has leaves is saturated with moisture. A servant after such a night will without hesitation put an article of clothing to air in the sun on *mendhi* so recently cut, though he would deem it the height of folly to place it on green *mendhi* for that purpose. There were two points which first awakened the attention of the discoverer to the subject: the first was, that moisture was found on the under surface of the leaves as well as on the upper; and the second, that moisture was found on the leaves after nights in which no dew had fallen, phenomena for the presence of which the old-world theory provided no satisfactory explanation."—*Indian Agriculturist*, Sept. 26th.

QUININE.—The market remains dull, but at the close of last week a small transaction in second-hand German bulk at 9½d per oz was reported. Since then business has been suspended in anticipation of the result of today's work sales in Amsterdam. On September 25th one of the German "speculative" brands was being offered in New York by the manufacturer at 19½ cents (9¾d per lb.) for contracts all over 1891. That manufacturer certainly does not entertain sanguine views with regard to the future of the article. The following are the manufacturers' present quotations:—Howard's, in tins, 1s 1d to 1s 3d; in vials, 1s 3d to 1s 4d; Whiffen's, in tins, 1s 1d: in vials, 1s 3d; Pelletier's in vials, 1s 10d; Milan in vials, 1s 2d; in tins, 1s; Zimmer and Jobst, in tins, 11½d; other German brands, in tins, 10½d per oz.—*Chemist and Druggist*, Oct. 10th.

CINCHONA.—Having regard to the meagreness of our bark sales of late, the supply of nearly 1,500 packages this week seemed almost abundant. The quality of the bark offered, too, was superior to what our buyers have had to content themselves with lately. The catalogue consisted of

	Pkgs.		Pkgs.	
Ceylon bark	1,001	of which	1,001	were sold
Indian bark	138	"	105	"
Java bark	84	"	74	"
South American bark	214	"	5	"
Total	1,437	"	1,885	"

There was a very fair demand throughout the auctions, in which the majority of the manufacturers' agents participated, and with steady competition all the Ceylon as well as the bulk of the Indian and Java barks were disposed of at an average unit of 1½d per lb. for good manufacturing barks.

The following are the approximate quantities purchased by the principal buyers:—

	lbs.
Agents for the Mennheim and Amsterdam works	67,15
" Auerbach factory	55,687
Messrs. Howards & Sons	46,303
Agents for the Frankfort of M. and Stuttgart works	42,755
" Brunswick works	29,150
" American and Italian works ...	26,910
Sundry druggists	10,189
Total quantity of bark sold ...	278,150
Bought in or withdrawn ...	53,870
Total quantity of bark offered ...	332,020

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it; firms who buy a small quantity of bark by weight frequently take the richest lots, and *vice versa*. The following prices are shown by an analysis of the catalogues to have been paid for sound bark:—

CEYLON CINCHONA.—Original;—Red varieties, ordinary woody to good bright stem and branch chips, 1½d to 3d; a few fine lots, 4d; dust, 1d; dusty root, 2d; ordinary weak quill, 3d; fair to fine bright spokes shavings, 1¾d to 4d per lb. Yellow varieties, common to good bright quilly Ledger chips, 1¾d to 4d per lb. Yellow varieties, common to good bright quilly ledger chips, 1¾d to 6½d; good to fine bright shavings, 4d to 7d; dull root, 3d ordinary Calisaya chips, 2½d to 2¾d; root, 3d per lb. Grey varieties, ordinary dull to good bright quilly branch and stem chips, 1¾d to 5½d; fair to good root, 3d to 5½d per lb. Hybrid chips, 1¾d to 4d; root, 3¾d to 4d; shavings, 2½d to 5½d per lb. Renewed: Red varieties good to very fine rich shavings 3¾d to 6½d; poor to good stem and branch chips, 1¾d; to 3¾d good quilly chips, 4d per lb. Yellow common chips, 3½d; fair shavings, 6½d to 6¾d per lb. Grey varieties, poor to good quilly stem and branch chips, 2¼d to 5½d per lb. Hybrid dusty to fair stem and branch chips, 2½d to 4½d per lb.

IT is mentioned in connection with the Gibbs Dryer and patent Fitter Stoves, that the tea from the gardens of the Jokai Assam Tea Company, Limited, which fetched the top price in the "Lane," were passed through these dryers, and that the fermentation was fixed by these machines.—*Home and Colonial Mail.*

MR. BARTON'S TEA DISEASE, for which he was to provide "a perfect cure," turns out, as we expected, to be a case of much ado about nothing. Trees badly planted in shallow holes with their roots turned up, cannot make healthy growth and in shallow and moistureless soil, even tea cannot enjoy a healthy existence,—that is all. In such large expanses of tea as exist in Ceylon, some bad planting in good soil and some planting in unsuitable soil is inevitable and so there are some unhealthy plants on every estate, apart from those affected by *symplocos* fungus. Dr. Trimen's deliverance on the subject, as conveyed in response to queries from the "Independent" editor, is as follows:—

The leaves at the ends of the shoots are dry, often puckered and torn, yellowish, discoloured with brown spots and lines, and they seem to ultimately dry completely and fall off. The twigs become dry and are often quite dead at their summit; lower down, though apparently healthy outside, the young wood and inner bark show a brown discoloration and decay. Such appearances might be due to the ravages of a sucking insect, but I see no trace of any. Fortunately our Ceylon species of *Helopeltis* does not seem to attack tea. The brown discolorations of the leaves are not at all like those produced by any parasitic fungus, nor is any such to be discovered on them. I cannot find any web of red spider or any other trace of that insect.

The appearances clearly point to some failure in root action, and that this is their cause is probable from an examination of the roots sent.

In the larger bush (No. 1) which is apparently a "stump" with a main stem nearly 7 in. in circumference, the large tap root is, at a distance of less than 8 inches below the collar, bent at right angles, and runs horizontally for 3 feet, at which length it has been cut off in digging the plant. Just below the crown, there are many other horizontal branches also spreading out to as great a length laterally as the tap root, and like it cut off.

In the smaller bush (No. 2) the state of things is not so bad, the tap root extending downwards for 12 inches, and then branching horizontally; in this also there are a large number of thick spreading horizontal branches immediately below the surface of the ground.

This state of the roots is such as should be found in no tea bush grown under proper favorable conditions, and shows conclusively that the plant is unable to obtain a sufficient supply of food, and specially of water. These two bushes must have been planted in soil far too shallow for so deep rooted a plant as tea.

The cases before me then are practically cases of starvation, and want of sufficient water to supply the evaporation from the leaves. I see in them no evidence of disease in any other sense than this. The condition of the bushes is individual to each, and has nothing of an epidemic character.

I am, of course, able to speak only as to the material before me. The minute rootlets have necessarily been all destroyed in removing the soil, and I am thus unable to say whether the condition is aggravated by "grub," but it is fully explained by the evidence of unsuitable conditions supplied by the roots.

The real cause is careless planting. Tea should never be put out in places where there is no possibility of its tap root taking its natural direction, though of course something may be done by cutting it off. I am sure, too, that coolies very often turn the root up by planting in holes that are too shallow. Tea is a very hardy plant; but it feels drought, and in our hot, sunny climate, the root-system must be largely developed to supply the great evaporation.

METEOROLOGY IN INDIA.

As we pointed out not long ago, the Meteorological Department has given its unreserved adhesion to the truth insisted upon, some months since, in these columns, that India is not, as was supposed till very recently, a kind of meteorological *imperium in imperio*—or, as the monograph just published by the Department puts it—"a self-contained meteorological region cut off from Central Asia, etc, by the high mountains in the north-east, north and north-west, and from the rest of the world by a belt of calm, or doldrums, running along the Equator from Sumatra to Africa." Correspondences in meteorological conditions too well certified to be questioned, and too numerous to be referred to mere coincidence for an explanation, establish beyond doubt the existence of an intimate relationship between the weather of the Indian peninsula, and that of regions far beyond these barriers; but how far this connexion is the result of a direct relationship of cause and effect between the observed phenomena, and how far of their relationship to some common cause lying outside the limits of observation, still remains to be determined. The probability, we think, is that both kinds of relationship come into play—in other words, that there is direct interaction between the weather phenomena of these remote parts, as indeed there no doubt is, in some degree or other between all the parts of the world's atmosphere, and that they are also subject to the common influence of some more general cause. Looking, however, at the formidable character of the barriers referred to, the probability seems to be that it is to a relationship of the latter kind that the observed correspondences are mainly due, and that direct interaction between changes occurring in the weather of the Indian peninsula and that of trans-Himalayan or trans-Equatorial regions plays an altogether subsidary part in their genesis. One of the great defects of existing meteorologicial theory, is the extent to which it ignores the movements and other physical conditions of the upper regions of the atmosphere. The defect itself is no doubt largely due to the extremely limited character of the opportunities that have hitherto existed for observing these changes and conditions; and its removal must depend to a great extent on their multiplication in the future. Of the larger movements of the atmosphere at high altitudes, we possess indeed a certain measure of theoretical knowledge, based partly on inference from what we know regarding the motion of the earth; and we are also able, by calculation, to arrive at rough conclusions regarding the general temperature of the atmosphere at different altitudes. As a means of supplementing and checking the former knowledge, we have, too, the observed movements of the clouds in regions beyond the reach of the anemometer, though these, after all, do not carry us very far. But the information derived from all these sources put together falls very far short of what is needed to make meteorology anything like an exact science. Without accepting M. Faye's theory of the origin of cyclones, which are probably not all due to the same cause, it may be regarded as almost certain that many, if not most, of the more violent of these phenomena originate in movements in the upper regions of the atmosphere; for it is in those regions that the normal movements of the air are most rapid, reaching a velocity, there is reason to believe, of as much as eighty or even a hundred miles an hour, and it is there, consequently, that the whirls produced by the mutual impact of currents moving in different directions are likely to develop the most formidable proportions. That such atmospheric whirlpools can persist for any length of time without affecting the air near the earth's surface, is in the highest degree improbable, and there is a great deal of an *a priori* character to be urged in favour of M. Faye's view that they must often propagate themselves downward until they actually touch bottom on the solid substance of the globe. The incontinent development, moreover, of circumscribed areas of low pressure at the earth's surface, and their long continued persistence often in the entire absence of horizontal movement, and in the presence of conditons under which according to all known physical laws, they should rapidly fill up and disappear, presents a mystery which meteorology has, so far, utterly failed to solve; but which would probably vanish if their connexion with movements in the upper regions of the atmosphere were recognised. Nor is it only such violent meteorological convulsions as cyclones that are probably traceable to changes taking place at altitudes beyond the reach of observation. There is every reason to believe, for instance, that sudden depression of the temperature at the earth's surface are, in many cases, caused not by a lateral inflow of cold air, but by the descent of a body of such air from above. The common phenomenon of an absolutely, or comparatively, clear sky becoming overcast, sometimes with great rapidity, by clouds which seem to come from nowhere, and which are obviously not brought in laterally from adjacent regions, is, no doubt, due to such a movement; the cloud being really formed *in situ* as a result of the condensation, by the down rush of cold air, of vapour suspended in the atmosphere which was previously invisible. What is needed to give greater coherence to our meterological knowledge, and to confer greater certainty on our weather forecasts, is not merely the multiplication of recording stations at or near sea level, but, in an even greater degree, their establishment on mountain heights, and the discovery, if that be possible, of some means of systematically observing and recording the atmospheric changes which take place in regions unpenetrated by mountain tops and inaccessible to balloons.—*Indian Agriculturist.*

THE RIVAL GLASGOW TEA DEALERS.

Mr. Cranston has reprinted a notice of himself and his tea rooms from a humourous periodical called "The Bailie," which depicts him as a great friend of temperance and practically a tee-totaler. Mr. Cranston deals chiefly in China teas, and according to "The Bailie,"

One of his pet subjects, is the contrast between the "bitter" and the "mild" species of the fragrant herb. The strong, pungent Indian teas, he points out, yield, when infused, 9 per cent of tannin, as against 3 per cent given out by the milder teas of the Chinese Empire, and yet, he adds, the yield of theine from both is practically the same.

Our readers need scarcely be informed that tea without a good proportion of tannin is poor stuff. Mr. Cranston boasts that

£1,024: 18: 4

Is the actual first cost price of our first purchase of New Season's Tea, consisting of one invoice for 142 Half Chests Finest Kintuck Moning, at 2/4 per pound, duty paid.

We are informed that this is the biggest "chop" and largest purchase of China Tea at the price in one line that has been effected in the West of Scotland for ten years back—"wholesale houses" even not excluded.

It would be an act of vandalism to mix this exquisite China Tea along with those strong, dark, bitter Indian

and Ceylon Teas, which yield so much Tannin and are so injurious to the system; and if the present generation would drink this China Tea—without cream or sugar—they would appreciate those praises of "old fashioned" Tea as sung by their grandmothers, and at the same time be free from dyspepsia.

After this false rubbish Mr. Cranston goes mad and raves thus;—

It is not so much a question that China Tea has fallen off in quality (not quantity) as that the public taste has become demoralised and vitiated by believing in and buying upon the faith of lying advertisements; for instance, that deliberate falsehood which reads, "Extra Choicest Indian and Ceylon Blend, 1/7 per pound. The finest the world can produce. Direct from the Tea Gardens to the Teapot."

We prove the falsehood by offering our own Blend of Indian, Ceylon and China Tea at 1/6, which we guarantee to be of finer flavour and quality, and more refreshing to the system.

We challenge this unscrupulous Advertiser to contradict—if he dare—our statement that the greater portion of the Tea he sells is *not* grown upon his own estates, but is bought at Public Auction on the London market.

He pays large salaries to buyers and assistants, and high rents for offices and stores, while we pay not one penny beyond a bare commission on public sale prices, and we believe our cost price is considerably lower than his.

We have the cream of the market to select from, and we sell at *one-half the profit* exacted by firms in London, Edinburgh and Glasgow who make the loudest pretensions under cover of that much abused phrase "Wholesale Rates." Therefore, our Teas defy such competition.

Note our Prices for Mild and Refreshing Blends of Indian, Ceylon and China Teas.

1/, 1/3, 1/6, 1/9, 2/, 2/3, 2/6 per lb. and upwards.

Pure Darjeeling	.. ..	1/9, 2/3, 3/ and 3/3.
Pure Ceylon	.. ..	1/6, 1/9, 2/3 and 2/6.
Pure China	.. ..	1/6, 2/3 and 2/9.

Our readers will notice that this man assigns a position to Ceylon tea below China, the reason, probably, we may with no lack of charity guess to be, that his rival is interested in Ceylon tea.

IN A TEA WAREHOUSE.

A VICE-REGAL VISIT.

A vice-regal party, consisting of the Governor and Lady Jersey, accompanied by Captain Cholmondeley, one of the aides-de-camp, paid a visit yesterday to the warehouse of Messrs. James Inglis & Co., tea merchants, in Dean's-place. Received at the door by Mr. Inglis, M.P., the party proceeded upstairs to the salerooms and where a tea plant was to be seen, where the centre table and the walls were covered with photographs showing every process through which the plant goes, from the primary cultivation to the gathering and fermentation and packing of the leaf. Nearly every variety of tea was on view here. There were neat wooden packages from Java, the stronger teak wood and mangoe wood, and lead-lined packages from Ceylon and India, and the natty caned packages from China and Japan. A well-grown specimen of hybrid tea from Mr. Inglis' own Indian conservatory was on the table. Mr. Inglis himself acted as guide, and displayed a number of excellent photographs, showing the successive stages of the growths, picking and manufacture of the plant.

Lady Jersey expressed some surprise at hearing that tea had to be fermented before it is of any value as a marketable commodity.

"The fact is not generally known," says Mr. Inglis, "but it is so nevertheless. Tea has always to be fermented before it is any good. Then it is bruised, rolled by machinery, then separated into different grades and afterwards packed." *

"But there is a difference between the number of pickings as regards India and China tea, is there not?" asks Lord Jersey, as he takes a handful from a chest and buries his nose in it.

"A marked difference," replies the indefatigable guide. "In China there are only about three pickings a year. They are known as the first, second and third crop. But owing to the more scientific method of cultivation in India and Ceylon and the system of pruning and manuring which is adopted some gardens there give acually from 12 to 16 pickings per annum. These pickings are known as flushes, and at the annual sorting up of the garden all coarse and decayed wood is pruned out. Indeed the knife is employed most ruthlessly to stimulate as far as possible the growth of the fresh young wood, from which the finest kinds of tea are taken."

"But how do you get this remarkably £85 a pound tea which we have heard something of lately?" asks the Governor.

"The reported high price is probably a trade advertisement," says the pilot. "It is altogether excessive, entirely beyond the real value of the article. Still, it is extremely expensive for all that. Now look at this living plant here," he continues, taking the growing article from the table. "Just at the top is this small delicate leaf. These leaves are called the tippy buds. If you closely examine them you will notice that they are covered with a fine delicate hairy growth much like that which we find on a butterfly's wings. These are scattered through a mass of common tea, and the value of the tea itself is calculated according to the proportion of tip which it contains. A very tippy tea gives a greater flavor and commands a much higher price than tea destitute of the tip. How do you select the tip from the other leaf? In this way. A piece of fine flannel is spread on a mass of tea. The hairy little golden tips stick to it, and if the process be continued a large quantity of pure tip can be separated from the common article. In this way the very finest samples of golden tip can be procured. It is no doubt this which has gained the fabulous prices which are said to have recently been obtained in London."

"What varieties are there of tea?" inquired Lady Jersey.

"Pekoe is the fine tip, Souchong is the large leaf further down the stem and Congou is the leathery, woody leaf. Congou is the synonym for the people's tea. It is the tea drunk by the common people. Pekoe Souchong is a mixture of the very fine with the ordinary leaf, and Oolong, Kooloo and other well-known varieties take their names from peculiarities of manufacture or from the names of the district in which they are grown. Panjong, Sueykut Saryune, Darjeeling, Assam and Sylhet"—and as he ran off this list of jaw-destroying names the guide pointed to the samples around the salercom—"are all names derived from the district where the plant is cultivated. The Foochow district produces the largest quantity of teas in use in Australasia. The green teas are used in America, they come principally from Japan, Formosa and Foochow. From Hankow the black leaf teas known as the Monings go to London and Russia. In Canton and Macao, which are southern ports, the crop ripens fully six months earlier than it does in the more northern latitudes, and the teas which come thence are known as the 'new makes.' The bulk of the scented teas are procured from the same localities. The Hong Mee, a flowery tea, is obtained from Canton. What is known as the scent is really an article foreign to the tea plant altogether. It is generally made from the very delicately-scented Jasminacum Sambac. By Chinamen it is called Po-ee. It is simply the powder of the

* Our good friend Mr. Inglis did not, we feel certain, give the sequence as represented by the reporter, but put the rolling and bruising before what is unfortunately called fermentation.—ED. *T. A.*

jasmine flower, which is liberally dusted over the teas." Having listened with bated breath and whispering humbleness to this disquisition, the party makes a move in the direction of the packing department, passing on the way through storerooms loaded up with every description and brand of tea from everywhere from Java to China. In the packingroom are a number of girls and young women busily engaged at desks ramming the blended tea in packets, according to the brand which it is intended to send them out to the public. The expeditious manner in which they go through their work is astonishing. Some make the packets, gauged to hold exactly a pound in weight, others distribute them along the tables, others again take them up, fill them with the leaden pound gauge and then force in the tea with a wooden article specially made for the purpose. After the receptacles are filled their duty is to remove the outer case, seal up the packet, and then it is ready for the market. Some statements are made by the girls as to how much they can earn at the work. Some say 25s, others 30s, others 50s, while one stated that she has earned as much as £3.

"I wonder what sort of success I would attain at it," says Lady Jersey, as she takes hold of a packet and tries to remove it from the outer casing.

"I'll keep time," remarks Mr. Bruce Smith, who has just joined the party and who pulls out his watch for the purpose. Mr. Bruce Smith is apparently a dab at this kind of thing.

Lady Jersey makes several gallant efforts to get through the work. She is about as successful as a "labor" bill is in getting through the Council.

"How much could I earn?" she asks, when the fruitless effort is over.

"Exactly 4d a month!" replied the Treasurer, who has gauged the matter to a nicety.

In the meantime Mr. Inglis is looking for an opportunity to open the flood gates of information on the tea industry generally. A question as to the progress of the Indian trade gives him the opportunity.

"Ceylon has gone up since 1880 from an export of 23lb. to 50,000,000 lb. It was over 40,000,000lb. last year, and I think that this year will give an additional 10,000,000. * The progress of the Indian tea trade has been one of the commercial phenomena of the century. The Indian teas have greater body, and are invaluable in many respects for their exhilarating qualities. They are specially adopted for blending with the more delicate China teas; for Indian tea is to China what good beer is to the finest light claret."

Mr. Rowbotham, who is an expert, also furnishes much useful information and says that if he could only get the right sort of labor he could grow enough tea on the northern rivers of this colony to supply the world. The Australian and New Hebrides Company, of which Mr. Inglis is one of the directors has established extensive plantations in Fiji for the cultivation of tea, and a little has been grown by retired Anglo-Indians on the north-west coast of Tasmania. The process of tea tasting is explained, some experiments are made and the visit is over.—Sydney *Daily Telegraph*, oct. 3rd.

JAMAICA PRODUCTS.—Writing of the Imperial Institute the Jamaica *Gleaner* states:—

An Exchange in London where all, and that not by any means a little, that Jamaica can produce will be exhibited, is an advantage so obvious, an opportunity so fruitful of benefits, as to be self-demonstrable. In addition to our well known Staples, Rum, Sugar, Coffee, our list of special and of new exports is a large one, including Fruit, Pimento, Logwood, Fibres of all kinds, Fancy woods. To these may be added Sarsaparilla, Cinchona, Cacao, Kola, Anatto, Wax, Our ochres and clays, as yet little known, have been pronounced by competent judges, equal to any in the world.

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* By the middle of October the figure was 54 millions.—ED. *T. A.*

THE Eaglehawk correspondent of the *Bendigo Independent* writes:—"I was shown a Yankee specimen of ingenuity and simplicity. It was a 'post hole digger,' and was imported from America. It will dig from 200 to 300 holes per day in any ordinary ground, with only a novice in charge of it. The 'digger' is a steel cone of 15 inches length and 7½ inches in diameter, with an iron pipe or cylinder 3 feet in length attached to the top. In this cylinder a strong iron rod 4 feet in length is worked, called the driving rod. It strikes on a cap of hard leather on the top of the cone, which can be easily replaced at any time. There are two small handles at the top of the cylinder to lift it with. The cone is placed where the whole is sunk, and the rod is worked smartly up and down, sinking the cone into the earth, a slight pull and push being given every second or third blow to the handle, as would be done with a chisel in cutting a mortise. The digger takes about 6 inches of earth in each cut. At a trial on a hard pathway, a round hole 8 inches in diameter was sunk 2 feet 5 inches in five minutes and a half. Another trial was then made, with even better results. The 'digger' will prove a useful instrument on the plains, or on ground that is not very strong. The holes are quickly made, and not much 'packing' is required, the posts in most instances about filling the holes. The weight of the instrument is about 60lb., and, being all steel and iron, cannot be easily broken or injured." Some modification of this implement might serve for making holes for vine or tree planting.—*Mildura Cultivator.*

CEYLON EXPORTS AND DISTRIBUTION, 1891.

COUNTRIES.	Coffee, Cwt.			Cinchona.	Ten.	Cocoa.	C'moms.	Cinnamon.		Coconut Oil.		P'bago	
	Plantation	N'tive	Total.	1891 B'nch &Trunklb.	1891 lb.	cwt.	lb.	Bales lb.	Chips lb.	1891 cwt.	1890 cwt.	1891 cwt.	
To United Kingdom	5641	...	5641	4154386	52710228	14601	105245	1011459	227546	117205	54878	123551	351427
,, Austria	4674	47	4721		70550		4088	6300	21390	11979	15242		299716
,, Belgium	18	...	18	128438	65	...	...	59700	5600	3108	1161	5011	323589
,, France	199	56	255	3362	17398	149	...	113600	25580	3002	5007	...	207762
,, Germany	113	300	413	...	79205	158	1598	360865	108024	17973	16568	27941	
,, Holland	...	...	...	21438	2280	...	...	...	...	...	10	944	
,, Italy	...	54	54	...	3329	...	...	103800	75600	5612	3422	...	
,, Russia	...	...	...	...	11230	...	...	...	...	1001	3344	...	
,, Spain	...	...	...	...	12675	...	...	61000	...	...	...	...	
,, Sweden	...	...	...	...	300	...	...	...	...	...	...	...	
,, Turkey	...	...	...	...	2961	...	89	...	...	...	...	...	
,, India	...	100	100	...	324562	...	145745	24272	...	92451	71813	247	
,, Australia	...	2794	4612	...	27.8108	...	40	5200	10028	1836	1213	382	
,, America	...	789	8331	...	154977	2387	7643	57100	...	98693	38322	182690	
,, Africa	...	...	259	407414	67710	...	260	...	...	33	...	...	
,, China	...	...	107	...	154642	...	525	80308	...	1433	8	...	
,, Singapore	...	...	104	...	3174	84	...	...	...	58	41265	...	
,, Mauritius	...	...	35	...	56100	...	...	...	...	...	...	...	
	...	75	230	...		...	...	...	...	...	...	...	
Total Exports from 1st Jan. to 2nd Oct. 1891	71491	4161	75652	4715038	56401252	17379	265263	1883664	473468	354684			
Do 1890	69296	2720	72016	7195713	37812731	11573	270315	1561492	381338	254476			
Do 1889	58187	4063	62863	7876144	27262507	11757	229879	2005752	383204	232268			
Do 1888	112578	4436	118013	10935574	18490110	10419	220175	1392564	396169	300727			

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current London, October 8th, 1891.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry ...	£3 a £6
Zanzibar & Hepatic	Common and good ...	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d a 10d
	Medium to fine Quill ...	4d a 9d
	Spoke shavings	2d a 4d
	Branch	1d a 3 1
Red...	Renewed	2d a 10d
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow ..	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to good	£5 5s £5 10s
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine...	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 9d
Ceylon, Malabar sort	Fair to good bold bleached	2s 6d a 3s 6d
	,, ,, medium ,,	1s 6d a 2s 4d
	,, ,, small ...	1s a 1s 6d
Alleppee and Mysore sort	Small to bold brown ...	1s a 1s 6d
	Fair to fine bold ...	2s 6d a 4s
	,, ,, medium ...	1s 6d a 1s 10d
	,, ,, small ...	1s a 1s 4d
Long wild Ceylon...	Common to good ...	6d a 2s
CASTOR OIL, 1sts	White	4½d a 4⅞d
2nds	Fair and good pale ...	4 15-16 a 3½d
3rds	Brown and brownish ...	2½ a 2¾d
CHILLIES, Zanzibar ...	Fair to fine bright ...	42s 6d a 45s
	Ord'y. and middling ..	41s 6d a 42s 6d
CINNAMON, 1sts	Ord'y. to fine pale quill...	7d a 1s 5d
2nds	,, ,, ,, ,, ...	7d a 1s 3d
3rds	,, ,, ,, ,, ...	6½d a 1s 1d
4ths	,, ,, ,, ,, ...	5½d a 10d
Chips	Fair to fine plant ...	2½d a 7d
CLOVES, Zanzibar and Pemba.	Fair to fine bright ...	3½d a 3¾d
,, STEMS	Common dull and mixed	3¼d a 3½d
COCULUS INDICUS ...	Common to good ...	¾d a ⅞d
COLOMBO ROOT... ...	Fair sifted... ...	11s a 11s 6d
	Good to fine bright sound	22s 6d a 28s 6d
CROTON SEEDS, sifted...	Ordinary & middling ..	16s a 20s
CUTCH	Fair to fine fresh ...	15s a 20s
DRAGONS BLOOD,	Fair to fine dry ...	24s a 32s 6d
Zanzibar ...	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah & Turkey ...	Fair to fine dark blue ...	55s a 62s 6d
	Good white and green ...	45s a 52s 6d
GINGER, Cochin, Cut ...	Good to fine bold ...	75s a 80s
,, ...	Small and medium ...	42s 6d a 55s
Rough...	Fair to fine bold ...	35s a 50s
...	Small and medium ...	25s a 30s
Bengal, Rough	Fair to good	19s
GUM AMMONIACUM ...	Blocky to fine clean ...	50s a 90s
ANIMI, washed ...	Picked fine pale in sorts,	£11 a £12 10s
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£10 a £12
scraped...	Medium & bold sorts ...	£6 10s a £11
ARABIC E.I. & Aden ..	Good to fine pale frosted sifted	60s a 80s
	Sorts, dull red to fair ...	35s a 55s
Ghatti ...	Good to fine pale selected	45s a 55s
	Sorts middling to good...	23s a 33s
Amrad cha.	Good and fine pale ...	65s a 90s
	Reddish to pale brown ...	25s a 50s
Madras ...	Dark to fine pale ...	15s a 50s
ASSAFŒTIDA	Fair to fine pinky block and drop	30s a 80s
	Ordinary stony to midling	15s a 25s
KINO	Fair to fine bright ...	60s a 70s
MYRRH, picked	Fair to fine pale ...	£4 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 8d a 2s
East African Ports, Zanzibar and Mozambique Coast	White softish ditto ...	1s 5d a 1s 9d
	Unripe root	10d a 1s 4d
	Liver	1s 2d a 1s 7d
	Sausage, fair to fine ...	1s 7d a 1s 10d
Assam,	Good to fine	1s 6d a 1s 11d
	Common foul & middling	9d a 1s 4d
Rangoon	Fair to good clean ...	1s 6d a 1s 9d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	1s 8½d a 2s
	Fair to good black ...	1s 3½d a 1s 7d
ISINGLASS or FISH MAWS Tongue.	good to fine pale ...	2s 2d a 9s
	dark to fair ...	1s a 2s
Bladder Pipe...	Clean thin to fine bold...	1s 6d a 3s 4d
Purse ...	Dark mixed to fine pale	8d a 1s 8d
Kurrachee Leaf ...	Common to good pale ...	1s 8d a 3s 2d

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet ..	1s 4d a 5s 9d
	Ordinary to middling ...	3s 4d a 4s 2d
Kurpah	Fair to good reddish violt	3s 5d a 4s
	Ordinary and middling...	2s 2d a 3s 3 1
Madras (Dry Leaf)	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 8d a 2s 4d
IVORY—Elephants' Teeth		
60 lb. & upwards ...	Soft slightly def. to sound	£66 10s a £77
over 30 & under 60 lb.	,, ,,	£55 a £69
40 a 100 lb. ...	Hard ,, ,,	£48 a £59
Scrivelloes	Soft ,, ,,	£30 a £48 10s
,, ...	Hard ,, ,,	£23 10s a £28
Billiard Ball Pieces 2⅞ a 3⅛ in	Sound	£80 10s a £90 1
Bagatelle Points ...	Sli. def. to fine sound ...	£70 a £81
Cut Points for Balls	Shaky to fine solid sd.	£55 a £68
Mixed Points & Tips...	Defective, part hard ...	£34 10s a £53 1
Cut Hollows ...	Thin to thick sli. def to sound	£30 a £55
Sea Horse Teeth—		
⅔ a 4½ lb.	Crvd. crkd & close strght	1s a 3s 9d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	13s a 15s
	,, II, fair pickings	8s 6d a 10s
	Jubblepore I, good & fine pale	12s 6d a 13s
	,, II, fair rejections ...	9s 6d a 10s
	Vingorlas, good and fine	10s 6d a 11s
Madras, Upper Godavery	Good to fine picked ...	11s 6d a 12s
,, ,, ...	Common to middling ...	8s a 10s 6d
Coast	Fair	11s 3d a 11s
Pickings ...	Burnt and defective ...	8s 6d a 10s
MACE, Bombay ...	Dark to good bold pale...	2s a 3s 2d
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,, ...	65's a 80's	2s 8d a 3s 1
	83's a 180's	1s 6d a 2s 7
NUX Cochin, Madras	Fair to fine bold fresh	11s a 13s 6d
VOMICA and Bombay	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour..	2½d a 3½d
LEMONGRASS ...	,, ,, ,, ...	1½d a 1¾d
ORCHELLA Ceylon ...	Mid. to fine, not woody	20s a 25s
WEED Zanzibar ...	Picked clean flat leaf ...	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy ...	4½d a 4½d
Alleppee & Tellicherry	,, good ,, ...	
Tellicherry, White ...	,, ,, ,, ...	1s a 1s 1
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 22s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 8s
RED WOOD	Fair and fine bold ...	£3 a £3 1
SAFFLOWER, Bengal	Good to fine pinky nominal	50s a 60s
	Ordinary to fair ...	28s a 45s
	Inferior and pickings ...	15s a 25s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 1
SANDAL WOOD, Logs...	Fair to fine flavour ...	£35 a £60
,, ,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	30s a 90s
SENNA, Tinnevelly ...	Good to fine bold green...	8d a 1s 2d
	Medium to bold green...	5d a 7d
	Small and medium green	2½d a 4d
Bombay ...	Common dark and small	1d a 2d
SHELLS, M.-o'-P. ...	Ordinary to good ...	1d a 2d
	EGYPTIAN—med. to large, small and medium, oyster and chicken	92s 6d a 1
large		85s a 105s
medium stout ...	BOMBAY—fine thick ...	100s a 105
chicken part stout	bright fairly clean	100 a 115
oyster part thin ..	,, ,, ,,	82s 6d a 10
Mussel	,, ,, ,,	70s a 95s
	bold sorts	50s a 60s
Lingah Ceylon ...	small and medium sorts	40s a 48s
TAMARINDS	Thin and good stout sorts	4s a 11s
	Mid. to fine blk not stony	15s a 18s
	Stony and inferior ...	8s a 12s
TORTOISESHELL ...	Sorts goosmo. tlepa heavy	17s a 22s
Zanzibar and Bombay	Pickings thin to heavy	9s a 15s
TURMERIC, Bengal ...	Leamish to fine plump finger	17s a 17s
Madras ...	Fin. fair to fine bold brgt	24s a 27s
,, ...	Mixed middling... ...	20s a 24s
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 16s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	7s a 12s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	4s a 7s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for November :—

OCCASIONAL NOTES.

AS has already been announced by the daily papers, 3,000 copies of the first Agricultural Information Leaflet were circulated. So far as circulation goes the promoters of the project of issuing these leaflets may congratulate themselves on its success. Up to date orders have been received for over 3,000 copies each month, and these from the "Sinhalese" provinces only. Great help in the matter of circulation has been given by Government officials, schoolmasters, agricultural instructors, private landowners, and in fact all classes, who have given orders of from 1 to 400 each, and promised to take advantage of land sales and other large gatherings, journeys through the villages, schools and such means which facilitate distribution. It is satisfactory to note that even the modest charge of 1 cent per copy will seldom be incurred by the goiyas themselves, to whom the information given is offered in as simple a form as possible. Under existing circumstances the best available means for circulating agricultural leaflets have been secured, and though it might be considered by some that a more perfect method for their circulation can be adopted, the fact remains that the utmost has been done that can be done, and that as a private enterprise the project has met with as much success as can be expected. With their present circulation, and considering the support given to the leaflets, it will be surprising if the information they embody does not reach almost every cultivator in the Sinhalese Provinces.

It is a matter of great urgency that a spraying machine—a modified form of the Strawsoniser should be secured by the Government for special use in paddy-fields infested by insect pests—in the interests of the paddy cultivator as well as in its own interests, inasmuch as a reduced yield of paddy means a reduced income to the Government. If someone thoroughly acquainted with the peculiar conditions under which paddy is cultivated be deputed to arrange with the manufacturers of these spraying machines to construct one suitable for use on paddy land, there should be no difficulty in getting the desired machine. Dr. Neal, the entomologist, says that nothing has been done in practical entomology that has shown better results than the use of emulsions containing kerosine or insoluble poison held in suspension, and their application to infected plants in a fine spray by various atomisers and spray pumps." With one of these machines, an insecticide can be brought in contact with an insect, and its feeding ground thoroughly impregnated with poison. It is needful that the spray be very fine, and that it be applied with force to reach every infected part, or the hiding-places of insects.

The Report of the Director of Public Instruction for 1890 contains an unusually short reference to the Colombo School of Agiculture, "which continues to fulfil," the Director is glad to say, "the expectations of my predecessor." A detailed report of the work of the school was read on prize-day last December, and reproduced in the Magazine columns. It was only late in 1890 that Mr. Cull succeeded Mr. Green, and the new Director will no doubt have more to say of the school in his report for 1891, which has so far proved, in many ways, an eventful and "lucky" year for the Institution.

We have pleasure in announcing that the stud bull which was expected from India has safely arrived. The bull (which was one of the Saidapet farm stock) is a handsome and compact animal, and well-suited for the object it was intended, namely, of mating with native cattle, and thus improving the breed. We trust advantage will be taken of the facilities offered to native cattle-owners to improve their stock.

The Director of the Colombo Museum in his last report mentions that carbolicised oil is one of the most powerful preservatives known both for form and colour. Coconut oil and carbolic acid are said to mix freely in all proportions. The acid moreover enables coconut oil and turpentine to be mixed, the mixture forming a splendid microscopic fluid.

The idea of appointing a veterinary officer to Colombo, (which we believe originated with H. E. the Governor), and our recommendation that he should be attached as a lecturer to the School of Agriculture, are, we are glad to say, about to be carried into effect. In the Supply Bill for next year, a sum of R5,000 has been provided for veterinary work. We understand it is contemplated to erect a veterinary hospital on the School of Agriculture premises, so that the need for more groundspace for additions to the present buildings will be opportunely met by the grant of land lately made to the school.

Miss Ormerod, the distinguished authoress of the "Manual of Injurious Insects," has decided to resign her appointment as Consulting Entomologist to the Royal Agricultural Society, owing to the scant courtesy which she has received at the hands of that body. Miss Ormerod does not, however, mean to abandon her entomological work which she has carried on for the last fourteen years, and hopes "to be permitted the pleasure still of being consulted, and of replying to enquiries just as before," that is privately.

We have perused with pleasure the report of the Government Agent, Anuradhapura, as published by the *Hindu Organ*, embodying a scheme for the colonisation of Kalawewa, which is said to have the sanction of Government. The scheme is evidently the outcome of much deliberation, being based on liberal and philanthropic—and at the same time strict—principles, and we shall anxiously look forward to its being carried out into practice.

Mr. Millson, Assistant Colonial Secretary of Lagos, in his report on the indigenous plants of Yoruba-land, says that sorghom vulgare, which he calls red guinea corn, is not cultivated for the grain which is not used, but as a dye plant—the dye being described as excellent. Sorghum vulgare is the Indian cholum.

The rain-making experiments made by Colonel Dyrenforth, of the United States Agricultural Department, may be said to have been a success. The value of the discovery will depend on the expense which the process of rain making involves, and the possibility of its use in practical agriculture.

GAS LIME FOR CLAY SOIL.—In his article in the Royal Society's *Journal* on the Experiences of a Scotsman on the Essex Clays, Professor M'Connell writes as follows:—"The action of lime on a clay soil is well known, and in this district we use immense quantities of the spent lime from the London gas-works, which we get at the cost of the carriage. It is applied in various ways, and many are foolish enough to use it without manure. We have applied it raw to the coarse parts of pasture lands, but it seemed to make them still coarser, at least during the first year. Some mix it with earth for compost for top-dressings, and some apply it to the fallows. We prefer to apply it raw, at the rate of from 4 to 6 tons per acre in autumn, to the lea land that is to be ploughed up during the winter. By this means all grubs are killed, the turf is partly killed, the soil is made more friable, while of course, the natural fertility is stimulated. By itself, I have seen it act on a crop as strongly as nitrate of soda, but the soil must be fed along with it. Its effect on the mechanical texture of the soil is wonderful. I remember one case of a field that was partly dressed and partly left undressed with it, and in broadcasting the seed afterwards, I could feel the difference in the soil in stepping from the one part to the other, every time I went up and down the stetches, because the limed part was so much more loose and friable. Some maintain that it does no good to the soil, either mechanically or manurially, but we would not like to farm without it here. Of course, the land is ready for a fresh dressing every time the grass is ploughed up. I have not seen the crop killed by as much as 6 tons per acre, while, even on the permanent pasture land, 3 or 4 tons put on raw did not do any injury in this way. There are two varieties of this spent lime used here—the blue and the white. It is generally understood that the former is more poisonous than the latter, from having been used longer in purifying the gas; but for this reason, it is more effectual in its action, and its poisonous sulphites are oxidised long before the crop is sown." This suggested the question, what is done with the gas-lime produced at our local gas-works?

We have to acknowledge with thanks the receipt of the Richmond College Magazine, Ceylon Patriot, Hindoo Organ, and St. Thomas' College Magazine.

CULTIVATION OF THE COCONUT PALM.

The proper month for transplanting in sandy or dry land is in November or at the beginning of the rains, as no watering need then be done till the rains are over. In low marshy situations it is safer to plant after the rains. As they grow the plants must be watered whenever necessary, and a sharp lookout kept for the coconut beetles, which invariably attack and often kill young plants, and even young bearing trees. These pests are common enough in every new plantation, but are specially plentiful on estates where the felled jungle consisted to a large extent of the wild mango, a very common tree in the Eastern Province. It has been a moot point whether it is better to thoroughly clear and stub a new plantation, or to allow the stumps of forest trees and dead wood to remain on the ground to decay and crumble down in the course of time. It has been, however, found in practice that the latter is by far the better plan, as the gradual decay of the soft rotting timber helps in a great measure to enrich the soil. Advantage should be taken, in clearing an estate, to saw up the trunks of suitable trees into scant-

ling and planking for building purposes, for the construction of bungalows, cattle-sheds, stores, &c. The top branches will come in handy for firewood. The more valuable kinds may be sold, as in these days of forest conservancy, there is a great demand for timber of all kinds, particularly satinwood, halmililla, &c. Every estate, if established on the site of a forest or jungle, should be able to supply material for its own fencing, as such material is not only costly but very necessary, and it is important that the fencing should be kept in good order from planting-time till the trees are tall enough not to require it.

As the trees will not come into bearing in from 7 to 10 years, advantage may be taken of the land to raise crops of Cassava and Indian Corn on it, the proceeds from which together with the results of the sale of good timber ought to recoup the proprietor for what he has expended on the purchase of the land. And here it may not be out of place to say something of Cassava and Indian Corn as subsidiary crops in coconut cultivation.

Indian Corn or Cassava may be raised just after the planting out of the coconuts, or half the land may be laid under Indian Corn, and half under Cassava. These will do no harm to the young palms, but on the contrary help to shade them from the sun in the earlier years of their growth; and as the seeds or slips of these products will be naturally put down at the commencement of the rains, they will not interefere with the process of watering of the palms which at this time will not require watering.

Indian Corn is put into small holes dibbled in the ground about 2 feet or less apart, 3 seeds being put into each hole in a triangular form. The seed sprouts earlier and more vigorously if soaked for 12 or 15 hours before planting. The seeds while waiting to be planted should be left on the cobs with their coverings on. Four or six of these cobs may be tied together by their coverings which are pulled over the cobs, and periodically, if not continually, exposed to the influence of smoke, which keeps them from being attacked by insects. Seeds treated in this manner may be kept for a year or even longer without injury by insects.

Cassava or Manioc is planted from slips, 3 or 4 inches in length, and placed in a slanting position, from 2 to 3 feet apart, in holes which are rapidly made by a chop from a mamotie. Neither Manioc nor Indian Corn require deep planting, and when the soil is not hard they are planted by the hand by the villagers. Manioc cuttings are kept for planting by tying about 50 of them into a bundle, and then placing them in a hole and watering for a few days, by which process they can be kept for a year or more if looked after. With other supports Cassava can be made to grow as a fence both graceful and ornamental.

The enemies of an Indian Corn-field are parrakeets which flock to it in thousands when the cobs begin to be formed, while villagers and coolies will also carry away as many cobs as their ingenuity can procure. These latter may also be put down as enemies of the Cassava plantation, while rats, porcupines and wild pigs have to be guarded against by the erection of strong and well-made fences.

When both Indian Corn and Cassava are fit for eating, the coolies or villagers working on the estate will readily accept either, in lieu of all or part of their pay. In the Eastern Province at least one need not be under any apprehension as to the sale of these crops. People will come a long distance and at great inconvenience to purchase the produce, and if the rainy season has been a favourable one, a very fair income may be expected.

But there is a question, in this connection, which is often asked, viz., does not the cultivation of Indian Corn and Cassava exhaust the soil? Very possibly so; but not to an appreciable extent. When these two subsidiary crops are raised on a new cleaning, the soil is generally abnormally rich virgin soil; and as coconut trees need to be manured at a later period, the utilization and partial exhaustion of the land between the rows does not materially affect the palms.

I may here mention that to a planter, cooked Indian Corn or meal, and young cobs, are an excellent diet, while boiled manioc and milk, Cassava flour cakes, roasted manioc, and tapioca are by no means to be despised.

R. ATHERTON.

(To be continued.)

INDIGENOUS FOOD PRODUCTS: CULTIVATED AND WILD.

It was pointed out in a review of a past number of this Magazine, that the series of notes that I have been contributing under the above heading included a number of plants which might be erroneously supposed to produce food stuffs that could be adopted as a regular diet among the villagers. I should therefore mention that a great number of the plants which have been described, though not suitable to be used as substitutes for regular food, are yet edible, and that my aim in these papers is to describe such plants as are found in a cultivated state or growing wild, of which some part may be eaten.

Sapotaceæ.

53. *Chrysophyllum Roxburghii*, G. Don.
Sin. Láwulu.

is a tree growing in the warmer parts of the Island. It grows to the height of from 30 to 60 feet, and is not very commonly met with. It bears a round fruit the size of an apple, with a green pericarp. The fleshy substance found in the fruit has a sweet taste, but is full of a gummy lacteous juice. The seeds are small and flat with a shining brownish testa. The fruit is eaten whenever obtainable, and is often brought to the markets for sale, where two to four of them are generally obtainable for a cent.

54. *Mimusops Elengi*. Sin. Munamal.

This, too, like the above, is a tree growing in the jungles, especially in the warmer districts. The fruits are oval and small, about half an inch in length. Though green in the young stage they turn a brownish red. The mesocarp is pulpy when ripe, but contains a large percentage of caoutchouc-like juice. It is also astringent to a great degree.

When obtainable the fruit is eaten, especially by children, though it produces a peculiar astringency in the mouth.

The bark of this tree, on account of its astringent properties, is considered by native medcial practitioners a good dentifrice, and is externally applied in cases of serpent bites.

55. *Mimusops Indica.* Sin. Palu.

The *M. Indica* is one of those trees which are found in the forests of the Island especially in the warmer dry districts of the South-Est and the North-West. The tree grows to very large dimensions, and large quantities of a small oval fruit of the size and shape of a country date are produced These when ripe are of a yellowish tinge, and contain a characteristic lacteous juice; nevertheless it tastes well and is consumed in the districts where it is obtained. The fruit of the *M. Indica* when preserved in syrup keeps well for a length of time. The timber of this tree is used for a variety of purposes, especially as planks for bridges, while it is also considered to be suitable for railway sleepers. The bark of this tree is used in native medical practice in preparing a gargle for sore throat. The fruits produce a sweet syrup and the seeds an oil.

W. A. D. S.

VETERINARY SCIENCE AT THE CONGRESS.

At the late Congress of Hygiene and Demography several papers were contributed on the various parasites, external and internal, transmissible from man to animals and *vice versa*. Dr. Klein endeavoured to demonstrate that various eruptions which he described as occurring on the udders of cows were liable to produce specific fevers in persons using the milk of these subjects. He also contends that he has produced experimentally diphtheria in the udders of cows by inoculating them on the shoulder with diphtheric discharges taken from the throats of children. Dr. Cruickshank, Professor M'Fadyean, Professor Walley, Dr. O. Ostertag of Stuggart, and others expressed their incredulity as to Dr. Klein's conclusions regarding scarlet fever, which they had never seen in cows, and did not believe that it occurred in these animals; recent German experiments going to show that it is impossible experimentally to produce scarlet fever in cattle by inoculation.

Dr. Ostertag read a paper on the inspection of milk supplies. The milk from tuberculous and other diseased animals he would condemn, especially if the disease affected the udder. The ensuing discussion was carried on by various medical officers of health and veterinarians. There was a general concensus of opinion that dairies and milk shops should be registered and licensed; that milk sold to the public should be periodically examined by competent experts, and dairy cattle premises and persons employed in the business should be subject to veterinary and medical inspection. These provisions it was urged should be applicable to village as well as city premises and business. It was believed that they might be, in a great measure, authorised and carried out under the powers of the Local Sanitary Authority, the Contagions Diseases (Animals) Act, and the Food and Drugs Act. But if these did not already authorise such supervision, they should forthwith be amended.

A whole day was devoted to a discussion on Tuberculosis opened by Professor Sanderson, who pronounced the disease distinctly infective and identical, as it appeared in man and in cattle. The milk from tuberculous cows was said to be more likely to develope tuberculous disease in persons using it than was the eating of the flesh of tuberculous animals. Professor Nocard thought that such food had special dangers for children. On the subject of tuberculosis, Professor M'Fadyean and Dr. Woodhead contributed a conjoint paper, in which they urged the abolition of private slaughter-houses and the institution of a general system of meat inspection, with a view to removing or diminishing the existing risks of dangerous diseases being contracted through the consumption of unsound or diseased animal food.

The Congress cannot fail to have effected much good in many ways, in stimulating the labours of those working in various departments, in recording the progress made against disease derivable from many causes, and in indicating the measures to be adopted for mitigating or removing the dangers that spring from these causes, and for securing the health of both men and animals.

The inspection of dairies, cattle and milk will no doubt form part of the duties of the Veterinary Inspectors in Ceylon, when such are appointed. It is a common complaint among householders that they cannot procure pure cow-milk, but these same householders are unfortunately very often no judges of pure milk, the general criterion of purity among them, being the "thickness" of the fluid. The lactometor which some use as a guide to ascertain the purity of milk, has now been decided to be no indicator of its nutritive value, unless it is known that the milk is unadulterated. Whether the milk be pure cow-milk, or whether buffaloes' milk be mixed with it is beyond the power of the lactometor to discover, but when different samples of unadulterated milk are to be tested, the instrument is useful to decide in what order they stand as regards nutritive value. It is a common practice to adulterate cows' milk with that from buffaloes as well as with coconut "milk," so as to "thicken" it, and deceive credulous householders. In cases where the milk is pure, but happens to be from a cow that has lately calved, objections have been raised against the milk which is thought to be diluted, but which under natural conditions contains a larger proportion of water than it does when drawn at a later stage. Again when pure milk is naturally of a very thick consistency, suspicion is aroused that it has been adulterated with buffalo-milk. The fact is that householders who purchase milk are content to have their milk of a standard consistency whatever components it may be composed of, and whatever its nutritive value. The average milkman at the same time becomes demoralized when he finds that he has opportunity for practising deception, and thus makes no attempt to secure a good milk yield by judicious management and feeding of his cattle.

The examination of milk and inspection of dairies—if these latter are not to be registered and licensed as recommended by the Veterinarians at the Congress of Hygiene and Demography,—if

insisted on by our local authorities will not only be a measure in the interests of public health, but also in the interests of agriculture, inasmuch as while such a measure will be a deterrent of milk adulteration, it will necessitate a more careful and rational system of feeding and generally managing milch cows with a view to the production of wholesome and nutritious milk, and indirectly raise up a better milking breed.

BY HIGHWAYS AND HEDGES.

Dr. Taylor, the popular writer of *Science Gossip*, has been lecturing on the Ingenuity, Sagacity, and Morality of Plants, and in speaking of the insectivorous plants, has referred to the Drosera or Sundew and the Nepenthes or Pitcher plant. Of the former there are three species in England, and no less than forty in Australia. There is more than one variety of Drosera in Ceylon, but the commonest would seem to be *D. Burmanni*. On the 43-acre block of land lately added to the School of Agriculture, there is a large plot right behind the school thickly covered with this species of Drosera which is not uncommon in the wet parts of the Cinnamon Gardens. In his lecture Dr. Taylor referred to the Pitcher plants of the Malay Archipelago, the pitchers of which he said were so huge that sometimes they held half a gallon of water. He also mentions that small birds frequented these pitchers to drink, and after having imbibed the liquid within were prevented from getting out by two large pointed spikes, and were ultimately drowned. The Nepenthes of Ceylon (*N. distellatoria*) known as Bandoora-wel among the Sinhalese is a much smaller variety than the Malayan plants. The long tough stems are used by the natives for tying fences, and quite lately I was applied to by a medical man for a few of the fleshy underground stems, the juice of which he was anxious to experiment with on warts which are said to be removed by the application in a day or two. There is, not far from the School of Agriculture, a large patch of pitcher plants which have been freely drawn upon by guides and boys who sell flowers and foliage to strangers visiting our island.

When a minute fragment of meat is placed on the leaf of a Drosera, the tentacle-like glandular hairs of the plants bend over to grasp the intruding morsel, and a peculiar digestive fluid is formed as a result of the contact—just as the gastric juice in the human stomach is secreted when food enters that organ—and this fluid effects the solution of the meat, which is then absorbed. Substances, whether solids, gases, or liquids which contain nitrogen, only give rise to such results. The insectivorous or carniverous plants, says Darwin, can even extract nitrogenous matter from pollen, seeds and bits of leaves.

Dr. Masters writing about these plants says: "The *rationale* of this mode of obtaining nutrition seems somewhat analogous to that in the root, where also the acid fluid with which the cell-wall is permeated, when it comes into contact with the particles of soil, determines their solution, and renders them fit for absorption into the plants. Practically this admittedly exceptional mode of nutrition by the leaf might seem of little moment, but it is probable that in the future, direct nutrition by this means will be shown to be of much greater importance than it appears to be at present. In any case, the fact that ammonia-solutions and ammonia-vapour are absorbed by leaves with increased manifestations of vital activity renders this mode of feeding a matter of some consequence to the agriculturist; and the escape of ammonical vapour from the muck-heap may not after all be the wasteful operation it is usually supposed to be—that is, if the circumstances are such that plants can avail themselves of the exhaled vapour."

Melastoma (*M. Malabathricum*), a plant very common in cinnamon land, is known as Bowitteya or Katakaloowa among the natives. The fruit which is both astringent and sweet to the taste, dyes the mouth black, and this fact it is that has given to the plant the names of Melastoma (of Greek origin) and Katakaloowa, both signifying black-mouth.

Keena, or more correctly Guru-keena (*Calophyllum tomentosum*) is a tree belonging to the same family as the Domba (*C. inophyllum*), and like it contains a good deal of oil in the seeds. This oil is extracted and used in the Ratnapura district, among other parts, for burning. Tne tree is to be found in the neighbourhood of Colombo, and the timber is utilized for building, while the bark is used externally in native medicine to dispel swellings, and for dislocation and bruises.

Sera (said to be derived from the Malay word Sireh) which is so favorite a flavouring agent for curries, is the lemon-grass so largely cultivated in the Southern Province. It was at one time thought to be identical with citronella grass, and both were supposed to be cultivated forms of mana grass. The three are now distinguished under the respective names of Andropagon citratus, A. nardus, and A. martini. Both lemon-grass and citronella oils are exported from Ceylon, and are used by perfumers for scenting soaps and pomatums, the latter also entering largely in the composition of Eau-de-cologne.

Mana grass or patana grass is used as thatch for huts and as litter for cattle, while a new use has lately been found for it in the manufacture of tea boxes. Cattle eat the grass when it is young, but it is said that the milk, butter, and even the flesh of cattle consuming it acquire a peculiar flavour imparted to them by the grass. The occurrence of patanas was considered by the Rev. Mr. Abbay to be due to the outcrop of a quartzite rock-formation, the disintegration of which results in a soil which is too poor to support a forest growth. This theory is however by no means generally accepted.

In the *Household Register* of September 18th is given the experience of a lady, of the tendency of a twining plant to turn towards a support placed near it. The support or pole, we are told was on the side away from the light, and the phenomenon of the plant turning towards it is said to have been difficult to account for

except by supposing that the plant could see the pole. In one of our previous issues we referred to the peculiarities in certain plants which would easily explain this phenomenon. The property of negative heliotropism, *i.e.*, the bending of growing organs away from the source of light is exhibited in such plants as the ivy and vine, and as we have before explained, is due to the more active growth of the more powerfully illumined part. It is this property that would explain the tendency of the special plant referred to by the lady to turn in the direction of a support which was away from the light. The growing part of twining plants is very sensitive—the slightest touch against any object making it bend towards the object for support. Professor McAlpine used to describe the effect of such contact as a "tickling" process to which was due the curling of the tips of the growing part—the contraction at the end being conveyed backwards and the whole plant drawn and tightly reflexed It is after the support is touched and adhered to, that the tougher tissue is developed and the position of the plant strengthened. Without a support within reach the growing part of a twining plant may keep moving about (away from the light if it be negatively heliotropic) till it touches a support to which it then inclines to adhere. This tendency of plants to twine round a support is caused by the more rapid growth of the right and left sides of a growing organ in succession, and is known as revolving nutation. It would thus appear that it is altogether too much to assume that plants are endowed with the sense of sight!

ROVER.

THE STORING OF SEED GRAIN.

The selection and storing of seed grain are matters of the greatest importance in agriculture. It is much to be regretted that from some cause or other the careful selection of seed,—the advantages of which are fully understood by our cultivators,—is not at present practised even to the extent it was at one time. The preservation of seed intended for sowing is another subject upon which any advice must be very welcome, as it often occurs that the seed which is expected to raise the future crop is at the eleventh hour found to have become musty or to have been attacked by some kind of insect, so that its germinating power has been completely destroyed.

The Agricultural Department of Madras in its Bulletin No. 10 takes up the consideration of this subject, and details the methods of preserving seed grain in vogue in some of the districts of the Presidency. The hints embodied therein must from the similarity of conditions under which cultivation is carried on in India and Ceylon, as well as from the simplicity of the means which are enumerated, be of value to the cultivators of grain in this Island.

Four methods of storing the seed are noted, viz., in baskets; gunny bags; earthen pots and straw bundles.

The baskets for storing grain are made of split bamboos, of a circular or rectangular shape and of various sizes. To fill up the spaces between the bamboos they are coated inside and out with cowdung. The baskets are generally used when large quantities of grain have to be stored. When the grain is placed in this kind of receptacle it is covered with a layer of straw and the mouth plugged with a thick layer of cowdung and earth.

The gunny bags are used when smaller quantities of grain are to be stored. The bags are simply kept loosely in some part of the house, where there is constant movement, so that the bags are frequently trampled on, shifted or used as seats by the inmates.

The earthen pots which are used are made in the shape of two inverted cones either of earth mixed with paddy husks or calcined earthenware, and are always kept whitewashed. When stored in pots sometimes the grain is liable to be damaged by insects. The best plan is that of storing the grain in straw bundles. For making the bundles a quantity of paddy straw, all of uniform length, is tied together at the butt end, and then placed in a basket and evenly spread out so as to make a hollow in the centre. On this a small quantity of loose straw is spread and the grain is put in. The outer straw is then gathered together at the top, and the whole bundle is bound round and round by a straw rope and finally secured by an ordinary rope. This form of storing is used in case of large grains, and the bundles are not opened till the seed is required for sowing.

In storing seed grain various substances are placed in the vessels to prevent insect attacks. Among these are mentioned the leaves of Margosa, the pods of Bengal gram, varagu (*Paspalum Scrobiculatum*) and wood ashes respectively. In Ceylon the villagers usually put in a lot of lime leaves and chilles along with grain to prevent insect attacks.

It is always of importance to dry the seed perfectly before storing away, for the least trace of moisture is apt to injure their germinating powers.

The fine grains such as Cumbo (*Pennisetum Typhoideum*), Kurrakkan (*Eleusine Coracana*) and the Panicums are usually better preserved when the whole ears are stored without threshing, the last operation being done just before sowing.

W. A. D. S.

CEREMONIES OBSERVED BY THE KANDYANS IN PADDY CULTIVATION.

Paddy is liable to be attacked by a grub known among the Kandyans as *kok-panuwa*, which sucks the juices of the plant. To avert such attack a *kema* or charm called *pas-pulutu-kema* is arranged for by the Kapurala. Five kinds of grain seeds are fried in a pan and afterwards spread on some mud which is moulded over a coconut shell. About dusk (gomman vena velawa) the Kapurala after going through a process of purification, proceeds to the infested field with this preparation, carrying a lighted torch in his hand. The kema is placed on a piece of wood, and the lighted torch is allowed to burn till the fire is extinguished. After this the Kapurala returns home, but not by the same road he went to the field, and to nobody must he utter a word on the way. Another method of dealing with this pest is to submerge the crop with water

for a time. In some parts of the Kurunegala district an oleaginous mixture with a pleasant scent is smeared over arecanut flowers by the Kapurala, after reciting the *Ithipiso Gatha*, and suspended on sticks in different parts of the field. In the Anuradhapura district, sand, after being "charmed," is scattered over the field, and offerings are made to *Jyana Dewiyo* with a view to inducing his intercession to stay the ravages of the pests. Mr. Bell, of the Ceylon Civil Service, in writing about the cultivation of hill paddy, describes another kema called *nava nilla*, practised by the cultivators of the Sabaragamuwa district.

When the paddy is approaching maturity other ceremonies are gone through, the goiya, after purification, places three ears of grain on a leaf of the Bo-tree, which is held in great veneration for reasons too well known to need mention, and buries them in the kalawita or threshing floor, at the same time chanting some mystic words, invoking the gods to protect the crop from flood, fire, birds and wild beasts. A day or so prior to the harvesting a few women are set to smear the threshing floor with cowdung. The crop must not be taken in on days on which *poya* (the sabbath of the Buddhists), *Sangrahandi* (when the changes in the moon occur) and *Vitti* (inauspicious days) fall. Again the neketrala, attired in fantastic dress, describes a peculiarly-shaped figure with ashes which he carries in a winnow, with a view to preventing *huniyam* (sorcery) and other evil influences. This ceremony is known as *aluwanwadanawa*. Another rite of a peculiar nature follows this, known as *arekwalè-tiyanawa*. It consists of digging a circular hole in the field and placing inside a model of the sacred footprint of Buddha (Sripade,) a husked coconut, a creeping plant, clusters of arecanuts, leaves from the heeraspalu (*Vitis quadrangularis*) and Tolabo (*Crinum asiaticum*), and covering these with about three bundles of straw. The figures of the *pooru lella* (leveller), laha (measure), sun and moon are also described with ashes in the kalawita. The village astrologer is of course resorted to in order to ascertain a lucky day to reap the field. On such a day a number of men with their eyes directed towards Adam's Peak, and assuming a joyful mood, proceed to the field with their sickles, and verses are sung in turn by the reapers. Another ceremony which precedes threshing consists in three nursing mothers clad in white, having to go round the field seven times carrying paddy on their heads, and then suddenly coming to a standstill and retreating, without uttering a word, to the three corners of the kalawita. Then after giving utterance to some incantation, they drop their burdens on the ground, and this is the sign for threshing to begin.

T. B. Pohath Kehelpanala.

GENERAL ITEMS.

We quote the following from the interesting report of the School of Industry, Happy Valley, Haputale:—"Our chief industry, however, is Agriculture. This is in accordance with our original plan, with the object of the Government grant, and with the requirements of our Agricultural Colony. In this respect we are following the examples of the best Industrial and Reformatory Schools in England, where farming is regarded as providing not only an appropriate industry in such schools, but as a source of supply for good farm labour, and as having a good moral effect on the boys. Many of the boys are also being trained in theoretical agriculture by the Agricultural Instructor, thus supplying, together with the ordinary work, an important branch of technial education for the more intelligent lads. It may be interesting to note in this connection that this is a feature of the English Technical Instruction Act of 1889. Mr. Ritchie in reply to a question put by Mr. Gathorne Hardy in the House of Commons in February last, stated 'that technical education was intended to include not only technical but manual instruction, and the latter comprised instruction in processess of Agriculture.' Some of our agricultural experiments have not been successful. We have been disappointed at the results of our cotton cultivation. But we have been fully compensated for that in the returns which we have realized from the planting of manioc, the roots being readily bought by the villagers in the neighbourhood who have developed a great liking for it, and will probably plant it themselves. We have also succeeded in making small quantities of tapioca from it, and hope before another report is issued to have the means of preparing it on a larger scale. The growth of English vegetables has already been mentioned as a productive branch of our enterprise, though we must wait for the railway which is to come through the property, before we can obtain any considerable sale, when we hope to contribute our share to the supply of the Colombo markets. Nor have the so-called native vegetables been neglected. Brinjals, chouchous, sweet potatoes, chilies, &c., sufficient, not only to supply the boys with curries, but to sell to the villagers, have been grown in the gardens. We have to express our thanks to Messrs. Sutton & Son for a good supply of seeds given us free of cost. It is a part of our programme that every boy in the Valley, no matter what his special industry may be, should be taught gardening."

It has been suggested by the *Ceylon Observer* that the breeding of horses in Delft Island should be revived. Horses used to be bred in Delft for supplying animals for the mounted orderlies. Their systematic breeding was, however, discontinued some thirty years ago, and it is now proposed that some fresh blood should be infused into the present breed, which has deteriorated from in-and-in breeding, with a view to producing animals of a better type that might be available for a tramway company. Delft is well-known for the good pasturage it supplies to cattle, and the suggestion that the breeding operations should be revived, under intelligent supervision, is one worthy of serious consideration.

The new fibre plant which was announced as discovered on the shores of the Caspian, and known there as kanaff turns out to be none other than *Hibiscus Cannabinus*, of which a small plot was raised at the school some months ago. It is also known as Deccan or Ambas

hemp, and is cultivated in India for its fibre which is soft, white, and silky, capable of being bleached or dyed in every shade and colour, and suitable for the same purposes to which jute is applied. Dr. Watts says of it, were a demand to be created for this fibre as distinct from that of sun hemp (the Sinhalese *Hana*) or other fibres, the cultivation of the plant might be indefinitely extended, and with profit to many needy cultivators who are unable to produce either jute or cotton. When it is considered, says the *Board of Trade Journal*, that Russia annually consumes more than 150,000,000 of sacks, a third of which is imported, it may easily be seen that the appearance of a new textile on the Russian market is an event of no slight importance. The leaves of *Hibiscus Cannabinus* are said to be used as a pot herb and eaten like spinach, while the seeds are sometimes exported from India to England as an oil seed.

M. Raoul, a French Colonist of Tahiti, is reported to have succeeded in growing a hybrid obtained by crossing the Sea Island cotton, which produces a beautiful silky fibre that is however difficult to manipulate, and a wild cotton shrub of Guadaloupe. The richness of the yield and the quality of the fibre are highly spoken of.

Mr. Tiathonis, Agricultural Instructor, writes:—Wellanduru is a small village situated on the mail-coach road to Rakwana, and 6 miles distant from Pelmadulla. It consists of about 50 dwellings, a small number of boutiques, and a Government boys' school. The climate is fairly healthy, and is influenced no doubt by the situation. There is a very useful rivulet which flows by the road which the inhabitants have unfortunately allowed to become very filthy, neglectful of sanitary requirements. The villagers chiefly carry on the cultivation of paddy, arecanuts, and chena grains. The paddy-fields are fairly fertile owing to the wash from the neighbouring hills, but cultivation is irregular as much from the poverty as the indolence of the inhabitants. The four seasons for paddy are known as pera-maha, maha, pera-yala, and yala. The Experimental Garden has been, after some difficulty in clearing and preparing the ground, extended to nearly 2 acres, and is partly occupied with betel, English and Native vegetables, and mustard, the rest to be devoted to cotton and tobacco.

It has been suggested that investigations should be made with a view to ascertaining the extent to which the bark of trees can be used as cattle food after being milled. Besides the saving that the use of barks as cattle food will effect, it is contended that when intelligently used, they will preserve the health of stock, and prove preventatives against infectious and contagious diseases.

A writer on the subject of village sanitation in the *Indian Agriculturist*, offers some practical suggestions for the improvement of the sanitation of villages. He suggests that a committee should be constituted, called the Sanitary Committee, for each village, consisting of several members, and placed under the direct control of an executive officer. That every village which possesses several tanks or natural reservoirs should reserve one or two strictly and exclusively for drinking purposes, and that where these are absent, deep wells should be dug in sufficient number to supply the village with a copious supply of fresh water. To free the atmosphere from miasma, the stagnant pools in the vicinity of each house should at least be cleared of the overhanging verdure that works the double mischief of intercepting light and air from above, and by dropping down leaves fills the water below with vegetable matter that in decomposing pollutes the water and the air.

The yearly record of butter production, says the *Breeders' Gazette*, has been everlastingly smashed by the Holstein Friesian cow, Pauline Paul, which has just completed a 365 days test, which yielded a total of 1,153 lbs. 15¾ oz' of marketable butter salted 1 oz. to the lb. This exceeds the highest previous yearly record by 208 lbs. 6¾ oz., the excess itself being above the estimated yearly yield of our common dairy cows.

A large body of water has been discovered at El Golea, in the Sahara Desert, about 120 ft. below the surface. It throws up nearly forty gallons per minute at present, and it is anticipated that the yield will be much greater when more perfect access to the water is attained. The discovery is regarded as of high importance, as this is the first time that water has been found in the Sahara at such a slight depth under ground.

THE

TROPICAL AGRICULTURIST

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THE INDIARUBBER SYNDICATE.

FEW months back there was started a project, upon which we commented at the time, to form a syndicate to obtain complete control of the indiarubber trade both in America and Europe. This attempt has now come to grief, and whether it would have benefited or have injured such cultivation of the rubber trees as has already been attempted in this colony, its possible results may now be wholly and entirely disregarded by planters interested in the enterprise, few in number now, we suspect. We deem it to have been extremely questionable if, even had the scheme been found to be practicable, it could have done anything to stimulate increased production in Ceylon, and we cannot say that we are sorry that another of these gigantic monopolies which have been so injurious to regular trade all the world over should have turned out a failure.

The syndicate in question was originally organised with a capital of 10 million dollars, of which 1 million dollars was at once subscribed, and another 1½ million dollars was obtained from other sources. We now learn that this whole amount has been lost, the English banks having suffered to the extent of about 1 million dollars. In Brazil the operations of the syndicate so stimulated production, collection rather, that it would have required more than double the capital possessed by the syndicate to hold the stocks which it had obtained and to secure the rubber due to arrive on their hands. The banks began to be alarmed at the prospect and refused further advances, and when the sale of the accumulated stocks became compulsory, prices tumbled down to an extraordinary degree, fine Pará rubber falling from 80 cents to 63 cents per pound. Messrs. Baring Brothers are said to have been holders of no less than 500 tons of the rubber, and altogether the syndicate hold 3,600 tons of it, nearly the whole of which cost 80 cents and more per pound laid down in New York and London. The selling prices having fallen, as we have stated above to 63 cents, it is no wonder that collapse followed, and that we are likely to hear little more of attempts to "corner" the trade in indiarubber. It is therefore undoubtedly lucky for those who have yet continued the cultivation of the trees upon estates in Ceylon that the whole scheme has collapsed before the operation of the syndicate reached the island. It is extremely questionable if the syndicate would have offered prices such as would have induced our planters to have gone in for extended cultivation, but the planters might have done so if they shared in the hopeful anticipations of the syndicate. As it is, the bubble has burst before there had been time for Ceylon planters to outlay more money on this form of cultivation; but if any have collected and exported the gum, they have had, at least, to pay a certain penalty in the heavy reduction in the London market of the prices formerly obtained for their production of the article. We suspect that this failure will have a beneficial effect in doing away, with this mischievous system of "cornering" produce, as to which we have always written our view that it was both immoral as well as commercially unsound. Our condemnation in the last sense has been constantly proved correct; for any attempt made in that direction since people became alive to the operation and its sequences has come to grief. The practice is a sort of trade unionism without any of the redeeming features of the latter. This has a few philanthropic motives—at all events professed—to justify it, while these syndicates are nothing more nor less than attempts to convey the money of the many into the pockets of the few. Little sympathy we feel, need be wasted over those whose imaginary gains have been converted into real loss over this rubber speculation.

THE PROFITS OF JAVA CINCHONA PLANTERS.—A few years ago a lengthy article (from which we quoted at the time) appeared in a Dutch-Indian technical journal giving details concerning the cost of production of cinchona bark in Java. In the Preanger district, where the largest and the best-managed estates are situated, the wages of labourers in the plantations average 3d to 3½d per day for men, and about 2½d per day for women and children. From these and other data figures were deduced which show that at a sale unit of 6·7c in Amsterdam (1½ per lb.) a well-managed estate of seven-year-old trees, yielding an average of 4½ per cent bark, would yield an annual interest of 10 per cent on the capital invested. Eight-year-old trees of the same alkaloidal richness will pay 10 per cent even at a unit of 5·2c (equal to 15-16ths d. per lb); and nine-year-old trees yielding 5 per cent quinine sulphate, will pay 10 per cent profit at a bark unit of 4 8 (equal to ¾d per lb.)—*Chemist and Druggist.*

ABBOTSLEIGH TEA ESTATE Co., LIMITED.

LONDON, Oct. 9th.

Another of the private companies which have of late years so multiplied for the working of tea estates in Ceylon has been registered this week. The following extract from a financial paper will give you all particulars respecting it. I am told that there will be no appeal made to the public for subscription to its capital :—

This company was registered on the 29 ult., with a capital of £25,000, in £100 shares, to acquire the Montefiore Tea Estate in the Central Provinces of the Island of Ceylon, and also the Abbotsleigh Estate in the same province, and to carry on the business of growers of tea, coffee, cinchona etc. The subscribers are :—

	Shares.
C. B. Smith, 7, Grove End Road, N. W. tea estate owner	1
N. Rowsell, Abbotsleigh, Hatton, Ceylon, tea planter	1
C. Harrison, 67, Lincoln's Inn Fields, W. C. solicitor	1
H. W. Matthews, 9, Coleford Road, Wandsworth, S. W. clerk	1
F. Villier, 24, Kitt's Road, St. Catherine's Park, S. E.	1
F. Farris, 49, Morley Avenue, Wood Green, N., clerk	1
G. Anderson, 12, Brookville Road, S. W. clerk	1

The number of directors is not to be less than 3, nor more than five ; the first being Messrs. C. B. Smith, W. W. Simpson, N. Rowsell, and C. Harrison ; qualification, three shares ; Mr. C. B. Smith is managing director in England, with a remuneration of £100 per annum ; Mr. N. Rowsell is the managing director in Ceylon, with a remuneration of R5,000 per annum and 5 per cent. on the nett profits. Office, 41, Eastcheap E. C.—London *Cor.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Sept. 26th.

CINCHONA.—The auctions held on Tuesday were again exceptionally small, the total number of packages being made up as follows :—

	Pkgs.		Pkgs.	
Ceylon cinchona ...	157	of which	124	were sold
East Indian cinchona ...	393	do	357	do
Java cinchona ...	78	do	78	do
South American cinchona	273	do	219	do
Total	906	do	778	do

The assortment was rather above the average of that of the recent auctions, and the better parcels were competed for with somewhat more animation than the buyers have been accustomed to show of late. The general opinion is that the auctions showed some improvement on those immediately preceding, though there is no quotable advance. The average unit for barks of fair quality remains stationary at 1½d per lb.

The following are the approximate quantities purchased by the principal buyers :—

	Lbs.
Agents for the Mannheim and Amsterdam works	61,187
Messrs. Howards & Sons	39,685
Agents for the American and Italian works	23,320
Agents for the Frankfort o/M. and Stuttgart works	20,600
Agents for the Brunswick works	6,633
Agents for the Auerbach works	3,810
Agents for the French works	3,210
Sundry druggists	20,066
Total quantity of bark sold	178,511
Bought in or withdrawn	29,313
Total quantity offered	207,824

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it ; firms who buy a small quantity of bark by weight frequently take the richest lots and *vice versa*.

The following figures represent the exports of cinchona bark from Java during the month of July (the opening month of the season) of the last five years :—

—	1891	1890	1889	1888	1887
Government plantations, Amsterdam lb. ...	60,990	12,487	34,827	11,021	76,689
Private plantations, Amsterdam lb. ...	1,103,173	373,025	20,510	162,980	219,78
Total ...	1,164,163	385,512	305,337	174,001	296,486

It will be seen that the exports for the month of July 1891 alone exceed those of the four preceding months of July combined.

THE AMSTERDAM CINCHONA AUCTIONS,

(*Telegram from our Correspondent.*)

AMSTERDAM, Thursday Evening.

AT to-day's bark auctions the very large quantity of nearly 6,200 packages Java bark was offered. Of this quantity 4,937 packages sold at firm prices, though no advance can be reported, the average unit being 6 cents. per half kilo., or 1 1/16d. per lb. Manufacturing barks in quill, broken quill and chips brought from 6 to 47 cents. (=1d. to 8½d. per lb.), ditto root, from 8 to 45 cents. (=1½d. to 8d. per lb.) For druggists' barks in quills broken quills and chips up to 50 cents. (=9d. per lb.) was paid, and for ditto root from 11 to 14 cents. (=2d. to 2¾d. per lb.) The principal buyers were the Auerbach, Amsterdam, and Brunswick works.—*Chemist and Druggist*, Oct. 10th.

Correspondence.

To the Editor.

TEE-TOTUM VERSICLES.

DEAR SIR,—Could you find space in your valuable column for the following lines, not on account of their intrinsic merit, but for the soundness of th eir sentiment. PLANTER PETER.

IN PRAISE OF CEYLON TEA.

(With apologies to "Gipsy John.")

Another day is over,
From care and toil we 're free ;
Now should the song-famed rover
Come punctual home to tea.
Why should he with such constant mind
Have all things else foregone ?
The reason is not hard to find,—
His tea came from Ceylon.
(Chorus) They put hot water in the pot,
And pour it out with glee ;
You 'll swear mere earthly drink cannot
Compare with Ceylon Tea.

The gods who in Olympus
Ambrosial nectar quaffed,
Though vulcan with a limp pass
To fill their cups, they laughed ;
Think would they have themselves disgraced
In such a fash-i-on,
Had their poor nectar been replaced
By Tea made in Ceylon ?
(Chorus) Then put hot water in the pot,
And pour it out with glee ;
You 'll swear mere earthly drink cannot
Compare with Ceylon Tea.

Lovers of sparkling wine there be
The reverse of ascetic,
With whom champagne does not agree
(It 's dear as an emetic) ?
Then why not be more rich in purse,
Though you wear no blue ribbon,
Drink that which ne'er made body worse,
The Tea of Old Ceylon.
(Chorus) Then put hot water in the pot,
And pour it out with glee ;
You 'll swear mere earthly drink cannot
Compare with Ceylon Tea.

Now mind the water 's boiling ;
The servant, if it 's not,
Should by a just recoiling
Find himself in some as hot.
Put tea, when the right heat is struck,
A spoon for each person,
With an extra one which is for luck
To the Planters of Ceylon.
(Chorus) Then put hot water in the pot,
And pour it out with glee ;
You 'll swear mere earthly drink canno
Compare with Lanka's Tea.

NOTES ON PRODUCE AND FINANCE.

THEN AND NOW.—A few years ago it was quite a difficult matter to procure pure Indian tea from the retailer. In issues of this paper, published in 1881 and 1882, we frequently called attention to the prejudice shown by grocers to tea of Indian growth, and the difficulty experienced in purchasing it without an admixture of China tea. All this is now altered. The grocer now takes a very different view of the matter and their trade organs no longer give a "friendly lead" to the Chinese leaf. In an article on tea, which appeared in the Northern Counties *Grocer's Review*, we find the following:—"The introduction of Indian tea into England was gradual, but retailers, having once commenced to use it in their blends, very soon began to increase the proportion, it giving a superior flavour to the China product. No stronger proof can be adduced of the hold which Indian tea has obtained in Great Britain than the increasing percentage of the total amount of tea consumed. Its progress may have been slow, but it has been sure; no taint of adulteration has ever sullied the reputation of British-grown tea; its purity has been above suspicion, and its character unimpeachable. The substitution of machinery for the performance of many of those functions which in China are carried on by the hands of the natives greatly reduces the probability of contamination, and tends to preserve the aromatic properties natural to the leaf." Of Ceylon tea the same article says:—"The development of the tea industry in Ceylon is of such comparatively recent date that the history of the enterprise is of very great interest, showing, as it does, that the pluck and endurance of the colonists, after having passed through some most disastrous financial difficulties, is likely to lead to one of the greatest industries of our Eastern possessions. The bulk in fact nearly the whole of the exports of Ceylon tea, have been consigned to England, but the annual statistical returns show that the Continent and America, and nearly every tea-drinking country have found out the value of Ceylon tea, and appreciate the same, including Russia, which has during the past season taken a considerable quantity of the finest favoured teas."

LAST WEEK'S TEA MARKET.—Discussing last week's tea market, the *Grocer* says:—Home trade is most depressing, and export is worse. The famine in Russia is so bad, that there is no likelihood of their being able to take Monings in any quantity from here, and the fate of all the fine Ningchows left looks sad. Our market does not want them over 1s. per lb., and that only in limited quantity, but we believe at 7d. to 10d. (the price at which medium to fine Ningchows are now selling, the trade must find they are of use to them. Teas now offer splendid value, but dealers are most unwilling buyers. The feeling is "panic," but we cannot believe it will go on, as present rates must have the effect of stopping very considerably the export from China; this idea is reflected in the clearing-house by hardening quotations for the spring months. The heavy supply and low quotations of common Indians is also very bad for the market—they are so poor that they are not wanted by trade—low-priced Chinas offer them better value, and are more useful in blending. What the trade want (in quantity) is good Indian tea about 8d. to 10d. per lb., not sixpenny bathy hot water. The quantity of Ceylon is falling off, and quality is improving, so that prices and the position get stronger each week. Finest grades Ceylon tea have been in strong demand, and mark an advance of 1d to 2d. Estates such as Portswood, Goatfell, Invery, and Chapelton maintain a standard of high quality, and realise proportionate rates. Nearly 15,000 packages were offered. Commonest kinds still move at low rates. The market closes with a healthy tone. The statistics of this article for September, just completed, show that the imports into London were 4,713,200lb., against 3,244,800lb. in 1890; and notwithstanding that the deliveries for the month were heavy, viz., 5,277,400lb., instead of only 3,960,450lb in the previous year, the stock of 16,582,300lb. on the 1st inst. exhibited a considerable excess—viz. one of not less than 6,701,900lb. The total landing, of tea of all kinds at this port during Septembes have reached 28,452,150lb. as compared with 22,342,390 lb. in 1890; so that as the joint deliveries have not exceeded 20,437,200lb. against 21,514,650lb. in the same month last year, the general stock has been largely augmented, and now present a relative surplus of 8,860 700lb.

THE RECENT SPECULATION IN COFFEE.—The recent disturbance in the coffee markets of Havre, Hamburg, and Antwerp is due, says the *Financial News*, to the operations of a clique who have tried to "corner" coffee. In July last the brilliant idea was conceived of cornering coffee in Europe, in face of the largest coffee crop ever marketed in Brazil. The rig was palpable, and had a certain amount of success because of the discinlination of merchants to sell "September" owing to the small stocks in Europe and the generally strong statistical position at the time of the article. Then the October position was taken in hand, and prices of this delivery were also advanced by leaps and bounds, until at last merchants felt that the clique had over-stepped the mark, and offered freely coffee for shipment from Brazil at lower and lower prices, until the rig utterly collapsed and left the clique with a large stock of high-priced coffee.

THE BOARD OF TRADE RETURNS AND PRODUCE.—The Board of Trade Returns for the past month are again unsatisfactory, especially as regards the exports; but it must be remembered that in September, 1890, the exports were swollen by extra shipments to the United States. The imports are valued at £34,189,000, a decrease of £1,362,000, or about 3¾ per cent.; and the exports at £20,793,000, a decrease of £1,971,000, or about 8½ per cent. The import of tea for the month is 27,078,753 lb., representing in value by £1,201,409 as against 22,496,729 in Sept. last year, representing in value 1,021,664. Coffee 48,533 cwt., against 32,788 in the corresponding period last year. The increased receipts of tea are mainly caused by the Chines-shipments being much heavier. At the same time there is a decreased consumption of China tea, Ceylon sorts being in demand. The cane-producing countries have contributed to swell the total of raw sugar; for instance, the receipts from Java, which in September, 1890, were *nil*, last month were 189,481 cwt., and from the Philippine Islands and the British East Indies the landings were 153,403 cwt. and 138,520 cwt. respectively, against 38,700 cwt. and 78,903 cwt. The sources of our supply of wheat have changed considerably since last year. For example, Russia, which sent us 1,893,287 cwt. in September, 1890, has only shipped 620,503 cwt.; the Roumanian supply has dropped from 1,627,183 cwt. to 110,652 cwt., and the Australasian from 391,476 cwt. to 278,197 cwt. On the other hand, the United States sent us nearly twice as much as last year, the quantity being 2,791,602 cwt. compared with 1,446,927 cwt., and in addition 1,014,007 cwt. of wheat flour were received thence, compared with 887,587 cwt. Chili, the British East Indies, and Canada also appear to have surpluses of wheat, as the shipments in each case were larger.—*H. and C. Mail*, Oct. 9th.

THE RETAIL PROFIT ON TEA.

The interest of the tea planter in the product he cultivates is not confined to the price it realises in Mincing Lane, but extends to the retailing of tea as well as the retailer and his profits. Two trade journals, whose province it is to guard and protect the grocer from the harm that besets him in this sinful world had something to say last week on the subject of tea and the profit made on it by the retailer.

TEA PUFFERS AND THE GROCERS.

Taking the above for its theme, the *Produce Markets' Review* says:—In not very remote times there was a certain respectability attached to the tea trade, but it has now evidently fallen on evil days. Even a

knowledge of the business seems to be superfluous when a passport to success is, that the vendor is well known as a purveyor of something else, and so much is this the case, that sellers of tea boast upon every wall and hoarding that they are not grocers. In one instance, we believe that the public have been assured that, after paying immense advertising expenses, the regular trade can be undersold to the extent of 1s per lb., without including free postage. Now, 1s per lb. on a consumption of 200,000,000 lb. of tea a year represents arithmetically £10,000,000 sterling—an extent of benevolence which the public can hardly expect, either as the voluntary surrender of profit, or as the gift of the richest company. Further, as good tea is habitually sold by grocers at 1s 6d per lb., and to undersell this by 1s, would mean a retail price of 6d, out of which (allowing nothing for the cost of the tea) the duty would come to 4d, while packing, advertising, and free postage would cost another 4d per lb. In fact, it does not require any acknowledge of the tea trade to assert that few more fallacious statements could be made than that the grocers overcharge the public 1s per lb. for their tea. Another strain on public credulity is the assertion that tea in leaden packets, which, with advertising, must add 3d per lb. to the cost, can possibly be cheaper or better, than tea offered fresh from the chest, without this added cost and risk of deterioration. If all the tea marked Ceylon comes from the island, the tea trade is also more ignorant than its traducers make it out to be. Nor should a triumphant success in the retailing of butter or pork be much of a passport to the favour of the tea-drinker. An older advertising development, which has rather sunk into the background of late, is the so-called "present" system. Under this the trader gives a trip to the seaside, a grand piano, or what not, to the buyer of so many lbs. of tea. If all these gifts come out of the superfluous profits hitherto enjoyed by the grocers, the strange thing is that the latter are not millionaires, instead of being, as many of them are, men struggling for subsistence. All these matters, however, concern the public, and, although the power of self-assertion is no doubt unlimited, our thirty odd million of people will, no doubt, draw the line somewhere. The consumer, sooner or later, will realise that the division of labour, on which all modern society rests, applies to tea as well as to everything else. For a man to attempt to grow the tea he sells by retail, is to ensure its being as dear as our boots or hats would be if we made them ourselves, in order to save intermediate profits.

A new development in advertising, to which we wish to draw the attention of the trade, is that those who are endeavouring to deprive them of their living are now audacious enough to offer to supply them with tea. In fact, the despoiler now kindly offers to put the grocer on his feet again by offering him tea cheaper than it can be bought in a market noted for the intensity of its competition and for the immense capital embarked in the wholesale trade—of late years, at any rate—for less than a living profit. The grocers have shown a good deal of the quietude of doves under the torrent of mendacity that has been poured upon their tea trade, but they have a reserve of the wisdom of the serpent left about them. The endeavour to destroy one's trade is surely a strange preface to an offer to supply you with goods, yet this is what is being done in the most open way. Some firms are endeavouring to regenerate society by under-selling the grocers, by whom they live. This may be philanthropy, but it is certainly of a one-sided character. Others, with dozens, or a hundred or more, of competing retail shops, are now appealing to the grocers for support, but in most cases under a different name from that in which their shops are carried on. Then, again, packet tea advertisers—whose attack upon the grocers' trade and profits is the most insidious of all—actually offer to make them agents, to aid in their own destruction, and the astounding feature in the case is, that grocers are to be found ready to play into their hands. Further, so-called wholesale houses open shops, with various high-sounding names, all over a town, and, at the same time, by enticing statements and advertisements, endeavour to persuade the grocers to buy of them. In a similar way, in the wholesale trade, the merchants and brokers endeavour to supplant those by whom they live. In short, the tea trade at present consists in coveting and desiring other men's business, and in expecting the victims to assist in their own happy despatch.

It is surely time that the grocers set to work to turn the tables on their antagonists. Let them carry the war into the enemy's country, expose the mendacious statements that are made, and offer cheaper and better tea, as they can very well do. There is no doubt that the grocers, as general distributors, not dependent on any one branch of their trade, can offer tea more cheaply than any other retailers, especially as they understand the trade, and have a knowledge of the commodity they sell. They have, perhaps, relied too much on the public knowing their position, and have let their adversaries obtain a foothold. If, on the contrary, the grocers once made up their minds to "cut" in tea, no one else could live with them. Such an extreme step is probably by no means necessary at present, as the competition is only serious when it is let alone. But it is clearly time for the tea trade to set to work to expose the delusive statements by which it is sought to mislead the public.

THE RETAIL PROFIT ON TEA.

The *Grocer*, discussing the subject, says:—This subject is one which engages the careful attention of our readers, many of whom look back with feelings of regret to the time when a profit of one shilling per pound was not thought unreasonable upon the higher-priced canister, and when the margin on even the lower or more popular-priced tea was sufficient to cover a loss on the sale of sugar and still leave a fair profit for the retailer. Those days have, however, passed away. With the reduction in the duty and by keener competion the retail prices have been brought down to a very low figure, and as the grocer has educated the public to pay prices ranging from one shilling to two shillings per pound, it is not likely that the retail price will reach any higher figure, unless war or some other cause should at a future time lead to an increase in the duty. But, as public opinion seems to be in favour of the abolition of the duty altogether, it is not probable that any Chancellor of the Exchequer would attempt to raise money by increasing the duty on tea unless there were some pressing necessity. As regards the price of tea in bond, the falling-off in the supply from one part of the globe seems to be more than compensated by the importation from another, as evidenced by the decline in China tea being amply compensated by the rapid strides made by the island of Ceylon, so that there is little fear of there being any substantial increase in the price of this article.

Under these circumstances it may be assumed that there is no probability of a material change in the cost of tea to the grocer, and there should be no further reduction in the selling price to the public, who can now buy tea of fair quality at about one penny per ounce. Indeed, any further reduction in the retail price must involve a diminution in profit, which the trade can ill afford to bear at the present time. In our opinion the success of a grocer's tea business depends in a large measure on the quality of the article sold, and its suitability for the water of the district in which it is made. We believe the interest taken by our readers in the purchase of the most desirable and economical teas for blending has decreased instead of increased as the margin of profit has from time to time declined; thus other channels have been opened for the sale of teas, and the competition thereby aggravated. There is still, however, room for a reasonable return being obtained by retailing good tea, the lowest price of a leading store being now 1s 4d for a pound, or 1s 2½d for half-chests of fifty-six pounds, the highest price being 2s 9d, giving an average of 2s upon the whole range of prices. This is, of course, a higher rate than many grocers can obtain, especially those who supply the wants of the poorer classes, but even with the lowest-priced teas the percentage of profit is worth having, and might

in some instances be increased if greater care were exercised in buying. There are a large number of grocers in country villages who are content to rely upon the judgment of the wholesale dealers in the important towns for the selection of the teas they supply their customers, and of course the intermediate profit reduces the net return to the small grocer. At the same time it must not be forgotten that during recent years many retailers have shown a partiality for the sale of packet teas, which, while it relieves them of all trouble of weighing up and packing, also the risk of storing tea in proximity to other articles which might injure loose tea, it encourages the sale of packet teas direct from London at lower prices. Teas which may be of good value are in many instances entirely unsuitable for the water in the district in which they are made into liquor. It is, therefore, desirable that country grocers should study these matters more than they do, and prevent the trade slipping away from them; they can still obtain a good price for their teas, and if they study quality and the effect of the water in their particular districts they should increase their trade. The consumption of tea last year was no less than 12·8 per cent more than in the previous one, and this increase is going on year by year, if not in the same proportion, still in a marked degree. Thus the trade has gone into a very important one, and if retailers would direct their attention to buying really desirable teas of good quality, and ascertain the wants of their customers better, they would have no occasion to regret the time and attention given. The result, both in towns and villages, would inevitably be a satisfactory increase in their sales, with a reasonable profit, considering this age of keen competition.—*H. and C. Mail*, Oct. 9th.

THE CEYLON TEA BOOM

Sweet, in the eyes of the Ceylon planter, are the uses of advertisement. The energetic Association to which he has confided his interests has shown during the past few months a most remarkable fertility of resource in compelling public attention in Europe and elsewhere to the virtues of Ceylon tea. Not only have the advertisement columns of the London Press rung the praises of this or that garden, but at the sale of produce in Mincing Lane, the prices of certain selected samples have been forced up to abnormal amounts. The Tea Kiosk scheme of which much was expected has indeed proved a partial, if not a complete failure,* but it illustrates the restless activity with which those who are concerned in the development of Ceylon as a tea planting district are pushing the interest of the Colony. Another ingenious "notion"—to use an Americanism for which there is no British equivalent—is ascribed to a Mr. Elwood May, President of an Association known as the "Ceylon Planters' American Company." Mr. May has arranged with a Trans-Atlantic advertising Agent, "to secure 50,000 dollars worth of advertising in the American Press in return for 100,000 dols. of the Company's stock." By this arrangement, it is suggested that the editors and proprietors of some of the most influential American newspapers will be personally interested in the success of the Company, and may be induced to support it with the puff oblique, the puff direct, and the other ingenious improvements on Mr. Sheridan's list which are known to American journalism. Since, however, the proposed expenditure in this direction amounts, it is said, to about one-third of the Company's stock, it is difficult to understand how the Association in question can be expected to benefit thereby. This question does not, of course, affect the typical planter, who has all to gain by the advertisement of his wares. The Ceylon Planters' American Company, may or may not "wither;" Ceylon tea will undoubtedly be "more and more." It is not to be expected moreover that such an excellent opportunity as that afforded by the Chicago Exhibition should be overlooked by the Association. Some R30,000 have already been voted from the Tea Fund for the purpose of pushing the interests of Ceylon produce in the great show of 1893, and now it is announced that Sir Arthur Havelock's Government has added a further grant of R50,000. By the aid of this vote and judicious advertising on the part of the "American Company," it is expected that Ceylon tea will obtain a firm footing in the United States. This is one of the few markets in which neither Indian nor Ceylon produce has as yet made encouraging progress. In any case, the Ceylon Tea Planters' Association deserves to succeed. —Calcutta *Englishman*.

* Which is news to us in Ceylon.—ED *T. A.*

THE CULTIVATION OF PEARL SHELL AND PEARLS.

The Commissioner of Fisheries, Mr. W. Saville-Kent F.L.S., etc., who has been occupied during the past few weeks in investigating the fish and fisheries matters of the Northern district, returns south stopping at various coastal ports, by this morning's (Saturday's) boats From the Wellesley Islands up, in the extreme south west of the Gulf of Carpentaria, the Commissioner reports the indications of mother-of-pearl shell in such quantities as to justify anticipation of an extensive and profitable fishing being established there in the near future. Specimens gathered on the west shore of Sweer's Island more especially, were so fresh as to have portions of the living fish still adherent to them, showing that they must have grown in the near vicinity and indicating the probability of an extensive bed in the channel between Bentinck and Sweers Islands. Traces of good shell were also obtained in the neighbourhood of the Norman River bar, and Mr. Saville-Kent is of the opinion that the greater part of the Gulf will ultimately prove a very profitable fishing ground.

Among the more interesting items that we have to chronicle in association with Mr. Kent's present sojourn in Thursday Island is his report concerning the highly satisfactory condition of those pearl shells laid down in the experimental nursery some two years since which have survived the onslaughts of the nor'-west gales and marauding natives. These have not only increased in size to an unexpected extent, but are also propagating, many young shells being now adherent to the old ones. Stimulated by the success that has attended the experiments at Vivien Point, attempts have been made at several of the shelling stations to bring in and cultivate the shell in like manner. At Wai-Weer, where the most gratifying results have been accomplished, Mr. Saville-Kent reports that the shell laid down has grown much more rapidly than in the Government nursery, insomuch so that many of the shells which measured only four inches in diamater when first imported a little over a year ago, now measure as much as ten. Under such favorable conditions there can be but little doubt, as maintained by Mr. F. Summers, the experienced manager of the Wai-Weer Station, that peral shell needs but eighteen months or two years to grow to maketable value.

In association with his periodical visits to Thursday Island within the past three years and establishment of a pearl-shell nursery, Mr. Saville-Kent has devoted some attention to the phenomena of pearl production. His experiments connected with this object have ultimately resulted in his obtaining such control over the natural constructive capacities of the shell-fish as to cause it by methods of artificial treatment to produce what are to all intents and purposes pearls of intrinsic commercial value. On such specimen that has been submitted to our inspection, while continuous with its shelly matrix after the manner of a pearl "blister," possesses a spheroidal symmetry and lustre that could be scarcely excelled and is, we are informed, of solid pearl matter throughout. The prospects and potentialities that are rendered possible by these useful experiments can scarcely be overestimated, and may lead to new and profitable developments of the pearl and pearl shell industry in association more especially with the leasing of suitable areas for the culti-

vation of the shell for which facilities well be provided in the Bill drafted for Parliament.

This will, we understand, be Mr. Saville-Kent's last official visit to Thursday Island in connection with his present engagement by the Queensland Government. Mr. Kent has received an invitation from the West Australian Goverement to report and advise upon the pearl shell and other fisheries of that colony on the termination of his engagement here. He has however decided to return to England first for at least a year or two, for the purpose of supervising the publication of one or more comprehensive works on the fish and fisheries of Queensland.—*Torres Straits Pilot*, Aug. 29th.

[The above refers, of course, to the large mother-of-pearl shells, but has a close bearing on the treatment of our small pearl oysters, for culture and pearl formation.—ED. *T. A.*]

ECHOES OF SCIENCE.

Captive balloons seem to be peculiarly liable to be struck by lightning. Within the last six or seven years no fewer than three have been destroyed in this way, and the total number of them cannot be great. There was one struck at Turin, another at Barcelona, and, lastly, one at Chicago. Two of these, including that of Chicago, were struck when moored near the ground. Of course, a captive balloon in connection with the earth resembles the kite of Franklin, and is liable to "draw" the discharge, but the fact that it contains hydrogen, which is a far better conductor of electricty than air, may have something to do with the matter. The silk bag with hydrogen may be compared to a mass of metal enclosed in a thin layer of insulator. When, as happens in ill-made balloons, the gas escapes through the pores, the lightning is tempted in that direction. Giffard's impermeable balloons have not as yet been struck. It may be added that aeronauts, remembering the conductivity of hydrogen, should avoid opening the valves of their balloons while passing below a thunder cloud, in case they should precipitate the discharge.

It is well known that the valley of the Orinoco is connected to that of the Rio Negro by the Cassiquiares river, and it is here that a party of explorers have recently discovered immense forests of the india-rubber trees, as well as other trees very like, if not indentical, with the guttapercha trees of the Malay Archipelago. As the latter are all but extinct now, the news is all the more important.—*Globe.*

NOTES OF POPULAR SCIENCE.

BY DR. J. E. TAYLOR, F.L.S., F.G.S., &C., EDITOR OF "SCIENCE GOSSIP."

Two French mineralogists, Messrs. Fouqué and Lévy, have produced micaceous trachyte by artificial means. The trachyte was obtained by the artificial action of water under pressure on a glass resulting from granite, and at a bright-red heat. The rock was homogeneous, and in its sections exhibited beautiful octohedral crystals of a variety of spiral, in connection with orthoclase and black mica.

An important paper was read before the Geological Society recently by Mr. J. J. Lister, on the geology of the Tonga Islands. Many are purely volcanic in structure, but there are some possessing undoubted stratified limestones crowded with marine shells, showing evidences of elevation from considerable depths of the sea. Mr. Lister also discovered genuine Plutonic rocks on the islands. The paper has an important bearing on the origin of coral reefs.

There is perhaps, not a more useful natural order of plants in the world than the cruciferæ—our mustards, cresses, turnips, radishes, &c. All are remarkable for their pungency, and equally so for the localisation of this quality. Sometimes it is situated in one part sometimes in another. Moreover, it has long been recognised as largely due to sulphur, and anybody who has had to do with the waste products of cruciferous plants, from cabbage water to rotten turnips, is well aware they freely give off a large quantity of sulphuretted hydrogen gas. A French agricultural chemist has just shown that the composition of the various active principles of the cruciferæ varies from species to species. Black mustard contains sinigrin, besides the ferment myrosin. The horse-radish does the same. White mustard contains sinalbin in place of sinigrin. The active principle of watercress is sulphocyanate of butyric alcohol. The roots, stems, leaves, &c., of other common cruciferous plants contain a mixture of sulphur and sulphocyanate of allyl. M. Guignard concludes that nearly all cruciferous plants are provided with special cells which contain a particular ferment known as myrosin; and that it is in the cells of their seeds this occurs most abundantly.

The methods by which plants obtain their nitrogen are always fruitful subjects of discussion and interest to botanists. Two German naturalists have recently published the results of some peculiar experiments, chiefly on the leaves of leguminous plants. They find that green leaves contain more nitrogen in the evening than on the following morning, and this appears to depend on the quantity of asparagin being larger. The reason given is that asparagin and sugar are the best nutriants for the fungus which lives symbiotically on the roots of most leguminous plants. The largest proportion of nitrogen present in the evening was in three common leguminous plants—Trifolium pratense (or common clover), Medicago sativa (common medick), and Lathyrus sylvestris. The same fact was noticed in connection with herbage plants belonging to other natural orders. The moral of this discovery seems to be that we ought to cut our hay at night, and not begin in the morning as is usually the case, if we wish it to contain the greatest quantity of nitrogen or feeding stuff.

Mr. Carus-Wilson has for some years past been studying the phenomena of "musical sand," or sand grains whose movements give out musical sounds. He writes in the *Chemical News* to say he has succeeded in producing musical notes from sand which was never before musical, and that he has obtained similar results from the mute or "killed" musical sands which have been temporarily deprived of their musical properties. Professor Crookes adds a note to Mr. Wilson's communication, stating he had witnessed that gentleman's experiments with musical sands, sands originally musical, musical sands which had been killed and then revived, and sands originally mute which had had the gift of music conferred upon them. Mr. Wilson will shortly explain these interesting phenomena in detail.—*Australasian.*

THE GREATEST BUTTER COW OF THE WORLD.

In our last September issue we gave an illustration of the celebrated Jersey cow "Eurotisama," describing her as the greatest butter cow of the world, she having produced the up till that time, unheard of amount of 945 pounds, 9 ounces of good merchantable butter within the year. We little thought, then, that within six months we should have to depose her from the pinnacle of fame, and rank her only second in the list, and yet such is our position to-day. The Holstein-Friesian cow "Pauline Paul," owned by J. B. Dutcher & Son, of Pauling, New York, has just completed a test of 365 days for butter production, and has made within that time the unparalleled record of *1,153 pounds, 15¾* ounces of marketable butter, well washed, and salted at the rate of one ounce to the pound. We have not the details of the food consumed, beyond the fact that she was fed a ration composed of three parts bran, two parts ground oats, and one part corn meal, by measure. Of this mixture, she was fed per day not exceeding twenty-seven pounds, to which was added three pounds of cotton seed. She had neither slop nor

ensilage. We do not know what hay or grass she was fed, but presume she would have what she would eat of these foods. She came through the test in good condition, and was never a day "off her feed." She gave during the time 18,669 pounds, 9 ounces of milk, or an average of 16.17 pounds of milk for a pound of butter. The cow weighs 1,450 pounds, and she therefore produced in the year, *nearly four-fifths of her own weight* in butter. Her butter, at twenty-five cents per pound, was worth $288.75. Taking the cost of her grain ration, at an average of $1.00 per hundred pounds, the total would be $109.50. To this must be added the hay or other forage which would not, we assume, be more than the weight which would have sufficed to feed any other cow of a similar size, and could not therefore well have cost more than $30. Together, therefore, the whole cost of the keep would not be more than $139.50, as against a butter production alone worth $288.75, and to which should be added the value of the skim milk, her calf, and the manure. The milk and manure alone would pay for the forage and her care, whilst the calf from such a cow would be worth a small fortune. Without taking these items at all into the account, there is shown *a net profit of $179.25*; and yet in the face of such a record as this, there are to be found men who say "keep scrubs!" What astonishes us most in the matter, is that a Holstein cow has been found to make such a record, as hitherto their strong point has been milk, not butter. It only, however, goes to show what can be done by selection and breeding for a purpose. In the future, the Holsteins must take rank as butter cows along with the Jersey, and the battle will now be between the two breeds, and not as between Jersey and Jersey. With the continuance of such a rivalry, who shall say that the days of the "scrub" are not numbered. No farmer with a knowledge of what is possible from thoroughbred or graded stock, will, for a moment, hesitate to clear out the "scrubs," and replace them with a reduced number of better stock; in fact, to apply the *intensive* system to his stock as well as to his farm. We say "God speed" to such a course. It can only result in advantage to the man who pursues it.

MINOR INDUSTRIES IN THE EAST

BAMBOOS AND THEIR USES,

are thus treated by the editor of the Trinidad *Agricultural Record* :—

One staple advocates in Trinidad have always a covert sneer for "Minor Industries," and by that token they understand any cultivation new to the Colony, no matter what may be its prospect of future development. The poor down-trodden planter! as the West Indian in London terms him (who can he mean?) must not be disturbed, and labourers must not leave the station to which God has been pleased to call them.

The "poor down-trodden," may help him—even against his will!! Pens and sugar estates which were unsaleable a few years ago have in that rising Colony increased in value five and six-fold owing to a "minor industry"—bananas. The purchase-money of a mortgaged sugar estate the other day was subscribed in Kingston in five hours, for the purpose of planting bananas. The amount subscribed was $150 000.

In contrast to the incredulity and cynicism of some of our people see how the minor (minimum if you like) industries are pushed in the East. We have heard of bamboos as a paper material: it was to have been tried the other day in Demerara, and Sir John Gorrie at the late Exhibition showed how they could be utilised, with a coating of Trinidad pitch, as subsoil drains or for verandah posts, etc. The following price list of bamboos imported from Singapore and other eastern ports will give some idea as to the variety of economic uses, what we regard as trifling objects, can be applied in a *Great Country* like England :—

Inches long. About.	Inches thick.			Doz.	Gross.
18	¼ and	⅜	for pots, &c. ...	3d	2/6
24	¼ and	⅜	for Carnations, &c. ...	3½d	3/
27	⅜ and	½	for Fuchsias, &c. ...	4d	3/6
45	½ and	⅝	useful Garden Size ...	6d	5/
45	⅝ and	½	for Chrysanthemums..	8d	7/
45	¾ and	⅞	for Dahlias, Rose Trees, &c. ...	10d	9/
Feet long.					Doz.
5	½ and	⅝	slightly tapering ...		2/6
6	½ and	⅝	do. ...		3/
7	⅝ and	¾	do. ...		3/6
9	⅝ and	¾	tapering to point ...		4/
10	1 and	1¼	at thickest end ...		12/
In. thick.					
15	1½	slightly tapering ...		3/ each,	30/ Each.
22	1½	for Punt Poles, Spars. &c. ...			5/6
22	2	do. do. ...			10/6
23	2½	do. do. ...			12/6
30	2½	for Flag Staffs and Masts ...			15/
30	3½	do. Marquee Poles, &c.			21/
30	4½	do.			31/6
35	5½	do.			42/
About Feet.	Inches.	in. thick.			
6	6	2	dark, for Furniture Making 2/ each,		Doz. 20/
6	6	1½	do. do. 1/ „		10/ Each.

18 ft. long, tapering to twig top, for Fishing Rods 2/6 Gross.

Bamboo twig tops, for Pot-plant Training... 4/

N.B.—The giant bamboos of Trinidad would be decided novelty in Europe, and it was suggested to us that they might come into considerable demand.

The giant bamboo, which flourishes in Ceylon from sea level to over 5,000 feet altitude, has been used in sections coated with tar as roofing tiles, for such they are rather than shingles. Well preserved too, by asphalte or petroleum, there is no reason why they should not be used for many other purposes, above and underground.

THE FOOCHOW TEA TRADE.

The annual Consular report for 1890 says :—

The great falling off in the export of tea again constitutes, as it has done for some years now, the one all-absorbing feature of the trade during 1890. In round numbers this decline amounts to 67,000 piculs, and is made up of decreases of 31,000 piculs to England and 36,000 piculs to the Australian colonies. In 1890, the year when it reached its highest figure, the report from Foochow was 737,000 piculs, in 1886 it was 665,000 piculs, and since then it has steadily and rapidly declined to 616,000 piculs in 1887, 553,000 piculs in 1888, 457,000 piculs in 1889, and 390,000 piculs in 1890. The difference between 1886, which may be called an average year, and 1890 (275,000 piculs), represents a decrease in the year's earnings to the people of this neighbourhood of some four million taels, and to this Government a diminution in the export duty and *lekin* revenues of over one million taels. The present position is this: India and Ceylon have certainly succeeded in beating not only the lower but also some of the better grades of Foochow teas in both price and (London rated) quality, and are fast alienating from us our best markets—England and its colonies. Although really good tea still finds a buyer, yet the majority of Foochow teas no longer come up to the London standard, and are bought "for price" only, that is at a price some 25 per cent. cheaper than the equivalent quality of Indian tea. The poorer and cheaper grades are required in London exclusively for mixing with Indian teas. Their cheapness seems to reduce the higher price, and their smooth tone helps to lessen the strong flavour of their Indian rivals. This mixture is the beverage of the day, and is sold throughout England under the name of Indian tea. These facts show conclusively that the outcry of the Foochow merchants for better and stronger tea is justified, for such a tea would not only hold

its own, but would deprive the Indian product of an important cheapening and diluting agent, and force it to stand on its own merits. Unfortunately, Foochow, in the rush after fortune, has for years past paid less and less attention to quality. Easy and sometimes fabulous returns stimulated over-production, over production depressed prices, and depressed prices further depressed quality to such a point that younger rivals could step in, and with the aid of scientific appliances which ensure more uniform manipulation and results and greater independence from seasons and weather, wrest from China the last of its ancient monopolies. The outlook is gloomy indeed. Many of the old famous districts are stocked with old used up trees; the present generation grown up in a time of prosperous over-production, lack the experience, carefulness, and patience of the old tea planters; and with depressed prices, depressed markets, and annually declining demands, where is the stimulus to come from for that improvement which alone can reconquer the lost position? In this emergency it is generally felt that the Government alone can help; without its intervention, aid, or permission, no change can be effected and it is therefore with anxious interest that its action is looked forward to by the tea merchants of this port. In 1889 the losses of the native teamen were computed at $3,000,000, and this year their losses are held to be even greater than last year. While the year 1889 was disastrous to both Chinese and foreign merchants, of which latter no less than seven firms either closed or failed, the present year has fallen heavily upon the Chinese chiefly, and, in the consequence, has witnessed the withdrawal of four native tea merchants, and the failures of seven opium merchants, two tea hongs, and two piece good firms—fifteen firms in all. In sympathy with this general depression, the value of foreign house property has declined enormously, a large number of offices and warehouses are standing empty, and rents have declined fully 50 per cent.—*L. and C. Exvress.*

THE uses of the electric light appear to be endless. The latest American proposal is to gather fruit after nightfall, electric lights being utilised for the needed illumination. "There is certainly no reason why this should not be done," says an exchange. "Fruit that is gathered during daytime is so heated that it needs to be cooled off before it is packed in cars for Eastern shipment. This would be obviated by gathering the fruit at night. The pickers would doubtless prefer the night work as well, the absence of the extreme heat of the sun felt during the day being most grateful. There are times, too, when the fruit ripens so rapidly that much is lost which could be saved were the gathering to go on continuously day and night."—*Mildura Cultivator.*

MR ROBERTS ON THE QUALITY OF CEYLON TEA.—Meeting Mr. Roberts, whose authority upon all questions connected with your teas you knew I set such a high value upon, he told me in reply to my query as regards the low prices of late obtainable from your teas that, although, undoubtedly, the quality of those of late sent home had been very inferior, yet that it would be a mistake to assign to that reason solely the unremunerativeness of the rates obtained:—"We are too apt," he said," to assign these bad times wholly to quality. We overlook the many other conditions which affect the market. Tightness in money, for instance, will often restrict buying for a time, and there are a thousand and one other causes which may operate to depress prices. Still, your planters should not send such a large bulk of bad stuff as we have recently received. It hangs on hand dreadfully. Fortunately the later shipments have greatly improved, and at the present moment there is little or no reason for grumbling at the quality of the Ceylon teas reaching us, and the market for these is now improving and seems to have a steady upward tendency, though I should not like just at present to speak with certainty as to its continuance."—London *Cor.*

LOW pruning is advised by some fruitgrowers because more of the fruit can then be picked by standing on the ground, which is cheaper and easier. When trees are low pruned there are also few windfalls, the tree gets a better growth, is less liable to blow over, and, the ground being shaded around the roots, it grows faster. Low branches keep the ground moist and in better condition for cultivation.—*Mildura Cultivator.*

TEA AND COFFEE IN SARAWAK.—Consul Trevenen, reporting on a visit to Sarawak, made by invitation of the Rajah of Sarawak, states;—There are 115 acres under coffee, and 50 acres under tea, while 70 acres more are being planted with the latter. These plantations, like all experimental cultivation in Sarawak, are Government estates, and are owing to the initiative of the Rajah.—*L. and C. Express.*

THE Government Botanist, Madras, has been directed by Government to submit a programme for the botanical servey of the several Districts and provinces assigned to him in the general scheme for a botanical survey of India, with an estimate of the cost of carrying out the survey. Mr. Lawson will prepare his programme in consulation with Dr. King of the Calcutta Botanical Gardens, and Dr. Trimen, Director of the Botanical Gardens in Ceylon.—*M. Mail.*

HOP TEA.—Representatives of the Press were yesterday invited to Maidstone to inspect the works of the Hop Tea Company, the foreign patents of which have been acquired by the Hop Tea Foreign and Colonial Syndicate (Limited) The Company claim that by mixing the hops with Indian and Ceylon tea the flavour of the tea is not only improved by giving it a malty aroma, but that hops, being a sedative, counteract the too-exciting effect of the tea upon the nerves, and while preventing waste of nervous energy promote intellectual activity.—*L. & C. Express,* Oct. 16th.

A PHOTOGRAPH recently reproduced in the *North Western Lumberman* showed a redwood plank of extraordinary size, measuring sixteen feet five inches in width by twelve feet nine inches in length and five inches in thickness. It was cut from a tree thirty-five feet in diameter and three hundred feet tall, being hewn out of the stump after the tree was cut at about twenty-eight feet above the ground. A locomotive, attached to a block and tackle, was needed to lower it, and two men were occupied for a month in roughly preparing it for shipment. The price of this labor, added to the cost of transportation, amounted to some $3,000, after the plank had been taken by water to San Francisco. The tree stood in Humboldt County, California, and the plank, after being exhibited in various cities, will probably be a feature of the World's Fair at Chicago. A specially constructed car is required for its transportation.—*Garden and Forest.*

CAPACITY OF TODDY-YIELDING TREES.—A series of experiments have been conducted by the Madras Abkari Deparment to test the yield of the various toddy-yielding palms. The experiments show that the sago palm heads the list with an average yield of 130 gallons per year. This palm is only tapped in the Malabar District, and the agency tracts of the Northern Circars. The coconut palm yields on an average about 70 gallons a year, and the yield is continuous. In Malabar, the land of the coconut, the quantity is greater than anywhere else; then follow Coimbatore, Trichinopoly, South Canara, Tanjore and South Arcot. The yield of palmyra and date palms is about 90 gallons a year, but varies considerably in different localities. In Palghaut the palmyra yields about 90 gallons in a season, while at Tuticorin and Kuttanguli it is only about 15 gallons. In the case of dates the yields at Villapuram is 59 gallons, while it is as low as 8 gallons at Mogaltur, the extreme dryness of the country around Tuticorin and Mogaltur being accountable for the difference.—*Madras Mail.*

AN AGRICULTURAL COLLEGE FOR TRINIDAD

is suggested in the *Agricultural Record* for August in an elaborate article by the editor, entitled

Report of the Technical and Practical Teaching of Agriculture in England and Belgium, with suggestions for the formation of a School in Trinidad.

After stating and reviewing the systems of agricultural teaching in Britain and Belgium, the question of a local institution is thus dealt with:—

A comparison between the English and Belgian system is very instructive. In England where so much has been done by private munificence or corporate bodies, not only in agricultural education, but also in the arts and sciences, the learned professions, in charities and other public matters. In Belgium on the contrary the State taking everything into its own hands. One result of the English system is, as I have already mentioned, that there is no uniform system of teaching, or standard of qualification, the tendency being rather to aim at the *minimum* and so-called *practical attainments*. In Trinidad it is especially useful to study these different systems, and most people will admit that while in both countries education is as far-reaching as possible, that in this Colony with its struggling and undeveloped industries and its numerous and uninstructed class of small proprietors and the complete absence of private enterprise, the sugar proprietors excepted (they being all absentees) a scheme of education in Agriculture should be framed more after the Belgian system, this being less devoted to dairy work, stock, and minor matters, which could be learned anywhere, and do not immediately concern us. Another illusion would be dispelled which has been hitherto a complete stumbling-block in the way of establishing a school in Trinidad, viz: that a Model Farm must enter into any project of the kind. It will be seen that both in England and Belgium it is found better and cheaper to obtain assistance in practical teaching from neighbouring estates, and it will come like a revelation to some, that all the essentials for a first class Agricultural College already exist in Trinidad and more or less in the other West Indian Colonies. Another important consideration (in both countries) is the importance attached to instruction for schoolmasters and rural teaching (for peasants) by means of itinerant professors, and lectures, and demonstrations. Nowhere in the world is there a greater wealth of vegetation, combined with dense ignorance of the elementary laws of plant life, and scientific culture than in the West Indies, and it would well repay any amount of expense and trouble if a better knowledge of the selection of seed, grafting, and pruning, treatment of blight and the more skilful preparation of the various products could be instilled into the rural population in these parts. The present means of teaching available in Trinidad as referred to, comprises:

1. A well furnished Chemical Laboratory.
2. A well appointed Botanic Garden with all sorts of Horticultural operations always going on and a perfect Herbarium.
3. A very complete Government Dairy and Stock Farm.
4. The Experimental Farm at Chaguanas, proved to be suitable, and which should be used as a depot and school of forestry.
5. Technical teaching by Officers of the Public Works Department in land measurement, surveying, etc. *
6. The assistance of adjacent estates of which many accomplished Managers would no doubt willingly assist.
7. The propinquity of the Catholic, and Royal Colleges, and Nopinqu Schools to the Victoria Institute, of which the Agricultural School would form a part.

If the syllabus of South Kensington is adopted, some modifications would have to be introduced, and if the Trinidad scheme is brought under their system of examination, some special forms of questions would have to be devised, bearing on tropical Agriculture.

Our present colonial staff would be sufficient, with the addition of a Professor of Agriculture, having as a speciality Entomology, Economic Geology, Physics, Draning, etc. It should be his business also to undertake peripatetic work in the most important rural districts. The subdivision of the different courses of lectures etc., would be a very simple matter of detail. Students passing in honours should be sent for one year either to Belgium, London (Cambridge) or the United States, and part of the money of the present Classical Scholarships might be devoted to this purpose.

The College would be very nearly self-supporting if a moderate fee was required from the pupils, although the Government would naturally be chargeable for itinerant teaching, and for the courses for schoolmasters. Inasmuch the Professor of Agriculture would be somewhat of a specialist and confer great public benefit by studying the various insects,† fungi, etc., which affect our crops, his salary ought to be charged to the Government.

Another important matter would be the compilation of suitable text-books. This might be easily done after the model of Professor Tanner's excellent little work, if his permission could be obtained.

The course of lectures given by the different teachers should be printed in the shape of notes.

* In Grenada Sir W. H. Hutchinson, whose efforts to improve the well-being of all classes under his government are cynically termed "philanthropic" by the "West Indian in London," suggests that the Public Works Department might serve as a technical school in many branches of trade; if so, there is no doubt that the South Kensington authorities would render every assistance, and in Trinidad this suggestion would fall in with the educational scheme of the Victoria Institute.

PEARL SHELL AND BECHE-DE-MER FISHERIES.

The Commissioner of Fisheries, Mr. W. Saville-Kent, F.L.S., &c., has returned to Brisbane by the Cintra from his extended Northern tour. Among the more prominent results accomplished in connection with his trip, that of the discovery of mother-of-pearl shell in considerable abundance in the vicinity of the Wellesley Islands, in the Gulf of Carpentaria, and also the continued success of the pearl shell nursery established by the Commissioner of Fisheries at Thursday Island over two years ago, have been already recorded. Mr. Saville-Kent has devoted a considerable interval on this occasion to visiting the bêche-de-mer stations throughout the Great Barrier system, the result of which will take the form of a report for the consideration of the Government, embracing a comprehensive scheme for the subdivision of the entire bêche-de-mer producing grounds into sectional areas, to be let on lease by public auction or to be placed temporarily in reserve for resuscitation, as may seem desirable, on lines corresponding generally with those upon which the oyster fisheries are conducted. A searching investigation has proved beyond question that the bêche-de-mer grounds are much overfished, more particularly in the neighbourhood of the shipping ports, and where they are necessarily of most easy access. The opinion obtained from the leading boat and station owners engaged in this trade is greatly in favour of the new regulations suggested, and the carrying out of which is calculated to add substantially to both the intrinsic value of the fishery and to the revenue returns. A *sine qua non* of the new régime proposed will be the appointment of district inspectors and the systematic patrol of the fishing grounds, and the need for this is already widely recognised on independent grounds, and in the interests of both the employers and the native labourers engaged in the fishery.

* In Grenada I am informed that it is proposed to engage a Professor of Entomology to study this subject especially, with a view of finding remedies for the destruction of such as affect the different crops of that island.

Among matters connected with the oyster fisheries, Mr. Saville-Kent announces that the tropical oysters figured and described in his recently issued report on the oysters and oyster fisheries of Queensland as the black-lipped species, and to which he had previously drawn attention as a wholesome edible variety, is already being turned to commercial account in the far North, consignments being regularly shipped for the Normanton and Croydon markets. In addition to the subjects above mentioned, Mr. Saville-Kent has accumulated in connection with his recent tour much valuable information and material for utilisation in his projected comprehensive works on the fish fauna and fisheries products generally of this colony.

THE NEW BILL.

The Pearlshell and Beche-de-mer Fishery Act Amendment Act of 1891, initiated in committee by Sir Thomas M'Ilwraith, provides for the appointment of inspectors, and enacts that all ships employed in the trade must clear the Customs before going to the fishery, and forbids any vessel to carry more than two gallons of intoxicating liquor. The inspectors are empowered to board any ship or boat employed in the fishery, or enter upon any fishing station or any buildings thereon; to require the master or other person in charge to produce and deliver up any certificate or document relating to the ship or boat, or to any person who is employed: to muster the persons employed on board the ship, or boat, or at the station; to require the master or employer, or the person in charge of the station, to give any explanation concerning the ship, boat, or station, or men employed; to examine all the appliances, the diving dress, air pump, air-tubes, &c., and may by order in writing forbid the further use of it if, in his opinion, it is unsafe or insufficient. Provision is made for appeal from the inspector's decision. It is also provided that periodical inspection of diving gear shall be made by the inspectors every six months, the maximum and minimum penalties attaching to the offence of non-submission on the part of the master or employer being £100 and £20 respectively. The maximum penalty for using condemned gear is £50. Should it appear to an inspector that a contravention of any of the provisions of the Acts has been made the inspector has power, without summons, warrant, or other process, to take the offender and if necessary the ship or boat to which he belongs and the crew before a justice, either at a place appointed for holding courts of petty sessions or not, and the inspector may detain the ship or boat until the alleged contravention has been adjudicated upon. Any person who removes, except for the purposes of cultivation only within the colony, or sells or exposes for sale, any pearl oyster shell of the kind scientifically known as Melesgrina margaritifera, and of either of the varieties commonly known as "golden-edge" and "silver-lip," of which the nacre or mother-of-pearl measures less than 6in. from the butt or hinge to the opposite edge or lip, is made liable to a penalty not exceeding five pounds for every such pearl oyster shell found in his possession, and every bag or other receptacle containing shell in which any such shell is found, and every heap or other collection of shells in which any such shell is found, is to be forfeited. If, however, it is proved to the satisfaction of the Governor-in-Council that the ordinary size of any such pearl oyster shell when full grown is, when found within any specified territorial waters of Queensland, of less size than that hereby prescribed, the Governor-in-Council can by proclamation direct that with respect to any such pearlshell found within those waters other dimensions shall be substituted. In this connection it is also provided that in the case of any such pearl oyster shell of the variety commonly called "dwarf shell," an inspector may, on application, at his discretion authorise its removal or sale or exposition for sale notwithstanding that it is of less size than that prescribed. All shell must be packed in receptacles for exporation at some place on land, but this cannot be done until one week's notice of intention to back has been given to the inspector. The maximum penalty for an offence against this clause is £20. Provision is also made for the closing of banks. Yearly licenses must be taken out by dealers in pearls, the fee being £5; and after December of the present year it is made unlawful for any person to purshase pearls at any place where the fishery is carried on, or, at Port Kennedy in Thursday Island, without having first obtained this license. It is provided that the Governor-in-Council may grant a lease of the whole or any part of an outlying reef or bank, or other places for the collection, storage, cultivation or propagation of pearlshell or of beche-de-mer, or of sponges or other products of the sea. The remaining clauses of the measure deal with the penalties to be inflicted on persons obstucting inspectors, the service of proceeding and make the master of the ship *prima facie* liable for offences committed by persons employed thereon. —*Queenslander.*

THE CONDITION OF SARAWAK.—An interesting report by the British Consul at Brunei, in Borneo, on a visit which he made recently to the State of Sarawak has just been issued by the Foreign Office. The first town visited was Muka, the centre of the sago industry. The stems of the sago palm are cut in the upper reaches of the river, formed into rafts, and floated down to Muka, where the pith is extracted, and stamped on floors in such a manner that it falls in the shape of flour into boats placed below to receive it. The flour is then shipped to Kuching or Singapore, where it is again cleaned and shipped to its destination. Kuching, the capital of the State, is described as a model of cleanliness and good order, possessing an excellent hospital and museum and various educational institutions. Busoh and Paku, in Upper Sarawak, were next visited; at the former are extensive antimony works, and at the latter the Chinese work gold. The quartz containing the gold is either picked or blasted from clefts in the limestone rocks* and conveyed to sheds, where it is broken with a hammer worked by the foot, after the manner of a sewing machine, upon a granite anvil, into a fine dust, which is washed in sluices, and the residue carefully "cradled," as in Australia. Throughout Upper Sarawak there are various experimental Government plantations; those of pepper, tea, and coffee are doing well, while tobacco has proved a failure. The Sadong coal mines are being worked to advantage and the product exported. The Consul then went to Sibu, on the Rejang river, the largest stream in the State, and one of the largest in Borneo, for it is navigable for vessels drawing 7ft. to about 160 miles from its mouth. Sibu is the largest out-station in Borneo, with a large population of Chinese traders, who exchange European goods for jungle produce. The native population of the district is about 70,000, mostly Dyaks, but some idea of the diversity of the population will be derived from the fact that 17 different languages are spoken on the Rejang alone. The dyaks of the district were amongst the most formidable piratical bands infesting the coasts of Borneo less than 50 years ago. There is a considerable timber trade from the Rejang. The Sarawak coast is well lighted, and the Consul reports that he found everywhere a thriving and contented population, while the European officers engaged in the administration are, in his opinion, equal in every respect to those serving her Majesty in similar capacities. The revenue last year was $413,112, and the expenditure about $50,000 less. The revenue is derived from opium, arrack, gambling and pawnbroking monopolies, and customs. The total foreign trade last year amounted to over 4½ million dollars. The chief items of export were sago flour, $343,035; gutta-percha, $241,595; pepper, $237,476; rattans, $179,933; and gambier, $133,235; while the chief imports last year were rice, $ 240,426; cloth, $237,737; and treasure, $168,063. The general impression left by the report is that of a well ordered, peaceful, progressive State, with light taxation, all of an indirect character, and an expenditure which is less than the revenue by a substantial sum.—London *Times.*

* Auriferous granite in clefts of limestone rock is, surely, a very rare formation?—ED. *T. A.*

THE ROYAL, BOTANICAL GARDENS, PERADENIYA, AS AN EDUCATIONAL INSTITUTION.

In noticing the sums appropriated in the estimates of 1892 to the support of the beautiful Gardens at Peradeniya, of which Ceylon is so justly proud, we expressed regret that the extensive library, the herbarium and the museum of timber and other specimens should be separated by so considerable a distance from the chief city of the island, with its colleges and schools. This regret was felt in view of the obstacles which the distance and the expenditure of time and money in travelling placed in the way of students desirous of availing themselves of the important and interesting aids to education connected with the Gardens, in addition to the education of the physical as well as the mental powers involved in wandering through the beautiful grounds and identifying, by means of the inscribed tablets, the numerous and varied plants indigenous to Ceylon, or introduced from so many countries and climes,—tropical, sub-tropical and even temperate. We judged, and as it turns out rightly, that the Government and garden authorities were not only willing but anxious that all respectable persons, whose objects were *bona fide*, should, on expressing their desire, have access to the books, the coloured drawings and the specimens of plants, timbers and other objects connected with or illustrative of the science of botany, collected at Peradeniya. Natives of the island and especially the class of European descendants who have advanced and are advancing so rapidly in recent years by means of the educational advantages placed within their reach by the liberality of Government,—and let us add the zeal of the various Christian bodies in our midst,—are, naturally, sensitive to the reception they meet with at the hands of Europeans and especially European officials. This sensitiveness sometimes leads to misconstruction as to bearing and language and to offence being taken where none was meant. Officials pre-occupied with work which it is their first duty to carry through may seem brusque, when they are merely anxious to economize valuable time. These remarks apply to a communication which has reached us from a very estimable and learned Ceylonese, who is engaged in educational work in connection with a high-class institution. We submitted his letter to Dr. Trimen, and, at that gentleman's instance, we publish it with the Director's reply addressed to ourselves. The incident is not to be regretted, seeing that it has drawn forth so explicit and satisfactory a statement corroborative of our previously expressed opinion, that the Director of the Peradeniya Gardens is not only willing but anxious to aid those desirous of availing themselves of the advantages to them as students, or (we doubt not) as persons desirous of adding to their stock of general information,—of the scientific literature and Museum collections collected in the Royal Botanical Gardens. Our correspondent wrote:—

"I was delighted to read your leader of the 21st when speaking of the Supply Bill for 1892 you referred to the Botanic Garden at Peradeniya. You say 'a great means of education for the young and of information for students of more mature age is largely restricted in its usefulness"—owing to the distance of Peradeniya from Colombo. Now, sir, I have a real hardship to put before you. I have long been full of botanical enthusiasm though not a professed botanist, and derive a great deal of pleasure from turning over botanical journals and magazines. Now at Peradeniya there are of course these books. There is besides the vast and most interesting *Hortus Malabaricus*. Well on going to the Museum and stating that I wished to see the library the Director left me under the impression that I was simply *tolerated* not welcomed there, and I turned over the pages (if I even had the courage and audacity to do such a daring thing) with the fear that I was making myself a nuisance to the learned Director. He seemed to think that there could be nothing in the *library* to interest the general reader, and that the collection of timbers would be all that I could possibly enjoy! He little knew that it was *all the other way*. Your acquaintance with the Director would perhaps lead you to quite another conclusion, and I hesitate therefore to send a communication direct for publication. All I wish therefore is to have it established that not only the beautiful garden is made free of all who go there, but that those who wish to consult the journals and books should be allowed free liberty to do so without feeling that they are in anybody's way and that their presence is more an impertinence than anything else. I do not for one single moment ask that the Director should be obliged to turn away from his duties to administer a botanical lecture, though should he only be willing to do it he would be conferring an immense benefit on the rising generation. It is not often that he will have the opportunity of thus supplementing the labours of the botanical teachers in our colleges and schools. Let the museum be more than a collection of objects. Let it be a rich source of pleasure and instruction. I believe it was the fact that the Lady Principal of the Kandy Wesleyan Girls' School took her pupils to the Gardens and made the subject of Botany so real that secured such good results at the last Cambridge Local.

"The Director's office and working room adjoins the Museum Library. (He has another room with his own private collection of botanical books to which of course the public have no right.) The floor too is (I believe) *boarded*; and no doubt if a teacher, say, with his pupils goes to the Museum and introduces the treasures in the Library to her pupils, giving them a few hints here and there, he would feel that to a certain extent he would be distracting the learned Director in the next room. Can not some arrangement be made whereby this difficulty may be obviated? Is it necessary that the library should be separated from the working room of the Director by only a wooden partition?

"I beg on behalf of all lovers of nature and of the beautiful that you will give the subject a thought, and without any charge being made against the present learned Director of discourtesy that you will plead that every facility be given to people to make their researches in the records of the Museum Library, and even, *under proper safeguards*, to have the opportunity of borrowing for a day or two any book from which they may like to make extracts. [Perhaps this latter may not be practicable.]

"Excepting the Museum at Peradeniya there is no other place in the colony where botanical journals could be perused, and should the slightest (however unintentional) obstacle be put in the way of persons craving for botanical knowledge what a great hardship it must be!"

Dr. Trimen's frank and satisfactory response is as follows:—

"I am much indebted to you for forwarding to me your correspondent's letter, and must say at once that I feel greatly pained that he should have received such an impression as he describes from his visit to Peradeniya. I hope and believe he stands alone in this, and am quite at a loss to understand how it came about. It must be surely unnecessary for me to say that everyone wishing to study at Peradeniya is not only free to do so, but very welcome and not the least "in the way."

"Unfortunately I cannot clearly recal Mr. ——'s visit. I suppose I must have been pressed with the work when he came; but even in that case, I am certain that whatever he wished to see would have been freely placed at his disposal. He could not have made his wants plain to me.

"I should like to take this opportunity of saying, what I supposed was well-known, that the Government Herbaricum and Library at Peradeniya are *absolutely public* in the only sense in which valuable scientific collections can be; that is, they are freely open for consultation by all who wish to use them for purposes of study, and ask permission to do so. It has always been my effort and my desire to make them more and more useful in this way, and I should indeed be sorry to think that any imaginary obstacles were hindering my progress.

"You are quite at liberty to publish any or all of this letter; indeed if you think it well to give it publicity to Mr. ————'s complaint. I hope you will, by giving also my answer, help to convince him that his "real hardship" exists only in his own imagination."

We hope this statement will not only be satisfactory to our correspondent but encouraging to others who may wish to consult the books in the Library and specimens in the Museum at Peradeniya.

YIELD PER ACRE OF TEA IN CEYLON AND COST OF PRODUCTION.

The following letter has reached us:—

Tunisgalla, Rangala, Oct. 28th.

Dear Sir,—I have just read over in *Observer* of Sept. 10th 1883, Mr. Armstrong's lecture on tea. If you will compare his forecast, and the present, actual output and results of working, an interesting article might be edited.

The yield of tea per acre is obtained, but at a far lower cost, say 26 ct. per lb. f. o. b.—Yours faithfully

H. W. HORNBY.

There can be no question that the yield of tea, in the hot, damp and forcing climate of Ceylon has exceeded the most sanguine expectations, some exceptional and specially rich alluvials in Bogawantalawa and the Kelani Valley, shewing returns up to 1,700 per acre, while all the world knows the wonderful *averages* obtained from appreciable areas of manured land on Mariawatte, considerably in excess of 1,000 lb. per acre. Indeed it is owing to a spurt of what we suppose we may call *overbearing* in the larger portion of our tea regions in the latter portion of last year, that prices for some time back have been at so low a level. Our correspondent, in noticing the lower cost at which tea is now placed f. o. b., ought not to have forgotten the steady, and recently the very material fall in the prices of our staple product since Mr. Armstrong delivered his valuable and interesting lecture. That lecture was delivered in August 1883, and it was revised and supplemented in October 1884, seven years ago. The advance since then in the successive crops and in the supercession of hand labour by machinery, has been rapid beyond the precedent in any tea growing country. Befor coming to the figures for cost of production w cannot help quoting some of Mr. Armstrong's shrewd and well-informed remarks on other subjects:—

I consider our knowledge of coffee cultivation goes very far to aid us in that of tea, and, with our trained labor, most apt at picking up anything new, to aid us, we can place our tea in the market cheaper than any other tea producing country in the world.

My remarks today have more especial reference to the cultivation of tea in what may be termed our coffee zone, in fact, to the practicability of tea taking the place, in some instances, of coffee, or of its being planted in forest land adjoining our coffee estate, and which we have thought too high for coffee.

Throughout this paper I refer to Assam-Hybrid tea only.

At what elevations will tea grow at, in Ceylon, to pay? From almost sea-level to over 6,000 ft. provided soil and aspect are suitable.

SOIL.—Should be fairly good—the richer the better—deep and friable, loam well mixed with sand; a shallow quartzy soil is good. Tea will not flush readily in this although it may grow to a fair sized bush. A subsoil, well mixed with sand, or grit, without showing a very good surface soil, will, although giving a slower growth at first, turn out a better paying soil than one with a rich surface and clearly defined clayey subsoil without an admixture of sand; the more we pluck, the deeper the roots must go, and we must have room for them. The higher our elevation the richer should our soil be, to make up for climate.

CLIMATE.—That which is best for coffee will I believe, *for a permanency*, be found to be the best for tea. The beau ideal of a tea climate is Awisawella, Yatiyantota and lower portions of Morawakorale, also portions of Ambagamuwa; but they have not our coffee zone subsoil, as a whole; and our zone will I think, make up, in its deeper soil, for the want of extreme heat with moisture, which prevails in these districts, where, however, tea will rapidly make a fortune for its lucky proprietors.

The higher the elevation, the less rainfall is required, and *vice versa*, light showers alternating with sun, if we could order them so would give us 1,000lb. per acre at 5,000 ft. elevation. At the higher eleavation, continued rain at the height of the monsoon has the same effect in checking the flush, for the time being, as a longe continuance of sun has in the lowcountry. Perhaps a good thing; for, with us the bush has no wintering, and the only rest that of a 10 lb. plucking, instead of a 24 lb.

After quoting very encouraging yields of tea at different elevations, Mr. Armstrong thus summed up on the question of yield:—

Young as we are, and in the face of these yields at 6 years of age and upwards I feel perfectly safe in estimating an *average* yield of 400 lb. per acre from tea in the coffee zone and above it, say from 2,500 to 5,700 ft. in sheltered situations, and in saying 5,700 ft. I do not wish it to be understood I draw the limit even here, but the figures I have had given me above this elevation viz. at 6,300 ft. are only from a very small area under tea, which however gave at 6 years old 400 lb. per acre at 4 × 4. For low country teas, that is teas at from 2,500 down to sea level, at 6 years old and upwards, I shall be very much surprised indeed if they do not show an *average* yield of 600 lb. per acre. These estimates gentlemen, may seem excessive, looking at the average yields from Assam and India generally, but compare our yield in this our very infancy with that in India and you will find we can even now show an average, from estates at 3½ years old up to 6 which will more than double theirs. [30th October 1884.—N. B. The yields of this season have proved this estimate to be under the mark, as we have to chronicle yields of from 600 up to 900 lb. per acre all round at high low, and medium elevations, and in the face of a bad season, from insufficient rain, through out the island.] Inclemency of weather does not affect us in the same way in which it does our Indian fathers, as we have 11 months in which we pluck. If one month is too wet we benefit all the more when the sun shines again as we have lots of time; if we have a spell of dry weather, on the other hand, this again is sure to be followed by rain, when we at once make up any loss.

He then came to the question of

COST PER LB. F. O. B.—I have to thank many friends for furnishing me with cost F. O. B. at Colombo and choose the following which are representative of all and may be relied on. In all cases, the tea was manufactured without the aid of machinery of any kind.

450 lb. per acre cost	36c.	F. O. B.	} Including cost of upkeep of young tea not in bearing.
700 do	do	30c.	do	
400 do	do	40c.	do	
430 do	do	29c.	do	

If we take the average of the above 4 estates we have, say 495 lb. per acre hand-made, costing 34 cents F. O. B. at Colombo; London charges including freight are under 2½d; but for all practical purposes let us say 2½d, the above teas at an average price of 1s 2½d, and this is not a high average, leaves us 1s nett, or at 1s 8d per rupee, 60 cents; a profit of 26 cents per lb. at 495 lb. per acre, say R128·70 profit per acre.

It will thus be seen that Mr. Armstrong's result for hand prepared tea was 34 cents per lb. With the use of machinery the figure was reduced by 4 cents in October 1844, the cost of plucking and manufacturing by machinery showing a saving per lb. of tea of 6·34 cents, as against hand rolling and charcoal firing. Mr. Armstrong's estimate was then for machine made tea 30 cents per lb f.o.b. at Colombo, and our correspondent states that his figure has been since reduced to 26 cents. We suppose that is the fact in many, perhaps the majority of cases (?) and in the face of low prices already prevailing and the prospects of over-production and its results, no legitimate effort should be spared still further to economize. In that direction and in the pushing of our teas in open markets and introducing them into others practically closed or only partially open, our hope of continued success as tea producers lies. The limits of production with our favourable conditions of soil and climate, have expanded and are expanding wonderfully.

NOTES FROM PEERMAAD.

Oct., 1891.—In the "good old days," September was always the pleasantest and brighest month of the year, but of late years we have been rather unfortunate in having a succession of wet Septembers; this year, however, we have been favoured with the most lovely weather, bright hot days as a rule, with just an occasional shower, every now and again, towards evening. But the sun was what was wanted for the coffee, and we got it, and are happy. Leaf disease, which had shown itself a bit here and there, and of which I wrote somewhat doubtfully in my last, has almost entirely disappeared, and although the crop has suffered slightly on one or two estates, there is now no cause of anxiety, and estimates will be realised. Picking has already commenced in the Periar Valley, and will be in full swing by the end of the month; crops generally on the higher estates being not so forward.

The rapid fall in the Coffee Market is, on the face of it, somewhat disheartening, but it is satisfactory to note that fine plantation is in good demand, and I shall be much surprised if there is not a good recovery in prices long before this season's crop is shipped. By the way, what a ghastly tale of disappointed hopes is told by Messrs. Alston Low & Co.'s Annual Statement of Exports of Coffee from the Malabar Coast during last season! The three ports, Cochin, Quilon and Alleppy, which ship by far the greater portion of the coffee grown in Travancore and Cochin, show only 1,230 cwt. as having been exported. Verily a ghastly record. I am sorry I have not in hand a statement of the export of tea from the same three ports for the same period, as it would have been satisfactory to have had this as a "set off." I most endeavour to send you this with my next budget.

The weather for the past six weeks has been simply perfect for tea, and the flushes have been remarkably fine. The fact that, during September, over 6,000 lb. of tea were made from 40 acres on one estate *i. e.*, 150 lb. of made tea per acre for the month, speaks for itself. A friend who has lately returned from a visit to some of the tea estates in the Periar Valley, reports the tea as looking "simply magnificent," and the Manager of one of the largest properties there, anticipates a yield in the near future of 1,000 lb. per acre. I hope next week to take a run down to the valley and shall be able to send you full accounts of what *was*—alas that I should have to write it in the past tense—*the* coffee district of Travancore, and that now promises to become one of the finest tea districts in the country. Nor is this to be wondered at, possessing as it does, a most forcing climate and a soil that is just about perfect. Coffee used to yield 10 to 15 cwts per acre in "the Seventies," and if only shade trees had been grown there, leaf disease would undoubtedly have been less disastrous, and but little would, I fancy, now be heard of tea in the Periar, which, in my humble opinion is *par excellence* the beau ideal of a coffee district. The only estate that has attempted anything in the way of shade is still very much to the fore, and though unfortunate in losing its final blossom in February last, has a very nice crop on now and is, I am glad to hear, looking particularly well and capable of giving a still heavier crop in the coming year. As another instance of the productiveness of the soil, I may mention that I once sowed four acres of land with paddy, and reaped 280 bushels, or an average outturn of 70 bushels per acre, a yield which will I fancy bear favourable comparison with the yields of some of the finest corn-producing districts in the world. I must here mention, to avoid misconception, that apart from the natural regard—nay affection—that the pioneer of a district may fairly retain for his "first love," this praise of the Periar is perfectly disinterested; for the writer has long ago parted with the many broad acres he once possessed in the valley, and migrated to a healthier, if somewhat less productive, part of the district.

A forest land in the near neighbourhood of Peermaad has become scarce, and as the demand for land for Tea cultivation is increasing, applications have lately been made for certain blocks of selected grass land, and during the past monsoon, one new grass-land clearing has been planted up, the result of which will be watched with considerable interest, as should the experiment turn out the success that there is every reason to anticipate for it, there will undoubtedly be a large demand for land of this description, of which there are thousands of acres available.

Apropos of this, I am reminded of a remark made by the late Rajah Sir T. Madava Row, when Dewan of Travancore, in reply to an application for a grant of 2 acres of grass-land for every acre of forest held by planters in the Peermaad District, which I had been deputed to make personally. It was urged that it was absolutely necessary for us to secure for each estate a certain amount of grass-land for grazing purposes, as we were alive to the fact that manuring would have to be resorted to at an early date, that there were thousands of acres available, and that the grass-land was utterly valueless except for grazing, and that we paid a heavy tax on our forest land and so on. After a patient hearing, and expressing his pleasure at finding that we were, at that early stage of the Coffee enterprise in the country, turning our attention to the matter of high cultivation, the Dewan, after assigning various reasons for refusing to grant our request, concluded by saying, "And besides this, how are we to know Mr. ——— that the planters of, say, five and twenty years hence, may not, so far from characterising your grass-land as 'utterly valueless' find it highly suitable for some other cultivation? *Tea for instance.*"

Prophetic words, that may ere long be fulfilled.

That the soil of the *generality* of grass-land will hardly bear comparison with that of virgin forests, goes without saying, but, with our great facilities for cheap manuring, and in consideration of the difference in initial cost of land, this need not be regarded in the light of a drawback.

That we are fortunate as regards cheap manuring may be gathered from what follows.

Large herds of cattle are brought up every year from the Cumbum Valley (which literally swarms with cattle and periodically suffers from a fodder famine), to graze, and the Travancore Government levies a small grazing fee of 3 annas per head for the season, usually about four months, from February to June. Every estate, however, of 100 acres and upward, is allowed 500 head of cattle *free* and by payment of the above-mentioned fee of 3 annas per head, as many more cattle as may be required can be obtained, without any difficulty, by merely making the necessary arrangements with the cattle owners. Any quantity of manure is thus easily obtained and, as may be seen at a glance, at a ridiculously low cost.

We are great believers in cattle manure in this district, and when supplemented with, for Coffee, a judicious admixture of bones, the most satisfactory results have been obtained. There is hardly a so-called "chemical manure" known to planters that has not been tried. Phosphates, Kainit, Guano, Fish, Poonac, &c., &c., have all had a trial, but nothing has ever come up to cattle manure and bones. After all, as they say in Norfolk, "There's nothing like *muck*."

The North-East Monsoon has fairly set in, during the last few days the wind has veered round to the N.-E., and besides having occasional sensations of what is known as "Land Wind," we are having heavy showers in the afternoons, accompanied by thunder and lightning. I hear too that good rain has fallen in Pandy, where, from all accounts, it was terribly needed, as the distress, which has been very severe for some months in the Cumbum Valley, had well nigh culminated in famine. There has been quite a rush of Pandy carts across the hills, in quest of paddy, as the hill harvest on the ghats and neighbouring hills is now in full swing, and prices at this season of the year are ordinarily low. I hear, however, that the cultivators are disinclined to part with their grain, and in consequence of this unusual demand from British territory, are combined to raise prices, and are likely to realise, on what has been rather a poor crop, larger profits than under ordinary circumstances, they would have obtained from a 16-anna crop. Verily it is an ill wind that blows nobody any good!—*Madras Times.*

[We can easily understand that no manure can excel a combination of cattle manure and bones, where both are plentiful and cheap and where the cattle manure is within easy distance of the fields to which it is to be applied. The cost of cartage and carriage on coolies' heads of this bulky and heavy material is, in many cases, prohibitive.—ED. *T. A.*]

INDIA AT THE WORLD'S FAIR.

An unusual opportunity for advertising Indian goods and manufactures in an effective manner is, says the London Correspondent of the *Pioneer*, likely to be furnished by the coming World's Fair at Chicago, of which so much has already been heard.

It is satisfactory to be able to state that steps have already been taken towards arranging for the adequate representation of British India at Chicago. Early in the present year, Mr. H. Ballantine, Consul for the United States at Bombay, was summoned by his Government to America, in order that he might give his advices as to the best way of securing the co-operation of the Indian authorities and of Indian manufacturers of every kind. No better selection could have been made, for Mr. Ballantine, born in the Land of Regrets, has spent his life in acquainting himself with native languages, customs, and modes of thought, not to mention his large commercial experience. Before leaving the States, Mr. Ballantine was instructed to visit Chicago as Commissioner for India in connection with the exhibition, and in the future capital of the West he conferred with the directors of the show, afterwards leaving for London on his way back to the East, to start his mission. Deeming that some forecast of the probabilities of India being placed well in evidence at Chicago might not be devoid of interest, I paid Mr. Ballantine a visit at his temporary office in Queen Victoria-street on the eve of his departure for Bombay. He was evidently in good spirits at the prospects of the exhibition, and spoke enthusiastically.

"For what class of exhibits do you consider there will the best opening?" was my next question.

"Well, you may say that there will be a capital opportunity for the Indian and Ceylon tea-growers to make their wares better known," my informant replied. "As I have just been explaining to one of the largest tea houses here, is quite free. But one thing should be remembered—the tea must be quite genuine. Thus far the Indian and Ceylon teas, sold in America, have been pushed on to the market with a blending of Chinese tea, whereas I think Indian teas so good that they can stand entirely on their own merits. Ceylon has already voted a large sum of money to secure proper representation at the fair, and no doubt the Indian tea planters, when approached, will do the same."

"With regard to raw materials," Mr. Ballantine pursued, "these, too, are more or less free, and so far from the McKinley Bill doing any harm in this direction it has actually modified the duties, where existing. There is no market in the world, I believe, that will be found to pay so well as that of the United States. Oriental fabrics are getting more and more popular on the other side of the Atlantic. Instead of carpets being spread down in the houses of the well-to-do, the tendency now is to go in for Oriental rugs. That has been a great feature of the carpet trade, in which India justly occupies a very high position. Why, look at her capabilities of producing rugs which I claim today are the wonder and beauty of that class of goods, as the beautiful samples in South Kensington Museum will prove! With regard to art work, I consider the so-called pictures of India rather faulty in perspective, but the miniature paintings on ivory are very fine. There would be a large demand in America for this class of goods, if they could be obtained.—*Times of India.*

NOTES ON PRODUCE AND FINANCE.

INDIAN TEA COMPANIES AS INVESTMENTS.—In the course of an article on the position of Indian tea companies as shown in Mr. Earnshaw's list to which we recently referred, the *Financial Times* says:—"It would be safe to say that no class of industrial investments has shown such uniformly good results as the Indian tea companies. We leave out of account those with their head-quarters in Calcutta, although by including them the case would be strengthened, some of them having yielded continuous dividends on a generous scale. But, taking the list of twenty-seven companies registered in London, which are included in a comparative table, compiled by Mr. Henry Earnshaw, secretary of the Jokai Tea Company, we find there are only three non-dividend paying companies, of which one is the Land Mortgage Bank of India, presumably holding tea-gardens which have been foreclosed on. Mr. Earnshaw's list leaves out some of the smaller concerns, which are to be found in that published by Mr. George Seton, an indefatigable statistician of the Indian tea industry, who is doing his utmost to attract public attention to the excellent opportunities for investment offered by these companies. Mr. Seton gives particulars of thirty-three separate properties known in this market, of which only two failed to pay dividends in 1890. Taking the two sets together, we find details of thirty-six companies, of which only five, though showing credit balances, were unable to declare dividends last year. As those declared ranged from 3 to 20 per cent., and as the average was not far short of 9 per cent., there can be no denial of the claim that no class of industrial investments shows more uniformly good results.

INVESTORS SHOULD NOTE.—"Objection," says the writer in the *Financial Times*, "might be taken to the use of the word uniform in connection with three dozen companies whose dividends range from three to twenty per cent., but if we restrict ourselves to those companies which recommend themselves most readily to investors as having the advantage of an official quotation in London, we find an exceedingly satisfactory regularity in the rate of the dividends paid. Most prominent of these is the Jokai (Assam) Tea Company, which though it has never approached the twenty per cent. paid last year by the Brahmaputra, is entitled in every respect to rank as the premier Indian tea company known in London. Year after year it pays ten per cent with unvarying regularity on its capital of £200,000. The capital value of the estate is only £38 10s per acre, and the shareholders' profit per mature acre last year was £6 16s, or nearly sixteen per cent. The Lebong, quoted in London, and paying six per cent for some years back, is in the exceptional position of possessing a sum equal to more than a third of the capital in reserve, but this proceeded from

sales of property, and is used now to bring new acreage into cultivation. The Assam Company, whose dividends in the past four years have been nine and a-quarter per cent on the average, the last two being ten, has twenty per cent of its capital in reserve, but of the others quoted in London none beats the Jokai in this respect."

THE RETURNS.—"Few investments of such regularity in the past and such promise for the future as the Jokai Tea Company," the writer goes on to say, "can be brought to yield £6 13s 4d per cent, yet their £10 shares changed hands this week at £15. Assam shares yield £6 9s at present prices. Darjeeling £5 14s 3d, Jorehaut £6 5s, and Lebong £6 per cent, the average dividends in the past four years in these cases being 9¼, 6¼, 11¼ and 6½ per cent. Thus nearly all the leading tea shares on the London market can be bought to return over 6 per cent per annum. Of course the industry is one exposed to considerable risks, both from meteorological and economic causes, but the point that must be insisted on is that, through admirable management both in India and at home, and through the establishment of reserves, these vicissitudes have been robbed of most of their influences on dividends. Hence, for those who desire 6½ per cent industrial investments—in companies whose administration is beyond suspicion, and whose position may very easily be seen at a glance through the medium of such tables as Mr. Earnshaw's and Mr. Seton's—there is nothing better in the list than the Indian tea companies."

LAST WEEK'S TEA MARKET.—The *Produce Markets' Review* says:—The demand for the Indian continues active, the moderate prices having stimulated the consumption and a large business has been transacted. The changes in values have been unimportant, except for the common and undesirable grades, which are slightly cheaper, and difficult of sale even at the lower quotations. The good medium teas, on the other hand, have been keenly sought after, especially Pekoes, which continue moderate in price, and so long as they can be obtained at present rates an increasing use of them may be expected. Pekoe Souchongs of good quality and giving a strong, brisk infusion have sold readily at previous values, and as the supply of these will probably not exceed the demand, the present level of prices appears safe for holding a good working stock. The finest descriptions, which are not so liberally represented in the later arrivals, continue to meet with a good reception at steady rates, while any breaks with exceptional quality command extreme prices. At the public sales 38,190 packages were brought forward, and mostly sold at firm to steady prices for all excepting the commonest kinds, which were easier. The late rise in prices of Ceylon teas has rather diminished the demand, and as the quantity offered at the sales this week has been somewhat larger, competition has been rather less keen, and prices in some cases are slightly easier. The quality of the teas still maintains the late improvement, and the greater care in cultivation and manufacture accounts for the fact that many gardens now easily obtain 1s per lb. against about the 8½d to 9d procured with difficulty in July.* At the moment the statistical position is improving, as the imports for this month will undoubtedly be very small, and the end of October will in all probability see the stock reduced to 15,000,000 lb. Of Indian teas the *Grocer* says:—"The market this week has been almost overdone with supplies, which have aggregated 38,300 packages, and have caused continued languor to prevail. The samples, as may be imagined, have been so multifarious that tastings of the entire offerings have been physically impossible by a single valuer for a series or set of sales by auction, and several invoices have been passed over as not suitable to the existing demand. This accounts for the frequency with which many lots were retired in silence as the auctions progressed, and when the only bids elicited were much below the valuations. As it was, all undesirable and thin liquoring sorts were realised without spirit at barely previous rates—low pekoes down to 6d per lb.—and a feeling of inertia was plainly evident in most of the biddings that were made. Teas with quality alone engaged attention deserving the name, and these were chiefly taken off at full prices.

BRAZIL COFFEE PROSPECTS.—Messrs. C. J. Leech & Co., in their weekly circular, say:—"The increase in the world's visible supply, amounting to 26,000 tons, or, roughly speaking, 450,000 bags, during one month means that the stock will soon be considerably augmented, and with three more months of Brazil receipts on a magnitude equal to those of September, the famine period will have passed away altogether. Notwithstanding the heavy shipments, stocks in Brazil ports are increasing fast, and the extraordinary course of the exchange this season is totally against any holding power on the part of the Brazilians. It is, therefore, of paramount importance to watch the course of receipts and exchange. So far only some 1,500,000 bags of the crop have been disposed of, leaving still 6,500,000 bags to find a market. A recovery in the exchange would go far to stem the declining tendency, but if, as we hear, the weakness in exchange is owing to fear of a further issue of paper money, there would appear to be little hope of a permanent recovery. In our circular of May 8th last we mentioned that a decline in the exchange to 15 was quite possible. This week it has been as low as 14½, but closes at 15 again." Messrs. Norton, Megaw, and Co. cable that flowering is good in Rio and Santos. Messrs. John Bradshaw and Co., of Rio, cable:—"Coming crop reported in a favourable condition. Blossom indicates a large crop." Messrs. C. W. Gross and Co., of Rio, cable:—"The September flowering is almost *nil*; that of October promises well." Messrs. Holworthy, Ellis, and Co., of Santos, cable:—"flowering good." Messrs. Gustav, Frinks, and Co., of Rio, cable:—"Flowering irregular; expect moderate crop—perhaps 3,000,000 bags." Messrs. Wilson, Smithett, and Co., in their circular of the 13th inst., says:—Notwithstanding the moderate available supplies of this article as compared with former years, the heavy decline reported in our last, has as yet received little check. The trade are unwilling buyers, as they hold a fair supply at a much higher range of price, and can only with difficulty effect sales. At the same time the lower level now reached renders the position more stable, and with a return of confidence, some reaction seems inevitable. The fortnight's supply in auction was extremely moderate, and consisted mainly of Guatemala and Colombian. These met lower offers, but as importers, as a rule, were willing sellers, a fair proportion changed hands at a decline of 2s to 4s from previous prices. Undesirable lots of various growths in second hands were sold "without reserve" at very low rates. Very heavy fluctuations have again taken place in the speculative markets, and quotations have fallen considerably, near months fully 5s; December delivery was quoted at 48s. 6d at one time, but a rise in values is established, at the close, based on rumours disadvantageous to the blossming of the next Brazil crops. The latest auctions also showed signs of greater steadiness and prices rather above valuations were obtained. Rio and Santos shipments for the first three months of the season amount to:—1891, 88,440 tons; 1890, 71,040; 1889, 56,390; 1888, 81,180; 1887, 24,460: 1886, 84,730.—*H. and C. Mail.*

NEDUN AS A CABINET TIMBER.—To show how high in quality this timber is we may mention a circumstance within our knowledge. The occupants of a bungalow upcountry received a present of a mirror, handsomely framed in dark walnut, which they placed above their drawing room fireplace. A friend gave them a design for a handsome chimney piece to form a base for the mirror. This was made of nedun, which, polished and varnished, cannot be distinguished from the walnut unless close attention is invited.

* The real reason was improved meteorological conditions, leading to less-luxuriant flushing and better ability to wither the leaf properly.—ED. *T. A.*

TEA at tea-time may be grateful and comforting but tea at luncheon-time or dinner-time is a delusion and a snare. Such is the sermon which the editor of *Woman* preaches to the gentler and more tea-drinking sex. Even as Mr. Rudyard Kipling holds up one of his heroines to scorn for living on "tea and pickles," so this stern monitor of the fair asserts that "there is a distinct want of character and dignity about a lot of women seated at marble tables, munching dyspepsia-provoking plum-cake, and sipping equally unwholesome and more unpalatable tea from thick white bowls, facetiously styled teacups." He adds that, "In these days, when women have to think and act for themselves, they must fortify their constitutions," a purpose clearly difficult of attainment by means of bath buns and scones. After this eloquent denunciation of these staple articles of feminine diet it seems almost like an anti-climax to read that "It is not necessary that a woman should eat a big rump-steak, or drink a bottle of claret or a tankard of ale in the middle the day."—*Daily Graphic*, Oct. 15.

AN EXHIBIT FOR THE "WORLD'S FAIR," CHICAGO.—The Forestry Division of the United States is preparing an exhibit for the Columbian Exposition—or "World's Fair"—at Chicago, in 1893, and will endeavour to obtain models or samples of the different forms of metal ties—sleepers—which are in actual use, in order to show, what is not very generally understood, that the question of the use of metal track is no longer an experimental one in other countries. Apart from minor experiments, two systems are now being given careful trial—the Hartford steel tie on the New York Central and Hudson River Railroad, and the Standard steel tie on the Delaware and Hudson Railroad, the Philadelphia and Reading Railroad, and the Chicago and Western Indiana Railroad. The former is an inverted trough, with a groove along the top, and having the ends curved down. The latter is a channel with the open side uppermost, the bottom cut away at the middle and bent upwards, and a block of compressed wood under each rail. Both have bolt fastenings. A third system, the Morrell steel tie, somewhat similar to the Standard, is to be tried on two roads,—*Indian Engineer*.

TEA AND COFFEE IMPORTS AT AMSTERDAM.—Consul Robinson reports upon the Trade and Navigation of the Port of Amsterdam during the year 1890 as follows:—*Coffee*.—The total importation of coffee in 1890 was slightly larger than in the previous year, although the entire failure of the Java crop caused a great deficiency in the shipments from the Dutch East Indies. This was, however, made up for by an increased supply of other descriptions, principally of Santos, the importation of which was nearly double that of 1889. The price of Java coffee rose, with some fluctuation, from 9¾d per lb. in January to 10¾d per lb. in November, closing end of December at 10d per lb. The production of Government coffee in Java showed a most remarkable decrease since 1881, when the quantity offered for sale through the Netherlands Trading Company was 913,881 bags, dwindling to 446,490 bags in 1890; the 1891 crop will probably not exceed 350,000 bales. Speculative transactions were limited, and the Amsterdam clearing office reports a turn over of 978,500 bales (762,500 Santos, and 216,000 Java), as compared with 1,150,260 bales in 1889. *Tea*.—Chinese tea continues gradually to disappear from our market, the total importation being 5,293 quarter chests, as compared with 9,938 in 1889. The quality of the importations gave general dissatisfaction. The consumption of Java tea, and especially of the Assam sorts grown in Java continues to increase. Prices, especially of the better sorts, improved somewhat during the year.—*L. and C. Express*.

OF THE JAVA COFFEE CROP estimated at 380,596 pikuls; 374,559 pikuls have been received at the Government local storehouses and 35,629 pikuls have reached the shipping ports.—*S. F. Press*, Oct. 29th.

COCONUT PLANTING IN THURSDAY ISLAND.—The *Torres Straits Pilot* of 3rd Oct. says:—

Mr. Armitage, the gentleman who is engaged by the Queensland Government to plant coconut trees, has arrived. He will probably make a cruise in the cutter "Lizzie Jardine," during which he will plant many hundred young coconuts on the islands in Torres Straits. The trees in future years will prove of great value, especially in these waters; and it is sincerely hoped the majority of them will thrive well.

PTEROCARPUS INDICUS.—In the extract you published the other day about the timber from this tree, reference was made to its fine dark color. I have several pieces of furniture some years old made from one of the trees which grew in Slave Island, and it is a very light color and does not turn so dark as satinwood with age. It is a beautiful close-grained wood and takes a good polish.—*Cor.* [It is possible that, as in the case of many other tree, the *root* portion of the tree may be dark-coloured?—ED. *T. A.*]

FIT FOR EDEN.—Among cultivated fruit, one stands as yet unrivalled for its beauty, aroma, and delicious flavour. Singularly enough, however, not even Her Majesty, though Empress of the vast realm in which it is grown, has tasted it. Imagine a huge laurel, with leaves somewhat narrow, blossoms like a single rose, and lemon-shaped fruit of the colour of a ripe apricot—a rosy hue apparent through the primrose and gold. The flesh is rose-coloured. So delicious is it—such subtle commingling of refreshing juices, subacid and sweet, that even the dying will eat it greedily—one can see, as old Anglo-Indians speak of it, that even the reminiscence is a pleasure, making the mouth water. Such is a brief description of the Maryosteen or Maryostana.* Only twice has it been fruited, in a strong moist heat, in England—once at Sion House, the Duke of Nothumberland's, and about 1866 at Hooley Hill, near Croodon by Mr. Mundell, of Moorpark Gardens.

JAFFNA TOBACCO AND THE GOVERNMENT OF TRAVANCORE.—The "Hindu Organ" states that the Government of the Native State of Travancore "has promulgated a new Order, if not with the view of driving away the Jaffna tobacco from the Travancore market, certainly, with the object of specially encouraging the consumption of the Coimbatore tobacco in that State. By virtue of the Order in question Coimbatore tobacco can now be sold in all parts of Travancore, paying a duty of only R30 per Candy, competing with the Jaffna product still subject to the levy of R90 per Candy. To all outward appearance, we are informed, the duty on both kinds of tobacco is still the same, but practically the one kind of tobacco is made to compete with the other with a difference of R60 in the Government duty." "Intelligence has been received here from Travancore that the quantity of Jaffna tobacco sold in the several Government Bank-shalls there have been monthly decreasing, since the new Order has come into force, although sold at a considerably low price to keep pace with its rival. Great depression consequntly prevails in the Jaffna-Travancore tobacco trade." "We have before us copy of a respectful but earnest and closely reasoned memorial addressed to His Highness, the Maharajah of Travancore, by the merchants of Jaffna, pointing out the injustice and impolicy of encouraging the tobacco of one country at the expense of that of another, which had been both for a century or so, treated with equal favour; and praying that the new order complained of may be rescinded."

* Misprints, of course, for 'Mangosteen' and 'Mangostana.' The description of the fruit, however, does not accord with fact.—ED. *T. A.*

FOREST CONSERVANCY.

This is Mr. Broun's first report as head of the Forest Department, that is to say he has written it as Acting Conservator of Forests, his appointment requiring of course the confirmation of the Secretary of State, which may be taken for granted. But the report refers to a year when Mr. Broun was still only Deputy Conservator, for, when Colonel Clarke was compelled to go on sick leave, Mr. Broun was absent in India, and Capt. Walker as Senior Assistant Conservator, acted as Conservator for just the last week of 1890. Mr. Broun returning on 31st December. As a trained professional man, Mr. Broun writes a very detailed and elaborate report, which is largely occupied with imperfections of departmental organization, procedure, departmental rules and forest laws. The amendment of the latter, it seems, is delayed until the appearance of a new edition of the Indian Forest Act, which will, of course, embody the results of the latest and most extended experience of the multitudinous details of forestry and their bearing on the interests of agriculturists specially, and the community in general. At the commencement Mr. Broun very properly expresses his regret that the Government rules as regards half-pay for acting appointments could not be relaxed in the case of Col. Clarke, who certainly contracted the fever which has affected him so seriously when engaged in duties connected with the Forest Department. Like every other head of a department Mr. Broun wants more money than Government is willing or able to grant; and with much reason, a plea is put in for the forest officers, that, subjected as they are to special exposure, they should not only receive better pay, but, as regards pensions, be put on an equal footing with the members of the P. W. D. A protest is entered against the humiliating rule that a forest officer cannot cut a stick of wood without the permission of the Government Agent. We can understand due powers being reserved to administrative officers, but surely this is compatible with vesting forest officers with discretion such as native headmen exercise. Mr. Huddleston was employed during a portion of the past year in reporting on the forest resources of the Trincomalee district, and his initiatory report gives a striking impression of the devastating results of the system, or rather utter absence of system, which prevailed about forty years ago, when, without any adequate return to Government, there was a continuous export from Trincomalee, for years in succession, of valuable ebony, satinwood, balmilla and other timbers of which the Government forests were denuded for the advantage of individual traders. In regard to a large portion of those eastern forests, the attention of the forest officers must for many years be devoted to the not immediately profitable but absolutely necessary work of encouraging by every possible means the process of natural reproduction: letting the light have access to the seeds which are plentifully distributed in the soil and preventing the access of destructive animals and fires, as well as destructive natives who never hesitate to cut down saplings of the finest species of timber trees for fence sticks and similar use. In one part of the report it is stated that valuable saplings are recklessly cut by the natives, not only for their own use but for sale to Indian dealers! The remedy of course is to demarcate and set apart village forests for supplies of timber and chena cultivation. That once done, trespassers on Government forests and forest reserves ought to be rigorously prosecuted. Mr. Broun complains of the slowness of the processes of survey and demarcation of boundaries, and protests against forest surveys being complicated, as in Sabaragamuwa, with the settlement of village claims. Mr. Broun also very properly insists on the forest officers qualifying themselves to execute surveys of a nature from slight sketches to more elaborate plans. A fully qualified forest officer, indeed, must be a man of great and varied accomplishments; a botanist with a keen eye for peculiarities of soil and climate, a judge of the qualities of growing timber and an adept in its treatment when growing and after felling, a competent surveyor and well acquainted with native languages and customs,—especially the communal laws. How valuable the knowledge acquired by experience can be is illustrated by the history of *palu* timber for railway sleeper purposes. This timber has been rejected because of cracks, the result of felling when green, but an experiment in ringing the trees and leaving them standing for a year subsequently has obviated this difficulty. We are glad to notice that teak at Puttalam and mahogany at Jaffna have been fully successful; and it is quite clear that the latter, the most valuable perhaps of cabinet and structural timbers, should be extensively cultivated in the dry and arid regions of Ceylon. If in 1843 a hundred thousand mahogany trees, instead of four, had been successfully planted at Jaffna, the timber would now or a few years hence realize large wealth for the colony. From measurements given of trees planted at different periods between 1843 and 1885, we learn that the mean girth at breast height of 4 trees planted in 1843 is 8 feet 7 inches, or 103 inches—which means a diameter of over 34 inches,—the mean annual girth increment having been 2·19 inches. It is quite evident that special attention should be devoted to teak and mahogany, amongst exotic timbers in the lowcountry as well as to the Australian *eucalypti* and *acacias* and to the Himalayan cedars and pines, in the higher and wetter regions. There is another valuable timber tree, which has made itself at home in Ceylon from Colombo up to Peradeniya. This is the *padouk* of Burma and the Andamans, which, as a paragraph we recently quoted proved, has excited much attention in Britain, from the strength and beauty of a specimen sent from the Andamans. So long ago as 1843, the late Mr. William Ferguson attracted attention to the magnificent specimens of this tree,—botanically *Pterocarpus indicus*,—growing near what was then the Ceylon Rifles mess-house, and which is now the property of the Ceylon Commercial Company. The handsome umbrageous foliage of this tree is occasionally contrasted with a wealth of golden blossom rich with delicious perfume. The cultivation of this valuable and beautiful tree ought certainly to be extended, and sandalwood ought to be tried in the Puttalam district and other portions of the island. But why has the Forest Department neglected that near relative of the mahogany, but which unlike that tree flourishes at 6,000 feet and over, the timber of which is by many deemed quite equal to mahogany,—the cedar of Australia, the *red* toon: *Cedrela Toona var. serrata*. The grove of these trees near the Lake bund at Nuwara Eliya is conclusive as to, their suitability for cultivation at high attitudes even if experience at Darjiling and other Him-

layan stations were not sufficient. For railway sleepers the red *dun* (not only native but peculiar to Ceylon) is the favourite; but other timbers are being tried; and, with Col. Clarke we believe strongly in the value of the ubiquitous and often gigantic *kumbuk*. Mr. Brown states:—

Instructions were sent to the following Provinces to saw 200 experimental sleepers of each of the following kinds:—

W. PROVINCE.—Alubo, etaheribeliya, bakmi, and dawata.

E. PROVINCE.—Tumpalai, kon, naval, palai, chemelpaniche, kokatiya.

N.-W. PROVINCE.—Timbiri, kirikon, tammana, godapara.

Amongst these and others, we cannot doubt that excellent wood for railway and other purposes can be found.

The famous ebony of Ceylon being a purely cabinet or ornamental wood, it may be interesting to notice the proportion in which other timbers are in demand: satinwood, which is both a cabinet and a structural wood and others which are wholly or almost wholly devoted to useful purposes as distinguished from ornamental. Until recently the run, both for home use and for export has been on Halmilla, Satinwood, Palu or Pallai, Milla, Na, Rani or Weweranai, Dun, and a few others. But the value of other timbers, such as Kumbuk, Alubo, Dawata, Kon, Tammana, Godapara, &c., is gradually being appreciated The proportionate demand indicated in the felling operations of the Forest Department in 1890, is thus shewn:—

VERNACULAR AND POPULAR NAMES.	NUMBER OF TREES FELLED.	VERNACULAR AND POPULAR NAMES.	NUMBER OF TREES FELLED.
Halmilla ...	4,510	Hora ...	60
Satin-wood ...	2,916	Margosa and Hulanhik (both allied to the Toon) ...	58
Palai or Palu ...	1,712	Nadun and Ubriya (cabinet woods)* ...	52
Milla ...	1,027	Jak ...	41
Na (iron wood) ...	619	Pihimbiya ...	30
Ranai or Weweranai	562	Mihiriya ...	25
Dun ...	462	Hal ...	20
Mendora and Tumpalai ...	418	Mi and Wanami ...	17
Kina and Domba ...	324	Other species ...	2,253
Kumbuk ...	281	Total ...	15,686
Domba and Naval, (the latter the Mahadan of the Sinhalese) ...	147		
Ebony ...	143		

of which 8,292 were dry and 7,394 green trees.

Our readers will, of course, note that the above figures refer only to legitimate fellings by the forest officers. Illicit fellings and felling of trees on private properties are left out of view, and we should suppose a good deal of the original and coppice growths cut for fuel, both in Government and private forests. Far more jak and some other trees grown around native houses or in private or village chenas are utilized than the quantities shown by the forest department. The palmira trees cut down, chiefly for export to India, as rafters and reepers, must be almost exclusively from private property, and we are greatly concerned to find Mr. Broun contemplating the gradual extinction of this most valuable timber, without indicating that the forest department intends to make any special effort to prevent what would be a real loss to the Colony and a most serious misfortune to the poor people of the Northern Province whose livelihood so largely depends on the varied and valuable products of the palmira palm. The export of palmira laths and rafters seems to be diminishing, not because the people have become more alive to the duty of preserving the trees as food yielders, but because continued felling without corresponding planting has rendered suitable trees scarce. The export figures for 1889 and 1890 were:

1889	Palmira laths and rafters ...	296,484
1890	do do ...	263,090
	Decrease	33,394

We suppose the new industry of preparing fibres from the leaves may in some measure compensate for the falling-off, but the whole question of palmira culture deserves the most earnest attention of the forest department and of the administrative officers of the northern and drier portions of the island. A communication we recently published shewed that the jungles in the portions of the Jaffna Peninsula adjoining the "mainland," and perhaps well into the mainland, are full of palmira plants, which only require the clearing away of useless growths, such as inferior thorny acacias, and the admission of light and air, to flourish. Mr. Broun dwells on the usefulness of a timber which has been found to last ten years. There are palmira rafters and reepers in houses at Jaffna and elsewhere, built in the Dutch time, which are known to be considerably more than a century old and which are still unaffected by decay. We submit that the conservation and propagation of a tree so valuable as a sugar, fruit, root, and fibre yielder, and which at maturity yields a building material which cannot be surpassed, deserves immediate and most serious attention. It is unfortunate that in the Customs accounts only a few of the timbers exported are distinguished by their names. In 1890, no fewer than 4,208 packages, 7,781 logs and 928,403 "number" are lumped up as "woods of sorts." As this is an important and increasing branch of our commerce, we submit that the time has come when the "woods of sorts" should be sorted and tabulated by their vernacular or popular names. The natives generally know these, and should the Customs officers experience any difficulty, they can readily obtain aid in identification from the forest department, in connection with which a herbarium and museum of timber specimens has made good progress. "Timber dye-wood and root," of which 10 packages and 1,436 cwt. were exported in 1890, must have been nearly all sappan wood, and yet sappan wood is given separately at 2,774 cwt. and 26 packages. Of ebony the exports last year were 9,709 cwt. The exports are chiefly to China; and our readers may recollect that Col. Clarke restricted sales in order to raise the market price to a remunerative rate. Mr. Broun recommends the felling and sale of a moderate quantity yearly. Satinwood, the specific gravity of which is not much under that of ebony, is, like that wood, recorded by weight, the quantity exported in 1890 being 306 cwt., 2,179 logs and 58 "number." Of ironwood 656 logs and 81 "number" were sent away. Of our best and most generally

* On an unjustifiably extravagant use or rather misuse of the fine cabinet wood *nedun*, we quote a paragraph from Mr. Broun's report:—"At Ratnapura a new post office, the design of Mr. Spooner, is being built entirely of nedun timber. It seems to be a great pity to use nedun, which is a most valuable cabinet wood and is daily becoming scarcer." The question is who sanctioned Mr. Spooner's expensive whim? The two together ought to be made to pay the difference between the cost of nedun and good ordinary timber.—Mr. Broun's remark that nedun is becoming scarce reminds us that "calamander" wood (kalumediriya), a near relative of ebony but much more beautiful is almost extinct. Ought not nurseries and plantations of such valuable trees to be formed?

useful timber, halmilla, (valued in India for gun carriages and similar purposes) 1,651 logs were exported. Pieces of teak to the "number" of 8,300 are included in the exports. Of coconut laths and rafters 100 packages and 2,267 "number" were entered for export, with laths and rafters of timbers not described 7,158 packages and 1,593 "number." Finally we have the "ridiculus mus" of 9 kitul laths and rafters. As our forests are demarcated, reserved and scientifically treated, being permeated by roads and paths to facilitate not only inspection but the easy transit of timber divided into logs, deals and scantlings by means of steam saws, there will be supplies of good timber and fuel, sufficient for all local wants and export demands, which are certain to expand. Mr. Broun, by the way, anticipates the early ability of his department to meet all the demands of the railway for fuel, leaving private forests available for private demands. This will be good news for householders in our cities and for the owners and workers of plantations and tea factories. And this reminds us of an apparent omission from Mr. Broun's report of any reference to the large and urgent fuel demands of the tea planters and the best means of supplying them. This must be due to inadvertence, equally with the different modes of spelling the name of one of our most valuable forest trees,—*palu* and *palai*. Which is it to be? There are the Tamil names of places, Patchelaipallai (the green home of the palai tree?) and Palai, derived, no doubt, from the tree. Yet the general form in books and reports, of spelling the name of this valuable tree is as certainly *palu*, the Sinhalese form. But as the tree is chiefly prevalent in the Tamil districts, the Tamil name ought to prevail. Mr. Broun, like all his predecessors, protests against the careless and to the tree, as a source of timber, most injurious practice of the natives of breaking the branches of this valuable tree in order to obtain the fruits.

Now that Mr. Broun has become Conservator of Fotests, we suppose the office of Deputy Conservator disappears from the list. The establishment then, consisted at the beginning of 1891 of

1 Conservator.
9 Assistant Conservators.
1 Superintendent railway fuel.
4 Foresters.
4 Probationers at Dehra Dun.

The latter have all, we believe, returned to the island; and we suppose there will be a reorganization of the department, in accordance with Mr. Broun's views, which seem to be that an Assistant Conservator for each of the nine Provinces is not required, and that the superior staff can well be reduced and the money saved applied to the provision of better remuneration for the subordinate officers. although large help from the Surveyor-General's Department is gratefully acknowledged, Mr. Broun, like every one else, feels the want of a cadastral survey of the island. If we are to have a land tax in lieu of the grain rent and duties, such a survey will become an urgent necessity; but unless the Survey staff is increased at least four-fold, the work will not have been much more than begun at the end of this century, and will require the next for its completion. The report states:—

Of the surveys undertaken by the Survey Department the most important are those of the proposed railway fuel reserves, near Mirigama and Ambepussa, which are now approaching completion; those of Pallekele in the North-Western Province, Pallewatta and Yagirala in the Kalutara District, and the extension of surveys in Gilimale and the survey of the Kelani Valley in the Porovince of Sabaragamuwa.

The area of completed surveys amounts this year to 72,153 acres, or nearly 113 square miles, including villages in the Peak wilderness and in Pallekele. This brings the grand total of completed forest surveys to 194,478 acres, or nearly 303,87 miles.

The addition of nearly 113 square miles to the 183 square miles already surveyed is very satisfactory, but still, considering that there are several thousand acres to survey and settle, it does appear as if more extended operations should be taken in hand, otherwise the Forest Department will for long years not be on a settled basis.

Area reserved since 1885.—Forest Settlement Officers have been somewhat more busy during the year under report than before, and a few final Proclamations have been made, chiefly in the Province of Sabaragamuwa, where Bambarabotuwa, Wellankanda, Kaduwalakanatta, Talawitiya, Hunuwala and Huppitiya forests, covering in the aggregate an area of over 22,000 acres, have been finally proclaimed as reserved forests. But much remains to be done, and the Survey Department complains that unless the work of reservation is carried on somewhat quicker the survey lines will soon become obliterated, and much expense will be incurred in making fresh ones. At present the area of reserved forests is as follows:—

	Up to 1890. Acres.	During 1890. Acres.	Total. Acres.
Central Province	.. 852*	.. —	852
North-Western Province	.. 132	.. 892	1,024
Province of Uva	.. 710	.. —	710
Province of Sabaragamuwa	.. 715	..22,497†	23,212
Total	2,409	23,389	25,798

Surveys of forests and the reserve of such forests are two very different things, as the report indicates:—

The names of two forests in the Central Province, the preliminary notifications of which appeared in 1890, had already appeared in the *Government Gazette* in 1888, but the forest settlement made by the then Forest Settlement Officer was so little in accordance with instructions laid down in the Forest Ordinance that it was set aside by Government. They are the forests of Kandapolla, Sita Eliya, and Pedrukurunduoya, near Nuwara Eliya.

The forests in the Province of Sabaragamuwa, the completion of the reservation of which is still being awaited, include certain forests in the Kegalla District and also the Gillimale forest, a block of forest of over 17,000 acres. In the Southern Province the forests of the Matara District urgently require reservation, but although a few preliminary notifications have been issued no further steps have been taken. The proposed reserves in the North-Western Province are in the Chilaw and Puttalam Districts.

In Uva the Government Agent has granted a site in the Haputale reserved forest to the Haputale Railway Extension Department for the purpose of building houses for subordinates. According to the Forest Ordinance a proclamation should first have been published in the *Government Gazette* declaring that portion of the forest to be no longer reserved. However, nothing has as yet been done.

The Conservator complains that while the zealous Government Agent of the Province of Sabaragamuwa is obtaining village settlements out of money voted for the Forest Department, the reserve of such valuable blocks of forest as that of Pallekele in the North-Western Province should be delayed. Preliminary notifications of the reserve of 23 forests had been published, without the reserves being finally proclaimed. To quote the report:—

No working plan has as yet been made, but the Nanuoya forests were worked on the system mentioned in paragraphs 21 and 22 of the last annual report.

* Includes Campbell's land, reserved under the "Land Resumption Ordinance," but does not include Walapane which is not yet surveyed.

† Exclusive of Hunuwala forest, not yet surveyed.

As regards the forests set apart for the railway fuel supply between Mirigama and Ambepussa, the surveys, are still being made, but there has been unaccountable delay in starting the chenas. I hear that a block of land, some 200 acres in extent, has been subdivided into a number of plots, and hope that this year at last the work will be taken in hand.

The opening and keeping open of boundaries involves, as may well be supposed, much difficulty, the total length already being no less than 1,180 miles. Mr. Broun desiderates straight boundaries for reserved forests. Enumeration surveys, that is the ascertaining of the numbers of trees of different sizes, &c. in forest areas, are needed. We have already alluded to the disappointing results obtained from a small operation by Mr. Huddleston, and Mr. Broun thus comments on the astonishing figures :—

If the enumerations are a good sample of the Trincomalee forests, these are extremely poor, for first class trees (sound and unsound), which from the majority of the exploitable stock, do not amount to 1 1-5th tree per acre. In spite of this small number of exploitable trees those of smaller classes are also exceedingly scarce, the number of fourth class poles being most scanty. The report speaks of one or two "favoured nooks" where there is some good stock, ebony being found fairly abundantly in one patch, while palai forms an almost gregarious forest about one square mile in extent at a place not far from Kantalai. This shows that the Trincomalee forests have been most severely overworked in former times, and that they should be now dealt with with great care and caution.

Alluding to protection of forests Mr. Broun states :—

Headmen of villages are still supposed to carry out the protective duties over the Government forests. They carry out their work well or fairly well in some places, but on the whole I think that the employment of unpaid headmen as forest police is a mistake, and that paid forest subordinates should gradually replace them as the forests become reserved. From my own experience I can say that I have come across both good and bad, several of the latter having so little knowledge of the forests they were supposed to guard that they had to keep villagers by them to show the way through the forest.

It is somewhat sensational to find the European owners of estates charged with annexing Government forest. The report states :—

One case deserves special mention, being one of considerable encroachment on Crown land by the proprietors of Barra estate near Rakwana. Although the boundary was old and hard to follow, the land had remained in the same hands from the time of purchase from the Crown, and the proprietor could not plead ignorance. After a preliminary inquiry in the Rakwana Court the case was settled by composition, the sum paid being R694. Further encroachments are being made by certain estate proprietors, and there is now one case under report in the Kegalla District which, if proved, deserves severe punishment. It is added :—

Several cases were made very difficult to prove owing to the recent decision of the Supreme Court, that it must be proved that wood removed illicitly has been removed from Crown land. The decision appears to go against the spirit of the Ordinance, for in section 72 it is stated that the onus of the proof lies with the accused. This is not due to an accidental oversight on the part of legislators, who merely followed the example set in Continental Forest and Hunting Laws. In these, owing to the facilities with which an offender can escape on account of the extent of the forest and the sequestered position of the place where the offence has been committed, it has been laid down that the proof lies with the accused.

The prevention of wasteful chena cultivation requires vigilant attention. Direct encouragement, as we noticed, has been given to such cultivation by the abolition of the tax, the paragraph referring to the matter being as follows :—

The Assistant Conservator, Sabaragamuwa, complains that owing to the abolition of the tax on dry grain a new impetus has been given to chena cultivation, and that this abolition removes the evidence of Crown right to the land, as no tax receipts will in future be issued. He suggests therefore that no land be granted by the Crown for chena cultivation without the cultivator being bound to drain it and to put a boundary drain round it. This would not only preserve the evidence of Government right, but save the land from losing all its top soil. The suggestion of the Assistant Conservator is, I think, a good one, but a land settlement allotting chenas to each village would be much more satisfactory.

Several officers complain that prosecutions against illicit chena cultivation are being far too leniently dealt with by magistrates, and that they and their subordinates are being disheartened by this treatment. There is no doubt that a fine of 50 cents for illicit cutting and burning of Government forest is a farce, and that it would be much better to dismiss a case than to give the accused a distinct encouragement to go and do more damage.

There are interesting details regarding the natural reproduction of forest trees, too long to quote in full. The reference to the Southern Province is, however, of special interest :—

The Assistant Conservator complains of the reckless destruction of young growth by villagers, who cut everything, regardless of species, for fence sticks and for sale to Indian dealers.

That valuable plants should be cut down for fence sticks is bad enough, but to devastate the forests to supply Indian dealers is a matter which requires stringent intervention. Mr. Broun is emphatic in the enunciation of the principle that the proper treatment of existing forest with reference to natural reproduction is the first duty of his department, and not the formation of plantations of exotic or special native trees. He adds :—

Wherever plantations are desirable they should, to my mind, be made of considerable extent. Small plantations should be avoided, excepting for experimental purposes, for the cost of labour, supervision, and protection is much larger per acre than on a large plantation.

The only plantations of any considerable extent now existing are the teak chenas of the Batticaloa district. These covered at the end of 1889 639 acres; but nothing was added during the year under report owing to the careless way with which grantees treated the plantations under their charge. They have now been ordered to take greater care of the seedlings and to make nurseries to supply vacancies. The Assistant Conservator has sent in a number of measurements taken in the chenas of Tumpalancholai, Divilane, and Paluganawa. The results are interesting, inasmuch as the average girth of the samples measured is as good as that of trees measured in Indian and Burman plantations. Nothing is said, however, as to whether the poles measured belong to the average class or whether they were dominant or suppressed, nor is anything mentioned about the height of the trees nor about the number per acre, This is important as the poles measured may have been standing isolated, and may have become developed in girth and in crown and little in height. It will be noticed (see table, appendix A) that the plants measured show rapid growth up to about four or five years of age, and that they suddenly fall off in mean annual increment. The cause of this is probably the iluk grass which springs up abundantly as soon as the chenas are abandoned. In the case of the Divilane plantations, where the growth appears to be more vigorous, the growth again improves between the eighth and tenth years, probably owing to the formation of leaf canopy and consequent suppression of the grass.

In the Western Province the jak gardens near Mirigama have not yet been extended, but a block of 200 acres has been taken up and divided into plots to be

given up for cultivation and rearing of forest trees with the crops. This matter has been so much delayed that there is great fear of the villagers losing all interest in it.

Only about five acres were added during the year, being land along the bank of the Pusselioya in the Barawa forests. R254 was spent in clearing dead and worthless wood, in cutting it up into firewood, and putting in hal seed. The sale of the firewood will go a long way towards covering the cost of clearing and planting.

In the Central Province the strip clearings were extended, ten more squares being cleared and planted. The plantation of 1889 has been a failure and has had to be practically replanted. On the report of the Assistant Conservator, Central Province, I visited the plantations of 1890 in October last, and found that the work had been most carelessly done, Mr. Armitage having left too much of the supervision to inexperienced subordinates. This year the plants put in were *E. globulus* and *robusta*, *Acacia decurrens*, and *Cryptomeria japonica*. Seeds of *Pinus longifolia*, *Cedrus Deodora*, and *Acacia deccurrens* were also dibbled in *in situ*, and were reported to have germinated freely. The cryptomeria and blue gum plantations behind the Assistant Agent's house are doing well. Blanks were supplied and overhanging branches cut. Sambhar and pig are still doing damage by barking and rooting up young trees and trampling on tender seedlings. Near the nursery and by the Public Works Department lines on the Nuwara Eliya and Nanu-oya road small patches of waste land were cleared and planted with *E. globulus* and *robusta*, *Acacia decurrens*, *Frenela*, and *Cryptomeria*, and seeds put in of *Pinus longifolia* and deodar. At the end of the year a large percentage was thriving.

Early in October the Assistant Conservator and I inspected waste lands in the neighbourhood of Gampola, Nawalapitiya, and Galboda, with a view to recommending the reservation of a certain number of them for Railway fuel plantations. Most of the blocks of land were favourably reported upon, and before the end of the year 200 acres of patana grass were cleared and ready for lining. Judging from similar plantations in the hills, it is probable that these will yield from 100 to 150 yards per acre during the next fifteen years, and they will thus not only keep up a regular supply for the Railway, but will more than pay their way. It is very desirable that this land be reserved under the Forest Ordinance, as it is only plantations in reserved forests which obtain the special protection of the law. The definition of the boundaries on the ground is very desirable.

In Uva the young plants on Judge's Hill, at Badulla, are coming on well, especially where the land has been kept free of weeds. The plants put in in December, 1888, are up to nearly twenty feet in height and twelve inches in girth, the average being about twelve to thirteen feet in height and seven to eight inches in girth. The plantation consists of sapu, grevillea, ingasaman, casuarina, and flamboyants, and all are doing fairly well, but no more flamboyants are to be planted. The plants put in in 1889 are also doing well, being generally about four to five feet in height and two to three inches in girth. Three acres of steep and rocky land have been excluded from the plantation.

The Elladalluwa clearing of thirteen acres, started in December, 1889, is doing well. The plants put in were sapu, grevillea, lunumidella, jak, ingasaman, milla, and iron bark. The lunumidella, as usual, has taken the lead, being on an average 9 ft. 3 in. in height and 6¾ in. in girth, some trees having reachd a height of 14½ ft. and a girth of 10 in. On the whole the growth has been somewhat more rapid than that on Judge's Hill. About six acres of patana land near Bandarawela were holed and got ready for planting with *Pinus longifolia*, but owing to some delay in the despatch of the seeds a large percentage turned out to be bad. A few belts of *Eucalyptus robusta* have been put in as a protection.

The strip of forest cleared of worthless timber in the Haputale forest in 1889, and replanted with *Eucalyptus robusta* and *Acacia Melanoxylon*, has come on splendidly, and there is not one vacancy on it. The average height of the saplings is from 10 ft. to 12 ft. and the average girth over 6 in., the *E. robusta* being of the two species by far the most vigorous grower. All the land cleared during the year has been planted with *E. robusta*, with some acacia and some *Pinus excelsa* seed. This seed, however, had been kept too long and did not germinate.

In Sabaragamuwa, besides the block of 15 acres for Para rubber mentioned below, a site for a nursery was selected in the Gabbilamukalana, about five miles from Ratnapura, and teak seed from Burma put into carefully-prepared beds. A good deal of the seed turned out to be bad, and the plants in the nursery do not appear to be very healthy. About thirty acres have been cleared of underwood, and teak seed and about 2,000 jak plants have been put in at a distance of 20 ft. by 20 ft. The Assistant Conservator is very eager to start planting a valuable reserve of teak, jak, na, hal, &c., as soon as sufficient funds can be obtained by Government. I have little doubt that a large plantation of this sort, situated in a convenient locality as regards export, will in the long run pay very well.

In the North-Western Province two small plantations were started in the Kurunegala District during the year. The first is called Kumbalipola, and is situated about four miles from Kurunegala and near the Negombo road. About ten acres were planted up with teak, jak, kumbuk, and halmilla. The plants suffered a good deal from drought, but since the rains they appear to have recovered, and the proportion of failures is not 15 per cent. Since this land was cleared, thousands of lunumidella plants have sprung up naturally, some of them running up to 6 ft. in height in the last five months. The second plantation is in the Sundapola proposed reserve. About eight acres have been planted with jak, teak, satin, na, and mahogany. About 25 per cent. of the jak plants have been destroyed by cattle and about 15 per cent. of the other species have succumbed to drought.

The Assistant Conservator reports that the teak plantation at Puttalam still continues to be a great success. During the year it has however been subjected to a good deal of ill-treatment. The Forester for the time being did some serious damage by thinning out every alternate line of teak poles in the plantation of 1886, against the distinct orders of the Assistant Conservator and of the Conservator. Such a "rule-of-thumb" procedure is not Forestry, and does not do credit to the officer in question.

A number of teak, jak, satin, and mahogany were planted during the year, but the drought was very severe; the water supply ran out and a large percentage of plants died.

The Assistant Conservator, Sabaragamuwa, cleared a block of 15 acres of land at Edangoda on the right bank of the Kalu-ganga for the planting of Para rubber. The holes were made 12 ft. apart and filled with plants which had been first raised in supply baskets. When the floods came every plant below the water-line was destroyed. This was rather disappointing, as it was considered that occasional flooding was good for this plant, and for this reason a low-lying land had been chosen. Hates did considerable damage to the remaining plants when they were about six inches high. Thus there are only 1,872 well-established plants remaining. These, however, are doing well. It was the intention of the Assistant Conservator to fill in vacancies with stumps from Henaragoda, but the rains of November and December having failed he was obliged to put them off until this year.

Seed of *Cedrus deodara*, *Pinus excelsa*, and *Pinus longifolia* was supplied through the courtesy of the Conservator of Forests, School Circle, North-Western Provinces and Oudh. The deodar seed and most of the pine seed went to the Nuwara Eliya District, while a couple of pounds of pine seed went to the Assistant Conservator, Uva, to try on Uva patanas. The *Pinus longifolia* seed has come up beautifully almost everywhere, whether in the Nuwara Eliya nursery or in the Nanu-oya clearings, but not so well on the patanas near Bandarawela. The deodar has not come

up so well, and the *Pinus excelsa* can be considered to be a failure. I believe, however, that a large proportion of the *Pinus excelsa* seed was worm-eaten.

Teak seed was also received from the Conservator of Forests, Pegu Circle, Burma, and from the Conservator of Forests, Travancore. The seed has been distributed in three Provinces. The Burma seed was however reported to be much weevil-eaten.

We have made this long extract as of special interest to planters and others who may feel the necessity of planting up portions of their land with trees for timber and fuel. At the higher altitudes the best exotics seem to be *Acacia decurrens* and *A. melanoxylon*, with *Eucalyptus robusta*, *E. rostrata* and *E. globulus*. Still more successful generally is the beautiful *Grevillea robusta*. *Cryptomeria japonica* seems likely to be a success, but the Himalayan cedars and pines seem slow of growth. Excellent for firewood are the casuarinas and frenelas, both sending out a multitude of branches. The iluk grass noticed by Mr. Broun (the dreadful alang-alang of the Malay Peninsula and Java) is not prevalent at high altitudes. There is nothing more annoying than the receipt of seed, either immature, or deprived of its vitality by long keeping; and it will be observed that the forest department is no more exempt from such worries than are private planters. *Pinus excelsis* is the only tree mentioned of which we have had no personal experience. On the other hand *Pinus sinensis* promises to be a great acquisition at high altitudes. Many of the forest trees of China and Japan ought to succeed on our hills. The connection of natives with the Government plantations is scarcely what we should think would be satisfactory. They are supposed to cultivate tree plants for the Government while cropping the ground for themselves. The lion's share of attention is pretty certain to be devoted to the crops of grain and vegetables. Forest roads are much wanted, and there is an "outcry" for houses for the officers, especially those who have families. Curiously enough the forest department of Ceylon is specially interested in "the northern arm" for the Colombo breakwater!

The site of the Central depot in Colombo appears to be still unsettled on account of the possibility of construction of a Northern arm of the Breakwater. For this reason the Government Agent of the Western Province desires to shift the site to Beira, near the Government Factory. The only drawback will be want of space and the distance from the Breakwater, an item of some importance as regards ebony, which hitherto could be shipped direct from its depot at the root of the Breakwater. It is time that substantial buildings be built somewhere, as the timber now lying in depot is exposed to many deteriorating influences.

We are told that

Two wire shoots, each 1,500 feet long, were purchased for the Central Province in connection with the firewood supply to the Railway, and set up, one in the Nanuoya strip fellings and the other in the Kotagala reserve above Darawella. As regards the Nanuoya shoot, it was much neglected and the rollers were ruined owing to want of oil and careless loading. The small wire shoot in the Haputale forest is doing good work.

The total value of timber and other forest produce should during the year amount to R371,215·03, against R337,120 84 during 1889 and R169,810·80 in 1880. Of these R371,215·03, the value of produce sold to Public Departments amounts to R238,988·10, and of that sold to the general public to R132,226.93.

Mr. Broun in treating of supplies of sleepers for the railways states :—

I am convinced that before long we shall have a considerable demand for palu and kumbuk sleepers. Kumbuk bridge planks have been proved to last ten years, and the objection to palu, viz., that it is likely to split, has now been removed, for the Assistant Conservator, North-Western Province, reports that trees which had been girdled in 1889 and felled in 1890 showed no signs of cracking. Both trees are abundant in the forests and grown to a large size. "Large size" inadequately describes the kumbuk trees on the banks of rivers, especially in the North-Central Province. The word "enormous" alone can give an idea of some such trees, with immense caves in their trunks and calculated by Mr. Henry Parker when dislodged by floods as striking against the "Tekkam" (Giant's Tank anicut) with a weight of five tons. To the Telegraph Department posts have been supplied of pandikasa (*Eugenia bracteata*) and ranai. Who is the enterprising but apparently eccentric engineer of the Uva Province who has been giving trouble to the Forest Department after the peculiar fashion thus detailed?—

In Uva, where transport of heavy timber is exceedingly difficult owing to the hilly configuration of the country and to the distance of the forests from the centres of utilisation, a good deal of unnecessary trouble was caused by the Provinical Engineer indenting for large pieces which he would afterwards saw up into smaller sizes in the saw mill he had erected in Badulla. It is rather hard that the onus of justifying the existence of this turbine should fall to the Forest Department. The Assistant Conservator reports that one order was for 390 pieces 12 ft. by 7 in. by 6 in., which had to be transported 29 miles over rough ground, and which were intended to be sawn up in Badulla into half-inch reepers. On another occasion a representation was made to Government to the effect that no timber could be got from the Badulla depôt. As a matter of fact the depôt was always well stocked, and delay was due to the omission, on the part of the Provinical Engineer, to inform the Assistant Conservator of the order in which he would require different pieces of timber. That delay in construction of buildings is not always due to the action of the Forest Department, is proved in another instance which came under my own observation in the low-country of Uva. Free permits were given to the Public Works Department to fell timber for the construction of resthouse at different places between Koslanda and Tanamilwila. Large heaps of round timber can be seen lying at different places along the road, and they have been lying there so long that they are being utterly ruined by exposure and white ants. This will be further alluded to under the heading of "Free Grants of Forest Produce."

About 400 tons per annum of ebony are needed to supply the market, and it is to be supplied in the proportions of 300 tons from the North-Central Province and 100 from the Northern. We supposed from this that the forests of the Eastern Province have been denuded of their once rich stores of ebony? It seems that dead halmilla timber, of which there is a large quantity, is usually sold to Indian traders, who bring in rice, and take back cargoes of timber.

A very important function of the Forest Department is to supply fuel to Government establishments, especially the railway. It would be very interesting and useful, if a list were given of trees growing at high and low elevations, native and exotic, best suited to be grown for fuel purposes. Pending the publication of such a list the principle may be accepted, that the harder the wood is and the closer the texture of the timber, the better will be its calorific properties. Trees suitable for timber when grown to a large size make good firewood when coppiced, and planters have a right to look to the Forest Department for the result of the experience of its officers as to the trees which best bear repeated coppicing and yield, in the shape of coppice growth, the highest returns of serviceable fuel. The *wa*, which Mr. Strong told us was one of the best trees of those which

were used as fuel by the railway, is, like many others, too valuable as a cabinet wood, when well grown, to be made into fuel. Its merits are that it coppices so well and throws up so many shoots, which, every three or four years, are available for fuel. There is a species of kekuna (not that with the beautiful silvery leaves) which from the quantity of resin by which the timber is permeated, makes specially good fuel, the resin making it objectionable for timber purposes. Of the exotic plants, blue gum makes very fair fuel and coppices freely, but beyond all compare for fuel purposes are the casuarinas. We have had no experience however, of their coppicing properties. The information furnished regarding fuel in Mr. Broun's report is as follows:—

During the year 87,386½ cubic yards were delivered to the Railway, against 78,285¾ cubic yards delivered in 1889, thus showing an increase of 9,100¾ cubic yards. This is accounted for by the extension of the Seaside line to Alutgama.

The proportion of Crown wood has during this year been much greater than in 1889, the amount taken from Crown forests being 30,979½ cubic yards as against 19,964½ cubic yards in 1889, while the quantity of private wood has somewhat diminished, being 56,407 cubic yards as against 58,321 cubic yards during the preceding year.

The expenditure on this firewood has amounted to R118,914·38, or R1·37 per cubic yard, and the revenue to R131,070·50, leaving a surplus of R12,156·12. If this surplus is to be considered to represent the royalty on the 30,979½ cubic yards of Crown wood, this royalty would be of 39¼ cents per cubic yard, which is certainly not a very heavy profit.

Figures are then given which reduced the royalty to a little over 34½ cents per cubic yard.

The surplus is more than swallowed up by expenditure on firewood plantations in the Central Province and by expenditure on surveys, &c., of forests set apart solely for the purpose of giving an assured and steady supply of firewood to the Railway. Before long the Railway Department will be able to draw all its supplies of firewood from Crown forests, and the private forests will be able to satisfy the demands of the general market in Colombo.

A sum of R500 was placed at the disposal of the Superintendent, Railway Fuel Supply, to make an experimental coppice in the forests near the 43½ milepost. About fifteen acres of forest were cleared and the stools cut flush with the ground. The stool shoots are reported to be springing up freely except in one spot, where the lantana is giving some trouble. The cost of coppicing and of transport amounted to R499·72. The yield has been somewhat meagre, only 701 cubic yards, the forest being of a poor quality. The portion taken over by the Railway Department by the end of the year, viz. 474 cubic yards, almost entirely second and third class firewood, yielded a revenue of R620·49, or R1·30 9-10 per cubic yard. At the same rate of classification the 701 cubic yards will give a revenue of R917·60, *i. e.*, a net revenue of R417·88, or of R27·86 per acre.

Should the system of coppice prove to be successful in these forests, it will no doubt be the best to adopt so as to obtain at small cost a continuous supply of firewood for the Railway.

Fuel Supply to other Departments.—In Colombo, 3,971 cubic yards of firewood were sold to the Prison Department, the Harbour Works, Government Factory, Government Printer, and Master Attendant. In Uva, 1,032 cubic yards of firewood and 34 bushels of charcoal were sold for R3,106.

Fuel Supply to the Public.—In Jaffna, 2,285 tons of dry firewood were sold to the public for R11,482. I hear that the Government Agent, Northern Province, towards the end of the year took exception to this method of disposing of firewood from the Crown forests, and that since then he has closed the firewood depot. I inspected the firewood depot and the forests from which the firewood has been brought to market, and have been unable to see why the arrangement in force should be disturbed. The removal of top pieces and dry timber lying about the forests, under proper supervision, is very beneficial to the forests, while, if purchasers are let in under permits, there is every chance of their helping themselves to whatever comes handy. In Uva, 439 cubic yards of firewood and 1,410 bushels of charcoal were sold for R1,449. Mr. Moss is still the only officer of the Department who has attempted to make charcoal according to more advanced methods and the outturn is still somewhat light and overburnt. The system of purchasers being allowed to remove timber or firewood from the forest, is manifestly objectionable. The returns from minor forest produce, especially gallnuts in Uva is increasing. Fees are charged for animals allowed to graze, and in Ceylon as in India, great care is requisite to secure abundant grazing grounds for the owners of cattle, while duly protecting the property of the public in forests. Here as in India the native cultivators, when permitted, collect green leaves from the forest as manure. Of course the forest soil is impoverished in proportion to the quantity of vegetable matter removed; and in India the system of *rab* culture has led to much discussion and controversy. Under the heading "Free Grants of Forest Produce," Mr. Broun writes:—

The free grant of timber and other produce for works of public utility is, where funds for carrying them out are scarce, highly commendable, but there is no reason why expensive timber should be given away when others less in demand would do just as well. An instance of this sort is given by the Assistant Conservator, Central Province, who states that 16 satinwood and 8 milla trees were granted, without his knowledge, for the construction of an ambalam at Elahera. Nor is it advisable to grant permits for indiscriminate cutting when the timber is afterwards allowed to rot on the ground. I have before mentioned the case of free permits being given to the Public Works Department for the construction of resthouse buildings. It seems very strange that the Public Works Department should not have been able to afford to pay for this timber, when the Provincial Engineer managed to bring all the way from distant places like Tanamilwila, Telula, &c., Cananore tiles, which cost about R75 landed in Colombo or about R100 brought to final destination, when shingles capable of lasting for twenty years or so could have been obtained at a much cheaper rate on the spot. The Assistant Conservator, North-Central Province, reports that Ulugala Ratemahatmaya has over R5,000 worth of timber stored on his premises. His authority is apparently a verbal permission received from His Excellency Sir A. Gordon to fell as much satinwood and halmilla as he requires. It appears to be time to moderate the ardour of the Ratemahatmaya.

We should think so. The friction between officers of the P. W. D. and Forest Departments, now so severe, will, we suppose, abate with the mellowing influences of time. It seems clear that if the Forest Department is to be held responsible for the good condition of the Government Forests and the conservation of their products, all supplies of timber, fuel, &c., should be furnished through its officers and depôts. It is satisfactory to learn than in 1890

For the first time since the organisation of the Department, the revenue credited in the Treasury has exceeded the expenditure. The net surplus to the Department amounts to R88,527·83, while during 1889 the deficit amounted to R63,205·42 and in 1888 to R16,977·20.

Out of R510,044 total receipts, fuel for the railway yielded R131,070, an amount which is likely to increase materially, year by year, as the railway system extends, unless modern science helps the world in respect to a cheap and good artificial fuel. After giving figures, Mr. Broun states that

they show.

That there has been a considerable rise in revenue under all Budget heads, the rise under I. being due to the payment of large outstandings due by the Haputale Railway Extension, to outstandings due for sleepers to the Western Province, to the sale of 266 tons ebony in the Central depôt to increased Railway fuel supply, and to a large increase in the sale from depôts in all Provinces, this increase being most marked in the North-Western Province and in Uva. Against R510,044 revenue, the expenditure of the department in 1890 was

R321,517·12, of which R309,502·65 was for Conservancy and Works and R112,014·47 for Establishment.

To obtain the large revenue for timber a large outlay was also required, and this as well as outstandings due by the Department, chiefly on account of timber supplied to the Haputale Railway Extension, account for the increased expenditure under heading 1, "Produce sold from depôts." The extension of areas under plantations in the Central Province, North-Western Province, and Province of Uva necessitated an increase under the head "Demarcations and Improvement," while Forest Settlements, chiefly in Sabaragamuwa, also caused an increase of expenditure under the same head.

In dealing with the details of establishment, Mr. Broun states

As regards salaries, I again beg to draw attention to my remarks under the heading "Protection and Improvement." What the Department wants is a good staff of efficient Rangers, assisted by Forest Watchers, who would be under their immediate supervision, instead of headmen who are in no way responsible to them, and who can plead various excuses for not attending to forest work. The object to be aimed at is not to fill up the next vacancies in the superior staff, but to devote the sums to the increase of the subordinate staff and to the improvement of the prospects of a crop of officers who live an arduous life without at present any prospect of getting a rise in their meagre salaries. On the money at present expended on establishment decent, if not brilliant, prospects would be assured, not only to the superior staff, but to the whole of the subordinate establishment. It is not between the P. W. D. alone and the forest department that regretable friction exists. The subordination of the forest officers to the Government Agents and their Assistants, naturally enough leads to trouble where one or both of the officers brought into contact are not prepared to sacrifice personal feeling and official dignity to the good of the service and the interest of Government. It is to be hoped that the relations of the respective officers in the Northern Province are more amicable than they seem to have been in 1890, judging from the following statement:—

This year the Department has been worked on the lines adopted at a durbar of Government Agents held in Colombo in October, 1889. The system of working through Government Agents and Assistant Government Agents has worked that a good deal of friction has been caused in others. There is no doubt fairly well in some Provinces, but there is no doubt that the system, to work well, must depend on the good will of the Government Agent towards the Department, and that if he does not support the Assistant Conservator, or does not allow him to give orders to his subordinates direct, the work will become disorganised and will eventually come to a standstill. This has been the case notably in the Northern Province, where the want of co-operation between the Government Agent and the Assistant Conservator has brought the working of the Department practically to a standstill. A Departmental Code, which will set forth the relations between the Department and the Revenue Officers, is much needed.

We quote the concluding paragraphs of this interesting and suggestive report:—

PORTABLE STEAM SAW MILL.—This saw mill, which had been ordered from Messrs. Ramsome & Sims through the Crown Agents, did not reach us during the year. The money therefore which had been kept to defray its cost lapsed at the end of the year, and a sum which it was intended to devote this year to the formation of an elephant establishment will have to cover the expenditure on the steam saw.

ELEPHANT ESTABLISHMENT.—One young elephant was purchased in the Eastern Province. It was intended to buy three more during 1891, but for the reasons stated above this has had to be put off.

DESTRUCTION OF GAME.—No stop has as yet been put to the indiscriminate destruction of game. The Assistant Conservator, Uva, records a case where several deer were slain solely for their hides, and the carcases left to rot by the roadside. The chief offenders are Moormen traders, who go into Provinces where they can have possibly no right of hunting, and kill game and cause it to be killed in large quantities by villagers. They are not affected by close seasons, and it is sometimes very difficult to obtain convictions, for certain Magistrates will not take skins, however fresh, as evidence against the offenders. Strict rules are required to protect elephants against so-called "sportsmen," who go into a herd and do not satisfy themselves with the bulls, but shoot cows and calves. None but rogues should be shot at, and there should be kept in each Kachcheri a list giving particulars of the beat of any rogue elephant in the district, and it should be made penal to fire at any other elephant except in self-defence, on a public road, or when it destroys crops or other property.

HERBARIUM OF FOREST TREES AND COLLECTION OF CEYLON TIMBERS.—This has been largely added to during the year both by Colonel Clarke and myself, and I have to thank Messrs. Alexander and Armitage for considerable contributions. The collection of Ceylon timbers has also been much increased, the Assistant Conservators of the Central Province and of the North-Western Province, and the Superintendent of the Railway Fuel Supply being the chief contributors. Duplicate specimens have been sent to the Director of Public Works and to certain firms in Colombo.

GIRDLING OF PALU TREES PREVIOUS TO FELLING.—Only one report on the subject has been received. Mr. Fyers reports that towards the end of the year he had felled twenty palu trees out of forty which he had girdled in 1889, and that the results are most satisfactory, the logs having hardly cracked at all. As cracking has hitherto been the great obstacle against a more universal use of this valuable timber, it is to be hoped that in future all palu trees will be girdled at least one year before felling. This will probably do with away the objection which the Railway Department has of using palu sleepers.

COLLECTION OF FRUIT AND HONEY BY VILLAGERS, &c.—Some action is urgently required to moderate the damage done by villagers and others in the collection of certain kinds of fruits and honey. The most striking instance which I have come across was the collection of palai fruit in the Northern Province. The trees of this most valuable species, are so hacked to pieces or torn and broken that the broken and cut branches form, in many places, real hedges along the sides of the roads. The result is that an enormous proportion of the palai trees in the Northern Province have been unsound from their infancy. There is no reason why, if the collection of the fruit must be allowed, this persistent vandalism be for ever winked at. There is no difficulty in collecting the fruit without injuring the trees, and there is no necessity why people not usually residing in the island should be allowed to do all this damage. I have noticed similar damage in Bereliya forest of the Matara District, where the villagers collect the fruit of the bereliya dun. As regards the collection of honey, it is no rare thing to see a tree felled merely for the honeycomb which it bears. I know that, at present, until a proper establishment is set up, it is difficult to check all this damage, but the Government Agents can do a great deal towards stopping it by using their influence and warning villagers that reckless waste will be severely dealt with. **Mr. Broun will see that Government in the Ordinance just passed has provided remedies against the wanton shooting of elephants and the reckless**

slaughter of game, and we trust that without stopping the collection of the fruits of the *palai* and *bereliyanddun* trees and of honey it may be possible to prevent the damaging or destruction of valuable timber trees.

We feel sure the larger proportion of our readers will share the interest we have felt in this report,—which so largely supplements the information contained in reports of the Botanic Gardens,—and will feel that we only performed our duty, especially to the agricultural enterprise of the colony, in commenting so fully, and quoting so freely as we have done. Hitherto the operations of the Forest Department of Ceylon has been mainly tentative and preparatory, while the obstacles to be overcome have been and are many and serious. But now in each successive year we may look for increasingly better results, not only in immediate money returns, but in the foundations laid for future wealth, in existing forests improved in respect to natural reproduction and plantations formed not only of such valuable exotics as mahogany, teak, padouk, the gums and acacias of Australia, and the cedars and pines of the Himalayas, but of the choicest of our numerous indigenous trees, such as ebony, satinwood, halmilla, dun, &c. Amongst the indirect benefits of the operations of the department we must class the largely sanitary effects of running roads and paths through the forest and letting light and air into pestiferous jungles where previously

No beam of the sun or the sweet moon has entered with cheerful and purifying effect.

Already at the end of 1890, there were forest cart roads opened equal in mileage to 1·75 in the Central Province and 92·5 in the Northern. Bridle paths 3 miles in the Central Province and 7·05 in Uva. Inspection and export paths 8·9 in the Western Province, 3 in the Central and 4 in Uva: a grand total of roads and paths equal to 115·45 miles. And this process must go on at an accelerated rate as the forests are exploited and their produce conveyed to the various depots. Ceylon is already one of the best roaded countries in the world, and what with railways and principal roads formed by borrowed money, votes from revenue and appropriations of money and labour under the provisions of the Thoroughfares Ordinance,—with grant-in-aid roads and new roads and paths opened by the Forest Department, the railway and road map of Ceylon for 1900 ought to be a scene of ramified scorings, such only as the maps of very advanced countries can equal or surpass. Buildings constructed by the Forest Department will meanwhile follow the roads in opening up and imparting life and health to the jungle solitudes, which, by and by will be solitudes no longer.

A VISIT TO WALDHOF NEAR MANNHEIM:

THE GREAT QUININE AND CHEMICAL WORKS OF MESSRS. C. F. BÖHRINGER & SOEHNE.

I remember when on a visit to John Eliot Howard of Cinchona fame, during which the good old host treated me with the utmost hospitality and kindness, hinting at a wish to see over his far-famed Quinine-preparing Works, and very quickly realizing that the rule of "no visitors allowed" was not likely to be broken through in this case. All the greater therefore was my appreciation of the cordiality with which in response to the letter of introduction from Mr. Böhringer of Colombo, forwarded from Munich, his cousin, the head of the Waldhof house, intimated his readiness to meet and show us his extensive works. Of course, when Quinine was from 16s to £1 an ounce, these were no doubt weightier reasons for guarding the process of manufacture or extraction as followed by the best houses from the observation of outsiders; while now that the valuable febrifuge has tumbled down to a fraction of its former value, and that only large capitalists with expensive machinery and a skilled staff capable of manufacturing large quantities very cheaply can hope to make any profit, is matters very little who is taken through the works. Still, there are very delicate processes at work, and the rule is followed of privacy in most chemical manufactories, the staff being specially bound in their terms of service. All the more courteous, therefore, was the readiness with which we were permitted and convoyed through the very extensive and interesting establishment to which we are now about to refer.

We learned incidentally that the grandfather of the present head of the house lived in Stuttgart, and there interested himself as a practical chemist, but it was his son who first established a Quinine and Chemical Manufactory and who at length located himself at Mannheim until a large fire destroyed his establishment there, and the firm of Messrs. C. F. Böhringer & Soehne opened in Waldhof on a site facing the Rhine and admirably adapted for the purpose in view. Mr. Böhringer, senior, died last year, leaving his son, now in the prime of life (about 35 years), at the head of the very extensive and responsible business associated with his firm.

On our visit, we travelled in the early afternoon of a pleasant sunshiny day—the last in September—from Heidelberg to Mannheim. There we were met, and leaving our impedimenta at this station, took another train to Waldhof—a wayside station chiefly for the service of two or three large factories (of glass as well as chemicals) and the village connected therewith. The country was everywhere flat though backed by the hill-ranges in and beyond Heidelberg seen in the distance. In walking from the station to the great Chemical Factory, we drew near to the Rhine, here by no means so important a river as it is lower down. We notice that the soil is extremely poor and shallow, and even where under cultivation, there are numerous patches intemingled, apparently useless for crop-bearing and left untouched. On such soil, a site for Chemical Works may well be found. The Waldhof establishment has formed a village of its own; for notwithstanding improved processes by which one worker can now do the work of twenty, the firm has altogether, some 300 employees in this its leading establishment, apart from its branches at Milan and Amsterdam, a mercantile house recently established in New York and the Ceylon Agency. The first noticeable feature as we approach the works is a huge mass, almost hill, of dark brown refuse which is being constantly added to from trucks carried by a wire tramway across the roadway from the works to the top of the long mound. "That we call Ceylon"—said Mr. Böhringer—"for indeed it may all belong to your island, representing in fact the greater part of the cinchona bark imported from Ceylon,—the bulky residuum after the extraction of the quinine alkaloids. No other evidence was needed as to the extensive operations of the firm than was presented in this great mass—equal in length and height to one of the larger embankments on the Ceylon railway—and all the result of about seven years' work. I learned afterwards from the leading Doctor-Chemist of the Works that everything possible had been done to utilize this stuff, but in vain: it does injury rather than

good when applied to the soil in its present condition; but Dr. Schäfer anticipates that when very much older it can be profitably utilized, pointing in evidence to a layer in another direction which as it decomposed after a good many years, got a covering of vegetation over it.* Of course, it may be said what an argument have we here for a system of extracting the alkaloids roughly in Ceylon, India or Java—such as the Java planters are said to be now proposing—and so saving all the packing, transport and freight of so much useless material. But in the days of cheap quinine, even more than in the past times of a dear article—strange to say—is this unlikely to be profitable; for no one who has seen, as I now have, the multiplied and elaborate processes by which the alkaloids are secured on a large scale, can expect any works that may be established colonially to compete with the European manufacturers. The great object in these days is to prepare a very large quantity of quinine in the most economical way possible, and in this work the Waldhof establishment, thanks to the skill of chemists and its elaboration of new improved processes, has secured pre-eminent success. Freights, too, have fallen greatly of recent years, and altogether there is reason to believe that the Java planters will only burn their fingers by sinking capital in local works, even to secure the alkaloids in the rough, and that they cannot do better than continue to ship to Amsterdam which now, and henceforward, is likely to supersede London altogether as the great cinchona bark depôt and mart.

It may be supposed that I am merely here re-echoing the sentiments of European manufacturers; but I heard very little on the subject at Waldhof, and am rather giving the impression left on me from the inspection of the manufacturing processes on a large scale. But I have thus plunged into the middle of my subject before entering the works: at the same time, even if I were capable, it cannot be expected that I should give a detailed account of all I saw. Mr. Böhringer in his sanctum—in the Library of which the "Ceylon Handbooks" and *Tropical Agriculturist* occupied a prominent place—introduced me to Mr. Mehl who, for many years, has represented the firm as the buyer of bark in the London market; but whose vocation as "English buyer" has almost disappeared, so much have the sales dropped in importance, through the falling-off in Ceylon exports, while those of Amsterdam have risen correspondingly with the greatly increased import of Java bark. For instance, the London sales following my visit were pointed out as to be absolutely insignificant for the quantity of bark offered; while Java had just made an unprecedentedly large export (for week or fortnight). The Waldhof firm is, of course, kept telegraphically informed by its Agents of the shipments of bark from all ports of any importance, and the Assistant in charge was at once able to give me the latest figures for Ceylon, Java, &c. They have also the best available information as to planting, crop prospects, estimates, &c. I could, of course, give only a poor account of Ceylon, in view of the low prices prevailing for bark, and remarked how astonished John Eliot Howard would be, if he "revisited the glimpses of the moon," at the marvellous fall in price of quinine which had taken place and at the failure of his prophecy that Ceylon would always find a profitable market for a good bark yielding two per cent and upwards. I did not hear much at Waldhof to encourage the expectation of a speedy revival of better quotations; but it was stated that consumption had certainly been stimulated by the cheaper rate for quinine, and that in south-eastern Europe and America—the firm has lately opened a special branch house in Cedar Street, New York—the demand was very satisfactory. Still, it is supposed, there is a good deal of quinine, though not bark, held back in London, from some years ago; and it is impossible, Mr. Mehl says, to get exact information on this point. If it were known as a fact that all such back stocks had been cleared off, the market would probably become more buoyant and encouraging, though the large shipments of "Java" more than counterbalance the diminished exports from Ceylon and India. Meantime, at Waldhof, the profit is looked for through the improvd means of turning out large quantities of quinine in its various combinations, cheaply, rather than through any marked improvement in the present low rates. But it would be a great mistake to suppose that the Waldhof works, any more than those of the Howard's or Whiffin, are dependent solely on quinine. Nothing more astonished me than the great number and variety of chemical preparations—some of them requiring separate buildings altogether and distinct staffs and their trade, or volume of business, being perhaps of more importance than that in quinine. For instance, such preparations as glycerine and salicylic acid are in very extensive demand (partly for fruit preserving), especially in America; and in their latest "Market Report and Price Current," Messrs. Böhringer report of the former that "there have been large quantities contracted for, so that for the moment we are fully engaged."

Here again however, I am forestalling. After our talk on the producing countries, exports and markets, we were introduced to, and handed over to the care of, Dr. Schäfer, the head of the scientific staff, who, in the full vigour of his robust frame, one could see at a glance was a man of keen perception and power. He spoke English well—as did all the other gentlemen we met—and had seen the cinchona-producing world in South America, where besides superintending or inspecting plantations for a time, he had penetrated to some of the primeval groves of the tree in its native habitat. Dr. Schäfer occupies a most responsible post at the head of the staff in the various departments included in the Waldhof works, and the great variety and extent of the operations may be judged from the fact that there are under him about a dozen qualified chemists (all holding a Doctor's medical degree I believe) and most of whom keep so strictly and continuously to their own laboratories and the chemical works to which they are attached, that they never enter any other's. In fact, as Dr. Schäfer mentioned, anyone knows nothing of what the others are doing, and we were honored by being taken over a whole establishment which is a mystery and a thing unseen and unknown by eleven out of the twelve doctors and perhaps 299 out of 300 employees in the place! The workmen employed are also strictly bound by engagements and conditions and I suspect are too well off to care for change, much less to give offence. In some departments, a good many young women are employed, and those we saw all looked bright and contented. The works consisting of a long stretch of strong and high masonry buildings with detached structures for special preparations and the inevitable lofty chimney stalks for the steam engines, are by no means shut in or walled round. Not far off, a glass manufacturing

* Mr. Mehl afterwards told me that Mr. Whiffin of London has found a good market for some of his chemical refuse—for instance that of "Nux Vomica" from which strychnine had been extracted, as a covering for garden walks, to prevent the growth of weeds or other vegetation.

establishment (worked I think it was said by a little French colony) was pointed out to me, which not only is strictly enclosed, but is almost self-contained, so that no one unconnected is permitted to enter, and the occupants hold only the most scanty communication with the local outside world. The Waldhof Chemical Works are, however, secluded enough in situation with quiet a frontage on the Rhine—which is not much frequented here by passenger boats—and with such poor land (for soil) in the neighbourhood, that the cultivators are few and far between. No better or more convenient site—between railway and river—for extensive chemical works could well be chosen. The site was chosen and the works commenced here some 40 years ago I believe; but within the last ten years they have been greatly changed, improved and extended. As Dr. Schäfer mentioned, in respect of quinine alone there were some years ago, more people required to turn out one-eighth of the quantity now manufactured! We first visited the rolling and grinding mills where the cinchona bark is reduced to powder; then came a series of chemical processes in enormous vats, at various altitudes, up and down iron stairs, and with the aid more or less of petroleum &c., and of machinery (some of it hydraulic) in extracting and clearing the alkaloids. At one stage Dr. Schäfer pointed out how by an invention of his own (I think) one man with the aid of machinery, was able to do what it required twenty men to carry out before. The clarifying processes (with charcoal largely) and the whitening of the quinine were especially interesting. There were some centrifugal machines—a recent improvement I gathered—attended to by women—on which cables of the quinine were spun at the rate of 1,000 revolutions a minute, in connection with the drying and crystalization of the finished product which were simply delightful in the completeness of their adaptation to the end in view. It would be a great mistake to suppose that ordinary "sulphate of quinine" is the only or main product in this department: at Waldhof there are prepared no less than 38 varieties of "*quininae*" from "quininae hypopospis" at 2s 8d the ounce (I quote from the September Price Current) down to "quininae tenues in lumps at 6d"—the bisulphas and sulphas" being given at 10½, the "citras" at 1s 2d, "hydrochloras" at 1s 2d, hydrochloras amorphous 4½d), "pure quininae" 1s 11d, "quininae arsenias" 1s 3d, "arsenias 1s 9d," and "quininae valerianas free from cinchonidia at 1s 5d"—that is for quantities—the rule being tins of 25, 50 or 100 ounces free for package; bottles "of 1 oz., 2d per ounce extra, bottles of 4 oz. 1d per ounce extra, cases of 250 ounces or more free." I have merely selected a few of the 38 combinations of "Quininae," besides several of "Cinchonidinae" and "Cinchoninae"—prepared to suit every variety of taste or prescription and for each and all of which, no doubt there is a demand in different countries if not in all. The Assay Rooms, where two or three of the Doctor-Chemists are, from year's end to year's end, busy analysing cinchona bark (and other raw material) of course with far more delicacy and accuracy than are known to us in the East, were not the least interesting; and in Dr. Schäfer's own office, the collection of chemicals, all the product of the works was quite bewildering. One he showed us worth far more than its weight in gold; while a milligramme of another would be enough to kill a strong man.

After the Cinchona Bark or Quinine Department, that for extracting *Cocaine*, which has now come so much into use, was gone over. It will be of interest to quote exactly the list in the Price Current under this head:—

COCAINA	gramme.		Free
Pure in bulk oz 24s 6d	1s 0d	5 per cent.	tubes of 1 gramme
COCAINAE	gramme.		
Benzoas	0s 11½d	do	do
Bimurias	0s 10½d	do	do
Boras	0s 10½d	do	do
Hydrobromas	0s 11d	do	do
	oz.		
Hydrochloras P. B. cryst.	21s 6d	do	tins of 25 oz.
do do	22s	do	botls. of 1 oz.
do do	22s 9d	do	tubes of 1 gramme
	gramme.		
do do	0s 10½d	do	do
do do	1s 1½d	do	tubes of 1 grain
do powdered at same prices		do	

SPECIAL QUOTATION FOR CONTRACTS.

Our Cocaine Hydrochlorate is in beautiful, well defined crystals and entirely free from amorphous matter. It is also free from Benzoylecgonin. It stands Maclagan's and every other test.

COCAINAE	gramme.		
Nitras	0s 11d	5 per cent.	tubes of 1 gramme
Oleinas 50 per cent	0s 10d	do	do
Salicylas	0s 10d	do	do
Sulphas	0s 9½d	do	do
Tartras	0s 9½d	do	do
Tannas	0s 6½d	do	do

The market report states that "Cocaine is in very good demand, the supply of leaves is very small and owing to the rainy season there can be very little brought over during the next few months and we have therefore to look for higher prices." This should encourage some Ceylon planters to pay attention to their plants of *Erythroxylon Coca*, though as yet the leaves received from Java and Ceylon have been poor (immature probably) as compared with the South American supply. Another preparation in large request for America and the Colonies it seems—for killing prairie dogs, bears and perhaps noxious vermin—is strychnine which in "pure crystals" is sold at 2s 1d per ounce, but is supplied in some ten forms altogether. Large supplies of "Nux Vomica" are required for this and some is got from Ceylon I believe.

The preparation of *Glycerine* again showed us very interesting processes, and also of "*Salicylic Acid*," so largely used in Chicago in meat preserving; and finally we saw the recently constructed buildings for the preparation of *Ether* (from carbolic acid) in which a large business is done. Some of the glycerine is made "free from lime" specially "for soapmakers." Another preparation in which we were interested is "caffeina," the essential chemical property of tea and coffee, and the list of varieties under this head may also be quoted:—

CAFFEINA	lb.		Free
Pure 28 lb. 5s 9d in 1 pkt.	6s 0d	Net	tins of 7 lb.
CAFFEINAE	oz.		
Arsenias	2s 2d	do	tins of 25 oz
Benzoa	1s 2d	do	do
Carbolas	2s 5d	do	do
Cinndmylas	1s 3d	do	do
	lb.		
Citras: P. B. nov	5s 6d	do	tins of 7 lb.
Citras 28 lb. 5s 9d in 1 pkt.	6s 0d	do	do
	oz.		
Hydrobromas	1s 0d	do	tins of 25 oz
Hydrochloras	0s 9d	do	do
Lactas	1s 2d	do	do
Natrio-benzoas	0s 6d	do	do
Natrio-bromid	0s 6d	do	do
Natrio-cinnamylas	0s 8d	do	do
Natrio-salicylas	0s 6d	do	do
Nitras	1s 1d	do	do
Salicylas	0s 10d	do	do
Sulphas	0s 10d	do	do
Tannas	0s 10d	do	do
Valerianas	0s 9d	do	do

Altogether there cannot be less than 360 to 380 different chemical preparations or varieties quoted in the Price Current of Messrs. C. F. Böhringer & Soehne of Waldhof, and the elaborate arrangements made at the works—from the

powerful steam engines down to the delicate operations of the chemist and analyist—to secure perfection and economy in operation, must be seen to be duly appreciated. For instance the number of cast-iron pipes traversing the buildings for the service of the various departments arrests attention and one has to learn that not only do these convey hot and cold weter, but hot air, cold air, and perhaps different gases.

We parted from our courteous host, and his clever Doctor-Superintendent with regret, greatly impressed by what this afternoon's visits had revealed to us. Mr. Mehl was our pleasant instructive companion back to Mannheim where, after dining together, we took the night train to Mayence. Alluding to the poor soil in the neighbourhood, and how little was done even with the vine, though some quantities of plums and cherries were sent to the English market, he metioned as the most important industry for the rural people, the growing of vegetables which were prepared and "pressed" for ship use.—Mannheim, a town of 80,000 people is within the limits of Baden and the Grand Duke had left after a short visit to his palace here the day before. It is a handsome, well-built town with broad avenues and side walks shaded by trees and the October festival was about to commence here as in Munich, attracting much attention and a large gathering.

DOVER, Oct. 16th.

The week has been one of very wet, stormy weather here; and one night we had a great burst from a strong gale in the Channel which did much damage at the end and on the Admiralty pier, estimated at £1,000 loss in all. That very evening the Prime Minister, Lord Salisbury, crossed from France himself; but fortunately by the 5 p.m. rather than a later boat. Still, though the storm had not then burst, the crossing was very uncomfortable even in one of the powerful steamers which now, in ordinary weather, do the 26 miles in very little over an hour. On this occasion the hour and a half was exceeded, and we had an amusing account from a fellow-passenger of the Premier's persistent nibbling of hard dry biscuit—all through the passage as he remained in one sheltered spot on deck.

Although the weather of the past twelve months—winter, spring and summer especially—has been so much condemned, I learn that fruit growers of Kent—"the garden of England"—have had no reason to complain, but rather speak of two favourable seasons. Always, the county of gardens and orchards, with the decline of farming and the preaching (by Mr. Gladstone especially) of the duty of extending fruit cultivation in England, great additions to the orchards and gardens have been made in the past ten years even in Kent. I remember in 1884, being struck with the number of fields planted with young fruit trees. Now I hear of men having, individually, as much as 1,000, and even 3,000 acres under fruit for the markets not only of England, but of big towns as far north as Manchester. They begin in the early year croping srrawberries, picking from 3 to 4 a.m. each day, so as to get their crop into London by special train in the early morning; then follow gooseberries, currants (all varieties), raspberries, plums, peaches, apricots and of course apples and pears. The large cultivators making contracts in a big way do well—one acre of strawberries often gives £200 gross return in a year!—but I hear that the smaller garden owners, especially those farthest away from town, often do poorly. One unfortunate in this neighbourhood sent 50 bushels of plums this season to London, only to get as his return *a debit note for 4d to pay*! The plums had not realized carriage and charges. But talk of the Ceylon Railway, I have heard enough of the misdeeds and overcharges and partiality of the "the London, Chatham and Dover" while here and I must give you some instances in my next.

I have just heard that a Colonel Stewart of Dover Garrison—spoken of as a much liked Highland officer—expects to go to Ceylon by the end of the year as Senior Commissariat officer.

I have just been honored by an invitation from the Council of the Royal Colonial Institute to their Annual Dinner at the Hotel Metropole on 10th Nov. after which in the evening Mr. W. E. Maxwell, C.M.G., is to read a paper on "The Malay Peninsula, its resources and prospects," Lord Brassey in the chair.

PLANTING NOTES.

Formosa Oolongs are cultivated by small native farmers, who have small gardens, and some of whom do not pick over 100 pounds at one picking, of which they have three or four during the season. Unlike Japans, the first picking is the poorest of the season, the second crop is better, but the autumn crop is the best of all. The reason for this is, that during August the island is visited with heavy rains, after which the warm weather of September causes the plant to grow luxuriantly. The leaf is full of sap, added to which is the fact that the moisture in the atmosphere causes the plant to ferment quickly, which allows the manufacturer to cure the leaf without exposing it to the sun, which, it is claimed, takes from its strength. The great strength of the leaf enables the manufacturer to fire the Tea longer, and the longer it is fired the better it will keep. It is a fact that the third crop or autumn Teas, that have been well fired, will improve after having been exposed to the air for a few days in the dealers bin. The action of the atmosphere brings out the fragrance of the Tea, while at the same time the baked flavour disappears. These Teas will keep for a month without much, if any, deterioration; the first crop as will lose flavour as rapidly as Japans.

It is related that in ye olden time, when the Chinamen were begged for seeds of the precious plant to send to European conservatories, they secretly destroyed all germination in the seeds by boiling and then presenting them, with their blandest smile, would say: "Belly solly Tea no glow all the samee China."

During the reign of Queen Anne black tea sold from 12s to 16s per pound. In 1707, from 15s to 30s per pound.

"Strange and far-fetched things they only like; don't you see how they swallow gallons of the juice of tea, while their own dock leaves are trod under foot." These words were penned over 150 years ago by Sir Richard Steele, in his "Comedy of the Funeral," but how applicable they are to much of the so-called tea sold at the present day!

The bark "Formosa" brought the first cargo of Formosa Oolong to the United States, where she arrived March 7th, 1869. It consisted of 7,800 half chests, shipped by Mr. John Dood, an Englishman, the pioneer in the Formosa tea business. It is now the favourite tea with most connoisseurs.

"It is a singular fact," writes an American paper, "that the Indians living on a Tea garden will not touch Tea. From hygienic grounds they have been urged to use it, but they spit it out with disgust." Is that so! ST. LOUIS.

—*Madras Times.*

THE COFFEE CROP IN COORG, is this season, we are glad to hear, likely to be a good one. There has been an abundance of rain—rather more than enough. Experiments are now being made by some of the planters of growing Liberian plants among heir Arabian coffee, with the hope of improving the pecies.—*Madras Mail*, Oct. 29th.

CULTIVATION DURING 1890-1891 IN THE MADRAS PRESIDENCY.

The total extent of cultivation, both of ryotwari and inam lands, in the Madras Presidency during the year 1890-91 aggregated 26,070,494 acres, against 26,118,917 acres in 1889-90, thus falling below the extent of the previous year only by 48,433 acres, or 0·19 per cent. The acreage under first crop shows a decrease but that under second crop an increase, as follows :—

	1889-90.	1890-91.	Difference.	Percentage.
1st Crop.				
Ryotwar ..	18,936,316	18,840,313	min. 96,005	min. 0·51
Inam ..	4,860,585	4,836,943	„ 23,642	„ 0·49
2nd Crop.				
Ryotwar ..	2,033,918	209,448	plus 55,530	plus 2·73
Inam ..	288,098	303,790	„ 15,692	„ 5·45
Total..	26,118,917	26,070,494	min. 48,423	min. 0 19

The decrease under first crop was due mainly to the unfavourable character of the season in almost half of the Presidency, and the increase under second crop to the favourable North-East monsoon in Kistna, South Arcot, Salem and Trichinopoly. The decrease under first crop occurred chiefly in—Anantapur of 84,200 acres, Cudapah 62,700 acres, North Arcot 23,900 acres, Chingleput 12,400 acres, Madura 28 acres, Tinnevelly 39,300 acres, Coimbatore 18,000 acres, and Ganjam 24,300 acres. But, to counterbalance this large decrease, the districts of Vizagapatam, Kistna, Nellore, Bellary, Kurnool, South Arcot, Tanjore, Trichinopoly, Nilgiris, and Malabar, showed an increase ranging from 0·15 per cent in Nellore to 8·77 per cent in Vizagapatam. This large increase in Vizagapatam is mainly attributable to the introduction of the survey area, and also to the very favourable character of the season. In Nellore it was due to the fact that the ryots cultivated a greater extent of land than on the previous year in expectation of a favourable monsoon, but in this they were sadly disappointed. Malabar shows an increase chiefly in Wynaad, where, since the settlement, when a charge on occupation was substituted for one on supposed cultivation, efforts are being made by the ryots to extend cultivation as far as possible. Considering the character of the year under question and the failure of rains in so many parts of the Presidency, these returns must be looked on as very satisfactory.—*Madras Times*, Oct. 22.

A NEW JAPANESE TEA ASSOCIATION.

The fate of the last association of tea-merchants the *Seicha-gaisha*, has not proved deterrent. Another society, the *Nippon Seicha Gikai*, has now been formed, in Osaka, Kobe, Kyoto, Shiga, Toyama and other western districts. A meeting of projectors was held on the 4th inst. in Kobe, and the following articles of association are said to have been voted :—

Art. 1.—The association shall be named the *Nippon Seicha Gikai*, and its head office shall be at No. 14, Sakayemacei, Sanebome, Kobe.

Art. 2.—The objects of the association are to open a black-tea trade with Russia, and enquire into the actual condition of the tea markets in the United States and Australia.

Art. 3.—To attain the above objects, the association shall send committees to different places to make trial sales of both black and green tea, and to conduct investigations.

Art. 4.—The limit of time allowed for such sales shall be five years from the 25th year of *Meiji* (1892). According to the results attained at the expiration of that time it shall be determined whether to establish a new company, and undertake the direct export of tea.

Art. 5.—Subscriptions shall be raised to pay the expenses of the trial journeys, the subscriptions to be paid by those interested, no fixed amount being determined.

Art. 6.—The subscriptions shall be deposited in some trustworthy bank. The names of the subscribers and the amount of their subscription, shall from time to time be published in the newspapers, as well as entered and preserved in the office records.

Art. 7.—Any one desiring to make trial sales of the Association's tea shall be permitted to do so without any commission being charged.

Art. 8.—The Association shall hold a general meeting in February every year to report the results and accounts of the previous year.

Art. 9.—Notice of subscription must be sent to the office of the Association before March, 1892; and the cash must be paid in April. According to convenience, subscribers may pay their subscriptions every April during five years, or may pay the whole amount down at once.

Art. 10.—The following officers shall be employed to manage the affairs of the association, and shall be elected every year at the general meeting :—

1. A Director of the Association.
2. A Manager.
3. Five members of Committees.
4. Clerks.

Art. 11.—The Director and the Committee-men shall receive no salary. But their travelling expenses shall be paid if they have to travel on the business of the Association.

Art. 12.—Travelling Commissioners, the Manager, and the clerks shall receive salaries, the amount of which shall be determined by a general meeting.

Art. 13.—The case of Commissioners who while they are abroad, accomplish something specially praiseworthy, or who work without salaries, shall be considered at the general meeting, and their deeds shall be published in the newspapers, a letters of thanks, being also sent to them from the head office.—*Japan Weekly Mail*, Oct. 10th.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist*)

London, Oct. 7th.

ANNATTO.—Nineteen bags seed, of fair quality, from Colombo, are held for 2¼d, an offer 2⅜d was refused. A small parcel of roll annatto, good bright, but rather dry Para, was shown—11d is the price.

CINCHONA.—The total quantity of bark sold to manufacturers at the London auctions, from the beginning of this year up to October 6th, is estimated to equal 84,915 kilos sulphate of quinine, and that sold to manufacturers at the Amsterdam auctions, from the beginning of the year up to (and including) October 8th, to equal 95,658 kilos. At the last Amsterdam auctions the following quantities of bark were bought by the principal purchasers :—the Auerbach factory 122,000 kilos; the Amsterdam factory 96,400 kilos; the Brunswick factory 76,800 kilos; the Philadelphia factory 57,400 kilos; the Paris factory 36,000 kilos; the Stuttgart and Frankfort-on-Main works 21,800 kilos; and Messrs. Howards & Sons 5,200 kilos. Details concerning the Amsterdam cinchona auctions of last Thursday show that the manufacturing barks sold at an average unit of 5 81 cents per half kilo. Altogether the equivalent 15,351 kilos quinine sulphate in the bark was sold to manufacturers at the following prices :—1,206 kilos at 5 cents 5,415 kilos at 5½ cents, 6,810 kilos at 6 cents, 1,683 kilos at 6½ cents, and 237 kilos at 7 cents. For pharmaceutical barks the demand was exceedingly slack. From the Government plantations only short quills were offered, and there were only a few lots thin long quills from private estates. Among the parcels sold there were 118 bales analysing between 7 and 8 per cent, and two lots yielding over 8 per cent. These two last sold as follows :—107 bales Ledger stem bark, broken quill at 6¾d to 7⅜d per lb; 17 bales Ledger root at 8d per lb. The lowest parcel of bark offered at the sale consisted of six mats Succirubra, analysing 0·55 per cent. This sold at the rate of ¾d per lb. The exports of cinchona from Java for the first two months of the season (July and September) are said to have been 2,600,000 Amst. lb, against 1,560,000 Amst. lb and 1,400,000 Amst. lb respectively, for the first two months of the 1890 and 1889 seasons.

TRANSACTIONS in jute fell off to a remarkable extent in Tippera last year. The Commissioner of the Chittagong Division writes that the price of jute in Tippera fell from R5.8 to R1.8 per maund, and that, in consequence, the cultivators were reported in some places to have left the jute uncut. No actual distress was felt, though the extraordinary fall is said to have largely affected the revenue administration of the district.—Calcutta *Englishman*.

THE INDIGO CROP.

SIMLA, Oct. 31.—The final report in the indigo crop of 1891 in the North-West Provinces states that the total area, recorded by Patwaris under Indigo is 201,000 acres against 254,000 last year, and the area returned by the Canal Department as receiving irrigation is 1,85,000 against 2,28,000 in the preceding year. The Zamindars estimate the crop area at 17 per cent less than last year. The plants suffered from locusts and drought in June and July and from excessive rains in August. The condition of corps is reckoned as follows; 100 presenting full average, Gangetic Doab 45, Benares and Gorakpur Divisions 55, and Rohilkund and Oudh 50. The outturn of the dye is expected to be five per cent less than last year.—*Madras Mail.*

THE COTTON CROP OF 1891.

SIMLA, Oct. 31.—The second general memorandum on the cotton crop of 1891 runs:—The second reports on the cotton crops of the year confirm the estimates already published of a serious deficiency in the area sown owing to unusually late arrival of monsoon rains, which were not generally established till the end of July, by which time the season for sowing the early crop was almost over. Further injury has since been caused in the Central and Northern Provinces by excessive rain in August and September, in the Southern Presidencies by scanty and untimely falls, and in the West by locusts. In the important cotton producing Provinces of Bombay, where from 5 to 5½ million acres are ordinarily cultivated with cotton, the area sown to dates does not, so far as present information goes, much exceed four million acres, of which 1,179,000 acres in area are under the early, and 2,888,000 under the late varieties. There has, however, been no material decrease in Berar. The deficiency first reported having apparently been made up by later sowings. The area in this Province, which stands next in importance to Bombay as a producer of the staple, is reported about 2,250,000 acres. In the Central Provinces the area devoted to cotton ranges from half a million to 700,000 acres. The sowings were retarded by late arrivel of rains, and the plants have been much damaged by excessive moisture and floods during August and September, when they require to be weeded. The crop is not likely to be more than 60 per cent. of an average one. Similar causes have affected the area in the North-Western Provinces and Oudh, where it is estimated at 35 per cent. less than the normal (about 1,700,000 acres). In Punjab further sowings anticipated have not taken place, and the area remains at 600,000 acres or some 30 per cent. below that of the previous year. In Madras the sowings of both early and late crops are under 400,000 acres or little more than half the normal area. Taking six reporting Provinces together, the total area is approximately 9 million acres against an average of 12 millions. The condition of the early crop in Bombay is generally speaking, fair, but in parts of Khandeish the crop has suffered from excessive rain, which has also damaged the late crop in Guzerat. In the Carnatic the late crop is very backward for want of sufficient moisture, and only 27 per cent. of the average area has been sown. The Sindh crop has suffered from locusts and unfavourable inundations by the Indus. In Berar the condition is on the whole satisfactory, but the Madras crop, though somewhat improved by recent rains, is likely to be very poor. In the Central Provinces the outturn will fall from 60 to 40 per cent. below the average, while another poor harvest is expected in the Punjab, where locusts have seriously injured the plants.—*Ibid.*

CEYLON AT THE CHICAGO EXHIBITION.

The Secretary of the Planters' Association sends us for publication the following copy of a letter addressed to non-subscribers to the Tea Fund by the Chairman inviting subscriptions towards a special "Chicago Exhibition Fund."

DEAR SIR,—As you are not a subscriber to the Tea Fund I venture to lay before you the position of the Subscribers to that Fund, and to ask your assistance towards raising a Special Fund for pushing Ceylon Tea in America at the Chicago Exhibition.

There is no doubt that the present position of Ceylon Tea, and the fact that it is now so largely consumed at home and is fast finding its way into the Australian and some of the Continental Markets, is very largely due to the action of the Standing Committee of the Tea Fund, during the past few years; and no impartial observer, whatever views he may take of the action of the Committee at different times, can fail to admit this.

The erection of the Tea Kiosk in Colombo, and the lease of the building to the newly formed Ceylon Tea Co., Limited, has raised much opposition, much of it I consider of an interested character, since there is every prospect of the company becoming a successful agency for advertising and selling Ceylon Tea, and therefore bound to conflict to some extent with already existing interests.

As several incorrect and misleading statements have been lately published on this matter I would bring to your notice.

(1.) That the Planters' Association or its Standing Committee of the Tea Fund have no legal power to trade by working the Kiosk.

(2.) That the New Tea Company was started mainly with a view to relieve this difficulty.

(3.) That the Kiosk and its basement have been leased to the Tea Company and the Syndicate Boat Company respectively with the consent of the Government (whose consent was necessary under the terms of the original lease.)

(4.) That the annual rent to be paid is R1,000 in all, equal to nearly 7 per cent interest on the total cost of the Kiosk and its furniture, viz. R15,000; so that the subscribers to the Tea Fund obtain nearly 7 per cent. on this investment, *plus* the free advertising of Ceylon Tea which must necessarily be effected through the Kiosk in any event.

The main object of the Committee at the present time is to take advantage of the Chicago Exhibition for pushing our teas in America.

To do this well and thoroughly will be a costly undertaking, and no effort should be spared to make it a success.

The Ceylon Government have promised R50,000 towards a Ceylon Court, and the Tea Fund Committee have voted R30,000 for the Ceylon Tea interests; but much more than this will be required.

I appeal to you not to leave it entirely to others to supply the necessary funds: I cannot but feel that those who have subscribed to the Tea Fund throughout have been somewhat ungenerously treated by those who do not subscribe, since the benefits reaped—and of these there can be no doubt—are reaped by non-subscribers equally with subscribers.

I asked you therefore with confidence to contribute a special donation towards the Chicago Exhibition Fund, and I would suggest for your consideration that this should be based on the rate ¼ of a cent per lb. made tea for the current year.

It may be and indeed is as a rule impossible for the Committee to carry out the views of each individual subscriber to the Tea Fund; but I unhesitatingly assure you that all views have received and will receive full consideration at the hands of the Committee, and the views ultimately adopted in any case are necessarily those which the majority of the members consider most likely to attain the objects we all have in common.

I trust you will give a liberal response to my appeal, and will be good enough to favour me in any case with an early reply to the Secretary of Association, Kandy.—I am, dear sir, yours very faithfully, GILES F. WALKER, Chairman Planters' Association of Ceylon.

THE AGRICULTURAL PRODUCTS OF MADAGASCAR.

M. d'Anthouard, Chancellor of the French Residency at Antananarivo, has recently made to the French Government an interesting report upon the economic condition of Madagascar, a translation of which appears in the *Journal* of the Society of Arts for July 31st, and is reproduced in *Science*. In that portion of the report which is devoted to the consideration of the agricultural development of the island, it is stated that the chief agricultural products are sugar, coffee, cocoa, vanilla, cloves, rice, potatoes, tamarinds, indigo, wine, oranges and lemons. Sugar cultivation was first commenced in 1842; and two factories were erected at Manangary. Good results were obtained in the first two years; but, during the third year, riots took place among the workmen, and the plantations were destroyed. In 1878 three new factories were established in the neighborhood of Tamatave; and in 1883, on the outbreak of hostilities between France and Madagascar, they were in full working. At the present time, the number of plantations round Tamatave has greatly increased; and also in the south, towards Mahanoro and Vatomandry.

Coffee trees grow well in Madagascar, and it is stated to be by no means an uncommon thing to see plantations that are 45 years old, and even more, which have never ceased to yield good results. A large plantation has recently been established in Imerina by a French company; it extends over an area of about 800 acres. Great results are expected from the development of the coffee industry of Madagascar, as the difference between the cost price and the price it realizes in European markets allows of a considerable outlay on its cultivation and then leaves a large margin of profit.

The cocoa tree was introduced into Madagascar by means of seeds brought from the Mauritius and Réunion, in which places it has been for a long time a source of considerable revenue. The tree commences to bear at the end of three years, but it is only in full bearing at the end of the fifth year, and it so remains for thirty years. The cost of cultivation is less than that of coffee. The cocoa tree is chiefly cultivated in the Eastern portion of the island, and it is only of recent years that the industry has assumed any importance. In 1883 there were not less than 5,000 or 6,000 trees round the coast, and these were abandoned when the war broke out. After the war it was found that, notwithstanding the want of care and attention, the young cocoa plantations were still flourishing, and this phenomenon encouraged the planters to pay greater attention to the development of this cultivation. This development dates from the year 1888. Like cocoa, vanilla is one of the agricultural products which has a great future before it in Madagascar, and its cultivation is largely engaged in, in Vatomandry, Mahanro, and Mahela. Vanilla plants commence to yield after the third year, and in the fourth they are in full bearing.

The cultivation of rice, which is well developed in the interior of the island, is very much less so on the coasts, where the land is more fertile. While in the latter districts the inhabitants are content to sow the seed without any preparation of the ground but the burning of the trees and grass, the Hovas and the Betsileos, having a much poorer soil, take more pain to develop and perfect their system of cultivation. In some instances, for example, in the neighbourhood of Antananarivo, they have transformed immense tracts of marsh land into rice plantations. The plains of Betsimitatatra, towards the west of the capital, which are watered by the Ikopa, Andromba and Sisaony rivers, now the centre of the rice production in Imerina, have been drained and cleared, irrigating canals have been pierced, and everything has been done to favour the production. Similar well cultivated plains are found in great number in the south of Imerina and in Betsileo. In the mountain districts the rice grounds are laid out in terraces on the slopes of the mountains and hills, and rice grounds are frequently met with rising tier upon tier up to the very summit of the high mountains.

Potatoes are largely cultivated in the districts round Ankaratra. Tamarinds are common all over the west coast, where the plants form immense thickets. The Sakalaves distill spirits from the fruit. Peaches grow almost wild all over the island, and the same may be said of the indigo plant.

As regards vines, there are different species in Madagascar. One variety was originally imported from Portugal; another variety appears to be indigenous to the soil. In Imerina attempts have been made in recent years to acclimatize vines, but some which were brought from Bordeaux have not succeeded. On the other hand, American vines have prospered, but the grapes are not of a superior kind, and the wine made from them is very poor. Orange and lemon trees are found all over the island, growing in a wild state on the coasts, and cultivated in the interior.—*American Grocer.*

TEA IN JAPAN.

There is no more curious incident in the history of the food supplies of the world than the great and sudden change that has occurred in countries as the home of tea. It is but a few years, and easily within the memory of all of us, when the mention of tea at once brought to mind visions of the celestial empire, and cultivators in picturesque smocks and long pigtails, and the fact that on a few hills in Northern and Southern India and in the steamy lowlands of Assam, Englishmen could be found who devoted their time and attention to the cultivation of this shrub was regarded almost as a freak of nature, while the men themselves were looked on in much the same light as farmers, who pass their lives growing fruit-trees for the sole purpose of converting their yield into jam. But the Chinaman with the yoke and buckets is now almost defunct in the imagination of the British public, and Ceylon and India stand out prominently as the countries from which the breakfast tables of the Western world are to be supplied with that leaf, so long considered as a luxury only accessible to the very rich and wealthy, but now a necessity for the mechanic and labourer in fact no working-man who aspires to the smallest show of comfort would be content without his cup of tea. One of the effects of this sudden change in the cultivation of tea has been to prove that there is no particular difficulty attached to its growth and manufacture, and so long as a land possesses soil that is fairly productive, and a climate which is fairly moist, the shrub will flourish and crop well. Consequently we find throughtout tropical lands a general desire to participate in the profits believed to exist in its cultivation, and Java, Japan Borneo and the Fiji Islands are all converting their jungle into tea-gardens. The result naturally is a extreme risk of over-production, which will, of course be felt first in those countries whose labour supply is not perfect but expensive, and which do not possess the best faculties for cheap manufacture and cheap transport to the markets of the West.

A British Consul in his report of the trade of Hiogo and Osaka has given recently an interesting account of the cultivation and the trade of tea in Japan, where it has only been recently taken up. There is not much fear of this country ever becoming a very serious rival to Ceylon and India in the tea-markets of Europe, but it is said that the United States have shown a marked preference for the Japanese leaf, which is likely to retard the sales of British-grown kinds in that country. Mr. Consul Enslie in his report states that, owing to the incessant rains having forced the growth of the leaf, the quality of the first crop proved disappointing, and had it not been for the effect which the marked advance in silver had on exchange (higher rates preventing later teas from being laid down as cheaply), there can be little doubt that the season would have proved an unsatisfactory one to shippers. As supplies increased, prices gradually declined, until they showed a drop of from two to three dollars on the earlier prices for the better descriptions of leaf, and

one dollar for common to medium grades, the latter being throughout the season most in request. The second crop was more satisfactory in quality than the first, and towards the middle of July some slight concessions on the part of holders, coupled with encouraging advices from the consuming markets, led to considerable business, the lower grades again meeting with most inquiry. Increased firmness on the part of sellers followed, supplies being also withheld with a view to forcing up prices, and as the season progressed, a marked deterioration both in the quantity and quality became noticeable. A decline of 50 per cent. in Suez freights materially assisted the Japanese in maintaining values, notwithstanding the high rates of exchange then ruling, and business continued on about the same basis until the end of September, holders taking advantage of every opportunity to raise prices until they reached such a point as to render further buying unremunerative, especially in view of the inferior selection and paucity of stocks, which by this time had dwindled down to some 270,000 lb. The financial crisis in Europe, in the fall of the year, put a sudden stop to business in the United States of America, the effect of which was quickly felt in Japan and the season was virtually closed by the end of October, although, as usual, a few desultory purchases continued to be made, amounting to some 530,000 lb. The total business for the season was 21,639,431 lb., that for 1889 having been 18,245,735 lb.

An increase in exports of 3½ million pounds is by no means to be overlooked more especially in an advanced country like Japan, which will probably import all the latest machinery, when she realises that by cheap and improved methods of manufacture she can obtain a share of the custom of the world. The flavour of the Japan leaf is said to be more delicate than Ceylon or Indian, and nearer in approach to China. As we know, in England the popular taste has turned, and the tea-drinking public demands stronger and more pungent liquors than the Pekoes and Congous of Hankow and Formosa supply. But both in Russia and the United States—two great consumers—the delicacy of the latter is still appreciated, and it appears as if many years must elapse before our British-grown leaf is liked, nor will the job be easier if Japan can supply China grades at Indian prices. As we have constantly urged in these columns, it behoves the whole tea-planting community to spare no labour nor care in the cultivation and the manufacture of leaf, and to flood the markets with low grades is to undergo the very great risk of throwing away the advantage now gained. Already a warning note has been sounded against the ill-effects of tea, in the argument that has been waged over alcoholic drinks. Excess of tannin undoubtedly is as deterimental to the human frame as alcohol, and it is possible to turn out of a tea factory leaf an infusion of which is hardly a whit less poisonous than the decoctions of grape that find their way out of France under the name of brandy. [The comparison is most unjust to teas. Strength depends on tannin, but an infusion properly made contains only an innocent proportion of this ingredient.—ED. *T. A.*]

The increased activity of tea cultivation in Japan should bring home to planters in this country the necessity of keeping up the quality and not sacrificing everything to a perfidious pride in outturn of pounds per acre. By putting together the London brokers' reports on Travancore tea and the last accounts which our Peermaad correspondent sent us we are afraid there is a tendency to err in this way down south, for until a short while ago Travancore tea commanded as good value as Ceylon, whereas for some weeks past now its average is 20 per cent. lower than that Island, and from 30 to 35 per cent below Assam.—*Madras Times.*

THE Auerbach quinine factory have obtained a contract from the Dutch Government for the supply of 500 kilos. (about 16,000 oz.) of sulphate of quinine standing the test of the new Dutch Pharmacopœia. —*Chemist and Druggist.*

THE CHINA TEA TRADE IRREVOCABLY DOOMED. —The Tea Report of 23rd Oct. of Messrs. Purdon & Co. of Shanghai says:—

Disastrous sales are still being wired out, chiefly teas on native account, the percentage of loss reaching as high as 50 per cent; these losses should prove a lesson to the Chinese and show them that their teas are not wanted. Advices from Russia are very discouraging, the fall in the rouble exchange and the internal distress having a very bad effect on trade in general. The large quantity of 'high cost' teas shipped to Russia last season will be sufficient to keep that market stocked for fully two years, and as it is very apparent that the London market only require 'tea for price,' next season's prospect of a fine crop is very remote. Unless the export duty and the lekin duties are reduced, the China tea trade is irrevocably doomed, and it behoves the authorities to act promptly and prevent what will otherwise prove to be a national disaster.

DURING the first six months of the current year the trade demand ran on common teas, on the 26th June Pekoe Souchongs realising sevenpence-half-penny to ninepence per pound whilst Broken and Orange Pekoes sold for ninepence-farthing to a shilling per pound. Of course, a few of the finest marks sold at fancy prices, as they always do. On the first arrivals of the South West Monsoon teas, which are always inferior owing to the difficulty of manufacturing tea in wet weather, the trade demand turned round to the finer descriptions, and common kinds are now unduly depressed and neglected. Whilst Pekoe Souchongs have given way quite twopence per pound, Broken and Orange Pekoes and the better classes generally have advanced from twopence to fourpence per pound. Of course, as there is not a supply of these to meet a monthly demand of five and a-quarter million pounds, the improving quality of the recent arrivals will soon begin to attract attention, for after all it is the common teas that furnish the supply of the masses. But without adequate tasting they have not a fair chance.—*Financial Times.*

CEYLON WOMEN AND CEYLON TEA.—Mr. R. E. Pineo sends us a copy of *Frank Leslie's Illustrated Paper*, containing the portraits of "A Cingalese Girl" and "A Tamil Girl." They are both good-looking, but the "Cingalese" girl is evidently a Tamil. The following letterpress accompanies the illustration:—

The earliest notice of Ceylon is probably contained in the Hindoo poem "Râmâyana." The tradition handed down that Buddha traversed Ceylon, leaving his foot-print on Adams Peak, cannot be vouched for, but is believed by all Buddhists. The antiquity of Ceylon reaches back to 543 B.C. England, in 1798, made Ceylon a crown colony. It is one of the garden spots of the world, and contains about 25,000 square miles, or 16,233,000 acres. It is especially celebrated for its elephants; and its valuable gems, viz., sapphires, rubies, cat's-eyes, alexandrites, and its most exquisite pearls help to add to the charms of the fair sex all over the civilized world. Moreover, it produces —according to the English, who are considered the best judges—the most delightfully flavored tea known and the export of which rose from twenty-three pounds in 1873 to about 54,000,000 pounds in 1890. The present population (composed of a few Europeans, but chiefly of Tamils, Moors, Cingalese, Malays, etc.) is about 3,000,000, and Colombo, the capital, contains about 120,000 inhabitants. Like the city of the great World's Fair, a single product helps to make its citizens not only wealthy, but important. Chicago boasts its pork, Ceylon its tea. No business interview or political conclave ever takes place on the island in which Ceylon tea is not a necessary factor. The splendid breakwater, which was built at a cost of $4,000,000, gives the stranger within its gates a sense of absolute security upon reaching the harbor of Colombo. We are indebted to Mr. S. Elwood May, the president of the Ceylon Planters' Tea Company, of New York, London, and Colombo, for the use of the accompanying illustrations

GEMMING AND MINING COMPANY OF CEYLON.

LONDON, NOV. 23.

There is no doubt that the result to the last year's working of the Gemming and Mining Company of Ceylon has been anything but satisfactory. The extract from the *Investors' Guardian* given below reveals this very fully, though the paragraph is written in a tone which shows but little acquaintance by its author of the real facts with regard to the prospects with which the company was started; for we all know that the precious stones are there, even if the steps taken by the directors have failed to secure them for their shareholders. The current talk here is that gems of a fine quality and size were never so abundant in Colombo as they are at the present time; and it is the generally expressed opinion that the operations of the company account for this, that these stones have been obtained by its working, but that, as Mr. Streeter predicted to me would be the case, they do not get beyond the native labourers who have found them while employed in the company's pits. Unless some means can be taken to guard against such thefts, it is much to be feared gemming on a large scale will never prove remunerative in Ceylon. We hope, however, that the affairs of the company may be retrieved during the current year by its output of plumbago.

THE GEMMING AND MINING COMPANY OF CEYLON.—This Company cannot be congratulated at the result of its operations during the past year. The Kimberley compound system is evidently not in vogue in Ceylon, for the good stones found by its native employés were retained by them for their private uses, and they simply handed to the company those which possessed no mercantile value. The consequence is that the Company has lost during the year £3,453 18s 1d by its operations, this including the cost of the London offices and directors' fees amounting to some £860. The main hope of the chairman now seems to rest, not on the precious stones, but on the deposits of plumbago, which they have discovered on their property. We are told by chemists that the diamond and plumbago have an identical chemical composition, and this knowledge may somewhat console the shareholders for its substitution, although they may fairly argue that they subscribed on the testimony of the experts that the carbon on their property was in the form of precious stones, and not in that of blacklead.—*London Cor.*

THE ADVANCE OF BRITISH-GROWN TEA.

From the monthly circular on the tea market, issued by Messrs. Gow, Wilson, and Stanton we observe that the appreciation of the Ceylon leaf by British consumers is increasing as fast as the production. For the period from the beginning of June to the end of September—the four heaviest months of the year—the imports have amounted to twenty-three million pounds, against fifteen and a-half million pounds in the corresponding months of 1890, and eleven million pounds in 1889. The figure is a heavy one, being greater than the imports of the Indian product in the same period only two years ago, but, instead of creating a plethora, it has been taken almost entirely off the market, the deliveries coming to twenty-one and a-third million pounds. The addition to stock is, therefore, small, and there is the less danger of a glut from the fact that during the ensuing two months there is a probability of a deficiency in the supply, as the shipments are estimated at only four million pounds per month. This does not, however, imply any falling off in the production of Ceylon. From what we can learn with reference to the future yield, we think it likely the total will go on mounting for years to come in the ratio of the past—that is to say, an increase of from eight to ten million pounds per annum may be looked forward to as practically assured. But if we judge the future consumption also by past experience, there should be no cause to apprehend that over-supply which Ceylon's legions of enemies predict.

As the importation of Indian and Ceylon teas increases in volume, the Chinese leaf is being displaced to make room for the British-grown produce, and from present appearances it would appear that the Flowery Land will be elbowed out of the way altogether in the course of another ten or fifteen years. In 1879 the Celestials sent us no less than one hundred and twenty-six million pounds. Ceylon had not been heard of as a tea producer, and the Indian contribution was only thirty-four million pounds, having grown in the preceding fifteen years from hardly three millions. Since then both Ceylon and India have been forging ahead, and China has been on the down grade, the complete reversal of the market being one of the wonders of modern commerce. A glance at the statistics of the past six years will surprise many of our readers, we imagine, for the transformation is quite sensational in character. The Home consumption in these years was as follows, the figures representing thousands of pounds* :—

	1885.	1886.	1887.	1888.	1889.	1890.
India ..	65,678	68,420	83,112	86,210	96,000	101,962
Ceylon ..	3,217	6,215	9,941	18,553	28,500	34,517
China, &c.	113,514	104,226	90,508	80,653	61,100	57,530
(1,000 lb.).	182,409	178,891	183,561	185,416	185,600	194,009

It will be seen that the Chinese leaf has not fallen away because of any reduction in the consumption of tea, which has materially increased within that period, but has declined inversely with the development of the East Indian industry.

But although there is no doubt as to the headway being made in Great Britain by the British-grown leaf, the apostles of Indian and Ceylon are not satisfied. It is true that during the five years 1885-1889 the United Kingdom consumed one hundred and eighty-three million pounds of tea, but in the some period the United States drank seventy-nine millions, Russia seventy millions and a-half, the Australian Colonies twenty-one millions and a-half and Canada nearly nineteen millions. There is, therefore, a much larger world yet to conquer, and one remarkable and satisfactory feature in the position of Ceylon tea is the very kindly manner in which other countries are taking to its use, the British colonies being especially prominent in this respect. We have before us returns of the exports from Ceylon to other countries for the first eight months of the current year, and comparing these with the returns for the corresponding period of last year, we find an increase of seventy-two per cent. As these returns are of considerable interest, we give them in full. The respective shipments were as follows:—

	1891 lb.	1890 lb.
Austria	50,150	1,270
France	9,300	612
Germany	69,300	14,200
Russia	11,250	15
India	270,650	87,600
Australia	2,211,500	1,413,000
America	139,000	119,300
Africa	56,550	35,100
China	87,900	33,200
Mauritius	34,300	140
	2,940,400	1,704,437

It is disappointing that the Yankees took only 139,000 pounds, though a large public company was formed in the States with a great flourish of trumpets to promote the consumption of Ceylon tea. It will be noticed, however, that even the Chinese themselves have begun to sip the rival nectar.—*Financial Times.*

* More simply stated, the figures or ciphers for millions are omitted.—ED. *T. A.*

THE LOCAL MANUFACTURE OF QUININE.

Some interest has been aroused amongst Indian planters by the announcement that growers of cinchona in Java intend to establish a quinine factory, and to make quinine on the spot, instead of exporting their bark to Europe. To the planter the advantages of such a procedure would be very great. The objection to it would come from those having vested interests in the present course of business; at any rate, much support could not be looked for from this quarter. Large Companies or private firms with their head quarters in London would probably not be very enthusiastic about the scheme. But it is well worth the individual planter's while to look into the matter for himself. A few figures will prove this. Suppose a planter to have had 12,000 lb. of Succirubra at the end of last year, which he could sell in the London market at 2d per lb, or for £100. As the London buyer takes the cost of extracting the quinine into consideration, the local factory could afford to pay the same price. The cost of harvesting and transport to the port of shipment is about ½d; so the planter would have had the equivalent of £75 clear if he had sold his bark in India. But what he really got was much less. The first deduction was for baling and shipping at R45 per ton; this amounted to R225 (say £16). The cost of freight to London, insurance, dock dues, rent for warehousing, analysis, brokerage and commission usually comes to 20 per cent on the sale value of the consignment. Sometimes it is rather more. But putting it at 20 per cent, the account stands thus:—

Value of bark	...	£100
Less cost of harvesting	... £25·0·0	
"Coast charges," (Baling etc.)	16·0·0	
London charges (20 per cent)	20·0·0	
Total deductions		£61·0·0

In addition to this the planter had to wait for his money for about four or five months. These figures speak for themselves. The charge for baling and shipping is to be reduced this season to about R34 per ton, but there is no sign of similar movement among the London brokers. Shipping bark to London at present prices, if there is a chance of getting the quinine extracted in this country, seems almost as great an extravagance as it would be to ship the quartz from the Mysore mines instead of crushing it on the spot.—*M. Mail*, Oct. 26th.

[Our readers can compare this statement with the adverse opinion regarding local manufacture formed by Mr. John Ferguson after visiting the Waldhof quinine works.—ED. *T. A.*]

A CORNER IN COFFEE.

We have frequently remarked that the coffee bean is often regarded as little better than a gambling counter, and that the manipulations of clever commercial gentlemen have a greater influence on the values of coffee than the reported estimate of a Brazilian crop of ten million bags. We need not apologise for quoting in full this article which appeared in a recent issue of the *Financial News*:—"Not only the Mincing-lane market but the coffee markets of Havre, Hamburg, and Antwerp have lately been disturbed by a clique who tried their very best to corner coffee. The ringleader in this combination was the German partner of a New York coffee house, which of late years has taken a front rank in the American coffee trade, but which, also, has acquired an unenviable notoriety for being connected with cornering operations. Thus in June, 1888, this house in conjunction with another firm in the same city, so manipulated the New York market that they forced the price of coffee for delivery in June that year up from 12·80 cents per lb. to 20·50 cents per lb. in one day. This rig led to a change in the management of the exchange, from which the cornerers were excluded, and later on new rules were adopted which made it much more difficult for any single firm or combination to manipulate the coffee market in New York. So little did these new rules please the firm in question that in August, 1890 they issued a circular, in which they ostentatiously intimated that they had concluded to withdraw from the commission option business in coffee on and after December 31st, 1890. They did not, however, explicitly state that they intended to discontinue option business on their own account on the New York Exchange; but this may, perhaps, be inferred from another paragraph in the same circular, where they state that: "We shall continue our regular activity in the importation of coffee, and we also expect to deal more or less, on such coffee exchanges where we think buyers and sellers will be treated on a parity, and where we can secure a contract that will represent a merchantable average grade of coffee, such as is required for consumption here or in Europe." During some considerable time past the German partner of this firm has been staying for long intervals in Europe, and there is no doubt that his influence has been felt in all the European term markets chiefly, however, in those of Havre and Hamburg. In July last this smart operator conceived the brilliant idea of cornering coffee in Europe in face of the largest coffee crop ever marketed in Brazil. A more madcap scheme, a more unbusiness-like proceeding, could hardly be imagined. Warnings of the utter rottenness of such an operation were not wanting; but they were completely disregarded by this gambler, intoxicated with past success. He was determined to corner "September," and, after September, he would corner October, and after October, he would put up the price of the December option. After that let the deluge come; he would take good care to be on the hill-top then. In order to play this little game out it was necessary to have confederates. In Antwerp, as in Hamburg, he found them ready to hand; but London had also to be drawn into the whirlpool. Hence a visit to London was decided on, and so timed as to enable him to meet his co-operator in the New York corner of June, 1888. These two worthies sat in conclave in Mincing lane in July last, and concocted the scheme which, by-and-by, was to be carried out by the conspirators in each port. Unfortunately, two firms in London were induced to join this miserable combination. Thus the ball was set rolling. The September option in Havre was day by day pushed up; other markets followed suit, as the clique continued to buy and drive prices better, no matter whether recipts in Brazil came large or small—in fact, the larger the receipts the more they were prepared to pay for options. The rig was palpable, and had a certain amount of success because of the disinclination of merchants to sell "September" owing to the small stocks in Europe and the generally strong statistical position at that time of the article. Then the October position was taken in hand, and prices of this delivery were also advanced by leaps and bounds, until at last merchants felt that the clique had overstepped the mark, and offered freely coffee for shipment from Brazil at lower and lower prices, until the rig utterly collapsed and left the clique with a large stock of highpriced coffee. The whole affair has been a complete fiasco, and it has involved the clique in tremendous losses. One of the young London firms who joined it has been in dire distress, while the other firm, who worked the oracle for the clique in Mincing-lane, has lost heavily in money and still more heavily in popularity and reputation. An old and most respectable firm in Antwerp has weathered the storm only with great sacrifices, but comes out with an impaired name. From first to last it was a disgraceful business, reflecting the utmost discredit upon everyone engaged in it. In less than six weeks coffee has declined from 15s to 20s per cwt. in the term market here, and there is every probability that the downward movement will make further progress, since confidence has been completely shaken by the operations of the riggers."

We are glad to find our London contemporary speaking so strongly on the subject. Disgraceful is the only

epithet applicable to such transactions, be the counters shares or real estate, but when it is with produce, and produce which is almost a necessity of life, it is well nigh impossible to employ too strong terms in commenting on such dealings. Planters may congratulate themselves that the corner collapsed when it did, for some time will have elapsed before their crops reach the London market, and confidence amongst the dealers will have been partly restored. One of the most noticeable features of the recent collapse was the way in which dealers held off, though it was well-known that the trade was poorly supplied, and for some months previously had been carrying on a hand-to-mouth business. So soon as confidence is restored, we can anticipate a firmer tone in the markets and as there are absolutely no stocks of the superior grades of coffee which the Southern Indian plantations produce, the salesrooms will probably witness keen competition at the beginning of the coming year.—*Madras Times.*

NOTES ON PRODUCE AND FINANCE.

AN OUTCRY AGAINST TEA.—It is evident that a few fussy people whose sisters, cousins, and aunts have at some time or other suffered from "nerves," which they have been told is the result of too much tea, are trying to create a panic in the public mind on the subject. It is quite the proper thing in advanced female circles to sneer at tea as utterly unsuited to the modern Minerva. All cultured women should abhor tea. One of the journals written especially for ladies has called attention to the enormities of tea-drinking by ladies—excesses which, in the opinion of the enemies of the tea-pot, are grievously aggravated when the cup which cheers but not inebriates is accompanied by buns, scones, short-bread, and especially by the dark and dyspeptic plumcake. The foes of tea maintain that there is an utter lack of dignity in the spectacle, of a bevy of ladies sitting at marble tables munching indigestion-breeding plumcake and sipping equally unwholesome tea. Mrs. Fawcett is quoted as an authority on this matter, and in the article referred to, her opinion, real or alleged, is quoted against the pernicious habit.

TEA AND THE KINDRED CURSE.—But the opposition to tea drinking does not come from the ladies alone. In the *Daily News* of Tuesday last we find the following :—"It is not ladies only who are slaves of the teapot. According to a correspondent of *The Granta*, the fascinating beverage—as Dr. Johnson called it—is working havoc with the nerves and brains of Cambridge undergraduates. They start the day by drinking large quantities—the 'kindred curse' coffee is occasionally substituted, but it is pretty much the same. In the afternoon they have tea again, and not once only, but many times. This witness has himself partaken of five teas in one afternoon. After Hall, more 'slops,' and then, perhaps about eleven at night if the vice has made sufficient progress, an abandoned man will brew more tea, and eventually retire to rest 'a limp, miserable, tea-sodden wretch.' An instance is excited of an excellent Rugby player who came to Cambridge with a good chance of 'obtaining his blue' in his second season. But before that time a marked and painful change had set in. His digestion was gone, his hand—once the steadiest—trembled pitifully. People said he had given way to drink.' He had only given way to tea. 'Who,' asks this ardent reformer, 'will be the first to join the Light Blue Ribbon Army with a pledge against —Tea?'".

AN ABSURD POSITION.—The position seems to be this: Simply because a few people have made themselves slaves to the custom of afternoon tea, and have carried it to excess in every way, a few more equally absurd people are crying out that all the evils in the universe arise from tea drinking. Because Mrs. Maulevre doses her friends with tea and cake until they become ill, or Mrs. Gamp stews her tea until she is poisoned, therefore tea is generally injurious. All this is childish. As the *Daily Telegraph* remarks, at the lose of a recent article on tea drinking :—"As regards England, we wholly fail to see that the consumption of tea is immoderate, that it has injured the health of the community, or that it has diminished the native grace and dignity of Englishwomen. Envy, malice, and all uncharitableness are much more conducive to indigestion than 5 o'clock tea." If tea does not agree with some people they should not drink it. There are plenty with whom it does agree, and these are not likely to give it up because a small minority rail against it.

AN OLD STORY.—But in addition to the strong-minded ladies who abuse tea, and the weak-nerved students who say ditto, tea has enemies more subtle, witness the following paragraph taken from the *Echo*:—"Thus Sir Edward Clarke :—'Tea to be useful should be, first of all, black China tea—the Indian tea which is being cultivated has become so powerful in its effects upon the nervous system that a cup of it taken early in the morning, as many people do, so disorders the nervous system that those who take it actually get into a state of tea intoxication, and produces a form of nerve disturbance which is most painful to witness." If the reference in the above paragraph is to Sir Edward Clarke, the Solicitor-General, it would be interesting to know when that learned gentleman became a tea expert. If the paragraph is meant to refer to Sir Andrew Clark, it would be useful to learn how the celebrated physician obtained his information. If the paragraph is inserted merely by some friend of the Chinese importer who keeps a "bogey man" in his advertisement department, it is merely an instance of the vast resources of civilisation, and should be taken warily and with much sarcasm. This attack on tea drinking has, however, to be reckoned with, and it would be useful if some scientific opinion were taken on the subject, and the minds of consumers disabused once and for all of the idea that tea drinking in moderation is injurious.

A FORECAST IN TEA.—In an article on the "Tea Trade for 1891,' the *Citizen* indulges in prophecy. It says :—"Viewing the ever-increasing acreage in both Indian and Ceylon—and in the latter colony a coffee estate of 300 acres can at a pinch be converted into a tea garden in the space of a single season, so well supplied are the planters with nurseries and skilled labour—we cannot but forecast a gradual reduction in price as a natural result of increased production. Ceylon alone, when the acreage at present planted comes into full bearing four years hence, will be in a position to swamp the market with tea just as she did first with coffee and then with cinchona. The masses who but five years ago could buy very little tea worth drinking at anything under 2s a pound will soon be able to buy much the same grade of tea at a shilling. It now remains to see what other effects this probable over-production will have. Proprietors of a group of large and paying gardens, fearing, as they do, a fall in prices, will be anxious to realise while their books show handsome profits for a series of years. We have already heard the names of various properties destined for formation into a company, to be registered in London, and which is to be offered to the public at a price estimated to pay 12 per cent on the ordinary shares. At present very few tea companies' shares are officially quoted in the London Stock Exchange, although in Calcutta such securities are dealt in every day. Those that are quoted here pay good dividends and maintain their price quite as well as either breweries or industrial undertakings. Provided an allowance be made for a fall in the price of tea, there is no reason why new planting companies should not prove a suitable and remunerative investment for the public, provided the directors receive the bulk of their remuneration from dividend results. If any such flotations make their appearance this autumn it may be as well if shareholders in the old companies, whose shares are likely to lose rather than to gain ground during 1892, were to consider the advisability of realising with a view to transfer their money to new ventures. The shares of the Assam, the Darjeeling, the Doors Tea, the Jokai Assam and the Jorehaut Tea Companies all command a good premium and pay handsome dividends, and the field is still open for other promising undertaking of a similar nature."

HOP TEA.—The combination of hops with tea seems to find appreciation. The process was fully explained by Mr. A. Snelling (the patentee) at a visit recently paid to the works at Maidstone by the directors of the Hop Tea Foreign and Colonial Syndicate and their friends. The fresh hops are withered by patent machinery, rolled, allowed to ferment for the purpose of modifying the naturally bitter taste, and then dried by the well-known "Sirocco" machine process. It was stated that fifteen patents have been secured, or are being applied for, in all the important countries of Europe—India, New South Wales, New Zealand, Queensland, South Australia, Tasmania, and Victoria. Mr. Snelling states that, although the industry had only been started in September last, they had 2,000 agents in the country, and the demand was greatly on the increase.

LAST WEEK'S TEA SALES.—The *Produce Markets' Review* says:—"There was a diminution in the quantities of Indian tea offered this week, and owing to a well sustained enquiry, prices for most grades are firm, while the finest descriptions in some cases show an advance. The moderate prices and good value to be obtained from 1s downwards, are exemplified by the largely increasing consumption, and as there is no immediate prospect that these grades will rise in value, a further important expansion in the demand is probable. At any rate, the comparative value of Indian teas is favourable in this direction, and as there will probably be a falling off in the supply of the Ceylon growths a little later on, a greater impetus will be given to the use of the former. At a recent meeting the tea brokers agreed to endeavour to regulate the quantity to be offered at the public sales. To make this effectual it will be necessary to allow a reasonable time for sampling and valuing the teas, for it is frequently the case at present that the samples are not ready at the warehouse until the afternoon prior to the sale. If importers would adopt the principle of not issuing the catalogues until the teas are actually ready for sampling it would greatly facilitate business, and save much loss of time and labour. At the public sales 32,250 packages were brought forward, including a good assortment of most kinds. The bidding was active and a firm tendency was manifest for all good descriptions, while the downward movement for undesirable sorts continues. Ceylon teas have only been sparingly offered, but as the attention of buyers generally has been more or less monopolised by Indian teas, there has been no corresponding rise in values; indeed, although good to fine teas have maintained late prices, the lower kinds have sold at easier rates. The quality of the teas brought forward, although not quite so good as of late, is fairly satisfactory, a point to be specially borne in mind now that fine China Monings and Ningchows, with which teas Ceylons chiefly compete, are selling at prices hitherto unheard of."

SILVER.—The London silver market was not strengthened by the allotment of Council bills, the minimum price accepted on Wednesday being 3·32d lower than the minimum of last week's allotment, and exchange advices from the East were all unchanged, with a weak tendency as regards Bombay. Quotations for bar silver and Mexican dollars nevertheless rose 1-16d per ounce—namely, to 44 9-16 and 43 5-16 per ounce respectively. The advance was due to an increased enquiry for silver for the Continent, possibly in connection with the supply of 50,000 kilogrammes of bar silver for Coinage into Cuban currency. Outward rates for merchants' bills were not further reduced, having been lowered on Saturday last. Four per Cent. Rupee Paper is quoted at £74⅜ to £74⅝.—*H. and C. Mail.*

ADVANCES TO CULTIVATORS AND THE NON-ALIENABILITY OF LAND.

In Ceylon, as in India, the main causes of poverty, depression and ultimate eviction from land and home of the cultivating classes can be traced more to their own improvidence and inveterate habit of borrowing at excessive interest (in which they are aided by the lenders of money, seed corn and cattle) than by Government exaction in the shape of rent or tax. Occasionally in India the poor ryats, finding themselves no match for the astute money-lenders have risen in desperation and taken the law into their own hands. Hence a very serious insurrection amongst the Santal tribes of Bengal and disturbances elsewhere in India. In the Bombay Presidency the Deccan Ryats' Relief Act has been a good many years in operation; and one of its provisions is that, however large the debt of a ryat to a usurer may be, the latter cannot gain possession of the cultivator's land, which is rendered inalienable. Our readers can easily see how such a provision tends to check the tendency to borrow and the willingness to lend. The objection offered is that the restriction lessens the credit of the cultivator. That is just what was intended, because such credit was used to raise money to be spent not on the land but on extravagant birth, marriage and death ceremonies and feasts. Then, to supply the cultivators with legitimate loans land banks, are either in operation or under consideration in India, through whose agency Government would make such advances as were really required by cultivators, at moderate rates of interest. In any case advances *are* made by the Indian Government under due restrictions. In India, indeed, the question of land indebtedness has assumed so serious an aspect that a Commission has been appointed to deal with the whole subject, at the head of which is Sir C. Crosthwaite, lately Chief Commissioner of Burma. The first business of this Commission will be to enquire into the working of the Deccan Act, with a view to its extension to the whole of the Bombay Presidency. People, childish in their ideas and practices, must be dealt with as children; and in Ceylon, as in India, legislation is required to protect the goyiyas against their own improvidence and the wiles of usurers who lend them money, seed or cattle, with the very object in a large number of cases of so loading them with debt that their holdings of land must pass into the hands of the usurious lenders. It is impossible to restrict the rates of interest, or to prevent borrowing by levying heavy duties on mortgages; but it is possible for Government to render native holdings of land inalienable, and in dealing with an oriental people western notions of free trade in property must not be strictly applied.

ECHOES OF SCIENCE.

At a recent meeting of the Académie des Sciences, Paris, an interesting paper was read on the hurricane which has devastated the island of Martinique.

A curious feature of the cyclone was the incessant lightning flashes which accompained it. They increased in violence before the passage of the centre, and decreased after its passage; but the singular thing is that the noise of the thunder was hardly perceptible, perhaps because of the roar of the wind and the cracks of falling buildings. Ball or globe lightning was frequently seen, especially in the country. The balls of fire traversed the air sometimes for several minutes at a time, and exploded when about one-and-a-half feet above the ground. Globe lightning has been observed to accompany tornadoes as well as volcanic eruptions, but we do not remember to have before heard of its appearance during a West Indian hurricane.

At the Blue Hill Observatory, United States, Mr. H. H. Clayton has been making a large number of measurements on the altitude of various kinds of clouds. He finds that the average height of nimbus clouds is 412 metres, of cumulus, at the base, 1,558 metres, of cirrus-stratus, 9,652 metres, and of cirrus,

the highest of all, 10,135 metres. The average velocity of cirrus clouds observed is 82 miles an hour, and their greatest velocity 133 miles an hour.—*Globe.*

TEMPERANCE DRINKS.

The following recipes for the manufacture of refreshing drinks for labourers working in the hay or harvest fields have been issued by the secretary of the Agricultural Department of the Church of England Temperance Society at Norwich. They are recommended as being less heady and heating, more permanently sustaining and capable of quenching thirst than beer or any other form of alcoholic drink. They are also very pleasant to the taste and cost very little to prepare :—

(1) Stokos, which is prepared thus :—Put from 4oz. to 6oz. of fresh oatmeal, ground as fine as flour, into a pan; mix with a little cold water to the substance of cream, then add about 5oz. or 6oz. of loaf sugar, and half a fresh lemon cut in thin slices, with the pips taken out; then add a gallon of boiling water. Stir thoroughly while the water is being poured on. Use hot, warm, or cold. The lemon may be omitted, or any other flavouring used instead. Costs 3d. a gallon.

(2) Cokos is a good nourishing drink, made as follows :—4oz of good fresh fine-ground oatmeal, 4oz. of cocoa, add a little cold water, and mix into a thin batter, then add 4oz. of loaf sugar and a gallon of boiling water; take to the field in a stone jar. Costs 1½d. a quart.

(3) Hopkos is a good harvest drink. Boil ¾oz. of hops and ½oz., of ginger (bruised) in 1½ gallons of water for 25 minutes, add 1lb of best brown sugar, and boil 10 minutes more, then strain and bottle, or put into a cask while hot; it will be ready for drinking when cold. Keep in a cold place. Dried horehound may be used instead of hops. Costs 3d. a gallon.

KENTISH HOPS AND INDIAN TEA.

[We had heard a good deal recently about hop tea, but we had no idea it had assumed the importance attributed to it in the following account.—ED. *T. A.*]

A fair maid of Kent—somewhat idealised, if one may judge from the lady boppers one passes on the Maidstone Road—exchanging cordial greetings with a dusky damsel from Hindustan, effectively symbolises the industry which was called into existence some year or more ago by the inventive genius of Mr. H. A. Snelling. It is a bright and taking poster. We had seen it on the London hoardings, and in Maidstone again it meets the eye at every turn. There is something captivating about this sentiment of bringing the two ends of the Empire together to contribute to the contents of that dearly-cherished institution the English teapot, but——

"Apart from the picturesqueness of the idea, how on earth," I asked Mr. Snelling as we walked down the High Street of Maidstone together, "how on earth did you come to think of Hop tea?"

"Well," said Mr. Snelling, "I had the idea vaguely in my mind for some time. Then one day I got a fine sample of dried hops and made an infusion with them: the result was something like a cup of extremely pungent Indian tea; after which the idea took definite form. I mixed the hops with tea in certain proportions, and eventually, having satisfied myself that I had got a good thing, I took out my patent, and you know the rest. Of course," continued Mr. Snelling, "this is not a mere question of taste, although, as a tea taster of experience, I hold that the judicious admixture of hops makes a marked improvement in the flavour of tea—which is generally admitted now; but the invention has a very practical aim from a hygienic point of view in which connection we attach great importance to the opinion of Dr. Adams as to the therapeutic value of hop tea, and I should like to quote it if you write anything about our business."

The following, therefore, in obedience to this request, is what the President of the Public Society of Analysts of the United Kingdom has to say on the subject :—"This is to certify," he writes, "that the sample of hop tea submitted to me for analysis consists of blend of pure Indian and Ceylon teas with Kentish hops, and contains no admixture whatever. These constituents are manipulated and dried in a most skilful manner, so as to develop the volatile oil which imparts the grateful aromoa that is the special characteristic of the best teas. The chemical analysis discovers in unusual abundance the alkaloid theine—the substance to which tea owes its valuable properties as a food—giving rest and comfort to the weary, tranquility in nervous excitement, and, by some marvellous means, while preventing waste of nervous energy, promoting intellectual activity. As it appears to me, this combination of tea and hop is a most happy idea, by which the undesirable property of ordinary tea—namely, its astringency—is sensibly diminished and modified, whilst at the same advantageous tonic property of the hop introduced. In my opinion the hop tea will prove to be a great boon to many persons hitherto debarred owing to excess of astringency, the use of ordinary tea."

There is no questioning the value of such testimony, although to the common-sense consumer it hardly needs the opinion of a scientific expert to demonstrate the advantage of counteracting the evil effect of excessive tea-drinking upon the nerves and digestion by the addition of an ingredient which is admittedly a valuable sedative and an excellent stomach tonic. Conceivably, there may be thousands to whom tea has been a forbidden luxury who may henceforth, through this simple invention, find no bar to their enjoyment of it; and this, indeed, seems to be the case, for in the comparatively short time in which hop tea has been before the public the demand for it has grown throughout the country to an extent which sufficiently illustrates the hold which it has taken upon the public fancy. Upwards of fifteen hundred local agents sell it throughout the United Kingdom, and one retail agent alone is credited with the sale of 15 tons in six months.

The idea of mixing hop cones with tea seems sufficiently simple, but the manipulation is hardly simple enough—even were it not protected by patents—to permit of the trade being taken up by any whose close study of the subject does not justify their posing as experts. It was very early discovered, for instance, that brewers' hops, dried and prepared in the usual manner and exposed to sulphurous fumes, were totally unsuitable for tea-blending, where delicacy of flavour must be retained. Hence the Hop Tea Company, to whom Mr. Snelling disposed of his English patents, found themselves under the necessity of treating the hops *ab initio*, and hence the pleasant tea-house on the Medway of which I had heard so much, and to visit which was one of the objects of my day at Maidstone.

This picturesquely-situated factory condenses its year's work into about eight weeks—the Kentish hop season—in the course of which time sufficient hop must be prepared to cover the estimated requirements for the ensuing twelve months. The hops come in fresh from the surrounding country: the factory is now at its busiest, and the hops were arriving when I was there—fresh, green, and fragrant—with that seductive and indescribable hop-fragrance which, like the flavour of tomatoes, grows upon one by familiarity. On arriving, the hops are spread to "wither" for six or eight hours on trays in the upper floor of the factory, across which a thorough draught of fresh air blows from the Medway and the open country beyond. After the "withering," the hops go to the rolling machine, wherein about a ton a day are triturated between two wooden surfaces. The crushed hops are then sifted, and the thicker stalks that will not pass the sieves are put back for another crushing; then, after being

allowed to ferment for two to four hours, they pass into a "Sirocco" tea-drying machine, and, after exposure to hot air at 300 degrees for about 20 minutes, they are ready for packing for despatch to the London warehouse.

The essence of Mr. Snelling's system lies, it will be seen, in the adoption of the regular tea-growers' methods, and in perfecting it he enjoyed the advantage at the outset of the practical co-operation of one of the best known of the Assam planters, Mr. Patrick Eugees Macgregor, who undertook the manipulation of the first samples of hops that were treated at Maidstone last year. The ordinary system of hop drying for brewers purposes takes about ten hours, during which the hops are exposed to the fumes of sulphur and charcoal. In the "Sirocco" the process is rapid and effectual, and the hops come in contact with nothing but heated air.

Here, then, ends the Maidstone part of the history of the hop tea manufacture. The blending takes place in the London warehouses and here it may be well to note that none but carefully selected India and Ceylon teas are used. The hop, notwithstanding its crushing and sifting, requires some further cutting in a machine to ensure its perfectly mixing with the finer leaf of the tea shrub, but in the mixing process there is nothing distinctive apart from what may be seen in any tea warehouse.

Hop coffee and hop cocoa are other preparations which are covered by Mr. Snelling's patents, and the production of which forms a part, although a minor one, of the Company's operations. In these cases, to ensure a perfect mixture, the hops are ground to an impalapable powder. The hop cocoa, in particular, is a very pleasant preparation, the bitter of the hops counteracting to a great extent the native greasiness of the cocoa flavour which is objectionable to many people.

Kentish people are proverbially loyal to their native industries. Above everything they believe in hops, and the hearty way in which hop tea has been taken up locally is very edifying. All the tea dealers sell it; you may get it, I believe, at all, the hotels—or at least, in my experience, at the leading one ye ancient Bell.

For the original and existing Hop Tea, Company confines its field of operations to Great Britain alone, but Mr. Snelling has secured his patent rights wherever they can be secured all over the world, and the Hops Tea Foreign and Colonial Syndicate (Limited) has recently been registered, with the object of dealing, either by sale or licence, with the patents granted for Belgium, Denmark, France, India, New South Wales, New Zealand, South Australia, Tasmania, Victoria, the United States, Canada, Queensland, Norway, Sweden, and Russia. The shares in the syndicate are being privately subscribed, but some proportion will be offered to the public, and agents and licensees everywhere are in demand.—*European Mail*

VISIT OF AN AMERICAN PROFESSOR TO CEYLON.

The American Professor Goodale who visited the Ceylon botanical gardens some time ago, calling, when in Colombo, at the *Observer* Office, communicates the result of his visit to the *American Journal of Science*. But for a regrettable oversight the details would have appeared in our columns some time ago.

1. Botanic Gardens in the Equatorial Belt and in the South Seas (First Paper.)—It is my purpose to give, in the following notes, some account of the more important Botanic Gardens visited by me during a recent journey. The tour carried me from Genoa, through the canal at Suez, to Ceylon, in which country Peradenia and Hakgala were examined; thence to Adelaide in South Australia; Melbourne and Geelong in Victoria; Hobart in Tasmania; Dunedin, Christchurch, and Wellington, in New Zealand; Sydney in New South Wales; Brisbane in Queensland; Buitenzorg in Java; Singapore in the Straits Settlement; Saigon, Hong Kong, and Shanghai, in China; and Tokio in Japan. With the exception of Shanghai and Tokio, the visits were made at favorable seasons: in northern China and in Japan the spring was not far advanced, but the early flowers were in perfection.

The journey was undertaken with a view of securing from the establishments in question for the University Museum at Cambridge, specimens illustrative of the useful products of the vegetable kingdom. In every instance, the writer met with a cordial reception and received innumerable courtesies for which he desires to thank again the directors, curators, and superintendents of the various botanical establishments. Every facility was afforded for careful inspection of the workings of the gardens and museums, and, it should be added, of the educational institutions with which some of them were connected.

A satisfactory photographic outfit rendered it possible to supplement the collection of photographic views which were purchaseable at most points; so that the series, now stored in the Museum at Cambridge, may be regarded as one of the largest yet brought together. It comprises views not only of groups of plants both in gardens and in their wild state, but of individual plants as well. Early next year these illustrations will be accessible to visiting naturalists.

The present sketch will follow essentially the route outlined in a preceding paragraph, beginning with the gardens in Ceylon.

PERADENIYA AND HAKGALA (CEYLON).—After the desert of Egypt and Arabia, and of treeless Aden have been passed, the traveler comes, by an abrupt transition, upon tropical luxuriance of vegetation. There is to be sure, a distant glimpse of Socotra, but its shores are too far away to yield anything plainly discernible, and even Minicoy, an Island lying between the Maldives and Laccadives, gives only a faint suggestion of plant life. Its low-lying land is fringed with scattered coconut palms, of which, later, one sees so many. Before reaching Ceylon the ship passes within sight of the southern point of India but not near enough to show what its plants are like. In fact, therefore, the arrival in the harbor of Colombo brings a surprise, Coming down to the shore, and extending as far as the eye can reach on either side, are crooked* coconut palms, here and there intermingled with trees having foliage of the deepest green. A botanist is struck at once by the superb capabilities of such a country for a tropical garden. These capabilities were not overlooked by the Dutch, who succeeded the Portuguese in possession. A Botanic Garden was founded by them at Slave Island in Colombo, but when the Dutch were driven out by the British it fell into neglect. There was, however, at this period, an excellent garden connected with the country place of the first English Governor, near Colombo, which at the beginning of his century was under the charge of a naturalist, who gave it somewhat the character of a botanical garden.

In 1810, Sir Joseph Banks sketched the plan for a Botantical Garden in Slave Island, Colombo, and succeeded in transferring thither from Canton, Mr. Kerr, who became its chief. According to the work from which I have derived these facts, the Slave Island garden was found subject to floods, and consequently the establishment was moved to Kalutara. One finds here and there in Colombo traces of the old occupancy remaining in the names of some of the streets,—"Kew" for instance. From Kalutara the garden was transferred in 1821 to its present site. Since that time, the large garden has established four branches, in order to secure all the advantages which can come from having land at different altitudes and with different exposures.

The branch gardens are (1) Badulla, founded in 1886, in the eastern part of the island, with an elevation

* Crooked conveys the idea of sharp angles, whereas the cocoanut palms are gracefully *bent*.—ED. *T. A.*

somewhat over 2,000 feet. "The climate here is somewhat drier than on the western side of the hill region, receiving but little rain with the southwest monsoon." (2) Anuradhapura, dating from 1883, about a hundred miles north of the large garden, is the ancient capital of the island. Besides the interesting ruins at this point which are well worth seeing, there exists the oldest historical tree in the world, *Ficus religiosa*, (the sacred Bo), assigned to 288 B. C. This garden has a short rainy season and a hot dry climate. (3) Henaratgoda, 33 feet above the sea, and thoroughly tropical, is on the railroad running from Colombo to Kandy. It was founded in 1876. Here certain plants which cannot be grown at Peradeniya are very successfully cultivated. (4) Hakgala, established in 1860, as a nursery for Cinchona cultivation, is near Nuwara Eliya, (commonly pronounced "Newralia") the famous sanitarium. It is almost 6,000 feet above sea-level,* in a place of surpassing beauty. Above the garden is a frowning double cliff 1,500 feet, high, and all round, the views are most attractive. The Gate affords one of the best of these. The landscape reaches over the Uva district towards the Haputale gap and the Madulsima hills. On entering the garden the bewilderment begins. On every hand one sees species in the most grotesque juxtaposition. Plants from Australia such as Casuarinas and Acacias are perfectly at home with East and West Indian, Japanese, and English plants. Of the latter there are many which seemed thrifty and well established.

Although the garden is used primarily for experimental purposes it has been laid out with regard to effectiveness of grouping and with remarkable success. A botanical visitor is, however, constantly trying to separate in his mind the different plants from the curious collocations which everywhere abound and demonstrate better than in any other place I have ever seen, the wide range of tolerance of climate. The Superintendent Mr. W. Nock, who has had large experience in the West Indies, has carried on some interesting experiments in acclimatizing plants from the western hemisphere, such as "cherimoyer" and the like. There are few plants in the garden more attractive from an economic point of view than the vegetables of doubtful promise, such as Arracacha, and those of assured culinary position "Ohoco" or "Ohocho" (*Sechium edule*) for example. Some of the medicinal plants in hand were doing well in every way, while others have proved somewhat disappointing, for instance, jalap and ipecacuanha.

The ferns, especially the tree ferns, and the species of Eucalyptus form one of the marked successes at this garden. Mr. Nock stated that the most troublesome weed in the garden is a species, (perhaps more than a single species) of *Oxalis*: it is simply impossible to eradicate it.

Peradeniya.—The gardens are four miles from Kandy, and about eighty from Colombo. The railroad passes through lowlands and rice-fields, past native villages surrounded by plantains and coconuts, and through occasional jungles, until it reaches higher ground. The scenery changes rapidly, forests now and then appearing in the foreground, with occasional views of distant castellated mountains. As the mountains rise out of the terraced rice-fields and from the shrubs of the jungles, the eye catches on every hand glimpses of groups of bent coconut palms and straight arecas. It is difficult to realize that these palms mean, perhaps without exception, human habitations at their feet. Through these scenes of enchanting beauty, the railroad has made its way, demanding here and there very skilful engineering. The track is lined with *Lantana*, which is slowly giving way before the encroachments of a still stronger invader, a Composite from Mexico.† *Mimosa pudica* is also widely spread as a strong weed.

The drive from Kandy to the great garden is through a well shaded street lined with native houses. These are gathered at short intervals into villages.

My first visits to this garden were made, as were those in every other instance save one on the whole tour, without reporting to the Director. In this way a student can take things very leisurely, and look up matters of detail which it is not right or courteous to trouble the chiefs with: later, all special points of interest which have escaped notice are likely to be brought out by a walk with the Director. The establishment at Peradeniya consists (1), of 150 acres of garden proper and of arboretum, (2) of a museum and herbarium with library attached. The Director, Dr. Henry Trimen, widely known as an author and editor, controls not only these, but the branch gardens as well, making his head-quarters at Peradeniya.

Once for all it may be said that botanists are made welcome in every way, finding every facility for carrying on systematic work. The climate is healthful, provided one takes ordinary and reasonable precautions against exposure to the direct rays of the sun in the hottest part of the day. If I remember rightly the director, even in his long walks through the garden and in his excursions seldom wears the conventional pith-helmet. American students need not fear that they will suffer greater discomfort from the hot weather at Kandy and Peradeniya than in summer in the United States and Canada. Access to Ceylon (and for that matter, Java) has now been made so easy by the newer swift steamers, that it seems advisable to mention these facts about the climate.

It is impossible to describe the wealth of material placed at the service of every visitor to the two great gardens of the equatorial belt, that under present review and the one at Buitenzorg to be considered in a subsequent note. It is equally impossible to institute a comparison between the two.

In both of these vast establishments, the student finds magnificent specimens of all or very nearly all the useful plants belonging to hot moist climates. Many years ago the writer had the privilege of seeing tropical plants at the Isthmus of Panama, but even the delightful impressions received on that occasion, which had perhaps become deepened with the lapse of time, were forgotten in the presence of the abounding luxuriance of these palms, bamboos, glossy-leaved evergreens and tangled climbers.

At Peradeniya the most characteristic plants are so placed as to be seen to good advantage. This was frequently observed when in search of points of view for photographing individual specimens. Moreover, the system of labelling is about perfect, Dr. Trimen makes use of a large staff formed out of baked clay, shaped so as to give an inclined surface on which the name is plainly painted. These brick red labels with their painted disk are not unattractive; at any rate, they do not detract from the general effect of the broad lawns bordered by gigantic trees.

The most remarkable single tree in the garden is the Seychelles Palm or double coconut, now almost fifty years old. The giant and other bamboos, the grove of India-rubber trees near the main entrance, and the avenue of Oreodoxa, are only a few examples of the finer groups of single species. The most imposing group of different species is that of the palms not far from the gate. The classified arboretum is rich in fine specimens, the principal orders being represented on a generous scale.

The nurseries, kitchen-garden, rockery for succulents, ferneries, and clusters of economic plants are on a scale commensurate with the arboretum. As might be expected, the orchids are by no means so fine as the collections one sees in large private establishments in England and on the continent: it is not possible to command the conditions of growth for all the finer species with the same degree of certainty as in colder regions where a stove means something.

At the time of my visit, *Amherstia nobilis* and the great crape myrtle were in full flower, and a large Talipot palm in bloom was one of the most conspicuous objects. I was a little too early in Ceylon for some of the tropical fruits, and too late for a few others, but fortunately was able to remedy this lack farther on in Queensland and Java.

Among the finest of the photographic views of the gardens in Peradeniya are the following:—(1) the

* Somewhat over 5,000, would be more correct —ED. *T. A.*

† The "Californian daisy," really a perennial sunflower, is referred to.—ED. *T. A.*

main entrance, with the long lines of Assam rubber trees, and the cluster of different palms, (2) the avenue of royal palms, (3) the different bamboos at the ponds, (4) the distant view of the satinwood bridge. The view from the Herbarium is also one of great beauty.

Visitors to the gardens are greatly assisted by the intelligent native servants detailed to act as guides. They have a fair knowledge of the whereabouts of almost all the important plants and seldom go wrong with regard to names. It should be stated also that the natives employed in widely different stations in the establishment prove, according to the Director and the Superintendent, general efficient.

The Herbarium is rich in certain directions and can be consulted by students under proper restrictions. The Museum is as yet small.

It remains to be said that plants and seeds are for sale at the garden, at moderate prices. A Wardian case packed with forty assorted plants is shipped for 40 rupees, say about 16 to 20 dollars.

The influence for good which has been exerted in Ceylon by the garden and its branches is incalculable. The establishment has proved a centre of scientific activity and of high economic value.

G. L. G.

G. A. SALA ON TEA DRINKING.

A feminine contributor to a contemporary appears, equally with the estimable Mrs. Fawcett, to be desperately troubled in her mind touching the supposed enormities of tea-drinking by ladies—excesses which in the opinion of the enemies of the tea-pot, are grievously aggravated when the cup which cheers but not inebriates is accompanied by buns, scones, shortbread, and especially by the dark and dyspeptic plumcake. The foes of tea maintain that there is an utter lack of dignity in the spectacle of a bevy of ladies sitting at marble tables munching indigestion-breeding plumcake and sipping equally unwholesome tea "from thick white bowls conventionally known as tea-cups." It may be asked, however, is it absolutely essential to tea-drinking that the refreshment should be taken from a marble-topped table? Would it be equally criminal to sip Souchong or Bohea while sitting at a table of plain deal covered with American cloth, or at an "occasional" walnut, or mahogany, or rosewood, or from the convenient and pretty dwarf table of ebony and mother-of-pearl —the "mikra trapeza" which the Greek ladies use as a support for the brass plateau that holds their dainty little coffee-cups? And, again, leaving on one side as a moot point the wholesomeness or unwholesomeness of tea, is it not foolishly calumnious, in the year 1891, to call our teacups "thick white bowls?" At least, they have handles, and are supplemented by saucers; and, if the correspondent of our contemporary entered a Parisian crèmerie in quest of a cheap breakfast, her café au lait or her chocolate would be served in what was literally a thick white bowl, very often with the white glaze chipped off in portions, and revealing the coarse brown earthenware beneath, and utterly destitute of a handle, to atone for the absence of which the customer would be furnished with a big spoon of the very cheapest and most lack-lustre form of electro. Even in the most fashionable cafés in Paris, the tea and coffee cups are thick and white and clumsy in potting, whereas in hundreds of houses of refreshment in London and at the seaside the tea equipage is light, pretty and tasteful. English pottery is fast becoming not only the most elegant but the cheapest in the world; and, seeing that quite a picturesque little tea service can be bought for five or six shillings, the stingiest of refreshment-house keepers would scarcely think it worth while to serve coffee in thick white bowls.

Nor does the indictment against tea stop at the charge that it is served at marble tables and with ugly and clumsy paraphernalia. The ladies are warned that, although the decoctions of the fragrant herb at "tea-time" may be grateful and comforting, tea at "luncheon-time" is a delusion and a snare. In response to this somewhat vague accusation it may be permissible to ask what is "tea-time?" We did not discover the properties of the tea-plant; the Chinese grew it and dried it and infused it thousands of years before England was ever heard of, and your Chinaman will sip tea from morning until night. Even in England, since the period when the use of tea was first introduced, the hours at which we take our meals have been so frequently varied that it is a matter of extreme difficulty to decide at what hour tea should most appropriately be consumed. Pope tells us that "Great Anna, whom three realms obey, Did sometimes counsel take and sometimes tea"; and, looking at the fact that since in the days of Queen Anne Royalty and the nobility and gentry breakfasted at eight in the morning, dined at one, and supped at eight, it is probable that tea-time may have been between three and four p.m. There was, however, as we learn from Swift's "Polite Conversation," a section of the beau monde which did not breakfast until nearly noon. Miss Notable, when Tom Neverout comes to breakfast at Lady Smart's, admits that she never rises before eleven, and it is at that hour that her Ladyship entertains her guest with tea, which is served with cream, and bread-and-butter. The tea, of course, is in a "dish," which may have been a small china bowl without handles. Hogarth's early pictures are replete with evidence that the little black boy in the turban who bore the teakettle was in request not only at the orthodox tea-time, but at various periods throughout the day. Lady Smart, being apparently rather a dissipated dame, does not dine until three; but when she has regaled her guests upon oysters, sirloin of beef, venison, pastry, pigeons, pudding, cider, and small beer, the ladies adjourn to their tea, while the gentlemen sit down to serious drinking of claret and burgundy. When they are pretty full of choice Gallic vintages they rejoin the ladies, and tea is again served round to both sexes. Next Lady Smart rings for the footman, and bids him take away the tea-tables and bring candles, it being understood from the context that it is now six o'clock on a September evening. Then they all go to quadrille, manille, spadille, and basto, and gamble furiously until three in the morning, more tea, and possibly a little punch having been served in the small hours. To all appearance, although the use of tea throughout the eighteenth century was from its great costliness almost exclusively confined to the upper classes, it was drunk quite as frequently in polite society as it is a present by all orders in the community; and it is worthy of remark that from the time of its first introduction into Europe it has been subjected to most violent attacks, now on the part of the medical profession, and now on that of those professors of minor morals who are always so anxious to put their fellow-creatures on the right path, but whose ignorance, prejudice, and lack of common sense lead them with melancholy frequency to follow a very wrong path themselves. There is no notice of tea being habitually drunk in England prior to the Restoration; but so early as 1641 Tulpius, a celebrated physician of Amsterdam, advised all his female patients to drink tea when they suffered from depression, and it is extremely probable that when Mary ascended the throne of these kingdoms as consort regnant with her husband, at the Revolution, she brought with her from Holland a canister of tea, as well as a provision of Dutch tiles, Dutch clocks, charity schools on the Dutch model, Dutch drops, Dutch dolls, and Dutch cleanliness. Tea made but slow progress in France until after 1789, but in 1801 we find the author of the "Almanach des Gourmands" complaining that tea-parties, taking place at the unholy hour of three in the morning, had supplanted the "goûters," or after-suppers, of Parisian society. These postcenal teas were attended by dishes of game and pastry, and by libations of punch and bishop; but, at about the same period, it would appear that the frugal and patriarchal Swiss had established a regular five o'clock tea, to which, in its original simplicity, only bread-and-butter was added, although subsequently such complementary delicacies as biscuits, macaroons, and even ices were tolerated

At the present day the manner of the world's tea-drinking may be rapidly surveyed and briefly summarised. The Chinese and Japanese enjoy the decoction of the herb just as their forefathers have done for unnumbered generations. The Anglo-Indians have their very early cup of tea with a thin slice of bread-and-butter, the snack being known as the "chota-hazri," at five or six in the morning, a good two or three hours before breakfast, at which last-named meal tea may vie with coffee as a beverage; and again, in Anglo-Indian society, the kettledrum, or five o'clock tea, takes a conspicuous place. European Russians of the civilised classes drink immoderate quantities of tea in tumblers, without milk or sugar, but with the zest of a slice of lemon-peel, at all hours of the day. Among the peasantry and the artisans the coarser kind of black tea is extensively patronised. South of Moscow "brick tea"—that is to say, the inferior leaves of the plant mixed with sheep's blood, and pressed into the form of cubes—is the ordinary drink of the common people, and holds its own with vodka and qvas. The Tartars swill a horrible gruel, thick and slab, of "brick tea," suet, salt, pepper, and sugar, boiled in a chaldron. The Turks and Greeks, nationally speaking, know nothing of tea. Nor is it a very recognisable quantity in the dietary of the Latin races, the Spaniards preferring chocolate and the Italians black coffee. The Germans are moderately fond of tea, but they like coffee better, and beer best. In Paris the use of tea is generally confined to polite society, and scarcely enters into the economy of "la vie bourgeoiser.' It is among the Anglo-Saxon peoples that the consumption of tea is most systematic and most extensive. The Australians are essentially a tea-drinking people. There cannot, indeed, be the slightest doubt that the cause of temperance both in Australia and United States has been materially advanced by the prevalence of tea-drinking; and, if our kinsmen beyond the Atlantic or on the shores of the Pacific really suffer from dyspepsia, it is possible that their tendency to indigestion springs much less from their custom of tea-imbibing than from their habit of eating beefsteaks and mutton-chops for breakfast. As regards England, we wholly fail to see that the consumption of tea is immoderate, that it has injured the health of the community, or that it has diminished the native grace and dignity of Englishwomen. Envy, malice, and all uncharitableness are much more conducive to indigestion than five o'clock tea.—*Daily Telegraph.*

RICE, ITS HISTORY.

By Mr. H. B. Proctor.

"Thus God created man. God made food and drink, *Rice*, fire, and water, cattle, elephants, and birds."—A Burmese account of the Creation.

Extraordinary as has been the progress of the wheat trade of England during the last century, the wheaten loaf having supplanted those of rye and barley as the staple food of all classes of the people, it nevertheless will not bear comparison when contrasted with the same movement in rice, the importation of which has increased not less than one hundred-fold during the same period.

The rice trade of England continued in extremely small compass, and was limited to the varieties produced in Carolina, Bengal, and Madras, until the year of 1852, when the most fertile provinces of Burma were conquered and annexed to the British empire.

Of all the countries in the world, Burma is the best adapted for the cheap cultivation of rice; all that was wanted was a just and strong government, able to put down petty internal warfare, and willing to protect the cultivators from excessive taxation, violence and oppression.

These blessings, which universally attend British rule, soon changed the condition of the people from extreme poverty to the greatest prosperity. As soon as the war was over, and the country became settled the export trade in rice began, and since then it has steadily increased year by year, until in 1881 the exports to Europe amounted to no less than 736,650 tons, besides which 178,600 tons were exported coastwise and to other parts of the world.

This immense addition to the rice supply of the world has not checked the trade in the same article from the rest of India, as might have been anticipated, but it has grown larger too; last year, the exports to Europe amounted to 89,650 tons.

A cereal trade that is developing with such rapid strides cannot fail to be of interest to the milling world. As the subject has hitherto been somewhat overlooked and neglected by periodicals devoted to such subjects, we propose to give a short account of the history, cultivation, and manufacture of rice and its products, together with a few remarks upon its comparative food value.

The derivation of the word—arisi, Tamil; aruz, Arabic; oryza, Latin; riso, Italian; rice, English, points correctly to its Indian origin. It is a cultivated variety of an aquatic grass, bearing when in the ear a closer resemblance to barley than to any other of the English corn plants.

The seed vessel grows upon separate, fine, hair-like stalks like the oat, each of which springs gracefully upwards from the main stem. The grain is inclosed in a rough yellow husk, which generally terminates with a thin spike or awn, though some varieties are awnless. The height varies from two feet to six feet, according to the variety. The grain must be removed from the husk, which adheres to it with great tenacity, either by being pounded in a stamper pot or more generally by passing it through a pair of millstones, set a slight distance apart, which crack off the husk without crushing the grain. It has next a thin skin or pellicle, which must be removed by scouring or decorticating, to make clean rice, just as barley is scoured for making pearl-barley. Rice in the husk is called "Paddy" (Malay, Padi); the husk which is removed is called Rice Shude; the meal which is obtained during the process is called Rice Meal.

There are far more cultivated varieties of rice differing more from each other than there are of wheat, or any other of the grain foods. The Karens, a hill race in British Burma, have names for forty varieties. Dr. Moore mentions 161 varieties growing in Ceylon, besides which there are those grown in China, Africa, Japan, and other parts of the world. The colors of the grain vary from coal black, dark red, pink, yellow, to ivory white; the shapes are various, and differ much from each other; some varieties are sweet, some others bitter; some oily, others dry; some hard and translucent, others soft and chalky. Botanists have classified the varieties into four divisions: Early rice, Common rice, Clammy rice, and Mountain rice.

Early rice is a marsh plant. It is sown between the end of March and beginning of May. It matures in four months. It is grown mostly in India, China and Japan. Carolina and Java rice belong to this division. The isolated attempts which have been made to grow Carolina rice in Burma have failed, because it ripens sooner than the main crop of the country, and the birds collect in such numbers as to clear off the bulk of the crop before it can be gathered in.

Common rice gives the greatest yield. About twenty-five-fold. It is wholly a marsh plant. If the ground becomes dry before it arrives at maturity it soon withers away. The Burmese crop belongs to this division. It is sown in June and reaped about six months after.

Mountain rice grows on the Himalayas. It does not require irrigation and will stand great cold, pushing its way through snow. It has been grown as an experiment in England.

Clammy rice has the advantage of growing on wet or dry lands. It ripens in five months. Varieties of the two first divisions are those most known in commerce.

There can be no doubt that the rice plant is of Indian origin. Wild rice, growing in the waste marshes, is still eaten as a luxury on the Madras coast. The grain is small, white, and sweet; it brings a high price, but the plnat does not pay togrow, because it

returns so small a yield compared with the cultivated varieties. Rice is the grain food most preferred by half the human race. In the Indian peninsula it is the principal food of 100,000,000 of the people; so strongly are they impressed with the superiority of rice as a food that in Southern India a peasant will indicate his well-to-do or impoverished condition by telling you that he eats rice twice a day, or once only, or not at all. But the poorest people rarely taste it; they eat varieties of millet, raggy deri, or other cheaper foods.

Tradition teaches that rice is the most ancient food of India, and as such it is invested with almost a sacred character. It is used in many of the sacrifices and other religious ceremonies. One of the purifactory rites after birth is feeding the Hindoo infant with rice during six months. The Hindoo household must daily perform the five acts of worship, the fourth of which is scattering rice grains at his door, with the prayer: "*Om to all the Viswadevas, to the universal gods, men, beasts, birds, reptiles, etc.*" After death comes the most important rite of all, called "Araddha," which is offering the pinda or ball of rice, accompanied with prayers and libations to the departed spirit. The participation in this rice is accepted as evidence of kinship, and gives a title to a share of the deceased's property.

The most ancient written account of the cultivation and trade in rice, as far as I have been able to ascertain, may be found in the Shoo-King or Chinese classics, translated in Medhurst's Ancient China, which describes the drainage and irrigation works constructed by the Emperor Yu, on the Yangtse river, about 2356 B. C., a few years before the date usually given to the Noachian deluge. It describes the mode of collecting revenue from the paddy lands, as follows:—"To the distance of 500 le (140 miles) from the Royal City was the land of feudal tenure; for the first 100 le (28 miles), the revenue consists of the entire plant of the grain; for the second 100 le, they had to pay the grain and half the straw; for the third 100 le, they had to bring the grain in the ear, while all these rendered feudal service; for the fourth 100 le, they paid the grain in the husk, and for the fifth 100 le, they brought the rice cleaned."

A most ingenious mode of collecting the revenue where the cost of carriage is so great, and the roads so bad, as they are in China to the present day.

Coming nearer home, rice may certainly take its place among the cereals cultivated in Ancient Egypt and Syria. Pliny, the naturalist, does not give it in his list of Egyptian plants, but Wilkinson considers there is abundant reason for supposing it was cultivated in the Delta. This is confirmed by illustrations taken from a tomb at Thebes, some 3000 B. C. Wilkinson supposes that it represents the pulverizing of certain substances in a mortar. If it be compared with the process of rice cleaning as carried on in China at the present day, there can be no doubt but that it represents the same process as it was practised in Ancient Egypt nearly 5000 years ago. It is done by pounding the rice in wooden or stone pots, with a pointed pestle or beater; the pot is kept full of grain, so that the skin is removed by the continued trituration and friction of one grain against another, without pulverizing or breaking them. Another process is worked by the foot, which is the method preferred in Burma, Japan, and parts of China. The operation is referred to in Proverbs xxvii, 22: "Though thou shouldst bray a fool in a mortar among wheat (grain?) with a pestle, yet will not his folly depart from him," or as the same idea is rendered in one of our own proverbs, "Folly is more than skin deep." There is no sense in the translation as given in the authorized version. The word translated "wheat" means literally "pounded grain," and, undoubtedly, refers to the decorticating process, which, according to Pliny and Herodotus, was applied to rice and barley but not to wheat.

Pliny's description of the rice plant seems to show, though he knew the grain, he had never seen it actually growing, the description is so wide from the mark. In his treatise on the food plants of India he says: "But the most favorite food of all these is rice, from which they prepare ptisan (pearled grain) similar to that prepared from barley in other parts of the world. The leaves of rice are fleshy, very like those of the leek, but broader; the stem is a cubit (18 inches) high, the blossom purple, and root globular, like a pearl in shape" (B. 18, cap. 13). He goes on to say that "Hippocrates, one of the famous writers of medical science, has devoted a whole volume to the praises of 'ptisan,' the mode of preparing which is universally known."

The cultivation of the plant in Europe was, according to Captain Baird Smith, introduced by the Moors into Spain in the eleventh century, and from thence into Italy a century later. Gibbon considers that it was cultivated in Spain before the Christian era, and that the rice was imported from Spain which was used for making the wedding cake in the simple confarreation ceremonies of the old Roman Republic. Be this as it may, it is certain that it was not cultivated to any large extent in Italy until quite modern times.

Rice cultivation has always been heavily taxed, and in some of the states absolutely prohibited, owing to the malaria rising from the swampy lands. Since Italy became a kingdom and legislation on the subject has become more uniform and less capricious, the cultivation of this, the most profitable crop to the farmer, has so extended in the rice meadows of Lombardy and other similarly situated low lying lands that the Italian rice crop of 1880 amounted to no less than 500,000 tons, and it is annually increasing in amount. The cultivation of rice in Georgia and Carolina, which have produced the finest seeds in the world, only commenced about the year 1790.

In a pamphlet published in London, in 1701, on "The Importance of British Plantations in America," it is mentioned as a recent circumstance, that "a brigantine from the island of Madagascar happened to put into Charleston, having a little rice seed left, which the captain gave to a gentleman named Woodward. From part of this he had a very good crop, but he was ignorant for some years how to clean it. It was soon dispersed over the province, and by frequent experiments and observations they found out ways of producing and manufacturing it to so great perfection that it is thought to exceed any other in value." Mr. Dubois, the treasurer of the East India Company, sent a further supply of seed a few years afterward. By careful selection of the seed, and cultivation in trenches on a suitable soil, the Carolina seed has become so famous that it has been exported to Java, Italy, Madras, and other countries. The finest Indian varieties are grown from American seed.

Since the American war and the abolition of slavery, as the free negroes object to working in the swampy rice lands, associated as they are with fever and malaria, rice cultivation is becoming less each year, and the export trade of Carolina rice to Europe in spite of all attempts to bolster it up with protective duties, has practically ceased. The American millers are losers rather than gainers by the duty imposed for protecting the trade, which is now two and one-half cents per pound, or over 100 per cent. *ad valorem* on imported cleaned rice, thus causing the American consumer to pay double for his rice. As the crop raised is smaller every year, he has not only no rice to export, but must import the balance of his supply from the English, or other markets. Were the duty removed, the more expensive Carolina rice would again be largely exported to Europe, and be replaced by a still greater import of Burmese rice for the American home trade, to the benefit of cultivators, millers, shippers, and all concerned; a remarkable instance of injury done to a trade by the duties intended to protect it.

It is difficult to trace the time when rice was first imported into great Britain. Shakespeare mentions it as a great luxury. The clown in Winter's Tale says:—"Three pounds of sugar, five pounds of currants, rice; what will this sister of mine do with rice? But my father hath made her mistress of the feast, and she lays it on." The supply then came from Italy. It was superseded early in the eighteenth century by rice from our American colonies and India. We did not begin to mill rice for ourselves to any appreciable extent until the early part of the present century

McCulloch in his Commercial Dictionary, in 1832, tells us that "a few years ago England was principally supplied with clean rice direct from Carolina; latterly it has been much reduced. An improved mode of separating the husks, which throws out the grain clean and unbroken, has been lately practised in this country. As the grain preserves its sweetness and flavor better during a long voyage then when shelled, it is now principally imported rough from Bengal and the United States. No doubt the heavy duty (15s. per cwt.) on American cleaned rice has powerfully contributed to this result. "He says the consumption which was lately only 2,000 to 2,500 tons annually is rapidly increasing," partly owing to the late reduction of the duty on Indian rice from 5s. to 1s. per cwt. It has now, however, been very generally introduced among the middle and to a certain extent among the lower classes; there can be little doubt that its consumption will continue to increase according as the various qualities of this cheap and highly useful grain come to be known. It is likely therefore, that it will in the future form an article of importance in the trade with India.

The experiences of the last half century show how these anticipations have been more than fulfilled. The rice imports have during that period increased a hundred fold: the increase still continues, and there is fair reason to suppose that the commercial enterprise, industry and mechanical ingenuity of the English people will, for many years to come, in spite of continental opposition, enable them to still farther develop and retain the foremost position in the rice trade of the whole world.—*Louisiana Planter and Sugar Manufacturer.*

SUGAR IN INDIA.

It may be remembered that in May last year, Messrs. Travers and Co., Limited, wrote to the Secretary of State for India on the subject of sugar production in this country. Reference was made on the point raised to the various local governments, and the following is the letter from the Government of India to the Secretary of State, covering the correspondence, dated "Calcutta, 24th December, 1889," and is as follows:—

"The improvement of sugar production and manufacture in this country has been the subject of attention both of the authorities and of capitalists since the beginning of the century, and various attempts have been made to establish factories, none of which appear to have been attended with any permanent success unless supplemented by the sale of rum and liquors. Sugar refining alone has not proved sufficiently profitable to maintain a factory. If this had been the case, there appears to be no reason why the industry should not have been largely taken up by private capitalists.

"Some of the main difficulties against which the industry has to contend are believed to be these:—

"*(a)* The cultivation of sugarcane is limited by the supply not only of water for irrigation, but also of manure.

"*(b)* As cultivation in India is confined to small farms or holdings, each cultivator who is able to grow the crop at all can only find manure enough for a small area, generally less than half an acre, of sugarcane. The plots of sugarcane are therefore greatly scattered, even in a canal-irrigated tract.

"*(c)* A central factory has accordingly to bring in its supplies of cane in small quantities over varying distances, in many cases the distance being great.

"*(d)* The carriage of canes over long distance even in a climate like that of the Mauritius, is detrimental to the juice for purposes of sugar-making. It is much more so in India, where the canes ripen at the season when the atmosphere is driest and suffer, therefore, the maximum of injury.

"*(e)* The Mauritius system of growing large canes at intervals is not adapted to the greater part of nIdia where, in order to prevent the ingress of dry-air into the fields, small canes have to be grown in close contact.

"*(f)* The amount of cane which can be grown, limited as it is by the supply of water and manure, barely suffices for the wants of the Indian population. It seems to be at present as profitable to produce coarse sugar for their use, as highly refined sugar for export. There is, therefore, no sufficient inducement to capital to embark on the more difficult and expensive system.

"A further obstacle to sugar refining in India exists in the high diffierential rate which the conditions of our excise system require to be placed upon spirits made on the European method, as compared with that levied on spirits manufactured by the indigenous process. The sugar refiner in India is thus placed at a disadvantage in respect to the utilisation of his molasses in the form of spirits.

"In view of the circumstances above noted, we are unable to advocate any attempt being made at the cost of the State to establish model factories. We are inclined to attach much confidence to the views and conclusions formed by Messrs. Thomson and Mylne, who have paid, for many years, practical attention to the subject of sugar cultivation and manufacture by ryots, and were the first to introduce the portable sugar-mills which have now spread over India. They advocate the gradual improvement of the ryots' method of manufacture rather than the introduction of more expensive and centralising systems. The Provincial Departments of Agriculture have, of recent years, directed attention to this question, and may usefully be desired to continue to do so.

"We are also willing to advocate the establishment of agricultural experiments in those comparatively limited tracts of the country (such as Eastern Bengal, where there is a moist climate and a more or less abundant supply of manure) in which the Mauritius methods of cultivation have *prima facie* prospects of success, and we are prepared to advise our local governments and administrations to give every reasonable support to sugar factories and refineries which may be established by private enterprise."

Messrs. Travers's reply to the correspondence is dated 21st February, 1890:—

"We observe that while all the officials who have reported fully confirm our information as to the great, and indeed excessive, waste in Indian sugar manufacture, yet that they are able in some degree to explain the causes of the existing state of things, while the opinion is general that it would not be wise for the Government to establish experimental central sugar factories.

"It would be presumptuous on our part to offer any comments on a question so fully taken up by the local authorities on the initiative of the Secretary of State.

"It only remains for us, in concluding the correspondence, to acknowledge the very great courtesy with which our necessarily imperfectly informed emarks have been received, and the promptitude with which action has been taken owing to the recognition by the India Office and the local authorities of the great importance of sugar manufacture to India, and the possibility of a great development in it.—We are, &c.,

"*Pro.* J. Travers and Son, Limited,
"(Signed) J. W. ROGERS.

"P.S.—We may mention that 'German granulated' a small white dry crystal sugar made direct from the beetroot, is now being shipped from Hamburg to India; so that the ryots will not have Mauritius only to compete with at home. We believe this sugar costs about 16*s.* per cwt. laid down in Bombay, and that the bounty on its export does not exceed 6*d.* to 9*d.* per cwt."—*Pioneer.*

RICE CLEANING IN HONG KONG.

The United States Consul at Hong Kong says that all the rice received there is unclean, with the exception of that brought from China, the average of paddy being about 20 per cent. It is prepared for market at Hong Kong, with the exception of those shipped to Canton, which, owing to the cheapness of labour in comparison with Hong Kong, is cleaned

there. The process of cleaning is slow, and the labour most harassing. It is first run through hand sieves to separate the paddy from the grain. The paddy is first run through a machine made of wood, shaped not unlike a set of millstones, both sawn from a log about three feet in diameter. Into the face of the under block, and flush with it, is let a circular stone of a diameter to leave a five-inch rim of wood. This stone is opposed to an opening or eye in the upper block of a like diameter, into which is fitted a perforated board. The opposing surfaces of the two blocks are cut into grooves three-eighths of an inch wide, one-fourth of an inch in depth, and about the same distance apart, the intervening ridges of wood being carefully trimmed about every three hours, in order to be kept sufficiently sharp. The upper block is dragged round by means of a hook at the end of a wooden handle fastened to a staple driven into the rim, a single workman turning it and, at the same, feeding the machine by throwing the paddy with a wooden paddle into the eye, from which it is distributed outward by the centrifugal force. This breaks and loosens the husk from the kernel, after which it is run through a fanning mill, constructed with about the same regard to mechanics as the rudimentary machines described above. The grain, divested of husk, is now ready for the scouring process, which is done in stone mortars, holding about a bushel. These are set into stonework level with the floor, at an angle of about 30 degrees, twenty or more being distributed about, according to the size and shape of the room. A wooden framework is built over the mortars in such a way that a stone pestle, weighing twenty-five pounds, fixed to a beam pressing over a fulcrum, is rapidly dropped upon the grain. This is accomplished by a workman, who steps quickly upon the short end of the lever, and as quickly removes his weight when the pestle has been elevated to the highest point. The number of strokes considered necessary for this part of the process varies with the kind of rice, from two to four thousand. Ashes made from rice husks, to the amount of one-fourth of a pound, are added to each mortar of grain at the beginning of the pounding, and a second time when the pounding is half finished, the rice by this time having become quite warm. It is now taken from the mortar to be sifted, after which it is replaced for foot-scouring, ashes being added for the third time. A bare-footed workman, supported from falling by reclining in a kind of swing, treads in the mortar, which causes a rapid movement of the rice. This is continued for from thirty to forty minutes, when it is taken out and sifted, and is now ready for market. A part of the dust, composed of ashes and disintegrated rice, resulting from the scouring, is combined with 10 per cent. of salt and used in preserving vegetables. What remains is given to swine. Consul Simon says that, crude as these appliances are, they accomplish the work with the least breaking and crushing of the grain possible, and no doubt comprise most of the principles upon which rice-cleaning machinery is, or should be, constructed. The rice merchants in Hong Kong say that owing to the cheapness of labour, improved machinery propelled by steam, such as is in use in Bangkok and Saigon, would not be profitable in Hong Kong, and would not be permitted in China, where a vast number of people find, in rice-cleaning, their only means of earning a living.—*Journal of the Society of Arts.*

BORNEO AS A FIELD FOR PLANTING ENTERPRISE.

Having travelled through the Island of Borneo, and observed in the course of my peregrinations what was being done in the way of planting, a short account may probably be of interest to planters.

Borneo lies in an easterly direction from Singapore, the distance being about one thousand miles. The climate throughout the year is almost the same, *viz.*, the temperature remains almost unchangeable (generally from seventy-five to eighty degrees in the shade), and heavy showers of rain, not infrequently accompained by thunderstorms, fall every other four or five days, which give the atmosphere a most delightful freshness that never tends to make it either unhealthy or oppressive. Borneo is, comparatively speaking, a hilly country, and at an elevation generally from four hundred to two thousand feet. Planting is carried on principally in tobacco (coffee and tea on a small scale as yet), pepper, sago and tapioca and various kinds of fruits. A great number of Dutchmen have recently obtained valuable consessions from the British North Borneo Company for tobacco planting, and every year witnesses a great many people proceeding there—to say nothing of the large companies which are being continually formed to extend planting operations in that glorious Island. The Dutchmen, who are the principal planters, go in entirely for tobacco; and the first shipments which were sent home, about four or five years ago fetched the highest prices of any in the London markets. The result has been that more land is sought for, obtained and opened up, and the profits arising therefrom are immense, there being no native competition of any kind whatever to cope with. Coffee has also been a great success in the Government plantations, which lie about one hundred miles in a south-easterly direction from Sandakan, the capital of the British North Borneo Company, which is easily accessible by either steamer or boat. The natives have purchased quantities of plants which seem to grow remarkably well in their gardens. They do not grow any coffee for exportation, but simply enough for their wants; and this coffee, which they do plant, (Coffee Arabica) and which they do not appear to take pains about in cultivating, is certainly as fine as any I have ever tasted.

Tea is also grown, but not to any extent, for the simple reason, I presume, that no tea planter has as yet proceeded to Borneo (at least during my stay I never heard of one) for the purpose of trying whether it could be grown profitably or not. I do not profess to know much about tea, but the tea gardens I have seen in the Straits Settlements, which belonged to Ceylon planters, who told me they were as good, if not infinitely better than any in Ceylon, were certainly not richer or better looking than those I saw in Borneo. It seemed, as far as I observed, that it was a matter of perfect indifference whether tea or coffee was planted on the hills or plains as both appeared to thrive well on either the one or other without any trouble whatever. During my wanderings through the country, it was nothing unusual to come upon small tea gardens belonging to natives, all of which seemed to be growing up with the greatest luxuriancy and profusion. The natives appeared to take not the slightest trouble about them, and it looked as if all they had to do was simply to plant and await results. Indigo has not, as far as I am aware, yet been attempted, but since my arrival in Calcutta, I have been asked by one or two planters regarding the soil, &c., &c., in Borneo, and from what I told them they were apparently under the impression that it would grow well there. I cannot conceive any reason why indigo, tea and coffee should not do well in Borneo, especially from what I have seen of the latter two, and I think it would be advantageous for those planters who have the time to spare to take a trip to that lovely country, and see what it is like for themselves. As I have already mentioned, Dutch planters are flocking in at present and are making piles of money in tobacco. They knew nothing about what Borneo was like, till they tried it with the above results; and why cannot indigo, tea and coffee planters do the same? The pepper vine, sago and tapioca are grown extensively, and flourish remarkably well, especially the former, on rich brown soils. Large concessions of land are easily obtained from the Company. The leases extend to nine hundred and ninety-nine years, and the amount to be paid to the Government is, I forget the exact amount at present, trifling.

Although the Dutch planters prefer Chinese coolies, whom they import, there are some twelve different tribes in Borneo, out of which any number of men

are to be had. I should imagine that Malays and Kadayans would be by far the best coolies to engage, as they chiefly devote their time to agricultural pursuits, especially those who dwell in the interior. Labour is also cheap, in fact in some parts of the Island money is totally unknown. A native would think far more of a few empty beer bottles or empty tobacco tins than he would of a handful of dollars. This, of course, applies to the inland tribes. As a rule, the natives are most peaceful and obliging, and I should not think that any difficulties in the shape of organising any amount of coolie labour which might be necessary would be met. The rainfall for the year in Borneo would, I think, compare favourably with that of India, although rainy and hot seasons, which make the climate of India so unbearable, are unknown. The sea breezes, which are wafted over the Island, are most refreshing, keeping the air always more or less cool, and such a thing as fever is almost unknown. The jungle in some parts is very dense, but it is astonishing with what rapidity the Malays fell it when they commence in earnest. There are a great many other things in Borneo as well as planting at which fortunes can be made, and a little capital is all that is necessary to accomplish this. But to go into detail would occupy too much space, and probably be of no interest. I have endeavoured, although I am afraid it is but a poor attempt, to show what prospects there are in the planting line; and if any of your readers desired further information regarding Borneo, I should only be too glad to give it. Communication is kept up between Singapore and Borneo and China by steamers and sailing vessels. I happened to be in Borneo when Lord and Lady Brassey paid it a visit in 1887 (Lady Brassey's last voyage in the *Sunbeam*), and I well remember how His Lordship spoke in such high terms of the country, and sunk a good round sum of money in a timber concern there. It only requires capital and good men, and if capital and good men were forthcoming, there is no saying what is in store for the latter, in that magnificent Island, which has been so truly described as "The Gardens of the Sun."—*Indian Planters' Gazette.*

OUTLINE OF THE HISTORY OF COMMERCIAL FERTILIZERS.

1. The history of fertilizers practically dates back to the time when bones were first applied to the soil and their value as a fertilizer was first recognised. Fertilizing with bones was first practised in England. Probably the first instance of their extensive application was in the case of the farmers living near Sheffield, England, who applied to the land the bone and ivory clippings, which were waste products of the knife and button factories of Sheffield. These clippings amounted to about eight hundred tons a year and were regarded, until about a century ago, as a nuisance, the disposal of which was a serious problem to the manufacturers.

In 1774 the agricultural use of bones was first publicly recommended by Hunter, and successful experiments were made with bone dust.

About 1814, Alexander von Humboldt called public attention to the use of guano as a fertilizer, which he had seen used by the natives of Peru.

About 1817, the first superphosphate is believed to have been made by Sir James Murray.

It was not until after 1820 that the use of phosphates assumed any great commercial or agricultural importance, and not even then was it appreciated what gave bones their value as fertilizers.

About 1830, Peruvian guano began to be imported into Europe as a fertilizer, and a few years after, into the United States, especially at the South.

About 1840, Liebig published the results of his researches and suggested that plants must obtain materials for their growth from the soil as well as from the air and water, which alone were previously supposed to furnish plant food; and, hence, that the proper life of a plant can be benefited by furnishing those elements that are necessary. It was shown that the phosphate of lime in bones gave them their value, and that, by dissolving bones with sulphuric acid, they were made much more effective. The demand for bones then outran the supply. Other sources were looked for, and in 1843 a new source of phosphate of lime was found in Spain, consisting of a rock which contained considerable amounts of phosphoric acid. On trial, this rock was found to be a substitute for bone.

In the United States, farmers first used bones about 1790. The first bone mill was built about 1830, and super-phosphates were first used in 1851. The discovery of the so-called South Carolina rock was a great boon to those using commercial fertilizers, as this was found to take the place of bones.

The investigations based upon Liebig's theory showed that other elements in addition to phosphorus must be used to secure the best results, and, gradually, commercial fertilizers containing other elements came to be manufactured and offered for sale.

PRINCIPLES UNDERLYING THE USE OF FERTILIZERS.

2. Until fifty years ago, agriculture was without a scientific working basis. To the investigations of the illustrious German chemist, Justus von Liebig, we largely owe the advances that have been made in agricultural methods during the last half century. The following four laws, which form the foundation of modern agricultural practice, were fully established by Liebig:—

(1). "A soil can be termed fertile only when it contains all the materials requisite for the nutrition of plants in the required quantity and in the proper form."

(2). "With every crop a portion of these ingredients is removed. A part of this portion is again added from the inexhaustible store of the atmosphere; another part, however, is lost for ever if not replaced by man."

(3). "The fertility of the soil remains unchanged if all the ingredients of a crop are given back to the land. Such a restitution is effected by manure."

(4). "The manure produced in the course of husbandry is not sufficient to maintain permanently the fertility of a farm; it lacks the constituents which are annually exported in the shape of grain, hay, milk and live stock."

These four laws of Liebig contain a clear statement of the principles underlying the use of fertilizers; but, to understand their meaning with satisfactory clearness, we must know something more in detail about the following subjects:—

(a.) The constituents and food materials of plants.
(b.) The constituents of soils.
(c.) The relations of soils and plants.

These subjects will now be considered in the above order:—

THE CONSTITUENTS AND FOOD MATERIALS OF PLANTS.

3. To chemical analysis we owe all that we know about what plants contain or are made of. Less than eighty years ago not a single vegetable substance had been accurately analyzed; and although in the thirty years following much was learned about the different elements contained in plants, it was not until after the investigations of Liebig that our knowledge of the chemistry of plants progressed with any satisfactory degree of rapidity.

CHEMICAL ELEMENTS.

4. All matter is composed of about seventy different chemical elements. A chemical element is any substance which cannot, by any known means, be separated into two or three different kinds of matter. For example, gold is an element, because, in whatever manner it may be treated, we cannot get anything out of it but gold; pure gold contains nothing but gold. So, nitrogen is an element, because, as far as we are able to find out, it contains only one thing, that is, nitrogen. Similarly, carbon, sulphur, potassium, oxygen and iron are elements.

Just as the twenty-six letters of our alphabet are combined in various ways to form the words of a whole language, so these seventy elements or simple substances, constituting nature's alphabet of matter,

are capable of being united to produce all the different chemical compounds that go to make up the countless forms of matter. The number of different combinations possible between these seventy elements is practically infinite.

ELEMENTARY COMPOSITION OF PLANTS.

5. When we state what elements any substance contains, we give its elementary composition. For example, sugar contains the elements, carbon, hydrogen and oxygen; this is a statement of the elementary composition of sugar. So, when we state what elements a plant contains, we give its elementary composition or analysis. The term ultimate composition means the same as elementary composition. We will now consider the elementary composition of plants.

6. The exact number of different kinds of plants growing on the earth has never been definitely ascertained: but the number probably exceeds 200,000. Of this large number, only a few have been subjected to careful chemical analysis, and yet, so uniform in all its great variety are nature's methods of working and building, that we can quite safely say that, so far as the elementary composition of plants is concerned, little remains to be learned. Chemical analysis shows that, of the seventy elements known to exist, only fourteen are essential to produce all the different forms of vegetable life.

While all plants contain certain chemical compounds, such as cellulose, albuminoids, etc., it may be that each plant contains, in some one or all of its parts, one or more chemical compounds peculiar to itself, so that there may be as many distinct chemical compounds in the vegetable kingdom as there are different species of plants. This, of course, cannot be known absolutely until all plants in existence have been carefully analysed; but, whether the number of different chemical compounds in the vegetable kingdom be a few thousand or a few hundred thousand, we know that they are almost entirely made up of fourteen elements, and these, therefore, form the chemical alphabet of the vegetable kingdom, all the different vegetable compounds, like words from letters, being formed by the union of two or more of these elements.

The fourteen elements which are regarded as being necessary to the perfect growth and development of every plant are the following: Carbon, hydrogen, nitrogen, oxygen, phosphorus, sulphur, chlorine, silicon, calcium, iron, magnesium, manganese, potassium and sodium. The element fluorine is of frequent occurrence in very small quantities, and the following elements are of rare or doubtful occurrence: Aluminium, barium, bromine, cobalt, copper, iodine, lead, lithium, nickel, rubidium, tin, titanium and zinc, but their occurrence is a matter of curiosity rather than of practical importance, for, unlike the fourteen named above, they seem in no way to be necessary to plant life.

AIR-DERIVED AND SOIL-DERIVED ELEMENTS.

7. The elements that are necessary to the growth of plants may be divided into two quite distinct classes, which have important and marked differences. These two classes are: (1). Air-derived or organic elements. (2). Soil derived or inorganic elements.

AIR-DERIVED ELEMENTS.	SOIL-DERIVED ELEMENTS.
Carbon.	Phosphorus.
Hydrogen.	Sulphur.
Oxygen.	Chlorine.
Nitrogen.	Silicon.
	Calcium.
	Iron.
	Potassium.
	Sodium.
	Magnesium.
	Manganese.

8. It is usual among writers on agricultural chemistry to call these classes organic and inorganic elements, but this use of these words is extremely inaccurate: for any element may be either organic or inorganic, according as it is or is not a part or product of an organized body. Oxygen, as it exists in the air, is inorganic matter; but when, through vital processes, it becomes part of an animal or plant, it is organic.

9. These two classes of elements differ in three important particulars, as follows:—

First.—The elements of the first class are derived exclusively from the air, either, directly or indirectly; while those of the second class come exclusively from the soil.

Second.—Air-derived elements disappear, for the most part, in the form of gases, when a plant is burned; while the soil-derived elements, usually the smaller part, are left in the form of a residue or ash, which further heating will not have any effect upon. Some carbon and oxygen and nitrogen are always found in the ash, while slight quantities of chlorine, sulphur and phosphorus are apt to be driven off by heating. The two classes of elements are, therefore, not so sharply defined in this regard as they are in respect to the sources from which they come.

Third.—These two classes differ very noticeably in regard to the quantities in which they are present in plants. Thus, the air-derived elements constitute, at least, ninety-five per cent. of the whole vegetable kingdom, while the soil-derived elements occur in small quantities, varying from a fraction of one per cent. up to ten per cent., or even more in some cases. Because the soil-derived elements occur in so much smaller quantity, it does not follow that their presence is of less importance: in their absence, vegetation would disappear.

We will now consider each of these elements in order, and mention briefly some of the more important characteristics of each; but, before doing this, it is desired to explain the meaning of two or three chemical terms which we shall have occasion to use.

ACID-FORMING ELEMENTS AND METALS.

10. Of the fourteen elements which are found in plants, some are spoken of as non-metallic elements or acid-forming elements, because, in certain combinations, these elements form well-known acids. The other elements are known as metallic elements or metals.

ACID-FORMING ELEMENTS.	METALS.
Carbon.	Calcium.
Hydrogen.	Potassium.
Oxygen.	Sodium.
Nitrogen.	Iron.
Phosphorus.	Magnesium.
Sulphur.	Manganese.
Chlorine.	
Silicon.	

ACIDS AND SALTS.

11. An acid is a compound containing an acid-forming element combined with hydrogen and oxygen, or, in some cases, with hydrogen alone. The following examples will serve to illustrate:—

Nitrogen, hydrogen and oxygen form nitric acid; phosphorus, hydrogen and oxygen form phosphoric acid; sulphur, hydrogen and oxygen form sulphuric acid; chlorine and hydrogen form hydrochloric acid. The common name of sulphuric acid is oil of vitriol; the common name of hydrochloric acid is muriatic acid.

12. A salt is a compound formed by putting a meta, in the place of the hydrogen of an acid; that is, a acid differs from a salt simply in having a metal where the acid has hydrogen. Every acid has a salt corresponding to it. For example, as stated above, nitric acid consists of nitrogen, hydrogen and oxygen. Now, if we put the metal potassium in the place of hydrogen, we have a compound containing nitrogen, potassium (in place of hydrogen) and oxygen. This compound is the potassium salt of nitric acid and is called potassium nitrate, or, sometimes, nitrate of potash. Again, phosphoric acid consists of phosphorus, hydrogen and oxygen; in place of hydrogen, put one of the metals, as calcium, and we have a compound containing phosphorus, calcium (in place of hydrogen) and oxygen, which is the calcium salt of phosphoric acid and is called calcium phosphate, or, sometimes, phosphate of lime. Similarly, if a metal, as magnesium, is put in the place of the hydrogen of sulphuric acid, we have the magnesium salt of sulphuric acid, or magne-

sium sulphate familiar to us as Epsom salt. If in hydrochloric (muriatic) acid, we put some metal, as sodium, in place of the hydrogen, we have a compound consisting of sodium and chlorine, which is the sodium salt of hydrochloric acid and is called sodium chloride, sometimes muriate of soda, familiar to us as common salt.

The word "salt," as used in chemistry, applies to a great number of compounds, and many of the substances we have to deal with in speaking of fertilizers are chemical salts, that is, substances formed by putting some metal in place of the hydrogen of some acid.

CARBON.

13. IMPORTANCE OF CARBON.—The element, carbon, may be called the central element of all animal and vegetable substances; for there is not a living thing, from the smallest cell to the giant tree, which does not contain carbon as a necessary constituent. That all vegetable and animal substances contain carbon can easily be shown by simply heating them sufficiently, and thus causing them to blacken or char. When, for example, wood is heated, the different elements of which it is composed, are driven off in one form or another, but the carbon is the last to go, and remains behind as a black substance or charcoal, unless heated higher, when it disappears or burns up.

14. OCCURRENCE OF CARBON IN NATURE.—Carbon usually occurs in nature united into compounds with other elements. Thus, most products of plant life contain carbon combined with the elements hydrogen and oxygen; such are starch, sugar and cellulose or woody fibre. Carbon, combined with oxygen, occurs in the air in the form of carbon dioxide, commonly called carbonic acid gas. Carbon, when combined with oxygen and some element such as calcium, occurs in the form of carbonates; for example, marble, limestone and chalk are chemically known as calcium carbonate or carbonate of lime.

Carbon by itself or in the free condition, that is, not united with any other elements, is familiar to us in several different forms; the most common of these forms are (1) diamonds; (2) graphite, which is used in the manufacture of lead pencils; (3) ordinary wood charcoal; (4) lamp-black; (5) animal charcoal; (6) mineral coal. Excepting diamonds these forms of carbon are more or less impure, containing some other things mixed with the carbon.

15. It is pertinent to make here the inquiry, "What is the relation of carbon to fertilizers?" Before we can answer this question satisfactorily, we must know what is meant by a fertilizer and what must be regarded as necessary constituents of a fertilizer. We will, therefore, turn aside from our consideration of the element carbon and take the opportunity, at this stage, to give some definitions of general and special terms which we shall have occasion to use more or less frequently.

DEFINITIONS.

16. FERTILIZER.—As ordinarily spoken of, a fertilizer may be defined as any substance which, by its addition to the soil, is intended to produce a better growth of plants.

The materials which come under the head of fertilizers are numerous in kind, and different both in form and in the manner in which they act.

17. The following tabulated classification, while not strictly accurate in every respect, will serve to give a good general idea of the number and relations of the terms used in speaking of fertilizers:—

FERTILIZERS.
- I. Direct
  - 1. Natural
    - Stable manure.
    - Refuse vegetable matter.
    - Green Crops for plowing under.
    - Cotton Seed.
    - Muck, marls, etc.
  - 2 Artifical
    - Commercial, Chemical, Prepared.
      - *a.* complete or general.
      - *b.* incomptete or special.
- II. Indirect
  - Lime.
  - Gypsum.
  - Salt, etc.

These terms are, in general, loosely and indiscriminately used, as their meaning is often misunderstood; and so an attempt will be made here to define them in accordance with the best usage of the terms.

18. A direct fertilizer is one that contains elements of plant food which are available at once, that is, which can be taken up and used immediatly by plants.

19. The term available is applied to plant food which is soluble, that is, in such a condition that the roots of the plant can take it up readily in solution.

20. Plant food is unavailable when it is in an insoluble from, so that the roots of the plant fail to take up any part of it. A large proportion of plant food present in the soil is unavailable, but, by the action of air, water, carbonic acid, etc., it is gradually changed to soluble or available forms, which the plant can take up and use. As will be noticed later, phosphoric acid in the form of insoluble calcium phosphate, or phosphate of lime, is unavailable as plant food, but when converted into a super-phosphate, or soluble calcium phosphate, it becomes available. Unavailable plant food is potential food or food in reserve.

21. An indirect fertilizer is one which does not furnish to the soil any needed plant food and which may not be a plant food at all, but which is characterized by the way in which it acts on the matter already in the soil, changing more or less of it from unavailable plant food to an available form. For example, lime, gypsum, salt, etc., are indirect fertilizers, so far as they have any fertilizing action. Later, some attention will be given to the action of some of the most familiar indirect fertilizers.

22. Natural fertilizers include the solid and liquid excrement of animals, all kinds of vegetable refuse, green crops for plowing under, cotton seed, mucks, marls, etc,

23. Artificial fertilizers are also known by such names as commercial fertilizers, chemical fertilizers, prepared fertilizers, etc., and are artificial preparations or mixtures of fertilizing materials sold under trade names. The fertilizing materials used in making these mixtures include the substances found in natural deposits and by-products of numerous industries, which are obtainable by farmers only through the channels of trade. Some substances which might be classed as natural fertilizers, such as cotton-seed meal and tobacco stems, are also included among the materials of artificial fertilizers.

24. Complete fertilizers, known also as general fertilizers, are those which contain nitrogen, phosphoric acid and potash.

25. Incomplete fertilizers, also called special fertilizers, are those which contain only one or two of the three constituents, nitrogen, phosphoric acid and potash.

26. There is a common practice among farmers and dealers, of calling all commercial fertilizers "phosphates," regardless of whether they contain any phosphates at all or not. The practice is clearly objectionable, because a phosphate is not the only fertilizing constituent present in commercial fertilizers—in some cases it may be entirely absent. The term "super-phosphates" applies truthfully to many commercial fertilizers, but even these cannot be correctly spoken of as simply "phosphates."

Having considered such definitions as we may have occasion to use more or less frequently, we can now return to

THE RELATIONS OF CARBON TO FERTILIZERS.

27. We know that carbon must be an important element in plant food, since it forms nearly one-half of the solid proportions of plants. Notwithstanding the fact that carbon forms so large a portion of plants, it has no importance as an active food constituent of direct fertilizers. This statement may appear strange and the question may be asked, "Why is not carbon to be regarded as an essential constituent of direct fertilizers?" The answer is that the carbon of plants comes from the carbon dioxide (carbonic acid gas) of the air, and the air furnishes an inexhaustible and available supply of this substance.

We do not, therefore, need to add carbon to the soil. However, as we shall notice later, some forms of carbon possess value as indirect fertilizers.

HYDROGEN.

28. OCCURRENCE IN NATURE.—The element, hydrogen, is nearly always found uncombined with other element. It combines with oxygen to form water. Hydrogen also occurs in most animal and vegetable substances, such as various kinds of wood, fruits, etc., when it is combined with the elements, carbon and oxygen. Hydrogen is always present in all kinds of acids.

29. DESCRIPTION OF HYDROGEN.—Hydrogen, in the uncombined form, is a gas that resembles air in that it has neither color, smell, nor taste.

OXYGEN.

30. OCCURRENCE OF OXYGEN IN NATURE.—Oxygen is the most abundant of all the elements. The compounds which contain no oxygen are few in number. Oxygen forms nearly one-half of the crust of the earth; eight-ninths of water; about one-fifth of air, and one-third of all animal and vegetable matter.

Oxygen occurs in the air uncombined with other elements. Oxygen, combined with the elements carbon and hydrogen, or with carbon, hydrogen and nitrogen, is found in substances which go to make up animals and vegetables.

31. DESCRIPTION OF OXYGEN.—As might be inferred from knowing that oxygen in the uncombined state forms part of the air, oxygen has no color, taste or smell.

Oxygen is a very active substance from a chemical point of view. It tends to unite with nearly all of the other elements. In all forms of burning, the oxygen of the air is simply uniting with other elements. Thus, in a coal fire the oxygen unites with the carbon of the coal. The heat is produced by he union of the two.

THE RELATIONS OF HYDROGEN AND OXYGEN TO FERTILIZERS.

32. As already stated, water is formed by the union of two gases, hydrogen and oxygen. These elements are supplied to plants in the form of water. Growing plants contain a larger amount of water than of any other constituent. The oxygen and hydrogen of the water are separated in the plant, and in this way plants secure the hydrogen and oxygen which they need to build up their tissues. In this manner water acts as a direct fertilizer. The water is supplied by rains to the soil; from the soil it is taken into the plant through the roots. In regions adapted to agriculture, plants receive all the hydrogen and oxygen needed, and usually much more, from the rains. Therefore, these elements are not considered important parts of fertilizers, except, perhaps, that it is desirable to have in a commercial fertilizer as little water as possible.

When water is supplied to plants by irrigation, it can very properly be called a fertilizer, and an extremely important one, too.

35. In addition to its action as a direct fertilizer, water has an importa t part to play as an indirect fertilizer. Thus, it dissolves the soluble food materials of the soil, the mineral matter and most of the nitrogen, and carries them into the plant. In addition to its action as an indirect fertilizer, water acts as a carrier within the plant in transferring from one part of the plant to another, as needed, the various products contained in the plant, just as the blood in the animal body carries to every part the nutriment adapted to each organ and part.

NITROGEN.

34. OCCURRENCE OF NITROGEN.—Nitrogen occurs in nature in the following forms:—

(1). As a constituent of air.
(2). In the form of ammonia.
(3). In the form of nitric acid and nitrates.
(4). In various other forms in plants and animals.

35. NITROGEN IN AIR.—Nitrogen, uncombined with other elements, forms about four-fifths of the air. Since the nitrogen in the air is not combined, we can conceive its properties for ourselves, and our observations show us that it is a gas, which has neither color, taste, nor smell.

36. NITROGEN IN AMMONIA.—Nitrogen combined with the element hydrogen forms ammonia. Ammonia is present in the air in very small quantities. Ammonia is formed when vegetable and animal substances containing nitrogen decompose.

Ammonia is a colorless gas, and it is this gas dissolved in water which is familar to us as ammonia water, or "spirits of hartshorn," and which causes the peculiar odor of "hartshorn."

Ammonia unites with different acids and forms salts, much as acids do; these salts we call ammonium salts, compounds which do not generally have any odor like ammonia. Thus, ammonia combined with sulphuric acid forms ammonium sulphate, called by some, sulphate of ammonia. Ammonia combined with hydrochloric acid forms ammonium chloride, sometimes called muriate of ammonia, also known as sal-ammoniac.

37. NITROGEN IN NITRATES.—Nitrogen, combined with hydrogen and oxygen, forms nitric acid or *aqua fortis*. If in nitric acid a metal, as sodium, for example, takes the place of hydrogen, we have a sodium salt of nitric acid, or a nitrate, formed, called sodium nitrate.

When animal or vegetable substances decompose in rather warm, moist places, the nitrogen is changed into nitrates. This change of the nitrogen of organic matter into nitrates is caused by bacteria, which are very small living vegetable organisms, and which exist everywhere in enormous numbers. The process is known as "nitrification."

38. NITROGEN IN ANIMALS AND PLANTS, OR, ORGANIC NITROGEN.—Nitrogen, combined with the elements, hydrogen, carbon and oxygen, occurs in plants and in animals. Such substances, for example, are the casein or curd of milk, the gluten or gummy portion of wheat, the fibrin of blood, the white of egg, etc. When such compounds decompose, the nitrogen is first changed into ammonia, and then, under proper conditions, into nitric acid or nitrates. The nitrogen existing in animals and plants is generally spoken of as organic nitrogen.

IN WHAT FORMS IS NITROGEN USEFUL TO PLANTS?

39. Plants can use nitrogen in three different forms, viz:—

(1). As nitrogen gas or uncombined nitrogen.
(2). In the form of ammonia.
(3). In the form of nitrates.

All plants cannot use nitrogen in any of these three forms equally well, but each form is found specially suited to certain kinds of plants, as will be noticed.

40. NITROGEN GAS USED BY PLANTS.—Although we have nitrogen gas, or uncombined nitrogen, existing in the air in enormous quantities, still, the number and kinds of plants which can use the nitrogen of the air is not large. In general, those plants which are called leguminous, such as the bean, pea, clover, alfalfa, etc., can take uncombined nitrogen from the air.

41. NITROGEN OF AMMONIA USED BY PLANTS.—The leaves of some plants have the power of absorbing ammonia directly from the air and obtain nitrogen in this way. Some plants obtain nitrogen from ammonium salts through the soil.

42. NITROGEN OF NITRATES USED BY PLANTS.—The largest part of the nitrogen which most plants obtain is taken up by their roots from the soil in the form of nitrates; that is, nitric acid combined with some metal, as sodium or potassium. As already stated, most of the nitrates used by plants are formed by changing into nitrates ammonia compounds and organic substances in the soil by the process called nitrification. Hence, nitrogen, in the form of nitrates, is the most available form for most plants; that is, it can be most readily taken up and used by plants.

RELATIONS OF NITROGEN TO FERTILIZERS.

43. Experiments have shown that nitrogen is essential to the growth of plants; that the quantities of nitrogen available as plant food are very small;

that nitrogen is one of the first elements in the soil to be used up; that, of all the fertilizing elements, nitrogen is and always has been the most expensive.

THE SPECIFIC ACTION OF NITROGEN UPON PLANTS.

47. The influence of nitrogen in its various forms upon plant growth is shown by at least three striking effects.

First.—The growth of stems and leaves is greatly promoted, while that of buds and flowers is retarded. Ordinarily, most plants, at a certain period of growth, cease to produce new branches and foliage, or to increase those already formed, and commence to produce flowers and fruits, whereby the species may be perpetuated. If a plant is provided with as much available nitrogen as it can use just at the time it begins to flower, the formation of flowers may be checked, while the activity of growth is transferred back to and renewed in stems and leaves, which take on a new vigor and multiply with remarkable luxuriance. Should flowers be produced under these circumstances, they are sterile and produce no seed.

Second.—The effect of nitrogen upon plants is to deepen the color of the foliage, which is a sign of increased vegetative activity and health.

Third.—The effect of nitrogen is to increase, in a very marked degree, the relative proportion of nitrogen in the plant.

LOSS OF NITROGEN COMPOUNDS.

45. Since ammonia compounds and nitrates dissolve easily in water, is there not danger of their being carried away in drainage water from the upper soil out of reach of the plant?

Experiments have been made to settle the question, and results indicate that ammonia compounds are largely retained in the soil. Nitrates are apt to be washed out and lost in the case of bare fallow land; but when the soil is covered with vegetation there is little or no loss, for the reason that the roots of growing plants absorb nitrogen very readily. Some nitrogen is also lost by organic matter in the process of decay, escaping into the air as free nitrogen.

These losses of nitrogen are, to some extent, replaced naturally by means of the nitric acid and ammonia dissolved by the rain and dew, also by organic matter decaying at the surface of the soil, and also by conversion of the free nitrogen of the air into some form which the plant can take up and use. These natural additions of nitrogen do not usually make good on the farm the losses, and in time the nitrogen becomes insufficient to produce paying crops without the addition of nitrogenous manures.

We shall notice later the various forms of nitrogen ordinarly used in commercial fertilizers.—*Bulletin of the New York Agricultural Experiment Station.*

SOME POINTS IN PRACTICAL FORESTRY.

In an interesting review, by Dr. Brandis, of Dr. Schlich's "Manual of Forestry," published in a recent number of *Nature*, attention is called to the fact that this book was prepared by the author primarily for the use of the students at the Cooper's Hill Forest School in England. That school was established seven years ago, in connection with the Royal Indian Engineering College, in order to give the needed professional training to young Englishmen who desired to enter the Indian Forest Department. When the first volume of this handbook appeared some persons, who took a deep interest in the progress of forestry in the British Indian Empire, were surprised that it did not deal with Indian trees, but that its teaching were illustrated by the Oak, the Beech, the Scotch Pine and other trees of Europe, and the book was, therefore, pronounced by them a failure. But the principles of silviculture are the same everywhere, and the application of these principles to the treatment of different woods in different parts of the globe will lead to the adoption of similar methods; and, therefore, according to Dr. Brandis, the author of the manual was right in selecting the timber [illegible] of Europe to illustrate these principles and the practice based upon them, because these trees are at hand for example, and because the systematic treatment of European forests is of long standing, and has endured the test of experience, while the methodical care of Indian forests is not more than thirty-five years old. As an interesting example of the way in which similar practices have developed in the rearing and tending of woods in Europe and in India, we quote the following parallel from Dr. Brandis' review:—

In a loop of the Main River, in Lower Franconia, east of Aschaffenburg, rises an extensive mountainous country, clothed with almost unbroken forest of singular beauty and of enormous value. It is the Spessart, in old times known as the home and haunt of great highway robbers, but also known from time immemorial as the home of the best Oak timber in Germany. The red sandstone of the Trias, which everywhere is the underlying rock in this extensive forest-country, makes a light sandy loam, which, where deep, is capable of producing tall, cylindrical, well-shaped stems. Having grown up, while young, in a densely crowded wood, the Oak here has cleared itself of side branches at an early age. Hence these clean straight stems which, in the case of Spruce, Silver Fir, and other forest-trees, may justly be said to be the rule, but which the Oak does not produce, save under these and similarly favourable circumstances. The species here is *Quercus sessiliflora;* this species does not form pure forests, but is always found mixed with other treeg, the Hornbeam, the Beech, and on the lower slopes of the western Schwarzwald, the Silver Fir. In the Spessart, the Beech is associated with the Oak in the same manner as the Bamboo is the chief associate of the Teak-tree in Burma.

The principles which guide the forester in the proper treatment of his woods are the same in India as in Europe. In the Teak-forests of Burma the Bamboo has a position similar to that of the Beech in the Oak-forests of the Spessart. Oak and Teak are both trees with comparatively light foliage. Pure woods of these species, while young, are sufficiently dense to shade the ground, whereas at an advanced age the wood gets thin, the canopy light, and the result is that grass and weeds appear, and that by the action of sun and wind the soil hardens and is less fertile than the loose porous soil, which is shaded by dense masses of foliage. Hence the advantage of associates, which, like the Beech in Europe and the Bamboo in Burma, shade the ground with their dense foliage, and enrich it by the abundant fall of their leaves. But it is not only the condition of the ground which is improved by these useful associates. Teak and Oak have this specialty also in common, that, when growing up alone, their stems, instead of running up into clean cylindrical boles, are apt to throw out side branches, which greatly impair the market value of the log. But when growing up in dense masses with their natural associates, these latter, crowding in as they do on all sides around the Oak in the Spessart and the Teak in Burma, prevent the development of side branches, and thus produce clean and regularly shaped stems.

In these and many other ways are the associates of the Teak and of the Oak useful friends, so to speak. Under certain circumstances, however, and at certain periods of their life, they are dangerous enemies to their more valuable companions. On the sandstone of the Spessart, and elsewhere, the Beech, as a rule, has a more vigorous growth than the Oak; it gets the upper hand, and, unless it is cut back or thinned out in time, the Oak, if both are growing up in an even mixture, has no chance. The Bamboo is even more formidable as an enemy of the young Teak-tree. Though the Teak may have had a long start, if a crop of Bamboos—either the shoots of old rhizomes, or, perhaps, the result of [illegible] seeding of the old Bamboo-forest, close [illegible] away to make room for the Teak—springs [illegible] of the Bamboo have acquired [illegible] length, they produce, within a few weeks, sufficient [illegible] the rains, such a profusion of full-sized shoots, say twenty to thirty feet high, that the young Teak-trees among them are throttled and extinguished.

The similarity in the relations of Teak and Bamboo in Burma, and of Oak and Beech in the Spessart, has led foresters in both countries to devise similar arrangements for the regeneration of these forests. In the Spessart, when the old timber in a compartment of the forest is cut, the best places for the growth of the Oak are selected, and the Oak, which here sells at the rate of from two shillings to three shillings a cubic foot for sound and well-shaped pieces, is sown on soil most suitable for its development; while the Beech, the timber of which only fetches about one-fifth of that amount, is allowed to reproduce naturally from self-sown seedlings over the rest of the area. Among the Oak also a certain but small proportion of Beech springs up, and even where pure Oak woods may be the result of these proceedings, it will not be difficult, when they are sufficiently advanced, to introduce such a proportion of Beech as will secure their satisfactory development. In the same way in Burma, seclected areas are cleared for the growth of Teak in the original forest, the clearance being effected, and the Teak planted, with the aid of that rude mode of shifting cultivation, known as the Toungya system.—*Garden and Forest.*

DATURA STRAMONIUM, *Linn.*

"THORN APPLE," "STINK WEED," "DEVIL'S TRUMPET."

A coarse, weedy annual, sometimes attaining a height of 3 or 4 feet. The leaves are very unequal in size—the larger ones often 8 or 9 inches long, ovate in outline, rather flaccid, the margin undulated, and deeply indented with large, irregular incisions, forming unequal spreading teeth. Flowers, solitary, and shortly stalked, corolla funnel-shaped, white, 3 to 4 inches long, and about 2 inches wide at the mouth, with five spreading or recurved lobes. Stamens, five, inserted in the corolla tube, and included in it. Fruit, about 2 inches long, thickly set with unequal, sharp, rigid spines. The thorn-apple is considered by De Candolle to be indigenous to the countries bordering the Caspian. It is now spread as a weed nearly all over the warmer and temperate parts of the earth. In this Colony the seedlings generally spring up in September or October, and continue growing till April or May, when the plants usually die out, although I have seen them growing occasionally in winter, but only in very sheltered situations. In many places—but principally in the coastal districts—the plant may be seen growing plentifully during the summer months. When growing in pastures it is really a dangerous weed, for I have known it to poison milch cows that have partaken of it, and no pains should be spared on the part of any one who keeps cattle to exterminate it from grazing lands. When it is allowed to grow undisturbed for a time it produces a phenomenal quantity of seed, which will, when ripe, germinate readily any time during the summer months, whilst there is moisture in the soil, so that the area of its occupation gradually widens from year to year. The very same thing takes place with many other introduced weeds, especially those from the northern parts of Europe and America; and, although they may be strictly annual in those countries, often, in a good season here, they will produce three or four successional crops from seed ripened at different times in the same year, so that our cultivators sometimes have to war against annuals almost as much as if they were perennials.

I have very often given the leaves of the "thorn-apple plant" to persons suffering from asthma, and recommended them to smoke it—but with caution, and not too often—as they would tobacco, and when they have done so it has given them great relief. When used for this purpose the leaves should be partially dried in some place away from the influence of the sun's rays. Bailey and Gordon (Queensland) include the "thorn-apple plant" in their "Plants Reputed Poisonous and Injurious to Stock," and say that "the plant is decidedly poisonous." Much comment was made in this and the adjoining colonies about a notice of the thorn-apple plant published in the *Sydney Mail*, 5th April, 1890, by J. H. Maiden, of the Technological Museum, Sydney. The writer said, amongst other things, that "the plant has a disagreeable taste, and cattle will not touch it, so that stock-owners need have no anxiety about it." To this statement Mr. P. R. Gordon, Chief Inspector of Stock, Queensland, wrote the following letter to the Editor, *Sydney Mail*, and it was published on the 19th April, 1890:—"In the notice of the abovenamed plant in your issue of 5th April, Mr. J. H. Maiden says 'that cattle will not touch it, so that stock-owners need have no anxiety about it.' In this Mr. Maiden is entirely wrong. Quantities of this plant grow in the neighbourhood of Toowoomba, and there have been many deaths in cattle from eating it. These deaths have not been mere cases of surmise. When the Board of Inquiry into 'Diseases of Live Stock and Plants' (of which I was *ex-officio* secretary) was in existence in this Colony, the stomachs of several cattle that had died in paddocks close to Toowoomba were forwarded to the Board, and analyzed by the late Karl T. Staiger, then Government Analyst, and in each instance the analysis showed death to have been occasioned by the animals having eaten the thorn-apple plant. It may be remarked that in each instance the poisoning was confined to quiet milking cattle, and it will be found, as a rule, that mortality from poisonous plants is confined to quiet milkers, or their progeny. These pet animals will nibble at and eat plants that ordinary bush cattle will not touch, unless forced to do from sheer starvation."

The following extract is from Bentley and Trimen's *Medicinal Plants*:—"The activity of both the leaves and seeds of *Datura stramonium* are due to the highly-poisonous alkaloid *daturia* or *daturine;* and although we have no chemical proof of the existence of this alkaloid in the other species of *datura* alluded to under the head of substitutes, its presence in them can scarcely be doubted . . . . according to Schroff, *atropia* has twice the poisonous energy of *daturia*; whilst Jobert, again, regards *daturia*, when applied to the eye, as about three times as powerful as *atropia*, and more constant and lasting in its operation . . The properties of *stramonium* are regarded as anodyne and antispasmodic, and, in overdoses, a powerful poison. It has been found useful in neuralgic and rheumatic affections, in gastrodymia and other painful diseases, and some have regarded it as a very valuable remedy in mania and epilepsy, but in these diseases it not unfrequently produces injurious effects When used during paroxysms of spasmodic asthma it commonly gives temporary relief, and facilitates expectoration. In the latter disease, and also in dyspnœa, catarrhs, and in other cases, the leaves are generally smoked, like tobacco, or inhalation from their infusion in warm water is resorted to. But its use in these ways requires caution, as it has proved highly injurious, and, in some instances, fatal. In Cochin China a strong decoction of the leaves is regarded as a very efficacious remedy in hydrophobia."

The Rev. Dr. Wools, F.L.S., informs me that a child died near Richmond from swallowing the seeds of stramonium.—*Agricultural Gazette.*

GEMMING AND MINING OF CEYLON.

Searching for gems is obviously a very precarious industry, which has hitherto yielded more blanks than prizes. To the long list of undertakings which have been formed and worked apparently with the object of proving this point may be added the one whose title heads these remarks. Why precious stones should elude the vigilance and science of the expert miner, when backed with any amount of capital supplied by the British investor, is the more singular because such things are said to literally jump into the laps of the natives, who have neither science to guide them in their search nor money wherewith to decoy the precious treasures from their hiding places. This is a matter we have recognised for a long while past, and we

sought to enforce it when the Gemming and Mining Company of Ceylon came forward. This undertaking cannot be said to have come out under the best or most favourable auspices. That goes without saying when we mention that it was promoted by the celebrated Gold Trust and Investment Corporation, which promoted at about the same time

THE NOTORIOUS PERSIAN INVESTMENT CORPORATION,

in both of which it prided itself on retaining a considerable interest, though to what extent that retention was voluntary or enforced, and in what measure the pride may still survive, we need hardly wait to inquire. The saying that pride goes before a fall has, however, been pretty well exemplified in the case of these two undertakings. The history of the rise and fall of the Persian Investment Corporation is too fresh in everybody's mind to need recapitulation. The like story of the Gemming and Mining Company still remains to be told, though it has not yet reached the stage when that can be done with true dramatic effect. The latter company was formed in December, 1889, with an authorised capital of £100,000 in shares of £1 each, to acquire certain freeholds consisting of 1,280 acres of land, situated in Rakwana district, Ceylon. The mining rights of the Rangweltenne and one or two other estates were also acquired, subject to the payment of certain rents and royalties. The purchase price of the whole show was fixed at £50,000, payable as to £12,500 in cash, and the rest in shares or cash and shares. Looked at from the point of view of

THE EXPERT REPORTS

on the business there was nothing about those terms at which anybody could cavil. A Mr. C. E. H. Symons, and a Mr. Charles Shand, of Colombo, were the two chief witnesses to the untold wealth of the property, and those two gentlemen brought to bear in support of their right to speak with unquestionable authority on the subject, the two important qualifications that the first had for many years past "taken a great interest in the search for precious stones as carried on by the natives," while Mr. Shand and wife, represented by a trustee, figured in the contracts for the sale and purchase of the affair. One of the estates to be acquired, namely, the Everton, was said by Mr. Symons to have been famous for its gems for the last 30 or 40 years. The sapphires had a purity and depth of colour which were proverbial. Catseyes of the highest value had been found "in quantity." Then there were tourmaline, amethyst, topaz, common and star stones, and all the rest of it. Corundum could be

FOUND BY THE TON,

and also crystals of remarkable size and "purity of whiteness," which, for "optical purposes are unsurpassed." These crystals could, of course, have been utilised as lenses with which to enable the shareholders at a later date to scan and decipher their dividend warrants, though they have not been adapted to that purpose yet. But more important than all this vast show of wealth was the fact that there "were from 50 to 60 pits sunk in Kabragallakelle" (in comparison with which the mystic word Abracadabra sounds mean), "which exist to this day." We say "more important than all," because there was no knowing at the time to what untold uses these pits might be put at a later date in the way of storing the gems or, at the worst, burying the hopes of the shareholders. The latter seems, at the present moment, likely to be their most immediate use. The property being of such large extent the directors, said the prospectus, "may consider it advisable to dispose of part of the estates to other companies," but no such companies have come along to mar the enjoyment of

SEARCHING ALL ALONE FOR THE GREAT WEALTH

supposed to lay buried in the undertaking. The second ordinary meeting was held on Thursday, and the chairman said he regretted the report was not more favourable. The pits, there is every reason to believe, are in their old places, but the capital is not. That, said the chairman, was "steadily going," so the affair can scarcely be said to be in every particular at a standstill, and it was for this reason perhaps, that he sought to impress on the shareholders that they "should not lose heart." The land where they were carrying on operations was honeycombed with tunnels and burrows made by the natives for generations past, but the people engaged to look after it had only got the worst stones, the explanation volunteered for this being that the native miners were "too many for them." The best mining experts in Ceylon had been engaged to explore and survey the property, and these had all wound up their experience by telling the company to "go on and prosper," which was very handsome of them, though it would not have been amiss if they had at the same time given a hint how

THE PROSPERING PART OF THE BUSINESS

was to be accomplished. In the absence of such information the company has been unable to carry out the recommendation. "We could not do so," said the chairman, because the capital, as already remarked, is steadily going, "and they did not seem to be getting what they contemplated they would get." A shareholder asked if they had let any of the gem land, to which there was vouchsafed the reply that "they had not, but that they contemplated doing so." In view of the glowing description of the property with its 50 to 60 pits, and the diggings and burrowings, and the precious stones, etc., that was a somewhat singular, not to say startling, confession to make, and it is surprising the shareholders did not show a little more interest to learn on what they were working all last year simply to lose close upon £4,000. They have on the way home 7½ cwt. of corundum, which said the chairman, is the "mother of sapphires," though, as a matter of chemical fact, it is a crystallised state of alumina, of which sapphire, ruby amethyst, etc., are others; but they have not found any gems. What the directors will do with the alleged "mother of sapphires" we do not profess to know, unless it be to force her to yield progeny. That, at all events, seems to be the only way in which this Gemming and Mining Company of Ceylon is likely to make anything. A subsidiary company for breeding sapphires would not be a bad notion and we commend it, for what may be worth, to certain members of the promoting fraternity.—*Daily Oracle*, Oct. 17th.

NETHERLANDS INDIA.

Dr. Karsten, a botanical expert, calls attention to the extraordinarily high percentage of tannin in plants growing on marshy land near the seashore throughout the Indian Archipelago. He deems that these plants find in their tannin a preservative from the decomposing influences arising out of their unfavourable environment, and he strongly recommends their bark for tanning purposes in Europe. He points out that the mangrove is used in South America as dye and tanning material. The barks of the mangroves found in Java are used for tanning and dyeing but are not exported to Europe.

Advices from the sugar, coffee, and indigo estates in E. Java are far from encouraging owing to the long continued drought.

The Batavia *Nieuwsblad* says that quinine has been put to a new use as antidote against the opium habit. It is reported that natives given to opium and wishing to leave it off need only use quinine water, and that this remedy takes good effect on them.—*Straits Times.*

PLANTING NOTES FROM THE NILGIRIS.

(*From our own Correspondent.*)

COONOOR, Nov. 1.—The drought of August and September was followed by excessive rain in October. Between the 1st and 30th of last month the fall here has been over 55 inches; such heavy rain has not been known on the Nilgiris for the last 30 years.* These abnormal showers have done a great deal of damage to estates in and near Coonoor; numerous landslips have taken place, especially on steep estates, and

* We should think it is unprecedented. A year's average rainfal in one month!—ED. *T. A.*

thousands of fine coffee trees laden with crop, most of which would have ripened in another week or two, were completely washed away, leaving ugly gaps on what was but a short time ago splendid and unbroken fields of healthy coffee. The wet weather during October has prevented the crop from ripening. Most of the planters on the slope of the Nilgiris anticipated an early crop this year, in consequence of the blossom having come out in February or a month earlier than usual. In September picking commenced, and if we had had the ordinary October weather we would have been in the height of the picking season by this time; but with such weather as we had, all rain and no sun, very little crop was gathered during last month. A couple of weeks at least of dry weather is wanted to bring on the crop. In your issue of the 29th ultimo "Planter" attributes the recent floods on the Coonoor Ghaut to atmospheric disturbance caused by continuous blasting on the Nilgiri Railway works, and to establish this theory he says that the last recorded floods took place in 1868 during the construction of the new Ghaut oad. I shall express no opinion as to the effect blasting may have with regard to rain, but the heavy rains in 1868 came down after the Ghaut road was completed. During last February, when there was no blasting going on, we had very abnormal weather, from 14 to 20 inches of rain having fallen in different parts of Coonoor, the average fall in previous years during that month being from 1 to 2 inches. To what will "Planter" attribute the February rains?—*M. Mail.*

THE PLANTERS, THE TEA FUND AND THE CHICAGO EXHIBITION SPECIAL SUBSCRIPTION.

We regret to learn that defections of contributors to the Tea Fund continue. Some, we fear, are only too glad to find an excuse for ceasing to pay; but we are glad to hear that others are giving to the special Chicago subscription the equivalents of what they previously contributed to the Fund. They really ought to give more; for those of us who have continued to subscribe to the Tea Fund (in increased ratio proportionate to increase in crops) will be expected to contribute also to the special fund. Mr. Wm Mackenzie is more sanguine than we are about the special subscription, for we fear that arguments impeaching the conduct of the directors of the Tea Fund with reference to that unhappy Tea Company will be deemed more conclusive by many than appeals to their patriotism, their duty and even their prospective self-interest in favour of liberal subscriptions to the Chicago fund. Nothing will please us better than a result which will shame our doubts and negative our fears. We hear of an address to proprietors of estates in the great district of Dimbula, which is to be attacked in divisions by collectors, with the hope that R25,000 will be thus realized! The idea is not so extravagant as it seems, for the district of Dimbula is believed to comprise one-sixth of all the tea in the island. If Dimbula contributed the sum mentioned and other districts gave in proportion, the sum of £15,000 would no doubt be realized. We feared we were going beyond our tether when we put £10,000 before the planters as a sum to aim at, but the larger amount can be contributed, and if it is available it can be all most usefully and *reproductively* spent in making our tea and its merits known not only in America but amongst the many nations, peoples and languages, representatives of which will assemble at the World's Fair. We sincerely trust that all misunderstandings, jealousies and even differences of opinion amongst all interested in Ceylon tea will be laid aside in favour of earnest and united efforts towards of a really good and effective appearance of our great staple at the Chicago Exhibition. A long pull and a strong pull and a pull altogether, and new markets for Ceylon tea will be conquered so as to banish the bugbear of "OVER-PRODUCTION" which now is so ominously pourtrayed on the canvas of our future.

HOP TEA.

A number of gentlemen interested in the tea trade and representatives of the Press were invited on Thursday to inspect the factory at Maidstone of the Hop Tea Company. Upon their arrival Mr. H. A. Snelling (the patentee of the process) at once proceeded to explain the various methods by which the hops are prepared for admixture with various blends of tea. In the first instance, he stated, they are allowed to wither. This is effected by placing them on rows of wicker trays with half-inch webbing, thereby allowing a current fresh air to continually pass through them. The hops are then passed under powerful rollers. Fermentation is thus produced. This fermentation has the effect of modifying and partly destroying the bitterness of the hop, and at the same time darkening the liquor produced therefrom. The next stage is to bake the hops by the "Sirocco" system. Mr. Snelling claimed that by the introduction of hops prepared by his patents not only is the flavour of the tea improved, but hop being a sedative it counteracted the too exciting effect of tea upon the nerves. Further than this, it modified the undesirable astringency of ordinary tea. He also stated that since the establishment of the company hop tea had been growing greatly in favor, and that this success had led to the formation of a syndicate for acquiring the Foreign and Colonial patents.

Subsequently a luncheon was given, at which the Mayor of Maidstone presided. Mr. Mathew A. Adams, F. R. C. S., F. I. C., F. C. S., in the course of the subsequent proceedings, said that a chemical analysis discovered in hops an unusual abundance of alkaloid Theine, the substance to which tea owed its valuable properties as a food, giving tranquility in nervous excitement, and, by some wonderful means, while preventing waste of nervous energy, promoting intellectual activity. He expressed a confident opinion that hop tea would be a great boon to many persons who for various reasons were not able to take ordinary tea.—*Daily Oracle.*

TEA TRADERS' TALK.

[Under this heading the *American Grocer* is publishing information and gossip on tea. In the number for October 7th a very clearly printed map of India and Ceylon showing the position of the principal tea districts is given. A glance at this map shows by how large a portion of the Indian Empire, Ceylon and the Western Ghauts, as scenes of tea culture in the south, are separated from Kangra in the extreme north, with Dehra Dun and Kumaon, forming a group yielding fine-flavoured but not luxuriant crops. These districts are again separated by a long stretch of the Himalayas from Darjeeling and the great homes of the plant, Assam and Sylhet. Between these north-eastern districts and Ceylon there is a long line of coast and an expanse of ocean, the coast line being broken only and close to Assam by the small tea district of Chittagong, while the insignificant group of estates in Chota Nagpore slightly lessens the long distance between Darjeeling and the Nilgiris. Over-production being a real danger already, it is well for tea growers that Burma has not, and is not likely for a prolonged period to have, labour in proportion to soil and climate suitable for tea, which is indigenous.—ED. *T. A.*]

India and Ceylon teas are attracting so much attention that we present a map showing the tea-growing districts of Indian and Ceylon. The districts in which tea is grown in India at the present time are: Assam, Cachar, Sylhet, Darjeeling, Chittagong, Neilgherry hills, Chota Nagpore, Kangra, Kumaon, Sikkhim, Nepaul, Dehra.

It is claimed by Baildon, author of a work on tea, that India is the natural home of the tea plant. It is of exotic growth in Japan, where it was introduced, according to some authorities, in the 6th century, others placing it during the 9th century.

The Province of Assam, once called the Inferno of Bengal, owing to its humid and deadly climate, with jungle fevers, ague and tigers, holding supreme sway has been transformed into a fairly cultivated district. Parts of the province are reached by railway and the steamers of two lines. Hundreds of thousands of acres of open land are now to be seen planted with tea. This, it is claimed, has changed the character of the climate.

Mr. Ball says: "Recent discoveries in Assam also seem to justify the assumption, if nothing to the contrary be known, that it (tea) has spontaneously extended its growth along a continuous and almost uninterrupted mountainous range, but of moderate altitude, nearly from the great river, the Yang-tse-Kiang, to the countries flanking the South-western frontier of China, where this range falls in with or, agreeably with the opinion of a well-informed and scientific author, Dr. Royle, forms a continuation of the Himalayan range. But in those countries, as in every part of China, if found in the plains or in the vicinity of habitations and cultivated grounds, it may be fairly assumed that it was brought and propagated there by the agency and industry of man."

"In the early days of the tea enterprise in India indigenous plants were collected and formed into gardens, and China plants, propagated from seed, were planted in close proximity to the Indian species. The Chinese plants having entirely changed from what they were in their origin, in the botanical course of nature imparted their altered condition, in some degree, to other plants around them, and the very obvious result of planting two kinds of tea came about in the production of a third the hybrid. From the small proportion of China plant originally placed in the experimental gardens, we see the wonderful blending of nature in the fact that very little purely indigenous, or purely China tea remains, the various tea-producing districts in India almost all growing hybrid bushes. There are sections of a few—I was almost saying two or three—estates in Assam, where the indigenous plant is cultivated exclusively, and the greatest care is taken to keep all China and hybrid plants out of the way, so as to insure the continued purity of species."

The United States Minister to the United States of Colombia, Hon. John T. Abbott, states that competent authorities declare certain sections of the Republic to be peculiarly adapted for the development of tea culture.

[One of hundreds of such places where the absence of cheap labour places a ban on the culture.—ED. *T. A.*]

GOVERNMENT CINCHONA PLANTATIONS.

[We received our own copies of the Madras reports, only after the following notice had been marked for extract.—ED. *T. A.*]

It is now a little more than 30 years since the Government of Madras started cinchona planting on the Nilgiris, and the success which has attended its efforts to produce a febrifuge of excellent quality at a low cost—one of the main objects with which the plantations were opened—for sale to the natives have been rewarded with success. The practical effect, however, of the action of Government in selling quinine for almost the cost price will undoubtedly, as Government remarks in its Order on the Report of the working of the plantations during last year, to a great extent be nullified if no local market is available for the medicine. "His Excellency in Council regards it as a matter of the highest importance that the medicinal value and the low cost of quinine should be widely known," and he rightly believes that "publicity is the chief thing wanted in order to obtain for it a ready sale." Notices are inserted in all the District *Gazettes* calling attention to the low price at which quinine is obtainable, and the Tahsildars, Postmasters, Revenue officials and heads of villages have been supplied with packets of quinine and asked to let the public know that the medicine can be obtained from them. Perhaps it is too early yet to give a definite opinion as to the general success or otherwise of this experiment; but quinine distributed in some Districts has not met with the ready sale that was anticipated, a fact which is attributable in great part to the apathy of the officers entrusted with its sale. The Government thinks it but natural that amongst the poorer classes, whose education is imperfect, there should be a rooted objection to any payment however small, for a foreign medicine of which the effects are comparatively unknown; but it is hoped that by patient and persistent efforts on the part of Government officers and by the gradual spread of the knowledge of the effects of quinine in preventing and curing fever, any existing scruples may be overcome. The general use of quinine amongst the people is undoubtedly a result most earnestly to be desired, but until the apathetic gentlemen are taken smartly to task little amelioration can be expected. Government, however, fully sees the necessity of the natives reaping the benefit of enjoying the advantages of a new remedy for a disease which prevails in one form or another almost everywhere throughout the country, and is productive of greater mortality than any other; and it at the same time does not forget the planters, who would profit by a rise in prices consequent on any large increase in the demand for bark—a hope earnestly expressed but unlikely to be fulfilled for some time. During the past year the imports of quinine into India rose from about 15,000 lb. to over 30,000 lb., a fact due, Mr. O'Conor assumes, to the retail druggists taking advantage of the rise in exchange to replenish their stocks at a profit to themselves. The unfortunate people who find themselves obliged to consume this drug not having obtained the benefit of the low price at which it is now placed wholesale on the market, there has been no large incentive to use it more freely.

During the past year the crop of bark harvested on the Nilgiris amounted to 133,351 lb. apportioned thus:—Dodabetta, Crown bark 63,342 lb; Naduvatum, Red bark, 51,230 lb and crown bark 3,530; Pykara, crown bark 10,166 lb and Red bark, 6,083 lb. At the close of the previous year 477,744 lb of the bark remained in stock in the godowns, which, added to the foregoing, brings the total bark in stock up to the huge figure of 611,695 lb. Of this only 100,400 lb were disposed of during the year, leaving therefore in stock at its close 510,695 lb! Only 2,928 lb of quinine were manufactured, against an estimate of 4,000 lb. The decrease was due, according to Mr. Lawson, the Government Botanist and Director of Cinchona Plantations, to the influenza epidemic in the early part of the year, which drove a number of old and experienced hands away, necessitating the employment of fresh hands; to an insufficiency of machinery; and to the tardy supply of chemicals necessary for the manufacture of the alkaloid. Upon these points the Government remarks that there was no severe outbreak of influenza at the factory; that the Administration Report is not the place for the discussion of the sufficiency or otherwise of machinery; and that the tardy supply of chemicals was no doubt a serious obstacle to speedy and extensive work, but that for future Mr. Lawson should send in all indents for submission to the Secretary of State at least six months before the articles are required. Of the sulphate of quinine manufactured, only 1,356 lb. were disposed of, of which 800 lb. went to Ceylon and 400 lb., to Bombay; 1,572 lb. thus remaining in stock at the commencement of this year. This and more, has already been indented for, and the outturn

during the current year, therefore, in order to keep pace with the demand, should be at least 4,000 lb.; but Mr. Lawson has made no estimate. The price of the drug, it may be mentioned, has fallen from R16-7-9 to R14-11-3 per lb. 1,050 lb. of febrifuge were made during the year, and this, and 400 lb. in hand at the beginning of the year, has been issued in indents to the Medical Stores Department in Madras and Bombay.

Regarding the condition of the quinine sent to Ceylon, the Medical Superintendent of the Medical Stores, Colombo, said that its appearance was very much against it, and asked that future supplies might be better crystalised.* Unless this point was attended to, it could, he said, never compete with Howard and Sons, or other well-known, quinine. Mr. Lawson denies that the crystallisation was bad; in fact, he says it was really very good, the bad appearance of the quinine being due to its having been partially dried by pressure instead of by absorption, and that the crystals thus became broken up. On receipt of the Medical Superintendent's letter an offer was made to take all the quinine back and to send in its place an equal amount of better looking stuff, but the Superintendent said he would not do this, he only hoped that for the future a better looking sort of quinine would be sent. This seems to have been done, for since his remonstrance no further complaint on the matter has been received. The actual receipts of the Nilgiri plantations during last year amounted to R28,876, against a revised estimate of R40,000, but if credit be taken for the quinine and bark issued during the year, of which the value was not realised before its close, the receipts are raised to R30,529; and if the value of the stock in hand at the end of the year be also included at the rates prevailing during the year the figure comes to R73,555. The net result of the operations, taking the last figures, show that there was a debit balance at the end of the year of R4,832. Since the commencement of planting operations in 1860 there has been a deficit of 211 lakhs of rupees; the value of bark supplied to the quinologist for experimental purposes, and that of quinine and febrifuge sold has amounted to a little over one lakh; the value of bark sent to England or supplied to other Governments or departments has amounted to close upon 32 lakhs of rupees, while the sales of plants, seeds, etc., has brought in a revenue of R75,381. The total expenditure during the past thirty years has been 35·86 lakhs, and the total receipts 33·75 lakhs.—*Madras Mail.*

SACRED TREES OF THE WORLD.

The Palm, the Oak and the Ash are the three trees which since times immemorial were held to be sacred trees. The first among them, which figures on the oldest monuments and pictures of the Egyptians and Assyrians, is the Date-palm (*Phœnix dactylifera*), which was the symbol of the world and of creation, and the fruit of which filled the faithful with divine strength and prepared them for the pleasures of immortality. "Honor," said Mohammed, "thy paternal aunt, the Date-palm, for in Paradise it was created out of the same dust of the ground." Another Mohammedan tradition of a later period says that when Adam left Paradise he was allowed to take with him three things—a Myrtle, because it was the most lovely and the most scented flower of the earth; a Wheat-ear, because it had most nourishment, and a Date, because it is the most glorious fruit of the earth. The date from Paradise was, in some marvolous way, brought to the Hejaz; from it have come all the Date-palms in the world and Allah destined it to be the food to all the true believers, who shall conquer every country where the Date-palm grows. The Jews and the Arabs, again, looked upon the same tree as a mystical allegory of human beings, for, like them, it dies when its head (the summit) is cut off, and when a limb (branch) is once cut off it does not grow again. Those who know, can understand the mysterious language of the branches on days when there is no wind, when whispers of present and future events are communicated by the tree. Abraham of old, so the rabbis say, undestand the language of the Palm. The Oak was always considered a "holy" tree by our own ancestors, and, above all, by the nations of the north of Europe. When Winifred of Devonshire (680-754 A. D.) went forth on his wanderings through Germany to preach the Gospel, one of his first actions was to cut down the giant Oak, in Saxony which was dedicated to Thor and worshipped by the people from far and near. But when he had nearly felled the Oak, and while the people were cursing and threatening the saint, a supernatural storm swept over it, seized the summit, broke every branch, and dashed it, "quasi superni motus solatis," with a tremendous crash to the ground. The heathens acknowledged the marvel, and many of them were converted there and then. But the saint built a chapel of the wood of this very Oak and dedicated it to St. Peter.

The sacred Oaks, it must be admitted, do not seem to have always done their duty. Thus, for instance, a famous Oak in Ireland was dedicated to the Irish Saint Columban, one of the peculiarities of the tree being that whoever carried a piece of its wood in his mouth would never be hanged. After a time, however, the holy Oak of Kenmare was destroyed in a storm. Nobody dared gather the wood except a gardener, who tanned some shoe leather with the bark; but when he wore the shoes made of this leather for the first time he became a leper and was never cured. In the Abbey of Vetrou, in Brittany, stood an old Oak-tree which had grown out of the staff of St. Martin, the first abbot of the monastery, and in the shade of which the princes of Brittany prayed whenever they went into the abbey. Nobody dared to pick even a leaf from this tree, and not even the birds dared to peck at it. Not so the Norman pirates, two of whom climbed the tree of St. Martin to cut wood for their bows. Both of them fell down and broke their necks. The Celts and Germans and Scandinavians, again, worshipped the Mountain Ash, and it is especially in the religious myths of the latter that the "Asker Yggdrasil" plays a prominent part. To them it was the holiest among trees, the "world tree" which, eternally young and dewy, represented heaven, earth and hell. According to the Edda, the Ash Yggdrasil was an evergreen tree. A specimen of it (says Adam of Bremen) grew at Upsala in front of the great temple, and another in Dithmarschen, carefully guarded by a railing, for it was, in a mystical way connected with the fate of the country.—*Deutsche Rundschau.*

NOTES ON PRODUCE AND FINANCE.

SIR ANDREW CLARK ON TEA.—It was Sir Andrew Clark who spoke against Indian tea the other day, and it was in the course of a lecture to the students of the London Hospital that he delivered himself of the opinion that Indian tea was especially bad for nerves. This is what he said:—"Tea is a blessed beverage. I do not know what I should do without it. But there is tea and tea; and one of the teas which I have in my mind is the representation of all that is physiologically wicked. I go about town a good deal, holding consultations here and there, and about five o'clock when I get into a place the lady of the house will say to me, "Sir Andrew, you look so tired, do let me give you a cup of tea.' I say, 'Thank you very much.' But the tea has stood for half-an-hour; and she remarks, 'I know you do not like it strong, Sir Andrew,' and then she puts about a tablespoonful of tea into the cup, and fills it up with water. Now, I call it positively cruelty to give tea like that to anybody, and I hope you gentlemen will always set your face against such a beverage. Tea to be useful should be, first of all, black China tea—the Indian tea which is being cultivated has become so powerful in its effect upon the nervous

* A specimen received by us from Dr. King, of quinine manufactured by Mr. Gammie, was as pure as Howard's.—ED. *T. A.*

system that a cup of it taken early in the morning, as many people do, so disorders the nervous system that those who take it actually get into a state of tea intoxication, and it produces a form of nerve disturbance which is most painful to witness. If you want to have, either for yourselves or for your patients, tea which will not injure and which will refresh, get black China tea, putting in the right measure—the old-fashioned teaspoonful for each person, and one for the blessed pot. Then pour on briskly boiling water, and within five minutes you must pour it off again, or it will become wicked instead of good. Let this patient, therefore, have half a pint of milk and water or cocoatina, or half a pint of tea, *a la* Clark, if you please." Unfortunately for the value of this opinion, it is a well-known fact that medical men seldom agree upon any point, and their views upon tea are as divergent as upon alcohol. If Sir Andrew Clark prefers China tea he is welcome to his opinion, but when he tells the student of a London hospital that British-grown tea is deleterious, and advocates the use of China tea in preference—as though he had studied the question deeply and arrived at the conclusion after careful analysis and considerable research—he should support this advocacy with something stronger than a mere expression of opinion. To give expression in a public place to a statement unsupported by one jot of evidence is, to say the least, very unfair to the Indian tea industry. [Hear! Hear!—ED. *T. A.*]

LAST WEEK'S TEA SALES.—The *Produce Markets' Review* says:—"The increased imports of Indian tea continue to supply the market liberally, the quantity offered at the public sales being upwards of 43,500 packages. Notwithstanding this heavy weight of tea, the demand was equal to it, and the market closes strong, with an advance in some cases strong, with an advance in some cases on the prices of the preceding week. The better quality of the teas generally accounts for the increasing activity in the demand. The growths which command most attention are those from the Assam districts, as these teas are, on the whole, superior to those of several seasons past, which is borne out by the comparatively high prices that have been paid. The quality of the Darjeeling teas is fairly satisfactory, but falls considerably short of the earlier arrivals, while those from the Syhlet and Dooars gardens, with few exceptions, continue to be inferior to the imports of the previous season. It is satisfactory to learn that strong representations have been made to those interested in the manufacture of the latter growths of the undesirability of continuing the newly-adopted method of preparing the leaf, which, it is hoped, will have the desired effect. At the public sales 43,876 packages were brought forward, and only 4,200 were withdrawn. The above quantity comprised a good selection of all grades, and from the quantity sold it will be seen the demand was well sustained. At the public sales very steady prices have been obtained for nearly all descriptions of Ceylon tea. There has been a good assortment of tea of fair quality, all of which has sold well. Fine to finest Brokens were actively competed for, and in several cases 1s 8d to 1s 9d was realised for fine descriptions. Fine Pekoes were in specially good demand and sold at rather better prices, while the lower grades of Souchongs kept fully up to last week's rates. Of the15,976 packages offered at auction 1,620 were withdrawn. In Javas, 808 packages were offered at sale, all of which sold at steady prices.

THE ABBOTSLEIGH TEA ESTATE COMPANY LIMITED.—This company has just been registered, with a capital of £25,000, in shares. Object to acquire tea or other plantations in Ceylon or elsewhere, and to carry on thereat the business of tea, coffee and cinchona planters and with a view thereto, to take over the estate in Ceylon called Montefiore, in the central province of the island of Ceylon, and the Abbotsleigh Estate in the same province. The first subscribers (one share each) are:—C. B. Smith, 7 Grove End Road, N.W.; N. Rowsell, Abbotsleigh, Hatton, Ceylon; C. Harrison, 67 Lincoln's Inn Fields; H.W. Matthews, 9 Coleford Road Wandsworth; F. Viller, 24 Kitto Road, St. Catherine's Park; F. Farris, 49 Morley Avenue, Nool Park, Wood Green; C. Anderson, 12 Brookville Road, S. W. There shall not be less than three nor more than five directors; the first shall be C. B. Smith, 7, Grove End Road, N.W.; W. W. Simpson, Winkley, Whalley, Lancashire; N. Rowsell, Abbotsleigh, Ceylon; and C. Harrison, 67, Lincoln's Inn Fields, W. C.; qualification three shares; remuneration: the directors shall only be paid their expenses of travelling in England to attend the meetings of the Board.

THE COFFEE MARKET.—Messrs. Wilson, Smithett, and Co. say: The recent rapid and severe fall has, as is natural, been followed by a reaction which at first imparted steadiness to the market, and this, attracting orders, caused better competition, resulting in a recovery of 2s on ordinary qualities and 3s to 5s on desirable and coloury kinds. Supplies at sale during the fortnight were extremely small, arrivals being unimportant. The first new crop Jamaica was catalogued, and, being of inferior quality, sold at a low price. Central American kinds are very scarce; the Costa Rica crop is over for the seas5n, fine qualities in second hands realise high prices privately, 103s having been paid for good. Of Guatemala there is not much to attract buyers; dull and dingy old parcels sold at moderate prices, a few good with strong competition realised high prices. Good home trade Vera Paz and Honduras continue to receive attention from buyers, the quality being very good. Brazil, after declining early in the fortnight, is in better request at the close, and an advance of fully 2s is established, recent advices pointing to some modification of the previous large estimate.

SPURIOUS COFFEE.—Coffee always was, and perhaps ever will be, one of the most abused articles of import and consumption; and as the scarcity of desirable qualities, for a long time past, has led to exceptionally advanced rates, the temptations to adulterate this homely beverage have been proportionately increased, says the *Grocer*. Adulteration, moreover, in America seems to be studied as a fine art; for the perfection to which it is brought there now is simply marvellous. We have before seen some fine specimens of sham coffee in its roasted state, but never have we examined anything so closely resembling the real article as that received by us this week from Philadelphia, which place is growing notorious for its swindling in coffee (so-called). Several respectable firms there, however, have taken upon themselves to expose these trade frauds, and are issuing circulars to warn the unwary against buying this "counterfeit" coffee. Deceiving as it may be in appearance to the ordinary observer, a practised eye can easily detect its false character, and avoid it accordingly; but when ground, ready for use the bogus coffee referred to is hard to distinguish from any other. Still, there are means of detection even then, which will show that it is not the product of the true coffee-bean grown in Ceylon, India, Central America, or the Brazils; and we may add that in liquor it is of a dark colour, rather bitter in taste, with a thick, muddy sediment, and almost undrinkable. It is said to be of German manufacture—a sort of paste or farinaceous substance, first mixed with burnt chicory or some foreign colouring ingredient, moulded into the requisite size and shape by machinery—the same as pills and such-like medicinal preparations—and then the spurious compound is finally baked to give it hardness and consistency. In this form it is imported, and distributed largely in the United States, and, being sold at the ow figure of eleven cents (or say 6d) per lb., or one-third the price of pure coffee, it naturally commands an extensive sale in the more populous districts where it is introduced. No honest trader can stand against malpractices of this nature, and it is hoped that the attention of the American Government will be drawn to the matter, with a view to protecting both ther own revenue and the interests of the whole community.—*H. and C. Mail*, Oct. 30th.

THE QUANTITIES OF TEA that were sold to foreigners in Yokohama, and remained in stock in the city on the 15th inst. were 24,800 *kin* (one *kin*=1⅓lb.) and 268,800 *kin* respectively.—*Japan Weekly Mail*, Oct. 17.

THE STANDARD TEA COMPANY OF CEYLON, LIMITED.

A general meeting was held at the offices of the company, Tuesday October 27th. Directors present: Mr. Alexander Brooke (in the chair,) Mr. Peter Moir and Mr. Robert Kay Shuttleworth. The chairman, said "the meeting was necessary within four months of registration of the company, under the Acts dealing with the incorporation of joint stock companies, in order that the necessary returns of capital might be made to the Registrar of Joint Stock Companies, which will be attended to by the secretary. The prospectus was issued with certain estimates of the probable produce to be expected from the St. Leonards estate during the year 1891. The estimates were Mr. Edward S. Grigson's. The company, as stated in the prospectus, was entitled to all the produce gathered from March 1st, *i.e.*, entitled to the great bulk of the crops. I am happy to say that Mr. Edward Grigson, under date Colombo, Sept. 21st, reports that the quantities gathered since March 1st will exceed, in each case, the quantities estimated for the whole year, thus:—

	Original estimate for twelve months.	Revised estimate for ten months.
Coffee...	3,000 bushels.	3,500 bushels.
Cinchona	40,000 lb.	46,000 lb.
Tea Leaf	80,000 lb.	100,000 lb.

The expenditure will also be somewhat in excess of estimates, partly because they are estimates only, partly because of the increased quantity of produce to be cured and handled, for it goes without saying that the cost to transport and cure the greater quantity is more than the smaller—*e.g.*, 3,800 bushels coffee more than for 3,000 bushels, &c. This produce has not yet come to any extent into the hands of the company. It is yet to be accounted for. The St. Leonard's estate was handed over to the company on August 24th. Perhaps, if your directors had their own way, they would not have asked you to meet them until they had something more definite to announce, but the dates are settled for them; the Act requires the shareholders to meet within four months from the first formation of the company. All the capital asked for in the prospectus was applied for, and a good deal more. Many of the applicants for shares—I think I may say, the greater number—were residents in Ceylon, or people acquainted with the island and with the district of Udapussellawa, and some of them with the estate itself and its exact condition, and no perhaps better than anyone else in the island what are the prospects of coffee continuing to yield on a remunerative scale, and when the young tea mentioned in the prospectus will be in a paying condition, and thought favourably of those prospects. On tea, when it has attained full bearing is our chief reliance. The production of tea is greatly on the increase both in India and Ceylon; but Ceylon holds its own wherever it has obtained a footing. It has maintained it, because it is a good article, and no one accustomed to it will go back to an inferior article such as China, notwithstanding anything Sir Andrew Clark may have said. The best Ceylon teas promise in the opinion of your directors most permanency in this respect. Among the best of the Ceylon teas are those from Udapussellawa, and your directors have pleasure to announce that they have arranged with Mr. Norman W. Grieve, the owner of Eskdale and Liddesdale Estates, near to the company's property, St. Leonards to throw in his lot with the company from January 1st 1892. I prefer to say Mr. Grieve throws in his lot with the company, to using the expression 'that the company have contracted to buy from him and for this reason, that Mr. Grieve takes a great part of the purchase-money in shares of the company, and your directors hope to have him as a valued colleague. The election of a director is strictly a matter in the hands of the other side of the table; but Mr. Grieve is a well-known man in Ceylon, is a gentleman of high character, knows the districts, has had experience as a planter and I doubt not that when the time comes the shareholders will heartily welcome him as a valuable and trustworthy director."

A vote of thanks to the chairman concluded the proceedings.—*H. and C. Mail*, Oct. 30th.

CAMPHOR FROM JAFFNA.—This article of export is used in the manufacture of smokeless powder, and came into prominent notice when this invention was first publicly announced. The stock at that time in London was exceptionally small, so that values were suddenly forced up. In order to maintain the abnormally high level of prices produced by speculatien, dealers withheld supplies for many months, bringing to market only sufficient to meet actual engagements. The bulk of shipments to Europe were so well watered that the loss in weight upon arrival there was found to be in many instances from 17 per cent to 20 per cent., instead of the usual 7½ per cent to 10 per cent. Prices at one time during the year rose nearly 100 per cent but closed quite normally,—*Manufacturer and Inventor.*

TEA PREPARING MACHINERY.—Here is an item that may interest tea-men. We take it from the *Kokkai*:—"Tea is among the most important articles of export from this country. Every year about 60 million lb. are sent abroad. Hitherto in the manufacturing districts everything has been managed by hand, the expense being great and the profits to producers small. In India on the contrary machinery is used with the result of materially economizing time and outlay. Lately the Governor of Saitama Prefecture informed the department of Agriculture and Commerce that a certain Mr. Takebayashi Kenzo of Kawagoye, in that Prefecture had invented a tea-preparing machine after many years of labour and experiment. The Governor asked that an expert be sent by the Department to examine the machine. This duty was entrusted to Mr, Omura Takeshi and he has reported that he found the invention thoroughly suitable and very convenient. He added that if the machine be brought into general use throughout the tea-producing districts, a great saving of time and expense will be achieved."—*Japan Weekly Mail*, Oct. 24th.

ARTIFICIAL IVORY.—Persistent attempts have been made to produce a good artificial substitute for ivory, says the *Engineer*. Hitherto none has been successful. A patent has recently been taken out for a process based upon the employment of those materials of which ivory is composed, *i.e.*, tribasic phosphate of lime, calcium carbonate, magnesia, alumina, gelatine and albumen. By this process quicklime is first treated with sufficient water to convert it into the hydrate, but before it has become completely hydrated or "slaked," an aqueous solution of phosphoric acid is poured on to it, and while stirring the mixture the calcium carbonate, magnesia and alumina are incorporated in small quantities at a time; lastly, the gelatine and albumen, dissolved in water, are added. The point to aim at is to obtain a compost sufficiently plastic and as intimately mixed as possible. It is then set aside to allow the phosphoric acid to complete its action upon the chalk. The following day the mixture, while still plastic, is pressed into the desired form in moulds and dried in a current of air at a temperature of about 150° C. To complete the preparation of the artificial product by this process, it is kept for three or four weeks, during which time it becomes perfectly hard. The following are the proportions for the mixture, which can be colored by the addition of suitable substance: Quicklime, 100 parts; water, 300 parts; phosphoric acid solution, 1·05 sp. gr., 75 parts; calcium carbonate, 16 parts; magnesia, 1 to 2 parts; alumina, precipitated, 5 parts; gelatine, 1 to parts.

MANA-GRASS EXPERIMENTS AND THE COMPLAINTS REGARDING CEYLON TEA CHESTS.

LONDON, Oct. 30.

We have heard nothing very recently about what is to be done respecting the mana-grass tea chests. We presume that those concerned are yet awaiting the result to their reference to Ceylon. But Mr. Rogivue, in his letter asks very particularly as to the chances of his being supplied with such tea chests. He writes that those wooden ones in which he receives his consignments of Ceylon tea are very bad, and that they do not bear the long railway journeys. In his opinion "it would be a great thing if they could be replaced by better ones." He would evidently be well pleased if he could receive his tea in stronger and more durable chests. We can readily understand that this would be so, for the distances to be travelled by railway in Russia are so enormous that the weak boxes which are now received from Ceylon cannot be well calculated to stand the shaking and rough handling they are certain to receive. It might be as well, should your estate superintendents know that they are packing teas to be forwarded to Mr. Rogivue if they would give a little extra strength to the boxes. Mr. Elwood May, we know, makes similar complaints as to your tea chests, and that he intends repacking all the tea he distributes throughout the States in highly finished boxes of local manufacture. These complaints are not only well founded, but they should act as a stimulus and encouragement to those who are now working the Stanley-Wrightson Syndicate in conjunction with the mana-grass experiments.

I forgot, when quoting Mr. Rogivue's letter, to tell you that the principal points of encouragement mentioned in it have been communicated to Messrs. Travers & Sons of 119 Cannon Street, and that that firm propose to give them publicity in the *Produce Markets Review*. A letter from the firm shown to me evidences that they think it questionable if China tea can be further displaced here to admit of a profitable market being found in Great Britain for the large, annually-increasing production of Indian and Ceylon tea, and that they are therefore fully alive to the necessity that exists for you to open up new markets abroad.—London *Cor.*

CROPS IN SOUTH INDIA.

SEASON TELEGRAM TO THE GOVERNMENT OF INDIA, REVENUE AND AGRICULTURAL DEPARTMENT, CALCUTTA.

Week ending 7th November. Rainfall continued heavy in Madura and Tinnevelly; fair and moderate in all other southern and western districts, northern parts Ganjam and at three stations in Vizagapatam; elsewhere in five northern coast districts and in Cuddapah, Kurnool and Bellary little or none. Anantapur light rain tolerably general. Weather on 8th, Bellary, promising. Some improvement Ganjam and Anantapur, but more rain urgently required there and in uplands of Kistna, Nellore, Kurnool, Bellary Cuddapah, where crops withering and cultivation greatly retarded. Pasture and water-supply improving in all southern districts, but dry fodder scarce. In Bellary, Anantapur and Kurnool pasture and fodders scarce and cattle suffering, but no general want of water. Previous high prices continue generally, though fallen slight in Chingleput, South Arcot, Tanjore, Trichinopoly, Tinnevelly and on West Coast and risen slightly Madura Cuddapah, Vizagapatam, Ganjam; sharp rise Kurnool, Bellary and Anantapur. Works—numbers employed —Chingleput 5,626, Wandiwash 918, Polur 1,694, Kalahasti 2,779, Cuddapah 551, Coimbatore 4,233 and Salem 3,854, total 19,655, against 22,303 last week. Kitcheens—numbers fed—Chingleput, 1,443, including 831 children; Wandiwash 655, including 383 children; Polur 132, including 100 children; Kalahasti 1,519, including 1,120 children; Coimbatore 856 and Salem 24, including 116 children; total 4,869; decrease from last week 673. Loans disbursed from commencement of distress—Chingleput R3,70,146, Wandiwash and Polur 1,52,069, Cuddapah, Nellore, Coimbatore, Tinnevelly, South Arcot and Salem 1,81,045. Wells constructed—Chingleput 1,409, Wandiwash and Polur 209, and six other districts 216. Wells under construction —Chingleput 2 465, Wandiwash and Polur 1,257, and, six other districts 998.

SOUTH AFRICAN DIAMOND MINING.

The production of the diamond mines of Griqualand West, South Africa, has been steadily declining during the past three years. This does not, however, appear to be due to any falling off in the supply of the precious stones, but rather to the measures taken for the restriction of production by the larger companies which have recently absorbed many of the smaller undertakings. The great object of the consolidation of a number of small companies and subsequent restriction of output was to increase the price of diamonds, and it seems from the statistics of diamond mining in South Africa that this step has been so far successful. The amount and value of the output of these mines in 1890 has not yet been officially returned. For the three years preceding the statistics are as follows:—

Mine	1887—Production		1888—Production		1889—Production	
	Carats	Value £	Carats	Value £	Carats	Value £
Kimberley	1,333,832	1,410,208	1,332,809	1,270,873	816,135	1,132,490
De Beers	1,014,048	1,022,578	1,003,406	935,444	947,195	1,312,872
Dutoitspan	696,576	987,284	569,013	758,464	450,336	897,586
Bultfontein	602,246	612,963	659,887	642,763	541,901	746,517
River diggings	45,365	92,706	31,980	61,031	29,492	75,285
* Total	3,692,067	4,126,039	3,597,095	3,668,575	2,784,459	4,166,050

* In addition, the St. Augustine mine which, was worked intermittently, produced during the three years 427 carats valued at £609. The Otto's Kopje mine produced during the same time 665 carats valued at £691.

The Kimberley mine, which is now practically in the hands of the Central Diamond Mining Company, had been opened in 1877 to a depth of 740 ft.; in 1888 it was sunk to 825 ft., and in 1889 to 845 ft.; no further depth is reported in 1890. In 1887 the De Beers mine was down 700 ft., and in 1888 805 ft. A great development of the underground system took place in 1889. This mine is owned by the De Beers Consolidated Mines Company, which in 1889 also secured control of the Bultfontein property, which had attained a depth of 460 ft. at the close of 1887, and 620 ft.

at the close of 1888. The St. Augustine mine has been worked to comparatively small extent. At the close of 1888 the main shaft had been carried to a depth of 450 ft., and in 1890 it was sunk 75 ft. further. The Otto's Kopje mine had reached a depth of 800 ft. in 1889.

The average value of the diamonds raised at the Kimberley mine in 1889 was $6.74 per carat; in 1887 the average value was but $4.89½. Similarly, at the De Beers mine the average value increased from $4.98½ per carat in 1887 to $6.73 in 1889. At the Dutoitspan mine there was an advance from $6.88 per carat in 1887 to $9.48 in 1889; at the Bultfontein mine from $4.94 to $6.70½; at the St. Augustine from $6.16 to $8.12; at the Otto's Dopje from $4.51 in 1888 to $7.32, and at the river diggings and mines from $9.93 in 1887 to $12.90 in 1889. It will be observed that the most valuable diamonds are raised from the river diggings.

The number of persons employed in the diamond mines of Griqualand West in 1890 is officially returned as 7,249, as compared with 8,102 in 1889, and 11,453 in 1888. The number of lives lost last year was 38 as compared with 105 in 1889 and 303 in 1888. The large number of fatal accidents reported is attributed to insubordination among native miners, their disregard of orders involving a heavy proportion of the loss of life which has occurred during the last three years. The wages paid to white miners in the Kimberley and De Beers mine range from $17.50 to $34 per week; Kaffirs received $7.80 per week, with wood, water, lodgings and medical attendance. In the Dutoitspan and Bultfontein mines, wages are somewhat lower.—*Engineering and Mining Journal.*

GOVERNMENT QUININE.

Sir Charles Elliot's remarks on Brigade Surgeon G. King's report of the Cinchona Plantations and Factory in British Sikkim for the year 1890-91 are worthy of the attention of District Officers and all Civil Surgeons. It is twenty-nine years ago since the Bengal Government entered upon this cinchona enterprise, not with a view to profit, but with the avowed intention to reduce the price of quinine which then stood at a practically prohibitive rate, to one rupee per ounce. The plantation and factory have met all expectations, and not only does the price now stand at the latter rate, but the net profits for the year under notice amounted to seventeen thousand rupees. It is truly remarked that "hardly any greater blessing to a fever-stricken country can be imagined than cheap quinine;" and with respect to the Sikkim product, we have ample assurance that cheap quinine does not mean inferior quinine. Government quinine, Dr. King assures us, has been shown by repeated analysis to be of the highest possible purity, which he goes on to remark, "is a good deal more than can be said of much of the foreign quinine that is sold in Calcutta," and he might have added, "elsewhere in India." But this is not all. There is in stock a large amount of raw material and of manufacturing product, proving that the producing capacity of the plantation and factory is greater than the demand for the product; and it would be possible still further to reduce the price of quinine if more charitable dispensaries were to supply themselves with the Government drug instead of buying elsewhere at prices from 12 to 25 cents* higher. The Lieutenant-Governor of Bengal is drawing the attention of the Inspector-General of Civil Hospitals of that Province to the matter, and it would be as well if a similar course were adopted in the Punjab. The necessity of having a plentiful supply of real, genuine quinine ready at hand for distribution in the Punjab is not so urgent this year as it was last; but it cannot be too prominently brought home to the responsible authorities where such an article can be obtained in quantities; it would cripple the finances of no Municipality or District Board to purchase liberally. In cases of unusual and sudden outbreaks of fever, purchases are apt to be made in the nearest market, irrespective of price, and on such occasions dealers are tempted to adulterate an already inferior antiperiodic to meet such requisitions and to make a good thing of them. This could easily be guarded against by laying in a reasonable stock of pure and cheap Government quinine, and it is somewhat surprising that this has not been insisted upon long ago. The Punjab Government has made spasmodic attempts to induce district officers to distribute the drug liberally, but, like all such attempts, they do no lasting good. When the capacities of the Sikkim plantations become better known, we are confident that quinine, cheaper even than a rupee an ounce, will be obtainable in abundance in India.—*Civil and Military Gazette.*

* Per cent?—ED. *T. A.*

THE TEA TRADE continues, and some demand exists for better grades than those in request for some weeks past. Settlements of leaf to date are 235,000 piculs against 208,000 same time last year, and exports foot up 27¼ million pounds against 23¾ millions at the same date last year. —*Japan Weekly Mail*, Oct. 17th.

GERMAN enterprise in New Guinea is increasing. With the object of establishing plantations in the territory of the New Guinea Company, for the cultivation chiefly of tobacco, a company, to be known as "The Astrolabe Company," has just been formed in Berlin with a capital of 120,000*l.* Experts are of opinion that parts of New Guinea are admirably suited for the growth of the tobacco leaf, and, of course, any quantity can be absorbed in the manufacture of German cigars, which, by the way are being exported in larger quantities than ever to this country.—*E. Mail.*

MR. WYNDHAM, the British Consul at Paramaribo, the capital of Dutch Guiana, in a report just issued by the Foreign Office, refers to gold mining in that colony and says that the industry is steadily increasing, and with the introduction of capital will be a great business. A slight decline in production has occurred during the last two years, but this is to be attributed largely to placer owners building their hopes on companies and syndicates buying their land, and, in the meantime, ceasing the developments necessary to keep up the average returns. The auriferous belt extends throughout the three Guianas from Cayenne to Venezuela in an easterly and westerly direction, in width about 100 miles. The formation of the gold belt is metamorphic, slates, schists, and occasional dikes of sandstone and gneiss. Mining has been principally confined to alluvial washings, and very satisfactory results have been so far obtained. The amount of gold exported increased from 475,953 grammes in 1879 to 1,029,777 grammes in 1888. Last year the export amounted to 987,218 grammes. The Government has done nothing to open up the country by the construction of roads, or making the river more navigable for small steamers to advance the mining interests of the colony. Private enterprises have had to rely upon their own resources in this respect. It is only during the past two years that any attention has been given to quartz mining, and the developments during this time have produced highly satisfactory results. After describing the work done on various mining properties, the Consul adds that there is a good field there for capitalists, and when the reefs now discovered have been developed and suitable machinery erected, the results cannot fail to be satisfactory. The ore is free milling, and wood and water are abundant for all mining purposes, consequently the cost of working will be nominal. All machinery for manufacturing and mining purposes is admitted free of duty.—London *Times.*

OUR BUILDING MATERIALS AND THE GOVERNMENT.

Not long back we devoted considerable space to a series of articles dealing with the different forms of material used in this colony for building operations. We therein pointed out how much might be done to improve their natural qualities, or the manufacture of such items as have to be prepared for use. We are glad to realize that our Government has seen the desirability of affording help towards carrying out the second of those suggestions, and that an experienced man from home is to be put in charge of an endeavour in that direction. This is not the first time that our rulers have recognised the desirability of affording some aid towards the improvement of our building materials. It is now fully thirty-five years back that brickmaking machines were obtained from England and distributed throughout our several provinces. We never heard, however, that any success was achieved by these. Perhaps they were in advance of the necessities of the time and that their possible output was too largely in excess of requirements to enable them to be profitably worked. But it is further possible —as we know that at that time large makers of bricks in England preferred hand labour to the use of these machines—that they were nothing like so well adapted to their purpose as those made in the present day. At all events, whatever the cause may have been, no appreciable results appear to have followed from the attempt we have alluded to. The second endeavour made to introduce improved building material was we believe somewhere about 1864, when Mr. Giles was sent out from home to join the Public Works Department, he having previously undergone a training at home in the manufacture of artificial stone from silicious materials easily obtainable in the colony. We think this artificial stone was named after its inventor, Mr. Ransome. Although a very considerable expense was gone to with the object of producing a material the use of which might relieve the then monotonous appearance of our public buil ings, Mr. Giles's attempts appear to have failed of success, from what cause we do not now remember. The only stone of a permanent nature to be obtained in Ceylon is granitic gneiss, with occasionally pure granite; and the cost of working these rocks for ornamental purposes is almost prohibitory. If Mr. Giles had been successful, undoubtedly we should have seen pleasing results; but, as we presume, disgusted with the failure of the first two efforts made, our Government appears never again to have departed from its beaten track, although it obtained from England an architect to whom improved material easily worked would have been an invaluable aid. We think it very likely that a mistake was made in the endeavour to introduce a new material instead of devoting the money that endeavour cost to an attempt to improve existing local methods of manufacturing building material. It was with such a view in our mind that we wrote the series of articles dealing with such matters as the making of bricks, tiles, &c., and recommending that endeavour should be made at improvement. It is in this latter direction that our Government is now moving, and we may hope ere very long to see some beneficial result from its action in this direction. The services of an expert in any special branch of material need not be very long retained, and when he has trained native pupils sufficient to disseminate his teaching, an expert in some other branch might profitably be engaged. By such a method we are sure sooner or later to obtain improvements which as we pointed out in our previous articles referred to, are so desirable if our buildings are to be works of permanence and not to be possessed but of a brief life only. Matters such as we have indicated will come well within the legitimate scope of the Technical Institute about to be established.

THE EFFECT OF MANURING ON TEA.

The following letter was, as will be seen, circulated for the opinions of experienced planters, but so few have responded that we suppose most are in the position in which Mr. W. F. Laurie acknowledges himself to be, unable to speak from experience on the point at issue. Here is the letter and our foot-note:—

(*Circular from "Observer."*)

A planter has addressed the following letter to the Editor, whose own opinion is adverse to the idea that the application of fertilizing matter could deteriorate the quality of tea. But he naturally desires the opinions of the leaders of the planting community on the subject, and will feel much obliged if favoured with the result of your experience and observation at your earliest convenience. Oct. 15th, 1891

(*Letter referred to.*)

October 12th.

DEAR SIR,—I would feel obliged if you or some of your numerous correspondents would give me their opinion on the effects that Poonac and Bones have on the quality of tea. I am a novice myself and I would not bother you, but still I have had a little experience, and my opinion is that artificial manure does not improve the quality. I know an estate that has been all manured within the last 3 years with castor cake and bones, C. C. ¾, B. ¼, about half a ton to the acre, and the said estate previous to manuring always topped the market. Now for the last eighteen months the prices have tumbled down at least 3d per lb; what is the reason? I know for a fact that the tea has always been treated in the same way for the last five years, so there is a something; is the manure drawing some dormant chemical matter out of the soil which is affecting the tea? Now, Mr. Editor, you as a party directly interested in our welfare should do your best to find this out. I could give you a list of estates that have been manuring heavily the last 2 years, and now instead of their prices being above the Ceylon average, as they used to be, they can't now get within a penny of the average. My own experience is that the yield is enormous but there is in my opinion a taste in the tea that should not be there. I could enlarge on the subject if I were not a NOVICE.

[The results of an extensive experiment on a Chittagong estate, a few years ago, were not only increased quantity, but improved quality, price being the criterion of the latter.—ED. *T. A.*]

Mr. W. F. Laurie's response runs thus:—

October 22nd.

Sir,—I am not in a position to say whether the manuring of tea results in the tea produced lacking flavour or not, although I should think it possible. It would not, I presume, be owing to the manure drawing some chemical property from the soil, as "Novice" implies; at least, if the result be deleterious to the produce, it would in all probability arise from the habit plants have of absorbing a small proportion of highly solvent material from the ingredients of the soil, unnecessary for their healthy existence or general economies, such as has been indisputably proved by water culture and do not wholly change in the elaboration of the sap.

In the analysis of healthy plants, many of the peculiar properties of the land upon which they are grown have been discovered in them.

Certain manures too have been found quite unsuited for delicate vegetables, through imparting to them a decidedly disagreeable flavor.

On many of the famous vine-farms of Europe, manuring has resulted in entirely destroying the special bouquet of the wines made upon them.

On the other hand, many plants grown for the specially delicate aroma of their produce have improved upon manuring, such as melons, peaches and many other luscious fruits, although I should think as a general rule the *delicacy* of the aroma and flavor would be impaired.

Upon the tea I have mostly to deal with, manuring has so far not been found necessary to such a degree as to enable me to form any opinion on the subject, but I shall now have teas made from manured parts separately, to see if I can discover any distinctive character about them.

Manure would, I should think, have a much more direct influence upon the immature leaf in this respect, such as make the finest teas, than upon matured fruit, coffee for instance; for the ingredients of the plant food and what accidentally may accompany it in the form of sap, would be in a less elaborated condition than in the maturer leaves that have more fully thrown off volatile matter with their gases and moisture.

Another ascertained fact is the more general existence of delicacy of flavor from plants grown in inferior rather than rich soil, an instance of which we have in our own cinnamon that has, I believe, never been beaten; and this rule applies to many other plants.

However my opinion is chiefly by analogy and upon general principles, to which tea may be an exception, yet I should think there might be an unfavourable effect produced in this respect by the application of manure especially upon the finer grades.

I regret that time will not allow me to write more upon so interesting a subject, so fully experimented upon by scientific cultivation which would I think be against the application of most of the usual fertilizing materials by those who desire to produce fine flavored teas. If quantity alone were sought my opinion would be different. WM. FORBES LAURIE.

Another planter writes as follows:—

Referring to "Novice's" letter about quality of tea and artificial manuring—I am unable to give you anything approaching *proof* for or against his theory. My opinion is at present an undecided one. I have manured here with artificial manure a small acreage during the last three years, of which however I was absent from the island fully 18 months. Since my return I have been so busy that the question has not had as much attention as it deserves. I cannot say, however, that I have noticed any deterioration in quality of tea from manured fields as compared with unmanured fields, and on the other hand I cannot say I have noticed any improvement. I know however that Mr. Joseph Fraser used to think his tea from manured fields slightly better in quality. I leave entirely out of the question all consideration of *quantity*. The question is an interesting one, but facts and not opinions are what is wanted.

Our inferior teas are always made during the season of rapid growth—whether due to this rapid growth or to bad climatic conditions for manufacture or to want of accommodation, &c.—that *is* a fact. Manure (artificial) certainly produces a more rapid growth also, which is at least *something* in favour of "Novice's" theory; but I think the theory is contrary to the received ideas of almost all manuring.

The dose of castor cake and bones mentioned by your correspondent gives a very large dose indeed of phosphoric acid or soluble phosphate of lime per acre—far larger than there seems any necessity for, and is very much after the principles laid down by Hughes for *coffee*, which is quite another matter. I should be very curious to know what the yield of tea manured with this mixture was, before application and in the two succeeding years (with dates of pruning").

Curiously enough, "Novice" himself answered our circular, and in very decided terms, thus:—

In answer to your circular letter above "Novice" manuring tea with artificial manure. My experience is that the yield is increased for 2 years by one-third on good tea and on poor tea doubled, but. I am now convinced the quality is not so good. Liquor from manured tea is poor thin stuff and wanting in flavour; this is my opinion after careful experiments from leaf of the same field ½ manured ½ not manured. It is for men in position to settle the question, not a man with the experience of "Novice."

Besides the Chittagong experiment to which we have referred, there is the experience of Mr. Joseph Fraser, entirely in favour of manuring both as regards quantity and quality. It is quite possible that in the case quoted by "Novice" over-manuring resulted in a rank growth, and that improvement in flavour would take place subsequently. But the experience in China seems conclusive in favour of manuring. The Chinese collect and apply as manure every possible fertilizing matter, even the grossest, and yet the distinguishing merit of China tea has always been its delicate flavour! Indeed a China paper quoted by us in our issue of Nov. 11th distinctly attributes the recent falling off in the quality of teas brought to Foochow, to neglect of manuring. The terms of this impeachment are:—"These latter folk [the growers,] go on plucking tea from worn out plants, growing in exhausted soil which is never renovated by manure of any kind. How is any better tea to be obtained under these circumstances?" In China, therefore, the belief seems to be in the absolutely beneficial effect of manure and the absolute necessity of manuring for the production of tea of good quality. There may be questions as to the kinds and the quantities of manure to be applied to tea, but the conclusions of "Novice" carried to their extreme consequences would place tea in a category different to that of all other cultivated plans, necessitating its culture after a fashion which would inevitably result in the utter exhaustion of the constantly plucked bushes and the soil in which they grow, without an attempt being made to restore the waste, except at the risk of ruining the quality of the product. Who is prepared to accept such a *reductio ad absurdum*? In the vast mass of literature connected with the tea enterprise in India which we have read, we cannot recollect that such a question as the deleterious effect of manuring was ever raised, nor can we bring ourselves to accept the conclusion that manures judiciously selected and moderately applied, can be other than beneficial as regards quality as well as quantity of leaf. Surely there are estates even in so young a tea country as Ceylon where experience has settled the question of the influence of fertilizers on flavour.

ROADS IN AMERICA, GREAT BRITAIN, AND FRANCE.

The common roads and country highways of the United States are in a condition at present somewhat similar to that which prevailed in England and other parts of Europe one hundred and fifty years ago. Some of the ancients were great road-builders, notably the Romans and Carthaginians. Remains of the great Roman roads are still to be seen in Italy, and in many instances these old highways are either still in use or furnish the foundations for the modern roads. With the decadence of the Roman power road building and maintenance suffered with everything else, and the great highways which radiated from the capital city were left to the care of the various neighbourhoods through which they passed. They suffered the severest neglect, but such was the solidity of their construction that some of them have remained till

now, and the remains exhibit a method of building which for thoroughness has never since been equalled. The location of these roads was not skilfully made, for they usually went in straight lines from one landmark to another, regardless of the hills or valleys intervening. This method of location very frequently involved grades unnecessarily steep, but those old road-builders did understand thoroughly the two great principles without which no good road can be made—drainage and solidity. The administrative method was also a direct one from a central power, and therefore there was system in planning and building and maintenance. And it may be remarked that there are no good systems of roads in any part of the world at this time where this work is left to the various local authorities.

The movement for better roads in England began in 1770. Up to that time, from the days of the caravans, when merchandise was carried from place to place on the backs of beasts of burden, the roads in England had always been bad, but their condition did not entail widespread suffering until the population became dense and there was an actual necessity for an interchange of products and commodities from neighbourhood to neighbourhood. Macaulay tells us that previous to the era of improved roads in England "the fruits of the earth were sometimes suffered to rot in one place, while a few miles distant the supply fell short of the demand." And further on he points out the reason. "One chief cause of the badness of the roads was the defective state of the law. Every parish was bound to repair the roads which passed through it, and thus a sparse and impoverished rural population was often compelled to maintain highways between rich and populous towns." England met this difficulty by the establishment of a comprehensive system of turnpikes, and before the beginning of this century thirty thousand miles of these had been built. There are no traces of Roman roads in England, therefore these turnpikes were not fashioned after that model. Instead, they were built very much in the same way as that which generally prevails in this country. A line was located, or the old highway line adopted, and stone piled on the surface and left for the wheels of passing waggons to pack into a solid mass. Little or no attention was paid to drainage, and therefore the new turnpikes were not a great improvement on the old roads. It was not until the time of those two great road-builders, Telford and Macadam, that anything like good common roads were built in Great Britain. And with the era of better roads, the names of these two men will always be associated in those parts of the world affected by English influence. They have shown us how to build roads at a very much less cost than the old Roman way, and they answer modern purposes quite as well.

The name of Telford is associated with a pitched foundation which is always desirable for a road subject to very heavy traffic. It consists of flat stones carefully set on edge in course across the road, with the broadest edge downward. The upper edges should not exceed four inches in breadth, to hold the broken stone well. All irregularities must be knocked off and small stones and chips must be firmly pinned into the interstices with a hammer, so as to form a regular convex surface, with every stone firmly fixed in place. The thickness of the pitching is generally six or seven inches; it should not be less than four, and it may generally be thicker without any sensible increase of cost. At least four inches of broken stone are required over the pitched foundation, and when consolidated six inches are always sufficient. But before laying this pitched foundation Telford insisted that the road-way should be thoroughly drained, so that there would never be any considerable dampness below the metal pavemen. Macadam, the other great scientific road-builder, differed from Telford as to the necessity for such heavy foundations. He maintained that the dry subsoil, however bad, would carry any weight that could be placed upon it if it were made dry by drainage and kept dry by an impervious covering of stone well bonded together. The Macadam pavement, therefore, as originally designed, consisted only in perfectly draining the subsoil of a roadway, covering it with broken stone to a thickness of from six to twelve inches, and rolling this until it had become packed and bonded together. Where the traffic is very heavy the Telford pavement is unquestionably the better of the two; but the Macadam pavement would most admirably answer the purpose for nine out of every ten miles of roadway in America. In this country we are in the habit of speaking of any road as macadamised which has a simple covering of broken stone. It is rarely, however, that the subsoil of such roads has been drained at all. Without the drainage the stone might as well be spared, as the dirt road would be quite as good. After the advent of these great road-builders in England—they flourished in the first half of this century—there was a sensible and marked improvement of the highways in both England and Scotland, until now the roads which were once almost impassable, and were a serious burden to the people owing to the great cost of transportation, have been made hard and smooth, and a horse can draw for a given distance a load three times as heavy as on the roads of the olden time. In addition to this, what was once a serious undertaking—that is, a journey by coach from one part of England to another—is now a pleasure much indulged in by tourists and other travellers who care for a closer intimacy with the country than can be had from the windows of a flying train. Even in the Highlands of Scotland the roads are so well built and maintained that one can drive all through that mountainous region without finding a mile of road as rough as our ordinary city streets.

But France has a system of roads far superior to that of Great Britain. The great Napoleon appears to have been the first modern statesman and soldier in Europe who appreciated from a military and economic standpoint the vast importance of good highways and at the same time had the power to carry out whatever plans he wished. He organised and started the method of road building and maintenance which has ever since been observed in France, which now has the best roads of any country in the world, and—what is quite as much to the point—at a less cost than that which is paid elsewhere for highways much inferior. They have a special department of the Government, of which the Minister of Public Works is President, devoted to roads and bridges. This department maintains a college for the education of the engineers who are to be employed by it. There is always a staff of about six hundred engineers and inspectors on duty. The roads of the Republic are divided into several classes—national, departmental, military, and vicinal. The national roads are twenty-five thousand miles in total length, and are built and maintained entirely by the national treasury. The vicinal or cross roads are built and maintained chiefly by the communes, but under a national administration. On these roads there are constantly employed fifty thousand workmen and three thousand overseers. On the national roads the work is planned and inspected directly by the officials of the department. On the vicinal

roads the plans are submitted to the department, and the work during its progress is subject to the constant inspection of the national engineers. There is, therefore, no chance for any haphazard work even where local money is expended in making and repairing roads. The thriftiness of the French people has long excited the admiration of the world. Neither internal revolution nor defeat from abroad has entailed upon this people burdens too heavy for them to bear. The splendid roadways which unite commune with commune and village with village have helped them no little in their struggles against adversity, for the tax which by poor interior communications is put upon the business of a country has been reduced in their case to the very lowest point. And how much have these roads to do with the contentment to be found among the rural people of France! The French agricultural classes are singular among the farmers of the world in not holding that all the world is at war with them. It is true that they practice better methods of farming, but it is the good roads which to a great extent enable them to do this, for they can get their products, however perishable, cheaply and quickly to market, —*Lippincott's Magazine.*

POINTS AND TECHNICAL TERMS IN POULTRY.

The points and technical terms used in poultry phraseology are given in a recent number of the Cultivator and Country Gentleman of Albany, New York, by S. B.:

1—Comb, of which there are five forms, single, pea or triple, rose, leaf and fork.

2—Face, the fleshy matter around the eye, usually red, but white in Spanish, and purple in Silkies.

3—Wattles, pendulous fleshy appendages just below the beak. Always red except in Silkies. Varies greatly in length, and does so in accordance with the size of the comb.

4—Ear-lobe, or deaf-ear, pendant ornament on the face, just below the rear ear. Red in some breeds, white in others, and also yellow and purple.

5—Whiskers, only found on a few breeds, and those almost entirely crested varieties.

6—Crest, top knott of feathers, in some varieties very much developed, notably Polish, Crevecœurs, Sultans, etc.

7—Beak, horny substance at mouth, varying in color from white to yellow, principally the latter.

8—Beard, (see No. 5).

9—Neck-hackle, the flowing feathers on the neck, very profuse in some varieties.

10—Breast, usually bold and prominent, less so in the Asiatic breeds than in others; varies greatly in color.

11—Keel or breast bone, must be straight, and the deeper the better is the fowl for the table purposes.

12—Back very long in some breeds and as short in others.

13—Saddle, the feathers hanging below are called the saddle hackle.

14—Thighs, or fleshy part of the leg.

15—Hocks, always covered with feathers, but in some breeds stiff feathers protrude therefrom, and are called hock feathers.

16—Spur, specially prominent in the cock, and more so in some breeds than others. Increases in size year by year.

17—Fifth-toe, found on some birds, notably the Dorking and the Houdan.

18—Back-claw.

19—Muffs, or leg feathers. In most of the heavier Asiatic breeds of poultry, feathers grow down the side of the leg, and on the outer part of the foot. In Cochins, Brahmas, Sultans, etc., these are highly developed.

20—Shoulders, very prominent in a few breeds, notably Malays and the Game varieties.

21—Tail-fluff, light soft feathers which grow near the root of the tail.

22—Centre toes.

23—Shanks, the leg proper of the fowl.

24—Wing-bar, the band or cross-marking seen on many fowls.

25—Primary coverts, the outer feather of the wing.

26—Primary flights, not seen when the wing is in repose.

27—Sickle feathers, the long circular feathers which form the outer sweep of the tail, and are such a graceful addition to that important part of the fowl's plumage.

28—Primary tail, the shorter, straighter feathers of the tail, and in some varieties the principal.

29—Secondary sickle, like the outer sickle, but smaller.

30—Tail coverts, the falling feathers, or hangers, below the base of the tail.

—*Rural Californian.*

THE TASMANIAN SILVER-FIELD.

The first discovery of Tasmania was made on November 24th, 1642, by the Dutch navigator Able Jans Tasman. The first land sighted by him was the mountain subsequently called Zeehan, after one of his ships, and the hills and coast line in its immediate vicinity. This mountain and the surrounding district, owing to the denseness of vegetation and the unfruitful appearance of the soil, remained a *terra incognita* from the period of its discovery until some five or six years ago, when the hardy colonial prospector, in his restless search for gold penetrated its dark and inhospitable forests, and discovered, not the looked-for yellow metal, but the white. Little was thought of this discovery at the time. The colonists recognized the fact that silver was there in the Zeehan country; the prospector went his way searching for gold or tin; and so the matter remained in abeyance. But the great success of the Broken Hill mines taught the Tasmanians duly to appreciate the possible wealth of Zeehan, and within the last four years the quest for silver has been pursued with energy. One discovery of silver deposits has followed another, and altogether 80,000 acres are rented from the Government, on renewable 21-year leases, for silver-mining purposes; and in the centre of what is believed to be the richest portion of the field, one of those mining towns which rise as by magic about the shaft and poppet heads is rapidly assuming the proportions of a city. Two years ago the site of the present town of Zeehan was a valley of myrtle, blue-gum, and pine trees, with here and there a few calico tents twinkling through the foliage. Now it is a cleared space, upon which some 3,000 people have settled either in houses of their own or in large and well-appointed hotels, that provide accommodation for hundreds. Four churches have been erected or are in course of erection; public halls and billiard saloons furnish amusement for the residents; a bright little tri-weekly newspaper keeps the miners *au courant* with the affairs of the outside world; and the carpenter's saw and hammer are heard day and night, making further provision for the crowds which continue to pour in from the districts of Tasmania and the neighbouring colonies. It is estimated that about 6,000 people are now upon the field, the majority of whom are actively employed in mining, and every succeeding day brings its own evidence of the rich abundance of silver ore which is a waiting development.

During the past two years nearly 200 companies have been placed upon the Melbourne, Hobart, and Launceston markets, and the shares have been readily subscribed for, chiefly by capitalists who have during the past few years gleaned a rich harvest in the silver-field of Broken Hill. Most of these companies are now actively engaged in developing their properties, and many are putting out large quantities of payable ore. Although nearly all silver-mining necessaries, such as timber, water, and smelting fluxes,

are obtainable on or close to the field, the mines, so far, have been working under serious disadvantage in regard to communications with the port. Owing to the heavy rainfall of the district (nearly 100 inches per annum) and the spongy character of the soil, it has been found impossible to make roads capable of bearing heavy loads of mining machinery and ore. The Government of Tasmania, recognizing this fact and also the vast importance of the field, are constructing a line of railway to connect Zeehan with the nearest suitable seaport—Strahan, Macquarie Harbour. This line, which is 29 miles in length, was commenced in January, 1890, and is now so near completion that before the end of the year it will be possible to convey, at comparatively slight cost, mining machinery, smelting furnaces, building material, &c., from the port to the field, and (pending the erection of local smelting works) the ore, now lying at the mouths of the mines, from the field to the port, where it may be shipped to the smelters at Adelaide or Sydney.

With two exceptions, the mining companies have stacked their ore on the field, preferring to await the completion of the railway to taxing their ore to the extent of £7 to £8 per ton, the cost of road carriage. It is satisfactory, however, to know that in the case of one of these (the Silver Queen Company), the company have been enabled to declare regular monthly dividends of 2s on their 12s shares, in the face of heavy transit expenses (the loss being equal to 1¾ oz. of gold per ton).

This company's ore, when smelted yielded an average of 95½ oz. silver and 4 cwt. lead per ton, and the other company referred to (the English Mount Zeehan Silver Mining Company) have made a very handsome profit out of some 500 tons of ore which have been shipped to England from their mine, and yielded over 100 oz. of silver per ton.

The silver-bearing country extends from Mount Zeehan northward to the Pieman river, and eastward to Mount Dundas and Mount Murchison. Explorations to the northward of the Pieman river have recently resulted in the discovery of further silver-bearing land, which extends to Heazlewood, then eastward to the Whyte river, and westward to the Savage river. By following out these discoveries on the map it will be seen how widely the silver deposits are distributed, and when it is remembered that the great extension of the fields has taken place during the last two years, and that the country, covered as it is with dense scrub is most difficult to prospect, it is clear that what has yet been found can only be regarded as indicating the great mineral wealth to be brought to light in the course of time.*

The silver ores found on the west coast are without exception smelting ores, being associated with so much lead that no other treatment can deal with them as advantageously as smelting. Native silver has been found freely associated with galena. Chloride of silver is found in the mines near Mount Zeehan, generally in the oxidized upper portion of the lodes, with oxide carbonate, and phosphate of lead as associates.

The main quantity of silver is, however, not to be found as definite visible compounds of the metal, but impregnated invisibly as sulphide through galena. This mineral is found throughout the Zeehan fields, of great purity and high silver value, assays of it ranging between 30oz. and 250oz. of silver to the ton.

Large quantities of ore fit for immediate smelting, with no other previous treatment than rough hand-sorting in the mine, can be readily obtained, and the more impure ore is easy of concentration. The oxidized ores of lead, carbonate, sulphate, oxide, and phosphate, found sometimes in large quantities, may all be easily smelted. They are generally much richer in silver than the galena. With them kaolin, rich in silver but poor in lead, has been found in considerable quantities in the Silver Queen Mine.

Highly argentiferous fahl ore (tetrahedrite) has also been obtained, though somewhat sparingly.

The country rock is of the Silurian age, and the lodes in which the ores occur are of the true fissure type, and have every indication of permanency and depth. For instance, the banded structure, so characteristic of many lead loads in Europe that have been proved to a great depth is, frequently seen at Zeehan. Some of the lodes have been systematically traced for over two miles, and it is believed that some of them extend a greater length than this, although, owing to the dense scrub, tracing on the surface is difficult.

The fine fissure lode, locally known as the King Lode, has been cut at various distances extending over two miles, on the Silver King, the Silver Bell, the Silver Crown, and Dispatch Mines. A tunnel, 6 ft. by 4 ft. and cut 500 ft. in length, has yielded ore valued at over £30,000 on the Silver Bell property.

In a recent report on the Tasmanian silver-field Mr. Montgomery, the Tasmanian Government Geologist, says:—

Taking everything into consideration, the proximity of the seaboard, the railway communication shortly to be completed, the large number and general richness of the already proved lodes, the presence of suitable fluxes for smelting, the water power available, the abundance of mining timber, and the great extent of country which may be relied upon to produce ore, it may be regarded as a certainty that the silver-fields of the west coast of Tasmania will support a large population for many years and an extensive and remunerative mining and metallurgical industry.

There seems to be sound foundation for this belief, and the Tasmanian silver-field should materially augment the local wealth and the value of that colony's exports.—London *Times*.

* And yet, with such prospects, a man in America talks of artificially preserving the parity of silver to gold. The proportion is now 22 oz. of silver to 1 of gold, instead of the old rate of 15 to 1; and we suspect the downward process, in the case of silver, has not yet ceased.—ED. *T. A.*

"A VISIT TO AMSTERDAM."

INSPECTION OF A DIAMOND-CUTTING ESTABLISHMENT.

I felt greatly indebted to Mr. de Bussy for securing me the privilege of going over the largest diamond-cutting factory in the city, my immediate predecessor in this inspection being the Prince of Naples. Amsterdam is noted as the principal seat of the diamond-cutting industry, and the numerous factories with the large number of employees make it quite an important matter for the Dutch capital that the diamond fields in South Africa and Brazil, if not in other parts, should continue in abundance. Indeed, the past year has been a trying one to a large proportion of the Jewish population who form nearly all the diamond-cutters, through a great falling-off in the receipt of the precious stones from South Africa.* We found, however, no lack of business and activity in the large house we visited. The first cause of surprise was at the size of the building, the many spacious rooms and the extent to which machinery was required. It seemed at first glance as if we were entering some cloth or metal factory, rather than one in which such small, though precious, items as "diamonds" were manipulated. The building was, as might be expected, a thoroughly strong, substantial one, iron being used freely in the construction for the stairs, beams and even flooring in some parts. Precautions against fire are no doubt indispensable. On the basement, apart from necessary entrance offices, we found the steam-engine and boiler room-power being transmitted up three or four stories by belting. We began our formal inspection, however, at the top of the house, where

* The effect of Mr. Cecil Rhodes's policy.—ED, *T. A.*

in a compact comfortable room we found some half-dozen experts dealing with diamonds "in the rough." They had a most ingenious way of holding the gem in wax fitted into a handy tool, while with a diamond cutter in the other hand they proceeded to test and seek out any flaw. Diamonds were lying about in what seemed to us rather a careless way; but apart from visitors allowed in, being very few and far between, and always under responsible guidance, the operators are, through a system of co-operation more like partners, while for all diamonds handed to them, they are made strictly responsible, the record being taken not simply in number but by weight each morning before commencing work. A flaw having been detected in a stone, it is the business of the operator to cut it out in the most scientific manner consistent with the utilising of the gem otherwise. This done, the diamonds are passed down to the next floor where more skilled workmen are employed cutting round the now flawless gem and making it ready for polishing: they are assisted by lathes driven by the steam machinery at the basement. The third and most important treatment is the polishing, and here we have a large room full of machinery, drums, pulleys and belts flying around at great speed to give the requisite speed for the polishing of the many facets of the diamond with diamond dust. But it may be asked how are the gems, so small as most of them are, held by the polisher or the machine in which the polishing takes place. Wax is obviously too soft for this operation, and so it has been found that lead is best, each polisher having a man behind him melting lead and inserting the diamond in a large lump which, when cool, shows only the one facet of the diamond that has to be operated on in polishing. So that for each facet, there must be a fresh melting and re-arrangement, and when I state that there are 64 facets in all (32 on each side) of a stone, it will be judged that even with the aid of machinery and all modern appliances, two days are not too much for the polishing of a single diamond. But then in the polishing machine, revolving nearly 1,000 times a minute, several stones are being operated on at once. I happened to have with me a Ceylon catseye, small but of good shape and colour, and a "Matara diamond" (which, by the way, had been pronounced by a Dublin jeweller some years ago, to be glass!) and the young experts dealing with diamonds in the rough, were a good deal interested in the Ceylon stones—to them novel and interesting, especially the catseye. The "Matara diamond," they tested and pronounced to be "a diamond of the second-class." We were shown the difference between the Brazilian rose diamond and the white stone of the South African finds. Then by permission of the heads of the house, we were taken to see some of their special property in the safes—a splendid collection of finished, sparkling gems, set and unset. Finally we inspected models in glass of all the great diamonds of the world, including the "Great Mogul" belonging to the Tsar, cut as a rose and not very clear; of the "Kohinur" as originally got for Queen Victoria and as afterwards cut, a brilliant of the first water and magnificent in size; the diamond worn in his cap by the Shah of Persia; some of the very fine diamonds in the French State collection; a grand stone found at the Cape; and I suppose among the models must have been one of the diamond sent by Mr. Jacob of Simla to the Nizam, valued at £430,000, which has lately been the subject of a trial, the Nizam repudiating the bargain and returning the stone. Altogether, a most interesting afternoon was spent in this, the largest Amsterdam Diamond-polishing Establishment, making us for the future to understand and appreciate the great care and exactitude manifested in this branch of industry.

JAVA TEA AND CACAO AND SUMATRA TOBACCO.

There is one matter I want to bring before the Ceylon Planters' Association in reference to Java planters and Holland. While Amsterdam is decidedly the headquarters market for Sumatra tobacco (and very depressed I found this market to be, scarcely any dividends for shareholders and owners this year), and Java cinchona bark; yet the same can by no means be said of Java tea and cacao. For the latter products Java planters look to London as their principal market, and thereby bring their crops into direct competition with those from Ceylon, India, &c. No fault can be found with them for this practice, *except insofar as they fail to cultivate and endeavour to create and extend a market in their mother land.* Already for "cocoa" there is a big demand in Holland, and "Van Houten's Cocoa" (we saw his Village Factory outside Amsterdam) being known far and near on the Continent, I cannot see why every cwt. of Java cocoa should not sell as advantageously in Amsterdam as in London. The case is different in respect of *tea;* for although in one province of Holland—Friesland, bordering on Germany—the people are reported to be great tea drinkers, in the country generally, tea-drinking is far from common and the product is only now beginning to come to the front, and I believe China rather than Java, teas rule the market. At any rate, I only saw one "Java Tea Agency" established in Amsterdam, and it is quite clear from the quantity (yearly increasing) of Java tea going to London, that the home market is not much cultivated or studied. *Now, why should not the Java tea planters be asked to do in Holland, what their Ceylon and Indian brethren have so well done in the United Kingdom?* Who but the Java planters in their Associations or Unions should make known the virtues of their teas to all the people in Holland and even Belgium and Western Germany, and "advertise, advertise" until not only is all "China" stuff driven out, but a vastly increased consumption of tea is established throughout the land. The effect of this would, of course, be to relieve the London market of Java tea, bringing it on to Amsterdam, and to increase the total Continental demand for our staple. Now, I trust the Chairman and Committee of the Ceylon Planters' Association or Tea Fund, will see that here is a case in which they may very well offer some good advice to the Java sister-institutions, based on their own example and experience. Surely the Java tea planters—a most enterprising body—will not refuse to organize and contribute to a fund to help to spread the fame of their tea in Holland and adjacent provinces; but in order to get them to make a start, the necessary impulse and information must surely be given from Ceylon. I feel sure it will not be Mr. Philip's fault if this is not done.

Amsterdam has a very full library and I spent a pleasant morning there, taking notes among the rest of, what seemed to me, all the uncommon volumes or State Records referring in any way to Ceylon, of which there was a goodly collection.—The grand Central Railway station is another feature of the Dutch capital—the building and very convenient as well as complete arrangements of this one sufficient station reflecting great credit on the authorities and architect, the building, tastefully decorated, being a work of art in itself.

Correspondence.

To the Editor.

INDIAN AND CEYLON TEA FALSELY AND SLANDEROUSLY LIBELLED.

Crosshill, Glasgow, Oct. 28.

DEAR MR. EDITOR,—I enclose an advertisement which appears in nearly all the papers here, and which, I think, is very injurious to the island of Ceylon.

Perhaps it will be of interest to you.—Respectfully yours, JOHN DOUGLAS.

"I DO LIKE THAT CHAP DISRAELI, HE IS A CLEVER CHAP, HE DO ALWAYS THINK AS I THINK."

The above eulogium by a worthy Israelite and follower of the Earl of Beaconsfield, containing such a naive self-convincing reason, would, if slightly altered, aptly describe our attitude toward Dr. Sir Andrew Clark on the question of "Indian and Ceylon Tea *versus* China Tea."

In effect, this eminent physician confirms from his professional experience what we have been advocating for a Quarter of a Century—viz., "That China Tea (black, not green) is the only variety that may be drank with safety and refreshment."

And what Sir Andrew Clark refers to in general terms we substantiate by scientific data—to wit, the analysis of Twenty-four Teas at all prices, and fairly representative of the three leading varieties.

Price for price China Tea yields nearly as much Theine as either Indian or Ceylon, and is therefore quite as refreshing; but both Indian and Ceylon yield more than double, and in many cases treble, the amount of Tannin as compared with China Tea. Therefore, both Indian and Ceylon are most pernicious to the human system—and yet it is upon this basis that their claim to be considered Economical rests! Economy falsely so-called! The practice of housewives of pouring a second supply of hot water upon the already opened-out leaves extracts the Tannin to the very dregs, and under this almost universal practice we believe that Indian and Ceylon yield from four to five times more Tannin than China similarly treated.

Little wonder that Sir Andrew Clark describes this as "the representation of all that is physiologically wicked!"

We believe that those bitter, pungent Indian and Ceylon Teas do more injury than would result from the same money's worth of the rankest raw-grained Whisky consumed within an equal period and at equal intervals; while China Tea would have no trace of bitterness, and would not offend the most sensitive palate or consitution.

One Rule will guide the Public—*i. e.*, Buy no Tea which yields a black, bitter, or pungent liquor when infused at the ordinary drinking strength.

Many of the Blends which have the largest sale are entirely made up from Indian and Ceylon, and ought to be avoided by anyone who wishes to escape from that condition so graphically described by a physician whose motive it is to conserve the Public health.

"Tea to be useful should be, first of all, Black China Tea—the Indian (*and also Ceylon*) Tea which is being cultivated has become so powerful in its effects upon the nervous system that a cup of it taken early in the morning, as many people do, so disorders the nervous system that those who take it actually get into a state of Tea-intoxication and produces a form of nerve disturbance, which is most painful to witness." "If you want to have a Tea which will not injure and which will refresh, get Black China Tea,"—Extract from London Correspondence, *Glasgow Herald*, 16th October 1891.

We offer three choice lots of Pure Black China Tea, guaranteed to be mild and refreshing and free from bitterness, but of excellent flavour.

At 1/6, 2/6, and 2/9 per lb.

STUART CRANSTON & Co.,
Trained Tea-Tasters of over 25 Years' Experience.
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MR. HENRY WALKER ON BRITISH NORTH BORNEO.

Kandy, Nov. 9th.

DEAR SIR,—Mr. Henry Walker, the Commissioner of Lands, British North Borneo, promised to send you a short sketch of what he found going on when he returned to North Borneo and of the prospects there. He has asked me to place at your disposal a copy of a letter addressed to a gentleman here who has kindly allowed me to publish the same.—Yours faithfully,

W. D. GIBBON.

Sandakan, Oct. 19th.

Dear Sir,—Mr. Gibbon sent me a copy of your letter of the 8th Aug. and I have purposely delayed replying until I had revisited the places where coffee has been planted—and I now write you after fully convincing myself that coffee is thriving better than I ever saw it do in Ceylon. I allude to Liberian.

Liberian coffee has only been planted near the sea and no plantation of any product has yet been done in the interior except on the big rivers and then only below launch limit. Our chief facility lies in the fact that transfer is cheap *i.e.* if prospectors can find land near to the principal stations.

At Kudat Silam and Sandakan there are trees of over five years, and Kudat about 25 acres of very nice coffee about five years old planted by Mr. Christian now in the hands of a Chinaman—and evidently paying. This is about 2 miles out and the land between the estate and the sea is rapidly being planted by the Chinese who have coffee growing about 300 yards from high water mark—looking well. The oldest coffee is some 4 miles out and was planted under my instruction in 1883. I could not visit this last, but I believe it is doing very well.

At Silam the 6 acres in the Government garden is still kept up, and both the Silam and Kudat coffee have no disease, while that at Sandakan has. The Sandakan soil is poor, but the coffee is thriving wonderfully—it has been abandoned since 1885 or 1886 and stands in a certain cattle run—and is healthy and bearing well. The trees are about 12 or 14 feet high, bushy and strong.

On the Kinabatangan river, Melapi Estate, Leyanjan Estate, Darvel Bay, I saw splendid Liberian coffee in bearing and under two years old. Also cocoa on the latter estate. The cocoa at Silam (Caracas) has finer trees than anything at Pallekelly as regards stem, but is not so spreading as some I saw on Mr. Charles Gibbon's estate. The Silam trees are bearing heavily, and began to bear at the fourth year. Cocoa is cultivated by all the headmen—that is one or two trees—and it seems to do well.

The Labor question, I do not think, will be difficult of settlement. We are opening (a private company) a coffee estate in Marudu Bay near to a Tobacco estate so that we have the advantage of established communication, shops, doctor, use of Launch &c. and I believe from the little beginning made that we shall have no more difficulty than the Maskeliya men had, if so much. Of course as the pioneer company we have had difficulties—for instance the Government promised a nursery of 200,000 plants and I find there are not 16,000 available for the monsoon's planting, but I expect in May and June we shall complete the first 100 acres. Anyone coming after us will be able to use our nurseries and the manager will be glad to increase them and charge ten rupees, or five dollars a thousand as we did in Ceylon.

The expenditure on 200 acres I estimate at $9,590 for the 1st year and 36% for the 2nd year which includes $2,400 and $2,000 for superintendence, but not including cost of land which is $3 per acre for other products than Tobacco, or for new products a special free grant of 1,500 acres may be made in the terms of the notification No. 49 of 1891 copy herewith.

I enclose a printed estimate and I consider it a fairly average one.

Very good land is to be had in Maruda Bay, or near Darvel Bay, and I have seen lately some land that is really splendid, but I should like you to come and see for yourself feeling sure as I do that you will say it is worth a trial.

Our market for coffee may be America, if so we are within easy reach of Vancouver, or if England then Holt's line will quote through rates. If I can give you any further information I shall be happy to do so.

Our seasons are much the same as in Ceylon.—Yours faithfully, (Signed) HENRY WALKER, Commissioner of Lands.

MR. WM. MACKENZIE AND THE TEA KIOSK.

Thornfield, Nov. 12th.

DEAR SIR,—In your leader in paper of 10th occurs the following sentence: "We have never been able to understand Mr. Mackenzie's special crusade against the kiosk at Colombo."

I don't know about the 'special crusade,' but I long ago stated my objection to be that Colombo was not the place to catch Americans and Russians, and proposed instead a kiosk near the Pyramids in Egypt. Our tourists are almost all Australians or people going to China or Calcutta.

We have already our fair share of the Australian tea trade, and can have as much more if we land good teas in Melbourne or Sydney at 6d to 8d. But Australian dealers will not pay London prices, as I and many others know by bitter experience. China and Calcutta grow their own teas.

But I had said my 'say' about the kiosk and was done with it. What I said about its connection with the New Company was in reply to a request from your 'junior' to give him my opinion. That also was, as you say, an "accomplished fact," and further that of ceasing to be a subscriber to the Tea Fund, I had 'moved on' as regards that matter also. Any controversy since has not been of my raising; and as my withdrawing of a letter by wire last week after you had it in type, proves I am content to let bygone be such!

We have all enough before us at present in preparing for adequate representation at Chicago. It is time space was applied for, and this cannot well be done, until we know what money we shall have to spend. If we do not aim high, we shall hit low. Besides the contributions from Government and Tea Fund, which will amount to about £6,000, I think we should raise £14,000, or £20,000 in all. What a trifle it seems to be contributed by 1,200 estates, nearly half of which have so far paid nothing to the Fund! Why, it is very much less than one month's weeding contract! But to approach this amount, regular owner to owner canvassing must be attempted. It will never be done by circular solicitations from the Tea Fund. That importunate lady has tried her charming too often in vain. WM. MACKENZIE.

THE TEA KIOSK AND THE CHICAGO FAIR SUBSCRIPTION.

Nov. 16th.

DEAR SIR,—This building, now nearly completed, stands almost opposite the G. O. H. in Colombo, and long before the same was erected, it was considered that such an *imposing spectacle* would be certain to attract the flock of passing strangers, who spend a few hours on shore from the various steamers calling at our port. To see the building as it *now is*, one can hardly come to any other conclusion than that the whole idea has resulted in a miserable failure. A large sum of money has been spent in the construction, and on the pillars which are made from a *particular kind of wood*; and now that the building is erected it does not look to me as if it would have any attraction for passengers whatsoever. That an insignificant little building such as the Kiosk is should attract even a tenth part of the passers-by from steamers seems to me most improbable, for the large hotel opposite looks for more enticing, and strangers are certain to patronise the hotel in preference to the Kiosk *even for a good cup of tea*.

Had the Kiosk been erected and carried on in Paris or New York or Sydney or even Port Said the results might have been favourable, but the position now seems as advantageous as a spot in Timbuctoo would have been. New York I should certainly have considered a more favourable location for its erection. It would have been in the midst—more or less—of a tea-drinking people. It would have been the means of bringing good Ceylon tea to the notice of many Americans, and the American Tea Company would have received benefit from advertisement. Whereas now the money seems well nigh wasted. I only hope it may be of service, and everything should be done to make it so. I have not been a subscriber to the Tea Fund, but I intend to give my donation towards the representation of Ceylon at the Chicago Exhibition together with an extra allowance of R100. We should now do all in our power to have Ceylon tea well represented there, for it will not only be the means of introducing our teas to numbers of Americans, but to thousands of strangers from other countries as well, and this chance of pushing our teas should commend itself to all planters and traders interested and supported as much as possible, seeing how badly we require fresh markets to take off our ever increasing supplies.—Yours faithfully,

W. A. T.

THE CHICAGO EXHIBITION.

DEAR SIR,—The subscription list started by the Chairman of the Chamber of Commerce has now been travelling round the Fort for five days, but out of some fifty and more firms only four have appended their names as subscribers. The reason is not far to seek. The questions on most people's lips are: Who is to be the Commissioner? Is Mr. Elwood May to handle any more Ceylon coin? I venture to say that if these two queries are satisfactorily answered Mr. Bois will not appeal in vain, and that many of the community will at once add their names and materially increase the amount already promised. Why not call a public meeting to discuss the matter? Everyone admits the great importance of Ceylon being well represented at the World's Exhibition, but what is wanted is more light on the subject. The Banks and Steamer Agencies should come down handsomely, and so will most of the other firms, including my own, when satisfied as to who is to carry the purse of £10,000 and spend it in America.

One of Mr. Elwood May's bright ideas was to boom tea by getting American newspaper proprietors to take scrip in his Company in payment of advertisements. This no doubt has been comparatively an easy matter owing to his trading under the auspices of the Ceylon Planters' Association and several local "Honorables." Now, however, newspaper proprietors are beginning to feel a desire to realize their scrip. Finding no market in their own country, they naturally turn to Ceylon. When they find scrip may be bought here at a discount of 75 to 90 per cent we shall no doubt be abused right and left in characteristic plain American language, and what

then about our tea? Will they continue to eulogise it? The answer is apparent to us all.

I mention the foregoing circumstances in order to show that the tactics employed by Mr. May will materially increase the difficulties of our Commissioners. They will have to conciliate numbers of irate newspaper shareholders, and possibly buy up some portion of the valuless scrip held by them in order to obtain notices in the leading journals. To have to do all this, and at same time look after the general interests of the island, will tax the energies of the most hard working man amongst us. Fortunately, however, we have identified with Ceylon a dozen or more men from whom to select Commissioners, acceptable to all sections of our community. The sooner they are selected the better. They will have to be heavily laden with rupees, and each man amongst us must put his hand in his pocket for the general good of the island. —Yours faithfully, A MERCANTILE MAN.

P.S.—The National Association count amongst their members a large number of men interested in trade with and products that go to America. Perhaps they are waiting for a public meeting to be held, before taking any steps in the matter.

[Any excuse for not subscribing, apparently, is clutched at: the Kiosk, the tea companies and Mr. Elwood May! Our view is that Government should choose one Commissioner and the Planters' Association another; the latter to have special charge of tea and estate products. As there are so many good men available, let us get plenty of money and then the best man can be selected. —ED. *T. A.*]

ABNORMAL TEA LEAVES, two united even more closely than were the Siamese twins, are pretty common. Not so triplets, a specimen of which has been sent to us. Such eccentricities are not confined to tea, but are common to many forms of vegetation. The *Gardener's Chronicle* recently figured a leaf streaked with brilliant colours, which had made a desperate effort, largely successful to become a flower. It is almost inconceivable that the most formidable thorn and the loveliest blossom are but modifications of the same principle

CINCHONA COMBINATION RUMOURS.—The *Chemist and Druggist* of 31st Oct. says:—The projected Java quinine factory still continues to agitate the cinchona interest in Java and in Holland. Mr. H. I. Prins has his say on the subject in the last issue of the *Indische Mercuur* to the extent of two columns; but his contribution cannot be said to throw much additional light upon the question. Mr. Prins ascribes the failure of the old Milan quinine factory to the conclusion of the well-known agreement between the Soekawana and Djajagiri plantations and the Brunswick quinine works, which he says was signed in 1886. He does not explain how it is that the Milan factory failed about two years before that agreement was heard of. He calculates that the only serious item in the establishment of a quinine works in Java is the cost of the machinery. Wages, coal, chemicals, and petroleum are very cheap, and there will be an enormous saving in bark freight and sale expenses in Europe. The freight from Java to Halland is about 71s. per ton; sale expenses are also heavy, the total charges between the port of shipment in Java and the delivery to the buyer in Holland being about 20s. 3d. per bale. Mr. Berkhout, an old resident in Java, also devotes a lengthy article to the question, and succeeds in broaching one or two new ideas. He admits that quinine has found a very serious opponent in antipyrin, the large consumption of which he ascribes partly to the free manner in which it has been advertised. Arguing upon these premises, he advises the planters to combine for the purpose of making known by advertisements that quinine is now obtainable at very low prices, a fact of which the public, he thinks, are still ignorant. Mr. Berkhout estimates that a quinine factory in Java would have an advantage over European makers of a saving in cost of 1d per oz. of sulphate of quinine. On the other hand, the cost of making sulphate of quinine would be much heavier in Java than in Europe. Mr. Berkhout estimates, from an inspection of the books of a German factory, that the production of one kilo. of quinine in Europe costs 1s 10d in chemicals, and requires 1½ cwt. of coal. The total cost of manufacturing quinine in a German factory in the years 1890-91, according to its published balance-sheet, was a fraction over 2d. per lb. He recommends the formation of a syndicate composed of brokers, manufacturers and planters, and disposing of a capital of say, 25,000*l.*, which would buy up all bark for which manufacturers were not willing to bid 1d. per unit at auction.

LIBELS ON INDIAN AND CEYLON TEA.—We attract attention to a letter from Glasgow with reference to an offensive advertisement by dealers in China tea. It is only natural that the Glasgow dealers should desire to preserve the "craft" by which they have so long profited; and had they contented themselves with exalting the mild merits of China black tea (which, however, the tea-drinking public are appreciating less year by year) their advertisement might be allowed to pass. But their virulent libels on the superior teas of India and Ceylon are, we regret to believe, knowingly false; for Messrs. Stuart, Cranstoun & Co. describe themselves as tea tasters of 25 years' experience. As such they must know that medium Indian and Ceylon pekoes, obtained at moderate prices, are equal to the very finest high priced pekoes which China produced in her best days, and that the statement that Indian and Ceylon teas yield *four or five times* as much tannin as China is absolutely untrue. There is in the Indian and Ceylon teas just a sufficiently larger percentage of tannin to constitute their superiority to China. If China tea is so treated that all the tannin is extracted from it, the brew will be neither a pleasant nor a wholesome beverage; and no person who knows how to infuse tea properly will leave the boiling water more than five to seven minutes over the leaves. The proportion of tannin in such an infusion of the strongest Indian and Ceylon tea is not injurious but beneficial, the very rash and discreditable utterances of Sir Andrew Clark to the contrary notwithstanding. The abusive language applied to Indian and Ceylon tea, by interested persons, like Stuart Cranstoun & Co., and the dishonest person who was prosecuted for selling China tea under the name of Ceylon, reminds us of the insane ravings of a firm of brokers called Sellar & Co., who, in the days when Indian tea was first making itself felt in the English market, were only less demented in denouncing the new product than in condemning the sin of lending out money at interest! Our readers will be amused at the warning of the Glasgow dealers in China tea, against blends, because they are composed chiefly of Indian and Ceylon tea! The public know their own interests, and the beneficial effect of good tea properly made, too well to be affected by the ill-advised utterances of medical eccentrics, or the selfish and false libels of dealers like the Glasgow men; and in spite of medical cranks * and mercantile partizans, Indian and (especially) Ceylon tea will increase in favour and in consumption, to the benefit even more of consumers than producers, although we trust with ever a fair profit to the latter.

* One of them obtained notoriety, which was no doubt his object, by denouncing that valuable substance Liebig's extract of beef as being merely a stimulant, similar to alcohol,

AREA UNDER TEA IN INDIA AND CEYLON AND PRESENT APPROXIMATE CROPS.

The figures for India are embodied in the following:—

Memo. of the Approximate Area of Land under Tea Cultivation in the following Districts in India in 1891:—

	Area in Acres.		
	Mature Plants.	Immature Plants.	Total Planted Area.
Assam	112,708	18,542	131,250
Cachar	50,472	6,090	56,562
Sylhet	37,448	5,748	43,196
Darjeeling	35,978	5,993	41,971
Terai and Dooars ..	23,658	5,399	29,057
Chittagong	3,876	187	4,063
Chota Nagpore	3,280	607	3,887
Dehra Doon & Kumaon—			
Kangra Valley ..	8,680	518	9,198
Madras	10,868	—	10,868
	286,968	43,084	330,052

Of 330,000 acres under tea in India, it will be seen that little more than 10,000 are credited to the southern end of the continent. All the rest is in the extra tropical region of the north, mainly on the slopes of the Himalayas or in the valley of the Brahmaputra. In Ceylon the area under tea in all stages is 250,000 acres. It follows that of the tea cultivation of India and Ceylon (aggregating 580,000 acres, or perhaps now the round 600,000) 260,000 acres are within the tropics, between 7° and 11° north of the equator, the Ceylon portion of it at least experiences no real winter, although there are occasional frosts in and around Nuwara Eliya and cold still more pronounced on the Nilgiris. The conditions under which 320,000 acres of this truly cosmopolitan plant are cultivated in the fra north of India are very different, there being an unmistakable winter and a cessation of flushing from November until March. The crop grown in continental India is already equal to 110,000,000 lb.; and even if no addition is made to the cultivation, the quantity is likely to rise to 150,000,000 in the course of a few years. The quarter of a million acres of tea in Ceylon will certainly yield 66,000,000 lb. in 1891 and the round 70,000,000 is not improbable, while our island, at the present rate of progress, is likely to show an export of 120,000,000 ib., by the time India reaches 150,000,000, say by 1895. With an aggregate production this year of 180,000,000 lb., and the early prospects of

From India	...	150,000,000 lb.
„ Ceylon	...	120,000,000 „
or a total of	...	270,000,000 lb.,

there is need that both countries should bestir themselves to secure, in addition to expanding old markets, the opening up of new. Especially is this a necessity in the case of Ceylon, where the annual increase is not moderate as in India, but, "by leaps and bounds." This is not the time to withhold liberal help for an effective effort to capture the American and other markets by the proper representation of our great staple products at the Chicago World's Fair.

EMIGRATION INTO ASSAM.

There are two things which make Assam interesting to the outer world: one is that the little Province practically represents the north-eastern frontier of India, and comes into contact with almost as great a variety of savage and independent races as Burma itself; the other is the fact that Assam and its tea gardens swallow up some of our surplus population. Th migration cannot be compared with the depletion of Ireland, it is true. Assam in the first place is hardly an Indian America in the temptations it offers to settlers, nor is it likely that any emigrants would find their way thither but for the labours of the agencies variously known as sirdars, *arkatis*, contractors and so forth; still Assam does absorb a large number of emigrants. The figures for the last five years are 30,894, 36,463, 46,293, 55,658, and 36,080. A total migration of over 200,000 souls in five years is a not inconsiderable drain from the crowded parts in India, and it is important to notice that the whole of this relief to the congested districts is effected by private enterprise and is paid for ultimately by the British tea drinker. Government interferes indeed in regulating the routes by which the emigrants travel, and provides depots and medical and other supervision. But this is chiefly paid for by the planters, which means of course that the money comes ultimately and very properly out of the pockets of the drinkers of Assam tea. What becomes of the emigrants after they reach their bourne seems doubtful. There appear to be no reliable statistics of coolies who make the homeward journey, though it is stated that many do return, while some even return temporarily and take friends and relatives back to the tea gardens. Again some settle in Assam as cultivators though the proportion, so far as the Provincial statistics show is disappointingly small. At the end of 1890 the total labour force of the Province was over 400,000. One might fairly hope that a large part of these would take up land, which, in the Assam valley at all events is held on remarkably easy terms. Yet the land known to be held by time-expired coolies is only 32,000 acres or thereabouts. If the rew proverbial three acres and a cow be attributed to the settlers, this gives us only about 10,000 imported cultivators in the Province, out of a population of some five millions, as the result of many years of migration, That so many as 10,000 (and our estimate is probably a low one) can be found goes to show that there is no inherent reason why coolies should not save enough money to set up farming on their own account. Possibly coolies in time acquire a taste for an existence in the lines, as soldiers have been known to acqire a passion for barrack-life. It seems curious, however, to the independent observer that it is not possible to find out more accurately what becomes of coolies on the expiry of their agreements. Every coolie's history is probably known to his employer, and it would seem to be within the limits of possible ingenuity to put this information into a concise tabular from.

The chief interest of the last Provincial Report on Immigration lies, however, in the fact that immigration into Assam has suffered a notable check; not only is this the case, but planters, we are told go further afield for their labour. There is a marked increase in the importations from Madras, where the hilly parts of Ganjam afford a field for recruitment not dissimilar to Chota Nagpur. The drain on Chota Nagpur seems to be telling at last, while gold mines and coal mines and other local temptations probably provide a serious competition with the efforts of the agents of Assam planters. But Chota Nagpur was still far and away ahead of the other exporting districts in 1890.

The district of Sylhet, with a labour force of 82,000, seems to have got all the labour it wants, and recruits but little. This is the more satisfactory that many of the largest tea gardens in Sylhet are comparatively new. Probably the same is true of the neighbouring district of Cachar, which only increased its labour force by less than two per cent in 1890. Apparently many of the gardens in the Surma valley are favourably situated from a coolie's point of view, are healthy, or well supplied with bazaar produce, circumstances which not only make it cheaper to import labour, but enable the managers to maintain a larger labour force in proportion to the work to be done. This again helps to make the gardens popular. On the other hand, the great tea-planting districts of upper Assam, which employ hard upon

100,000 coolies each, still demand fresh supplies. The journey to these districts is comparatively long and expensive, and the conditions of labour are probably less easy than in more accessible districts. Everything that tends to make the acquisition of coolies difficult and expensive tends to make the coolie's lot less easy, in as much as the expense of importation tends to encroach on the wages fund of the Province.—*Pioneer.*

FISH-CURING.

From the report of the Board of Revenue on fish-curing operations during the year 1890-91, it appears that the number of yards actually worked in the Presidency during the year was 143, or one more than in the previous year. The weight of fish brought to be cured increased from 43,496 tons to 50,194 tons, or by 15·3 per cent. The increase appears in five sub-divisions, while in the remaining three—Nellore, Chingleput, and Negapatam there was a decrease, which is ascribed to a bad fishing season on the East Coast. The average quantity of salt issued to each maund of fish cured fell from 12·16 lb. in 1889-90 to 11·82 lb. in the year under report. In the sub-divisions the proportions of salt issued varied from 8·46 lb. in Chicacole to 14·22 lb in Negapatam. The experiments conducted by Government officers exhibit similar variations, the largest quantity of salt used being in Tinnevelly (15·56 lb.), and the smallest in Chicacole (9 lb.), the average for the Presidency being 13·32 lb. Departmental experiments in fish-curing were conducted on a larger scale than in previous years, the quantity dealt with being 2,452 maunds against 541 maunds in 1889-90. No information is afforded in the report as to whether the article thus cured is more appreciated by the public than that cured in the ordinary manner, and as to whether it commands a higher price in the market. The quantity of salted fish exported by sea amounted to 3,610 tons against 2,750 tons in the previous year, and the average value of the exported article shows a slight rise, being 1 anna 3·6 pies per lb. against 1 anna 3·4 pies in 1889-90. The financial results of the industry, remarks Government, are, as usual, very satisfactory, the surplus of receipts over charges being R15,190 and the net gain to Government from the commencement of operations amounting to R53,269.—*Madras Times.*

ECHOES OF SCIENCE.

The question of sterilising water for the supply of cities by means of electricity has again cropped up in a paper by Mr. R. Meade Bache, recently read before the American Philosophical Society. Mr. Bache has made a number of experiments, which go to prove that a current of electricity sent through water destroys bacteria; but, as in prior experiments by others, it is still doubtful whether the liberated oxygen or the electricity itself kills the germs. In any case the water is at least partially sterilised.

Yeast has been successfully tried as a remedy for typhoid fever by Drs. Embling, Lempriere, and Thomson, of the Alfred Hospital, Melbourne. Thirty-seven cases were treated, ten being severe, the temperatures reaching 104deg.; eight were moderate, the temperatures being 103deg.; eleven were mild, and eight were very mild, the temperatures reaching 102deg. In every case the recovery took place without a relapse. There is a theory to the effect that relapses are due to reinfection from the intestine, and Dr. Thomson remarks in his report that yeast should destroy the bacilli in the intestinal tube, and so prevent reinfection.

Mr. Edison is keeping his new electric railway a profound secret at present, perhaps to avoid piracy, but he claims that his system will supplant all other railways, at least for traffic in cities, and he declares that the Broadway and Third Avenue Car Companies will soon regret their recent enormous expenditure for making cable tramways, for his new system can be installed with very simple changes in the roadway. All that is publicly known about the system is that it comprises a new electro-motor and a conductor which is hidden in the track itself.

It is rumoured that he employs a current of low voltage, or electromotive force, and that he can get his current from the track without much loss of power, even in muddy weather, when the insulation must be low. He is now building a large electrical locomotive for this purpose in his private factory at Orange, New York.

The Philadelphia and Reading Railroad Company of the United States recently ran a train consisting of a "D 33" engine and cars, amounting to a load of 169 tons in all, at the surprising speed of 90½ miles an hour. The run took place on a mile of level track following a descending grade of 37 feet per mile. The New York Central Railway has also accomplished 436 1-3 miles in 425min. 14sec.—or over 60 miles an hour, the locomotive being a Schenectady engine.—*Globe.*

SOME ACCOUNT OF THE NUTMEG AND THE CULTIVATION.

By THOMAS OXLEY, ESQ., A. B.,

Senior Surgeon of the Settlement of Prince of Wales Island, Singapore and Malacca.

(*From the "Journal of the Indian Archipelago and Eastern Asia."*)

The Myristica Moschata, or true Nutmeg, is known to botanists as a tree belonging to the Natural Family Myristicacæ, Class Diœcia, Order Monodelphia of the Linnæan System. It would be superfluous to enter into a minute description of a plant already so well described, particularly by Roxburgh: I shall therefore merely notice some peculiarities that deserve attention. The tree, like many of its class, has a strong tendency to become Monœcias, and Planters in general are rather well pleased at this habit, thinking they secure a double advantage by having the male and female flowers on the same plant. This however is delusive, and being against the order of nature, the produce of such trees is invariably inferior, shewing itself in the production of double nuts and other deformities. It is best, therefore, to have only female trees with a due proportion of males. But few have the moral resolution to cut down the Monœcias tree, on the principle that something is better than nothing, but they forget that the Monœcias plants having much fewer flowers, it will take three or four of them to yield the same amount of pollen as the true male, and as for the produce yielded by such trees, that of one good female is worth a dozen of the other.

The female flowers, which are merely composed of a trifid calyx and no corolla, when produced by a tree in full vigor, are perfectly urceolate, slightly tinged with green at the base, and well filled by the ovary, whereas the female flowers of weakly trees are entirely yellow, imperfectly urceolate, and approach more to the staminiferous flowers of the male.

The shape of the fruit varies considerably, being spherical, oblong and egg shaped, but "cæteris paribus" the nearer they approach sphericity of figure, the more highly are they prized.

There is also a great variety in the foliage of different trees, from eliptic, oblong and ovate, to almost purely lanceolate shaped leaves. This difference seems to indicate in some measure the character of the produce, trees with large oblong leaves appearing to have the largest and most spherical fruit, and therewith small lanceolate leaves being in general more prolific bearers, but of inferior quality.

The object of this paper being practical, I shall confine myself as much as possible to a record of an experience extended over a period of some 20 years; and as the subject of spice planting has now become one of deep interest to very many of the Strait's settlers, I entertain a hope of being able to offer

some useful hints to those already engaged in such operations, and a tolerably safe guide for future speculators. But I am by no means disposed to think that I can so exhaust the subject as leave nothing for future writers, being fully persuaded in my own mind that the cultivation of the nutmeg can still be greatly improved, and that in fact very little science has as yet been expended upon it.

The Nutmeg Planter, to use Colonel Low's expressive words, "must have the bump of perseverance myristicatically developed, and be impervious to compunctious feelings on opening his purse"; the combination also of an enthusiastic temperament with untiring patience is desirable. If he be in haste to get rich, let him attend to some other pursuit; but he has this consolation, that nutmeg planting properly conducted, although slow, is sure, and when brought to a certain point, safe and enduring; and he has the further consolation of knowing that nature has bestowed upon him a monopoly, for the nutmeg tree appears to be confined within comparatively narrow limits. Whilst its congener, the clove, has been spread over Asia, Africa, and the West Indies, the nutmeg refuses to flourish out of the Malayan Archipelago except as an exotic, all attempts hitherto made to introduce it largely into other tropical countries having decidedly failed.

The Island of Ternate, which is in about the same latitude as Singapore, is said to have been the spot where it was truly indigenous, but no doubt the tree is to be found on most of the Moluccas. At present the place of its origin is unproductive of the spice, having being robbed of its rich heritage by the policy of the Dutch, who at an early period removed the plantations to the Banda Isles, for better surveillance, where they still remain and flourish. But although care was formerly taken to extirpate the tree on the Moluccas, the mace feeding Pigeons have frustrated the machinations of man, and spread it widely through the Archipelago of islands extending from the Moluccas to New Guinea. Its circle of growth extends westward as far as Penang, where, although an exotic, it has been cultivated as a mercantile speculation for many years with success, so much so that doubtless the Penang Planters think themselves more in a situation to give than receive advice. I shall therefore beg any of those magnates who may chance to cast an eye on this paper, to bear in mind that what they read is more peculiarly applicable to Singapore than any other locality, and that moreover the plans laid down have succeeded here. Westward of Penang, there are no plantations, looking at the subject in a mercantile point of view. The tree is to be found, indeed, in Ceylon and the West Coast of India, but to grow it as a speculation out of its indigenous limits, is as likely to prove successful as the cultivation of apples and pears in Bengal.

In the Banda Isles, where the tree may be considered as indigenous, no farther attention is paid to its cultivation than setting out the plants in park under the shade of large forest trees with horizontal branches, called "Canari" by the natives. Here it attains a height of fifty feet and upwards, whereas from 20 to 30 feet may be taken as a fair average of Straits trees; but notwithstanding our pigmy proportions, it does not appear from all I could ever learn, that we are relatively behind the Banda trees either in quantity or quality of produce, and I am strongly impressed with the idea that the Island of Singapore can compete with the Banda group on perfectly even terms. Our climate is quite unexceptionable for the growth of the nutmeg, being neither exposed to droughts or high winds; and although we may lose by comparison of soils, we again gain by greater facilities of sending our produce to market, by the ability of obtaining abundant supplies of manure, and any amount of free and cheap labour.

I shall now endeavour to lead the Planter step by step on his weary way, but just to cheer him a little, he may have the assurance that a nutmeg plantation well laid out and brought up to perfection, is one of the most pleasing and agreeable properties that can be possessed. Yielding returns more or less daily throughout the year, there is unceasing interest, besides the usual stimulus to all Agriculturists of a crop time, when his produce increases to double and quadruple the ordinary routine.

Trees having arrived at 15 years growth, there is no incertitude or fear of total failure of crop, only in relative amount of produce, and this, as will be seen, is greatly in the Planter's own power to command. It is against reason to suppose that a tree always in flower and fruit will not expend itself if left to unaided nature; it must be supplied with suitable stimuli to make good the waste; therefore he who wants nuts must not be sparing of manure, but of this more directly.

The first requisite for the Planter is choice of location. It is true that the nutmeg tree, aided by manure, will grow in almost any soil where water does not lodge, but it makes a vast difference in the degree of success, whether the soil be orginally good, or poor and improved by art. The tree thrives not in white or sandy soils, but loveth the deep red and friable soils formed by the decomposition of granite rocks and tinged with iron, and the deeper this tinge the better. I am therefore inclined to think that iron in the soil is almost necessary for the full development of the plant. If under the beforementioned soil there be a rubble of iron-stone at 4 or 5 feet from the surface (a very common formation in Singapore), forming a natural drainage, the Planter has obtained all that he can desire in the ground, and needs only patience and perseverance to secure success. The form of the ground ought to be undulating, to permit the running off of all superfluous water, as there is no one thing more injurious to the plant than water, lodging around its roots, although in order to thrive well it requires an atmosphere of the most humid sort and rain almost daily. Besides the form of the ground, situation is highly desirable particularly as regards exposure. A spot selected for a nutmeg plantation, cannot be too well sheltered, as high winds are most destructive to the tree, independently of the loss occasioned by the blowing off of fruit and flower.

At present there is abundant choice of land in Singapore, the greater portion of the Island being as yet uncultivated, and much answering to the above description. The land can be purchased from Government at the rate of from 5 to 10 Rupees per acre in perpetuity. I would advise the man who wishes to institute a plantation to select the virgin forest, and of all things let him avoid deserted Gambier plantations the soil of which is completely exhausted, the Chinese taking good care never to leave a spot until they have taken all they can out of it. A cleared spot has great attraction for the inexperienced, and it is not easy to convince a man that it is less expensive to attack the primitive forest, than to attempt to clear an old Gambier plantation overrun with the Lálang grass; but the cutting down and burning of large forest trees is far less expensive than the extirpation of the lálang, and as the Chinese leave all the stumps of the large trees in the ground, it is also more difficult to remove them in this state, than when you have the powerful lever of the trunk to aid you in tearing up their roots, setting aside the paramount advantage that in the one case you possess a fresh and fertile soil, in the other an effete and barren one, for if there be any one plant more than another capable of impoverishing and wearing out land, it is the Gambier plant*

(To be continued.)

A BIG CACAO LEAF.—A correspondent writes:—"The leaf I send by today's post is off an experimental tree round the bungalow, I measure it 23 in. by 7 in. What do you think of it as a specimen? The tree is about five years old, healthy and in bearing under slight shade." The leaf is certainly a grand specimen, but the cacao trees are distinguished for large leaves.

* Any observant visitor to Singapore will notice this. Deserted tobacco tracts in Java alone are more exhausted.—ED. *L. R.*

FIBRE CULTIVATION.

(This and the following article are Extracts from the Annual Report on the Bahamas, by Governor Sir Ambrose Shea, K.C.M.G.)

Steady progress continues to be made in this industry, with increasing faith in its value and permanence. A report of the cultivation to the present time has been prepared by order of the Government, which, though strictly accurate, would not convey true impressions to those at a distance.

The report speaks of 4,100 acres being already planted with 2,500,000 of plants, but it states that there are also 1,300,000 plants in nurseries, which, being in course of growth, adds 50 per cent. to the active cultivation, making an aggregate of over 6,000 acres. Plants are now kept much longer in nurseries to lessen the cost of weeding, which is an expensive operation, and annually attended to after the plants are set out in the fields.

There has been some question as to the time to bring the plantings to maturity, but four years is now the accepted period, while plants retained in the nurseries, as above stated, will mature in three years. There is but little to add to former reports on this enterprise, which has passed out of the experimental stage and will not probably present any new features of interest until exports of fibre begin, which will be, on a moderate scale, in 1892, then developing annually into proportions of increasing importance.

The value of fibre, like that of other products, will, of course, be subject to market condition from time to time, but, in the natural order of things, it will ever be the main export and, regarding all the surrounding circumstances, it is difficult to see how it can fail to pay present investors handsomely and to be, to them, a source of income less liable to fluctuations than is the case with most commercial adventures. The time is now approaching when the machines for separating the fibre from the leaf will acquire practical importance; of those now in use none seem to meet all the requirements. Some of them clean the fibre well; but the process is wasteful, and the correction of this defect is the object to be accomplished. With so great an interest at stake we must suppose inventive genius will be found equal to the occasion. Professors Edison has directed his attention to the matter of decortication and he hopes he has found an effective method which avoids waste. The treatment is by solution of crude petroleum, and this Government is now in communication with the Professor. If the results meet our requirements, a most important end will be attained, which will have the further advantage of enabling small cultivators to dress their own leaves instead of being compelled to sell them at a loss to a large neighbouring planter, who is able to procure a machine.

The process being enterprised by Professors Edison embraces other and most valuable interests in this Colony. Many thousands of tons of pine-apple leaves are now annually left to waste. The fibre commands a high price, from £60 to £80 a ton, for use in fine textiles. The small quantity now produced comes from China, where it is roughly and expensively prepared for want of a machine sufficiently delicate to extract the tender fibre without injury. The proposed mode would seem to meet this difficulty, as all strain or friction is avoided, and the result of pending inquiries is looked for with great interest. The immediate effect of successful experiment would be to turn a waste product into an article of much value, adding substantially to the returns of pine-apple cultivation and this process may be applied to the growing crop. It is understood that the same solution may be used many times, and, if present hopes are realised, the petroleum will be admitted free of the duty now imposed.—*Trinidad Agricultural Record.*

AGRICULTURE.

Apart from the fibre cultivation agriculture is confined chiefly to pine-apples. The people raise maize and sweet potatoes for their own use, and their maintenance is much assisted by these crops. Cotton shows an increase, being £1,593 in value compared with £1,074 in 1889. There is no reason why this business should not be extensively prosecuted, as most of the islands are well adapted for its cultivation. It is hoped that the presence of strangers now coming in to pursue the fibre industry will act on cotton production, to the advantages of which their attention cannot fail to be directed. It is quite possible that, in time, cotton may be found only second to the fibre in the category of exports from the Colony. The pine-apple crop realised £49,795, as compared with £25,558 in 1889. Of canned pine-apples there were exported 26,799 cases, valued at £6,126, and in 1889 the export was 21,683 cases, with a value of £4,500. In oranges there was an export ef £3,961, the output of 1889 having been £3,040. Careless culture and a reckless mode of shipping, very often in bulk in vessels' holds, must militate against the success of the orange growers. There are advantages for the cultivation of oranges in these islands not known in Florida, as we are proof against frost, which often visits that country. This branch of employment may also be favourably affected when men of enterprise from outside, appreciating the opportunity, use it with energy and the application of well-ordered methods of packing and shipping.—*Trinidad Agricultural Record.*

CEYLON EXPORTS AND DISTRIBUTION, 1891.

COUNTRIES.		Coffee, Cwt.			Cinchona.	Tea.	Cocoa.	C'mons.	Cinnamon.		Coconut Oil.		P'bago
		Plantation	N'tive	Total.	1891 B'nch &Trunk lb.	1891 lb.	cwt.	lb.	Bales lb.	Chips lb.	1891 cwt.	1890 cwt.	1891 cwt.
To United Kingdom	...	57881	...	57881	4284740	56420628	14641	114383	1045459	227546	123143	85500	188072
,, Austria	...	4674	47	4721	...	70830	...	4088	6300	21290	14871	16477	...
,, Belgium	...	18	...	18	1897735	85	...	...	61000	5600	3108	1161	5011
,, France	...	209	56	265	3362	18188	149	...	178600	25380	3002	5007	...
,, Germany	...	113	300	413	...	89661	158	2701	391365	119224	17873	18777	29914
,, Holland	...	...	...	...	21438	2280	...	...	...	...	...	10	944
,, Italy	...	55	...	55	...	3629	...	...	106300	75600	5612	3422	...
,, Russia	...	...	...	...	...	11230	...	...	50	...	5512	8062	...
,, Spain	...	...	...	...	...	16995	...	...	66000	...	...	...	...
,, Sweden	...	...	...	...	...	300	...	...	...	...	...	...	...
,, Turkey	...	...	100	100	...	4211	...	89	...	...	101837	76082	286
,, India	...	1918	2822	4740	...	388281	...	172777	24272	...	1455	1213	582
,, Australia	...	8238	1019	9257	...	2906240	...	132	6200	11148	2941	...	...
,, America	...	259	...	259	407414	157147	2402	7643	71600	...	98993	100773	182590
,, Africa	...	107	...	107	...	67710	...	290	...	...	33	...	...
,, China	...	104	...	104	...	161251	...	525	100368	...	1455	8	...
,, Singapore	...	...	...	...	...	3174	84	...	...	...	58	41265	...
,, Mauritius	...	35	75	230	...	56100	...	...	...	...	...	...	...
,, Malta	...	...	...	...	...	2000	...	...	...	...	...	...	...
Total Exports from 1st Jan.	1891	73766	4419	78185	4906689	60376910	17434	302628	1998014	485788	377938		357399
to 30th Nov.	1890	73934	2818	76752	8184629	41568116	12656	312590	1714984	420615	303045		330727
Do	1889	64008	4319	68445	8539296	29827608	12625	269131	2172794	466320	278076		413970
Do	1888	117883	5267	123100	12091823	20622073	10476	228496	1529500	419250	329287		231937

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current London, November 5th, 1891.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry	£3 a £6
Zanzibar & Hepatic	Common and good	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d a 10d
	Medium to fine Quill	4d a 9d
	Spoke shavings	2d a 4d
	Branch	1d a 3d
Red	Renewed	2d a 10d
	Medium to good Quill	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow	,, ,,	£6 a £7
Mauritius & Madagascar	Fair to good	£5 5s £5 15s
CARDAMOMS—		
Allepee	Fair to fine clipped	1s a 2s 6d
Mangalore	Bold, bright, fair to fine	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 9d
Ceylon, Malabar sort	Fair to good bold bleached	2s 6d a 3s 6d
	,, ,, medium ,,	1s 6d a 2s 4d
	,, ,, small	1s a 1s 6d
Alleppee and Mysore sort	Small to bold brown	1s a 1s 6d
	Fair to fine bold	2s 6d a 4s
	,, ,, medium	1s 6d a 1s 10d
	,, ,, small	1s a 1s 4d
Long wild Ceylon	Common to good	6d a 2s
CASTOR OIL, 1sts	White	4½d a 4¾d
2nds	Fair and good pale	2 15-16 a 3¼d
3rds	Brown and brownish	2½ a 2¾d
CHILLIES, Zanzibar	Fair to fine bright	55s a 65s
	Ord'y. and middling	40s a 55s
CINNAMON, 1sts	Ord'y. to fine pale quill	7d a 1s 5d
2nds	,, ,, ,, ,,	7d a 1s 3d
3rds	,, ,, ,, ,,	6½d a 1s 1d
4ths	,, ,, ,, ,,	5½d a 10d
Chips	,, ,, ,, ,,	2½d a 7d
CLOVES, Zanzibar and Pemba.	Fair to fine bright	3 3-16d a 3½d
STEMS	Common dull and mixed	3d a 3¼d
COCULUS INDICUS	Common to good	1d a 1¾d
COFFEE	Fair sifted	11s a 11s 6d
	Mid. Plantation Ceylon	93s 6d a 95s 6d
	Low Middling ,, ,,	88s a 93s
COLOMBO ROOT	Good to fine bright sound	22s 6d a 28s 6d
	Ordinary & middling	16s a 20s
CROTON SEEDS, sifted	Fair to fine fresh	15s a 20s
CUTCH	Fair to fine dry	24s a 32s 6d
DRAGONS BLOOD, Zan.	Ordinary to good drop	50s a 90s
GALLS, Bussorah & Turkey	Fair to fine dark blue	60s a 65s
	Good white and green	50s a 55s
GINGER, Cochin, Cut	Good to fine bold	75s a 80s
,,	Small and medium	45s a 58s
Rough	Fair to fine bold	35s a 50s
,,	Small and medium	25s a 30s
Bengal, Rough	Fair to good	19s
GUM AMMONIACUM	Blocky to fine clean	50s a 90s
ANIMI, washed	Picked fine pale in sorts	£11 a £12
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto	£5 a £7 10s
	Amber and red bold	£9 a £10 10s
	Medium & bold sorts	£6 10s a £10
scraped	Good to fine pale frosted sifted	60s a 80s
ARABIC E.I. & Aden	Sorts, dull red to fair	35s a 55s
	Good to fine pale selected	45s a 55s
Ghatti	Sorts middling to good	25s a 33s
	Good and fine pale	65s a 90s
Amrad cha.	Reddish to pale brown	25s a 50s
	Dark to fine pale	15s a 50s
Madras	Fair to fine pinky block and drop	30s a 80s
ASSAFŒTIDA	Ordinary stony to middling	15s a 25s
	Fair to fine bright	60s a 70s
KINO	Fair to fine pale	£4 a £7
MYRRH, picked	Middling to good	70s a 80s
Aden sorts	Fair to fine white	35s a 60s
OLIBANUM, drop	Reddish to middling	22s 6d a 32s 6d
,,	Middling to good pale	12s a 18s
pickings	Slightly foul to fine	10s a 15s
siftings	Red hard clean ball	1s 10d a 2s 1d
INDIARUBBER	White softish ditto	1s 6d a 1s 10d
East African Ports, Zanzibar and Mozambique Coast	Unripe root	10d a 1s 4d
	Liver	1s 2d a 1s 8d
	Sausage, fair to fine	1s 7d a 1s 9d
Assam,	Good to fine	1s 6d a 2s
	Common foul & middling	9d a 1s 5d
Rangoon	Fair to good clean	1s 7d a 1s 10d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	1s 9½d a 2s 2d
	Fair to good black	1s 4d a 1s 9d
ISINGLASS or FISH MAWS Tongue	good to fine pale	2s 2d a 9s
	dark to fair	1s a 2s
Bladder Pipe	Clean thin to fine bold	1s 6d a 3s 4d
Purse	Dark mixed to fine pale	8d a 1s 8d
Kurrachee Leaf	Common to good pale	1s 8d a 3s 6d

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal	Middling to fine violet	4s a 5s 2d
	Ordinary to middling	3s a 3d 10d
Kurpah	Fair to good reddish violt	3s 2d a 3s 6d
	Ordinary and middling	2s a 3s
Madras (Dry Leaf)	Middling to good	2s 8d a 3s
	Low to ordinary	1s 8d a 2s 4d
IVORY—Elephants' Teeth— 60 lb. & upwards	Soft slightly def. to sound	£65 a £71 10s
over 30 & under 60 lb.	,, ,,	£52 a £66 10s
40 a 100 lb.	Hard ,, ,,	£45 a £57
Scrivelloes	Soft ,, ,,	£25 a £41
,,	Hard ,, ,,	£23 a £34
Billiard Ball Pieces 2¼a 3¼ in	Sound	£75a £91
Bagatelle Points	Sli. def. to fine sound	£6210s a £7810s
Cut Points for Balls	Shaky to fine solid sd	£52 a £67
Mixed Points & Tips	Defective, part hard	£40 a £53
Cut Hollows	Thin to thick sli, def to sound	£29 a £56
Sea Horse Teeth— ⅜ a 4½ lb.	Crvd. crkd & close strght	1s a 3s 9d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	12s 6d a 14s
	,, II, fair pickings	8s a 9s
	Jubblepore I, good & fine pale	11s 6d a 13s
	,, II, fair rejections	8s a 9s
	Vingorlas, good and fine	10s a 11s 6d
Madras, Upper Godavery	Good to fine picked	11s a 12s 3d
,, ,,	Common to middling	8s a 9s 6d
Coast	Fair	10s 3d a 10s 9d
Pickings	Burnt and defective	7s 6d a 9s
MACE, Bombay	Dark to good bold pale	2s a 3s 2d
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,,	65's a 80's	2s 9d a 3s 1d
	83's a 180's	1s 6d a 2s 8d
NUX VOMICA Cochin, Madras and Bombay	Fair to fine bold fresh	11s a 13s 6d
	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON	Fair to fine heavy	1s a 2s 6d
CITRONELLE	Bright & good flavour	¾d a ¾d
LEMONGRASS	,, ,, ,,	1½d a 1¾d
ORCHELLA WEED Ceylon	Mid. to fine, not woody	20s a 25s
Zanzibar	Picked clean flat leaf	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER— Malabar, Black sifted	Fair to bold heavy	4d a 4¼d
Alleppee & Tellicherry	,, good ,,	1s a 1s 1d
Tellicherry, White	,, ,, ,,	15s a 22s
PLUMBAGO, Lump	Fair to fine bright bold	11s a 14s
	Middling to good small	9s a 12s
Chips	Sli'tly foul to fine bright	4s 6d a 8s
Dust	Ordinary to fine bright	£3 a £3 10s
RED WOOD	Fair and fine bold	50s a 60s
SAFFLOWER, Bengal	Good to fine pinky nominal	28s a 45s
	Ordinary to fair	15s a 25s
	Inferior and pickings	16s 6d a 17s
SALTPETRE, Bengal	Ordinary to good	£35 a £60
SANDAL WOOD, Logs	Fair to fine flavour	£9 a £30
,, Chips	Inferior to fine	£4 a £7
SAPAN WOOD	Lean to good bold	50s a 90s
SEEDLAC	Ordinary to fine bright	8d a 1s 2d
SENNA, Tinnevelly	Good to fine bold green	5d a 7d
	Medium to bold green	2½d a 4d
	Small and medium green	1d a 2d
Bombay	Common dark and small	1d a 2d
SHELLS, M.-o'-P.	Ordinary to good	92s 6d a 105s
	EGYPTIAN—med. to large small and medium, oyster and chicken	85s a 105s
large	BOMBAY—fine thick	100s a 105s
medium stout	bright fairly clean	82s 6d a 107s 6
chicken part stout	,, ,, ,,	70s a 95s
oyster part thin	,, ,, ,,	50s a 60s
Mussel	bold sorts	40s a 48s
	small and medium sorts	4s a 11s
Lingah Ceylon	Thin and good stout sorts	10s a 12s
TAMARINDS	Mid. to fine blk not stony	6s a 8s
	Stony and inferior	17s a 22s
TORTOISESHELL	Sorts goosmottle pate heavy	9s a 15s
Zanzibar and Bombay	Pickings thin to heavy	17s a 18s
TURMERIC, Bengal	Leanish to fine plump finger	24s a 30s
Madras	Fin. fair to fine bold brgt	20s a 24s
,,	Mixed middling	10s a 12s
Cochin	Bulbs	13s a 14s
	Finger	9s a 18s
VANILLOES, Bourbon, 1sts	Fine, cryst'ed 5 to 9 in.	8s a 14s
Mauritius, 2nds	Foxy & reddish 5 to 8 in.	4s a 8s
Seychelles, 3rds	Lean & dry to mid. under 6 in.	2s a 6s
Madagascar, 4ths	Low, foxy, inferior and pickings	

THE

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THE INADEQUATE SAMPLING OF TEAS.

IF what has been stated to our London correspondent relative to the above matter may be accepted as fully correct, we can readily understand the strong feeling on the subject evinced by the Indian Tea Planters' Association, and can sympathize with the steps that body has seen fit to adopt with reference to it. It is very certain, of course, that a grievance of such a character must be fully shared in by our own planters, and we can only wonder that it has not before evoked remonstrance by them. We are not aware, however, if the facts as now stated to us—if they be really facts—have on any previous occasion received public notice. Some of our upcountry friends and correspondents may possibly have heard complaints of this nature, but if so they have not been communicated to us. The Indian Association may be able single-handed to have the evil remedied, and we are quite sure that Mr. Leake and the Committee of the Ceylon Association in London well co-operate heartily with their Indian *confréres* in the endeavour to secure such a result. But if their combined efforts should prove to be unable to secure success, we hold that it will be the duty of our Planters' Association to unite with both the bodies named and so impress upon the brokers its feeling on the subject as to enforce the observance of what is but a rule of simple and necessary justice to our hard-working tea planters. For how can it be expected that we can avoid hearing of complaints of the quality of Ceylon teas being constantly not up to sample, if, as a matter of fact, those samples have never been in any way tested! As we understand the allegation made, it is that in the rush and hurry of business as it is at present conducted, in the haste to put teas which arrive on the market directly they are landed, the sampling if done at all is most inefficiently done. It would seem to be the case that in very many instances a handful of tea is just taken out of one of the chests of a break, and that without even the necessary preliminary of liquoring and tasting this is offered as a sample of the contents of perhaps one hundred chests. Now we know from experience, from repeated instances mentioned to us, that perhaps not even two or three of the chests in a break of the size mentioned would fairly represent the average quality of the whole. Some defect in packing on the estate, or injury arising from rough usage or from the unseasoned wood of a particular box, may cause the one selected to be of very inferior quality to the great bulk of such a quantity of tea. As a matter of fact, we should ourselves say that a sample for each five boxes should be subjected to the most careful tasting and description before an average sample should be determined upon. We can fancy we hear shippers on this side. But we can hardly think that, if the difficulty had been fairly represented to them, if the possible loss arising out of undue haste had been fully explained to them, these would continue a course of insistence almost certain to be fraught with bad financial results to themselves. They would, we should think, moderate their demands as to speed of disposal so as to give the brokers a chance of carefully sampling their teas before offering them to public sale. Doubtless we shall soon hear more particulars as to this matter: At present we are without details, and have only heard the statement of one side, so we must suspend judgment as to the degree of blame to be awarded and as to the parties to whom it should be imputed. But although thus compelled to await fuller information to do so, this does not detract from the necessity for calling particular attention to the subject; for if what is stated is practised on any extensive scale, the fact may go largely towards accounting for the very seriously low prices that our teas have been for some months past fetching at the London sales.

BOGUS CEYLON TEA IN ADELAIDE.

A correspondent writes as follows:—

"A friend of mine bought in Adelaide the 1 lb. packet of tea herewith sent for 2s. It bears a label, 'Pure Batticola Ceylon Tea.' Is there such an estate in Ceylon, or do you think it is meant for 'Battigalla? You can make any use of this as you may think fit. Have it tested to see if it is Ceylon tea."

There is no such tea estate in Ceylon, and this, no doubt the person who adopted the false name for a fraudulent article well knew. The opinions of brokers are most decidedly adverse to the so-called Ceylon tea. Mr. A H. Thompson writes:—

"I have tested the tea. I think the Ceylon men should go for this Company, as I am sure 50 per cent

of it is China to begin with, and the small amount of real Ceylon tea in it is worth about 6d or 25 cents a pound in Colombo: in fact I can buy a *better* tea at 27 cents in Colombo that will knock it clean out."

Messrs. Somerville & Co., to whom we referred for an opinion, report as follows:—

"Mark Batticola, description broken tea, London value 5d. Colombo equivalent at exchange 1s 5d = to 20c. to 21c. Remarks—blackish, flaky, dusty broken tea: little leafy; liquor thin common, with China shantam flavor.

"*P. S.*—From the taste of the liquor we are inclined to suspect a mixture of Ceylon and China tea (with a larger proportion of the latter), which however is difficult to trace in the dry leaf, as the tea is very broken and hardly a whole leaf perceptible.

Infused Leaf.—Black."

So much for the "pure" Batticola tea. The sellers deserve to be prosecuted. They seem to have been ashamed to put their name on the packet.

RUBY MINING COMPANY (LIMITED).

Mr. Thomas Dickson, chairman, presided at the half-yearly meeting of the shareholders, and explained that the object was simply to submit the directors' report on the working for the first six months of the year. No accounts were presented, as they were only rendered once in the twelvemonth. He might say he had nothing particularly encouraging to lay before them, or anything the reverse. The mine was one of the most peculiar in the world to deal with. If they found no ore they should be inclined to say they had enough of it, and they would go on no further. But such was not the case. They were continually coming across pipes and veins of ore running in all directions, and they were following these up, but they had not yet succeeded in finding the Bonanza which they were assured must exist somewhere. When the company was reconstructed, they were told by their managers and agents that it would be extremely unwise to abandon the working without a farther trial. The trial they were now making, and they were finding a certain quantity of ore, but not sufficient to make a dividend-paying company. True, their mills were shut down but they were now sending their ore to Salt Lake City to be crushed, with results fully as satisfactory as when they did the work themselves. Meanwhile their exploring was being well and economically done, and they had the utmost confidence in their agents and officers. The report was adopted.—*Pall Mall Gazette*, Nov. 4th.

SCOTTISH TRUST AND LOAN COMPANY OF CEYLON, LIMITED.

Report of the Directors of the Scottish Trust and Loan Company of Ceylon, Limited, to the Fourteenth Ordinary General Meeting of shareholders, to be held within the Company's Registered Office, No. 123 George Street, Edinburgh, on Monday, the 26th day of October 1891, at 3 o'clock p.m.

The Directors present their Fourteenth Report, being for the year to 31st August 1891.

ESTATES IN COMPANY'S POSSESSION.—The year just closed has, as regards products, been the most successful in the history of the Company. The yield of both Tea and Coffee has exceeded expectations, and the prices obtained in the London market have been satisfactory. It will be observed from the Balance-Sheet that the value of Produce on hand at 31st August last represented a sum of £6993; and the Directors have to state that this valuation is confirmed by sales which have actually taken place subsequent to that date. The prices obtained for Cinchona during the past year have been somewhat disappointing. As in former years, the whole cost of Tea cultivation has been charged against Revenue. On the Estate of Kaipoogala, the Tea Factory referred to in last year's Report has been erected at a cost of £1760, and there has been expended on Factories at Annfield and Alnwick sums amounting to £1000. The Directors propose to write off, as formerly, one-fifth of the total expenditure upon this account. The operations during the year at these Factories have been satisfactory, and a large quantity of leaf has been treated.

The Directors have further to report under this head that during the year they entered upon negotiations with the Ceylon Plantations Company for the sale of Ardallie, one of the estates belonging to this Company. These negotiations ended in the acceptance by the Directors of an offer of £7,000 for the estate as it stood at 1st April 1891.

MORTGAGES HELD IN CEYLON BY THE COMPANY.—This Account in the Balance-Sheet shows a considerable reduction as compared with the amount due at 31st August 1890. The sum of £3,000 referred to in last year's Report as a loss on Loans, has been written off, and sums amounting to £4,095, 16s 8d have been received from sundry Borrowers in reduction of and payment of Mortgages. The Company does not now hold any Rupee Loans. The interest on all Mortgages has during the year been paid with regularity, and the Directors have pleasure in recording that at the close of the financial year no interest was in arrear upon any of the Company's Loans. During the current year, the Mortgage Debt due to the Company will be further reduced.

DEBENTURE DEBT.—The liability of the Company under Debentures has, during the year just closed, been reduced by a further sum of £6,155, which represents a considerable saving in interest. At the ensuing terms of Martinmas, 1891, and Whitsunday, 1892, the Directors will be in a position to pay off the whole Debentures then falling due.

ACCOUNTS.—The balance at the credit of Profit and Loss Account is £7,705 6 9

and the Directors proposes—

To pay a Dividend of 5 per cent, free of Income Tax	£2,250	0	0	
To pay a Bonus of 5 per cent, do.	£2,250	0	0	
To transfer to Reserve Fund	£1,000	0	0	
				£5,500 0 0
Thus leaving ..				£2,205 6 9

to be carried forward to next account.

The Dividend and Bonus will be payable on 11th November next.

Under the rotation fixed by the Directors, Mr. Henry Johnston, Advocate, retires from office at this Meeting; but he is eligible for re-election in terms of Section 14 of Articles of Association.

The Auditor for the current year falls to be appointed.

By order of the Board, FRANCIS A. BRINGLOE, Secretary.

Edinburgh, 19th October 1891.

GEMMING AND MINING COMPANY.

(From the *Dwarf*, Nov. 3.)

I should much doubt, after the collapse of the Burmah Ruby Mines, Limited, which was brought out under the auspices of Mr. Streeter, whether the Sapphire and Ruby Mines of Montana will be readily subscribed for even by our gullible British public. It is well-known that Tiffany, the eminent New York jeweller, has not formed a very high opinion of the value of Montana stones, and refused to purchase the property or to assist in bringing it out as a Limited Company. If the ground is so valuable it is extremely unlikely that Cousin Jonathan would have allowed it to go begging in London.

I hear that Streeter will shortly be asked to bring out yet another sapphire mine, this time in Cashmere; and the fact that Colonel Parry Nisbet's name appears on the list of Founders of the Montana Company, rather strengthens me in my belief in the rumour. Recently some very valuable finds of sapphires have been made in Cashmere, and experts are now inspecting the supposed site of the mines.

I also hear of a valuable Mexican silver mine, which will shortly be placed on the market; the argentiferous deposits cover an extensive area, and are unusually rich in ore.

A valuable West-End business, possessing a practical monopoly, is also to be converted into a Limited Company, as the fortunate owner has already realised a a large fortune by the business, which is still increasing, and is only converting it into a company to lessen his own individual labour, and to provide for his family. This should afford a far safer investment than even sapphires or rubies.

TEA ANALYSIS.

As an instance of the difficulties to be met with by the unscientific enquirer after truth in the matter of tea analysis, we give the following extract from the *Analyst*:—

"Examination of China Teas. By P. Dvorkovitch. *Journ. of Anal. and Applied Chem.*, Vol. V., p. 345.—The author estimates the amount of theine as follows—10 grammes of tea are carefully ground and 200 c.c. boiling water are poured over it. Five minutes later the infusion is decanted. This operation is repeated three times. The tea is then boiled twice with 203 c.c. water each time, so that the water is not coloured, or but slightly so. The extract thus obtained is diluted to one litre. A portion of this extract is washed with petroleum ether three times, in order to remove the oil and the brown substance found in tea, to which Mulder has already called attention. Then 600 c.c. of this aqueous infusion, corresponding to 6 grammes tea, are taken, washed with petroleum ether, 100 c.c. of a caustic baryta solution, containing 4 grammes in 100 c.c. are added to it, well shaken and filtered immediately from the precipitate obtained. 583 grammes of the filtrate, corresponding to 5 grammes of tea, are then mixed with 100 c.c. of 20 per cent salt solution and the mixture, shaken with chloroform three times, about 400 grammes chloroform being used in all. The solvent is then removed by distillation, and the residue of theine dried at 100° C. Absolutely white theine is obtained in beautiful needle-shaped crystals.

"The washing with petroleum ether is necessary, first, for the removal of the ethereal oil, and next for that of the brown substance alluded to. One and the same tea, washed and not washed with petroleum ether, showed a difference of 0.6 p c. in its contents of theine. This method gives higher results than that of Peligot, Mulder, or J. Bell. All methods based on Mulder's principle, viz., on the boiling of the tea with magnesia or lime, give results which are two low, on account of the partial destruction of the theine with evolution of ammonia.

"The preliminary fermentation, to which all black teas are subjected, destroys a varying proportion of the tannin. The quality of the tea, to a very great extent, depends upon the method of fermentation, the astringency not only being lessened thereby, but the aroma being developed. The author worked out a method applicable to the determination of the tannin and to its products of fermentation, based upon the Loewenthal principle. A solution of tea, 10 grammes to the litre is made precisely as above described, 40 c.c. being diluted with 500 c.c. of water, and titrated with permanganate, with indigo carmine as indicator. 80 c.c. of the tea solution are then mixed with 20 c.c. of caustic baryta containing 4 grammes. In 100 c.c. the precipitate is filtered off and 50 c.c. titrated with permanganate. The quantity of permanganate thus expended indicates the quantity of the products of the decomposition of tannin; that is to say, the degree of fermentation to which the leaf was subjected. The longer the fermentation lasted, the more of these products. The percentage both of tannin and the products of fermentation are calculated from the oxalic acid standard of the permanganate solution, 63 grammes of oxalic acid corresponding, according to the author to 31·3 grammes of tannin, and not to 41·2, as found by Neubauer.

"Twenty-nine samples of tea were examined. The best qualities contained the largest amounts of theine. This was manifested more strongly when the ratio of theine to the total amount of tannin and products of fermentation was calculated. The theine varied from 2·14 in the cheapest, to 3·21 in the best tea; the percentage of theine to total tannin from 16·0 to 24·52.*

"It need hardly be added that these deductions are in direct contradiction with those of many other observers."

The last sentence is evidence of the uncertainty of chemical deductions.—*H. and C. Mail*, Nov. 6th.

CAN WE MAKE IT RAIN.

The October number of the *North American Review* contains two articles under the somewhat startling heading "Can we make it rain?" The first is by General Robert G. Dyrenforth, who has been attempting, and, as he believes, successfully attempting, to produce rain in districts afflicted with drought, by means of dynamite and other explosives. In the second article, Professor Simon Newcomb, the eminent astronomer, tries to drown General Dyrenforth's arguments and conclusions in a cold shower of sarcasm. It has been frequently noticed that heavy cannon-firing has been followed by rain. In 1870 an American author, Mr. Edward Powers, published a book entitled "War and the Weather," in which it is stated that 198 battles of the Civil War, including every battle of importance, were immediately followed by drownpours. Results such as these, however, need very careful criticism before any definite conclusion can be drawn from them, and it occurred to several distinguished men in the United States that the question was one of sufficient importance to deserve experimental investigation. A scheme promoted in 1874 by General Garfield, General William Sherman, and others fell through owing to lack of funds. But in 1890 the Hon. C. B. Farwell succeeded in obtaining from the Department of Agriculture and the American Government a sum of 9,000 dols. for a new project, which did not involve, like the former, the expense and difficulty of transporting a large number of cannon from the coast to a rainless district. General Dyrenforth was asked to take charge of the investigations, and he has now published the details of the first experiments made under his direction.

"On the 5th day of August," says General Dyrenforth, "our party arrived at Midland, Texas, a small station on the Texas and Pacific Railway, situated on the Llano Estacado, or Staked Plains, in a region which had been suffering from a severe drought of several months' duration, and a lack of good rains for several years. The party made its headquarters at a point twenty-five miles from Midland, in the midst of a dry prairie bearing little vegetation but scattered clumps of grass and low mesquite bushes, with here and there a cactus. The plan of operations was somewhat as follows:—Three lines were to be formed, each some two miles in length, and placed about one half mile apart. The first line to the windward was to consist of a large number of ground batteries, where heavy charges of dynamite and rack-a-rock powder would be fired at frequent intervals. The next line to the rear was to consist of a number of kites flown to a considerable height by electric wires, bearing dynamite cartridges suspended from them, to be fired high in the air. The third and main line was to consist of explosive balloons,

* So that the proportion of tannin in tea containing 3·21 per cent of theine would be about 12 per cent?—ED. *T. A.*

(filled with a mixture of hydrogen and oxygen which would produce terrific 'air-quakes' at intervals of one to two hours during the day or during the continuance of the operation."

Some difficulty was experienced with the kites their wires being often broken by the strong wind which prevailed, and consequently the dynamite explosions at high altitudes seem to have been a failure, but the rest of the project was executed with results which are best described in General Diyrenforth's own words:—"The first operation was made on August 9. At this time the balloon apparatus had not been set up, and only the first line of ground explosions was brought into action. The ground batteries were operated for about an hour, beginning at 5 p.m., August 9, and reopened again for a shorter time at about 7 p.m. The weather was clear on the 9th, and the barometer stood at its nominal height at 7 p.m. At noon of the 10th clouds began to gather directly over the ranch, and during the afternoon and the evening a very heavy rain fell—nearly two inches—transforming the road ways into rushing torrents, and every hollow into a small lake." The next operation was performed on August 18, the ground batteries being kept in action for twelve hours, and the balloon explosions being also brought into play. The meteorological instruments gave no indication of approaching bad weather, but "late in the afternoon heavy clouds gathered and formed, and rain fell in torrents for 2½ hours over the entire southern and eastern portion of Andrews County and most of Midland County and the counties to the south and west of it."

The third and final operation was begun at 11 a.m. on August 25. At 3-30 the barometric pressure was slightly below the normal, but the atmosphere was very dry. The wind blew from the south-east (the usual direction) at a velocity of 18·8 miles per hour, and the sky was clear, except for a few very light scattered cumulus clouds, estimated to be at a height of more than two and a half miles. Seven balloons were exploded, and the ground batteries seem to have been in action for twelve hours. "At 11 p.m. the firing ceased, and our weary party immediately retired for the night. At 3 a.m., however, the heavy rolling of thunder disturbed the sleepers, and, looking out to the west and north, heavy banks of cloud were seen advancing, almost constantly lighted by most brilliant lightning. An hour later the rain began to fall in torrents on the ranch, and did not cease till 8 a.m. The northern portions of this country received the most thorough watering they have had for the past three years, and the reports from incoming cowboys indicate that the storm extended over many hundreds of square miles. Besides these three heavy storms, which occured after the principal operations," continues General Dyrenforth, "not less than nine showers of much less importance occurred during the sixteen days of our experiments—a most extraordinary occurence in this locality, and especially at this season of the year. That these results were not produced at an excessive expense of material may be seen from the fact that in the entire series of experiments only two tons of iron, one ton of sulphuric acid, a quarter of a ton of chlorate of potash and manganese dioxide, and one ton of rack-a-rock powder and other explosives were consumed, none of which are expensive materials."

In the opinion of General Dyrenforth, these experiments clearly demonstrate, first "that the concussions from explosions exert a marked and practical effect upon the atmospheric conditions in producing rainfall, probably by disturbing the upper currents;" and secondly, "that when the atmosphere is in a 'threatening' condition—which is frequently the case in most arid regions without any rain resulting—rain can be caused to fall almost immediately by jarring together the particles of moisture which hang in suspension in the air. This result was repeatedly effected during our operations, the drops sometimes commencing to fall within twelve seconds from the moment of the initial explosion."—*Public Opinion*,

INDIAN TEA DISTRICTS ASSOCIATION.

REGULATION OF SUPPLIES.

The following correspondence relating to this important subject—to which we are asked to give publicity—speaks for itself. We hope the brokers, whose responsibility in this matter is very great, will give due weight to the evident desire both of importers and dealers, and not print teas for sale until they are quite ready to be sampled:—

Indian Tea Districts Association,
Nov. 4th, 1891.

W. G. Price, Esq., Secretary,
Tea Brokers' Association of London,
118, Dunster House, E. C.

Dear Sir,—My committee had under their consideration yesterday the complaints of the trade with regard to the short time allowed for sampling and tasting teas offered for sale, and they desired me to call your attention to the remarks of the *Produce Markets' Review* of the 31st ult. on the subject.

Since then I have received a letter from the chairman of the Wholesale Tea Dealers' Association, a copy of which I enclose, and will thank you to take an early opportunity to lay the same before the Brokers' Association, as it rests with them in a great measure to meet the reasonable requirements of the trade.

I shall be glad to learn for the information of my committee, what steps are taken in the matter,—Yours faithfully, ERNEST TYE, Secretary.

Produce Markets' Review, Oct. 31, 1891.

"If the importers continue to force their teas on the market in opposition to a declining enquiry, which is sure to take place shortly, as the retailer will to a great extent, be absorbed in attending to other goods, they must be prepared for a further decline in the comparatively moderate prices now ruling No effort appears to have been made to give a reasonable time to sample the teas previous to the day of sale. In several cases this week catalogues have been issued only a day or two prior to the sales being held, consequently the teas were not ready for sampling when applied for, which necessitates a second application, and precludes the trade giving the attention to the teas they otherwise would do if a reasonable time were allowed for sampling and valuing."

London Wholesale Tea Dealers' Association,
4, Fenchurch Street, E.C., Nov. 3rd, 1891.

Ernest Tye, Esq., Secretary Indian Tea Districts Association.

Dear Sir,—I am directed by my committee to draw your attention to the inconvenience caused by the short time which is frequently allowed for sampling tea. In some cases the samples can only be obtained the day before a public sale, and often on the day of sale, and as there are many breaks it is often impossible to carefully taste the samples. As this system is opposed to the interests of the importer as well as the buyer, I trust your committee will take the subject into their favourable consideration, and arrange the public sales so that reasonable time may be allowed for drawing and tasting all samples.—Yours faithfully, (Signed), FRANCIS PEEK, Chairman.

—*H. and C. Mail*, Nov. 6th.

THE COAL INDUSTRY IN MALAYSIA.

[The following report came to us, marked, in a copy of the *Newcastle Daily Chronicle*, and so we insert it; but our readers will agree with us that Mr. Eekhout of Java would have done well to have

been far more diffident than he showed himself in discounting the future, while performance in the present is so small and imperfect. We think the Newcastle people showed great good nature in thanking the over confident Dutchman, who, on such utterly insufficient grounds, asked them to prepare for the extinction of their coal trade to the east. There is, no doubt, coal in the Malayan region, but it has not yet been discovered or brought to the surface in quantity and quality sufficient to justify such tall talk as Mr. Eekhout indulged in. Coal, some of very good quality, he might have remembered, is being extensively mined in British India.—ED. C. O.]

Last night, in the Lovaine Hall, Barras Bridge, Newcastle, Mr. R. A. Eekhout, of Java, Fellow of the Royal Dutch Geographic Society, lectured, under the suspices of the Tyneside Geographical Society, on "The Dutch Indian Railways, and the Development of the Coal Industry in the Malaya Archipelago." Ald. Thomas Bell presided.

Mr. Eekhout said that everywhere in Sumatra, Java, and Borneo people were searching for coal, and were asking permissiom from the Dutch Indian Government for licenses to make mining investigations. Together with that industrial movement the extension of railway building was steadily going on in the Dutch possessions of the far East. For that reason, he thought that it might be of some practical importance to speak in the land of George Stephenson and in the heart of the coal trade, about what is going on that way in those splendid Eastern islands, and to draw their attention to the Dutch Indian railways and the development of the coal industry in the Malaya archipelago. He had lived ten years in Java, where he intended returning very soon, and where he had an opportunity of watching the whole movement very closely. Though in the Dutch Indies coal of different qualities had been known for a long time, it was only a quarter of a century ago that their exploration was taken in hand. The Dutch Indian Government itself worked it at that time in South and East Borneo for the benefit of its navy, but the quality did not give satisfaction. The exploration was at last abandoned, because it did not pay. In the meantime, the coalfields in the highlands of West Sumatra were discovered, and the mineral recognised to be of excellent quality; but it was not till 1888 that the Dutch Indian Government began to execute a serious plan for its exploitation by the building of the railway now in course of construction. There was coal in Borneo, Sumatra, and Java, but the coal in Java and Borneo was of inferior quality. It was suggested that these coals, also, would prove to be of the same quality as the best English kinds as soon as the mines were excavated deeper, and the lower seams opened out, where the coals would be of a far later formation. Before the end of this century, the Dutch Indian coals would count for a considerable portion in the prosperity of the Dutch colonies. A coaling station was to be established at Sumatra, in the Straits of Malacca. The Russian and French Governments had already officially declared that they intended to use that coaling station for their war vessels in the East, and it seemed that the French mail steamers were not unwilling to frequent also that coaling station, as they would benefit by the lower prices. Probably the British coal trade would not be affected by the coal trade in the Sumna Islands for some years, but they must consider this fact, that within a certain time the whole consumption of more than two millions of tons a year in the region of the Dutch Indies would pass from the English coal to Dutch Indian coal. This would not only affect the British coal trade, but it would also affect her steamers which now plied to the East with cargoes of British coals, and returned with cargoes of produce. This export trade would then be finished, or at least diminished, unless they consented to sell British coals beyond the ocean at a loss, or to send the steamers without the coal cargoes to bring back the produce; this trade would pass from the hands of those who at present carried on the coal trade; and into the hands of the numerous European steam navigation companies which provided at present the regular communication between the Orient and the Occident. He had already stated that the price at which the coal could be delivered at the ports was 18s.; he did not think that that would occur very soon, but it might be considered as the definite price of coal in the Malay Archipelago in the future. The coalfields could only be developed by the construction of state railways in the four great Sumna Islands and by private enterprise with the interest guarantee of the Dutch Indian Government. Votes of thanks to the lecturer and Chairman concluded the meeting.—*Newcastle Daily Chronicle*, Oct. 24th.

PLANTING NOTES.

(From the *British North Borneo Herald.*)

We hear that Count Geloes, who since Mr. Christian's illness has acted as Manager of the Borneo Coffee Company's Estate, has engaged Malays at 25 cents per diem to work on the coffee estate. This is good news for coffee Planters, and is much under the Estimates we have seen which provided for 30 cents a day per cooly. The Coffee Company are fortunate in having their interests in such good hands.

Coffee planting appears to be in favor with the natives. We hear that Mr. Little, Acting Resident West Coast, has requisitioned for coffee seed to be distributed among the chiefs of the Putatan district who have expressed a desire to plant Liberian coffee.

Mr. Henry Walker, Commissioner of Lands who has just visited Ceylon inform us that cocoa planting in Ceylon has ceased to be the precarious cultivation it at one time was now that *shade* has been introduced and that cocoa planters can now obtain very remunerative returns. One cwt. per acre is sufficient to pay the cost of working the estate and all above that (after allowing for the additional cost of collection and pre paration) is profit. We have only to remind our readers that natives in North Borneo have long cultivated cocoa and we should say it is a plant that would be found very remunerative if cultivated on a large scale. The few trees at Silam (of the caraccas variety) have borne well and from notes made at the time it was shown that they came into bearing in the 4th year.

Mr. Walker reports that the patches of Liberian coffee on the Malapi estate on the Kinabatangan, of coffee and cocoa on the Seganan estate are looking remarkably well and are in bearing. Mr. Kennedy of the Seganan estate is fortunate in having soil of a very rich quality and the Bagahac range of mountains near the estates are said to have good soil.

A LADIES' TEA ASSOCIATION IN LONDON.

Housewives will be interested to hear that a Ladies' Tea Association has just been started. The promoters, two enterprising young ladies who have an interest in a tea estate in Ceylon, are Miss R. G. Bartlett and Miss A. M. Lambert, 2, Manchester-square-mansions. They told me that they mean to employ women only to help them in the carrying-out of their project of selling the best tea at a low price. From their deep knowledge of the subject one would think they had been in the tea trade for years. They have certainly managed to get the true knack of blending. When I went to see them the other evening I was given as a sample a cup of the "ladies' own"—the most delightful tea I have ever tasted. And I consider myself something of a connoisseur of tea, too. I drink it whenever I want a stimulant, which is about four times a day on an average. Fresh-made tea doesn't do one much harm. It isn't so demoralizing as wine, and isn't half so likely to give one a red nose. The worst thing that can be said of tea is that it is apt to make havoc of one's nerves.—"Miss Mantalini" in *Pall Mall Budget*, Nov. 5th.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.)*

LONDON, Oct. 24th.

CINCHONA.—The fortnightly bark actions on Tuesday were rather larger than usual, but the average standard of the Ceylon and Indian barks offered was exceedingly low. In fact, with the exception of two or three small parcels of yellow and grey barks, the figure of 4d per lb. was only twice reached. The catalouges comprised the following quantities of the various descriptions of bark :—

	Packages.	Packages.
Ceylon... ...	602 of which	602 were sold
East Indian ...	225 ,,	204 ,,
Java	84 ,,	84 ,,
South America ...	532 ,,	307 ,,
West Coast African	295 ,,	295 ,,
	1,738	1,492

The unusually large quantity of African bark offered was nearly all of very recent import. It was fairly well competed for, and brought not altogether unsatisfactory prices. Much of it was badly harvested. The South American barks consisted exclusively of Calisayas, partly of the flat variety usually met with at the drug auctions, and partly of cultivated Bolivian bark. The following are the approximate quantities purchased by the principal buyers :—

	Lb.
Agents for the Mannheim and Amsterdam works...	73,556
,, Brunswick factory... ...	47,129
,, Frankfort o/M and Stuttgart works	41,555
Messrs. Howards & Sons	29,558
Agents for the American and Italian works ...	17,211
,, Auerbach factory	13,805
Sundry druggists..	43,572
Total quantity of bark sold	266,386
Bought in or withdrawn...	25,130
Total quantity offered...	291,516

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it ; firms who buy a small quantity of bark by weight frequently take the richest lots, and *vice versa.*

The next Amsterdam sales will be held on November 12th. The barks from private plantations to be offered on that occasion have not yet been got ready, but from the Government plantations there will be 29 tons of bark, including about 8 tons Succirubra, 1½ tons Officinalis, and 19½ tons Ledger barks. One parcel of 42 bales ground Ledger stem bark analyses 9·74 per cent.

OILS [VARIOUS].—Coconut oil remains very steady, the spots prices being 24s 9d for Ceylon (c i f., 23s to 23s 3d); and 29s to 29s 6d for Cochin c, i. f., 26s.

QUININE.—A transaction between two brokers is reported today at 9d per oz for second-hand German bulk. The quantity thus sold was only 2,000 oz. This is the lowest price the article has yet touched. It is said that a good deal of business has been done quietly lately, of which no particulars have been allowed to transpire, but it has all been done at the price quoted on the market. The United States official returns show that during the first nine months of 1891 the imports of quinine into the States have been about 500,000 oz. and of cinchona bark 200,000 lb. less than in the corresponding period of 1890.

PEARLS MADE TO ORDER.

An ingenious American has applied for a patent for making real pearls by artificial means. The material of which the oyster makes its pearl is certainly cheap and plentiful enough. If you take the shell of a pearl oyster and scrape or grind off the outer coat you find a sheet of about one-eighth of an inch in thickness of the precise substance which the oyster deposits around any foreign body, as a grain of sand, &c., which gets caught under its mantle, thus producing the pearl of commerce. Why not, says the experimentalist, take this sheet of nacre, dissolve it in acid, and then re-posit the pearl in layers about a shot or a pea suspended in the solution, thus copying the processes of Nature? The idea seems to open up vast possibilities, for in this way pearls of any size or shape might be procured at the fancy of the operator. There would be no difficulty in turning them out as large as billiard balls, or as footballs, even, for the matter of that. The trouble is that concretions thus obtained are mere lumps of carbonate of lime, which entirely lack the iridescence which in the pearl is due to structure. This little difficulty has always stood in the way of the successful imitation of the oyster's production ; but this latest inventor claims that he has entirely overcome it, so as to be able, not only to manufacture peals, but also to coat articles with the material, just as spoons and forks are plated with silver. Whether the claim will or will not be made good in practice remains to be proved. A possibly easier and more certain mode of pearl production is indicated by an extraordinary treasure which was lately shown at the Smithsonian Institute. This was a pearl, the size of a pigeon's egg, of an exquisite rose colour, and the receptacle containing it was the original freshwater mussel in which it had been formed. The nucleus of this gem beyond compare was nothing more nor less than an oval lump of beeswax, which had been placed a few years ago between the valves of the molluso, which, to protect itself from the irritation caused by the presence of the foreign body, at once proceeded laboriously to coat it with the pink nacre it secreted for lining its shell. The mussel was kept in an aquarium while engaged in its lengthy task. It belongs to a species common in American rivers, and it is suggested that the success of the experiment opens to everybody the possibility of establishing a small pearl factory for himself by keeping a tank full of tame mussels and humbugging them into making "great pink pearls" for him. Only the intending experimentaliet is warned against avarice the "nucleus" must be introduced well under the mantle of the creature; or it will not irritate sufficiently ; and, above all, it must not be too large. A great surface takes a long time to cover, and mutiplies the risks always attendant upon artificial culture. If one will be satisfied with pearls the size of peas the chances of success will be so much the more promising.—*Colonies and India.*

THE CELEBRATED MAHWAH TREE, BASSIA LATIFOLIA.

The Department of Agriculture has successfully introduced for the first time into Australia this famous tree. It is a handsome tree, attaining a height of from 40ft. to 60ft., and a native of Bengal, in India, where it is carefully conserved for the sake of its annual crop of edible flowers. It possesses the advantage of thriving in dry stony ground, but will flourish in almost any kind of soil from the sea-level up to 3,000 ft. altitude. When the tree is a few years old it produces annual crops of flowers in great quantities. These contain about 50 per cent of sugar, and enter largely into consumption, and are considered a very nutritious and wholesome food both for men and for cattle, pigs, poultry, &c. Mahwah-fed pork has a high reputation. A single tree will yield from 200 lb. to 400 lb. of flowers annually. The flowers are eaten both fresh and dried. In a fresh state they possess a peculiar luscious taste. When dried the flavour has some resemblance to that of inferior kinds of figs. In a dried state they will keep a length of time, and are carried long distances for sale in the bazaars.

A wholesome spirit is distilled from the flowers, very similar to Irish whisky. This spirit is manufactured to a great extent in India, and the Government revenue from this source alone is considerable. The seeds yield by expression a large quantity of concrete oil (of the same value as coconut oil) which is used in lamps, to adulterate ghee, in the manufacture of candles and soap, and for culinary purposes. The cake or residue is good feed for cattle, and is a valuable fertiliser to worn-out lands. The timber of this tree is hard and strong, close and even-grained, and is used for the wheels of carriages, railway sleepers, &c. A gum of some commercial value exudes from the bark.

The cultivation of this famous tree is receiving increased attention among planters and others in various parts of the world, as it is found to be a highly profitable commercial crop.

After giving a few of the trees to the Curator of the Botanic Gardens and the Director-General of Forests, there will be about 25 available for experimental purposes on the department's experimental farms at the Richmond River and amongst surrounding farms.—*Sydney Mail.*

[In Ceylon the tree called *illepai* by the Tamils and *migaha* by the Sinhalese (*Bassia longifolia*) is closely allied to the Mahwa tree of India. We have seen the road about two miles towards Dimbula from Nawalapitiya covered with masses of the white blossoms, as with wreaths of snow.—Ed. *T. A.*]

THE TEA TRADE.

The rapidity of the growth of the India and Ceylon, and of the decline of the China, tea trade is remarkably exemplified by the British Board of Trade returns for the first nine months of the current year. During that period the importation into the United Kingdom amounted to 160¾ millions of lb. or 17¾ millions more than in the same period of 1890; the home consumption was 149½ millions, or nearly 6½ millions more than last year; the exportation was 23½ millions, or 5 millions less than in 1890; and the stock of all kinds, on the 30th September, was 87 4-5th millions, against 81¼ millions in 1890. and 88¾ millions in 1889. The importation from India showed a decrease of 3 millions, and from China of 2 4-5th millions, the total being 61 millions from the former and 45 millions, from the latter country; but Ceylon, with its 48½ millions, showed an increase of 14¼ millions of pounds for the nine months. Thus the importation from China was 3¼ millions less than that from Ceylon, and was no less than 64¼ millions less than that from both India and Ceylon. The quantity of India tea taken for home consumption was nearly 71 millions, or nearly twice that of China tea, namely 39 millions, or of Ceylon tea, which was 37½ millions. Two-thirds of the tea now consumed in the United Kingdom is obtained from India and Ceylon. The exportation of India and Ceylon tea is inconsiderable, as it amounted to only 3¼ millions for the two products in the nine months: but the exportation of China tea was 18⅜ millions in 1891, and 24⅜ millions in 1890. The foreign demand for China tea in the London market thus fell off a fourth in the present year; and it will most probably continue to decline, for India and Ceylon teas are being largely shipped direct, via the Suez Canal, to the Continent, and when once the taste for them has been acquired consumers cannot be easily persuaded to go back to the unblended tea from China. The following extract from a London Market Report of the 21st ultimo shows the estimation in which India and China teas respectively are now held by the trade:—"The Indian auctions today totalled 8,177 packages, and passed throughout with spirit, prices ruling generally steady and strong for fine teas. At the China auctions of 10,572 packages, again a quantity of first crop Ningchows and Kintucks about 5,500 packages were forced off at phenomenally low prices, quality considered. Good first crop Ching Wo's Kaisaw and Savunes also were hammered for the best prices obtainable, some being described in catalogue as fine thorny truly represented the light in which the importers received them before the sale."

A great deal has been said about the superior delicacy of the flavour of China tea; but the consumer who cannot afford the fancy price demanded for fancy China tea appreciates the broad, even rough flavour of the brew from India or Ceylon tea, and is content to dispense with the possibly more refined flavour of the highest, or the, to him, unattainable descriptions of China tea. Pound for pound the India and Ceylon teas go farther in consumption, or are cheaper in use, and are much more tasty than the China teas of an ordinary description. Russia, America, and Australia still consume China teas to the exclusion of other teas*; but this preference is due to an unfamiliarity with those other teas which may not last long. Ceylon tea is being pushed in Australia and New Zealand; and the Chicago Exhibition will offer an excellent opportunity for pushing both India and Ceylon teas in the United States. In England tea from Ceylon was regarded as a curiosity only half-a-dozen years ago; but now it is sold and puffed by every grocer, and there is scarcely a railway station, or buffet which is not adorned with an ornamental poster, or card, setting forth the virtues of some special tea from the spicy island. The growth from small beginnings of the India tea trade seemed marvellous, but it is put in the shade by the rate of expansion of the tea trade of Ceylon: By all accounts the island has by no means reached the maximum of its productive power; and it seems probable that, having succeeded in passing its China rival in the British market, it will at an early date run its India rival very close for pre-eminence. The Chinese will not be slow to consume the tea grown in their Empire for which the outside world makes no offer; but there is comparatively very little home consumption of tea in India and Ceylon. The native in this part of the world has yet to acquire a taste for tea; but when he does acquire it, or when such taste, or appetite, is as general in India and Ceylon as it is in China, there may be no small difficulty in meeting the local demand that will arise, and in satisfying also the increasing requirements of the world at large. —*E. Mail.*

* Not now correct of Australia.—Ed. *T. A.*

SEEDING OF THE BAMBOO.

The hardier species of Bamboo are becoming deservedly more popular year by year for the adornment of English pleasure-grounds. One thing, however, seems not unlikely to be lost sight of by many, viz., the fact that the culms of the Bamboo flower but once, the plant perishing immediately after the ripening of the seed. The usefulness of the many species of Bamboo now introduced into England in the embelishment of our gardens cannot be questioned, at the same time there is yet to be considered the eventuality of the flowering, seeding, and consequent death of the plants—which no art of the gardener can stay—after they have reached the climax of their grace and beauty. It would be, I imagine, almost impossible to determine the age at which these hardy Bamboos will produce flowers when grown in this country; most probably the term of years will differ with the various species.

With regard to the great Bamboo of tropical India, Bambusa arundincea, it is a well ascertained fact, that the coming to maturity of this gigantic grass only occurs after a growth of some fifty years' duration; and as the phenomenon of its flowering, seeding, and subsequent death in India and other climes —where it covers with its huge and picturesque clumps many square miles of country—can have been seen but by few Englishmen of the present generation, some account of the extraordinary spectacle by an eye-witness may prove of some little interest to the readers of this journal.

It is unnecessary, of course, to give any lengthy description of the plant; suffice it to say, that in the locality in India where I had the rare fortune of witnessing the flowering and seeding of this gigantic member of the grass family on a large scale, the culms frequently attain a height of from 60 to 70 feet, and a diameter at their thickest part of from 8 to 10 inches. These culms are furnished with lateral branches, throughout their whole length adorned with a profusion of light green leaves. The plant is deciduous, shedding its leaves in India during the dry season, which are again renewed on the approach of the spring showers. The clumps present the appearance of colossal plumes of feathers, and when seen in full leaf are beautiful beyond description.

The soil of the tracts of country the Bamboo affects in South India is mostly of a shallow nature, with a gritty, ferruginous subsoil, and it is not found where the rainfall is excessive. When the clumps are in full vigour, the culms are produced of the above dimensions with amazing rapidity.

It was during the years 1863—64, while engaged in Coffee planting in the district of Wynaad, in the province of Malabar, that I witnessed the phenomenon of the seeding of Bambusa arundinacea. The plantation I had charge of at the time was situated in the midst of an extensive Bamboo jungle within but a short distance of the frontier of Mysore, and on the main road from the Malabar coast to Seringapatam and Bangalore. At the time of my arrival in the district, the magnificent Bamboo forest, interspersed with such deciduous hard-wooded trees as Teak, Kino, Rose, and Sandal woods, and others of an equally valuable description, was, although unknown to me at the time, upon the eve of a sudden and wonderful transformation. Hundreds of square miles thickly covered with the exquisitely graceful clumps of the Bamboo, giving to the landscape as far as the eye could reach a beauty difficult to describe, were to be charged in the brief period of a little over a year by fire into a charred and blackened wilderness, the myriads of nodding plumes that for half a century had graced the woodlands were, at the call of Nature to blossom, yield their seed, and disappear from the face of the earth as by the breath of a destroying angel.

The south-west monsoon rains of 1863 had ceased about the middle of September, leaving the jungle tracts of Malabar in the very heyday of their glorious greenery, the Bamboo plumes waving to and fro by the gentle breezes still prevailing from the westward, glistening in the light of a tropical sun, and, as yet, showing no trace of the change they were so soon to undergo. As the season advanced, hot parching winds from the east began to take the place of the more kindly breezes from the west, and by Christmas, the leaves of the Bamboo thickly covered the ground. Simultaneously with the disappearance of the leaves from the laterals, the inflorescence began to appear, and the aspect of the country in every direction changed as if by magic. No one was prepared for such an eventuality, and the English planters in the district were struck with something akin to alarm when the fact dawned upon them that, in the course of a very brief period, not a living Bamboo would be left in the forest. A few there were who refused to believe that the culms would perish after ripening their seeds, and were only persuaded by the actual realisation of the fact. As nearly as I can remember, the seed was matured by the middle of May, the panicles of grain weighing down the clums to a third of their length, and giving them withal a graceful as well as fruitful appearance. When the seed, which was about the size and had much the appearance of small Oats, had fully matured, it fell to the ground in showers by every passing breeze, and then came a happy season for both man and bird. Sea-fowl, spur-fowl, partridge, jungle-fowl, and quail, with which the jungles abounded, revelled in, and got fat upon, the plentiful supply of good food so suddenly bestowed upon them by the hand of Nature, and man himself was not slow to take advantage of the offering. The coolies from Mysore employed on the Coffee plantations could with difficulty be induced to remain steadily at work during this Bamboo harvest, and the jungle tribes could not be persuaded to work at all, but subsisted solely on the fallen grain of the Bamboo, so long as any could be gathered from the ground. This seed they appeared to highly value, and, judging from appearances, it seemed to be very nutritious. The grain was ground into meal by the aid of small hand-mills, and two modes were employed in its cooking—the one by baking in the form of cakes, and the other in boiling it into a kind of thick porridge. I myself ate the cakes on several occasions, and found them fairly palatable. These jungle tribes, although perfectly aware of the value of the vast granary thus laid at their feet, were, notwithstanding, improvident to a degree. They ate abundantly of the fruit whilst it lay on the ground, but made no provision against the approaching destruction of the whole by jungles fires. So, after these had licked the ground, they had, perforce, to return to work on the Coffee plantations. At the height of the dry season, and when the earth was thickly covered with a coating of Bamboo leaves and seed, these fires began to do their work, and, apparently, so completely that it was hard to believe that a single Bambo seed could have escaped destruction, and that in the course of a decade or so, another such magnificent Bamboo forest could be produced; but Nature, in some mysterious way, was equal to the occasion, and before I left India in 1877, the Bamboo zone of Malabar and Mysore was clothed with another jungle, consisting of clumps approaching in size and grandeur those that perished in 1863.

From the date of the seeding of the Bamboo, the clumps stood throughout the following monsoon leafless and dead, but intact; and it was not till nearly a year after that their complete destruction by fire began. When the dead and sapless clumps caught light, the whole country was filled with flame and smoke for weeks together; loud reports were heard night and day without intermission, resulting from the pent-up gases within the hollow culms, and the whole Bamboo zone so picturesque and beautiful but a twelvemonth before was quickly reduced to a scene of desolation. The total destruction of the clumps, however, was not accomplished in one season, many escaping the fires till the second, and some till the third.

The young seedlings soon began to appear, but made but slow progress for several years. As time went on, the annual growth of culms waxed stouter and stouter, till at last a thick undergrowth of low Bamboo tufts covered the ground, which, in the fulness of time began to send up gigantic canes, till the forest was restored to its former strength and beauty.

With reference to the period of time required for the maturation of Bambusa arundinacea, I was at some little trouble, while in India, to ascertain from the native tribes inhabiting the jungles of the district the approximate duration of its existence, and was told by several men, apparently about sixty years of age, living widely apart, that they remembered a similar phenomenon of the seeding of the whole of the Bamboos of the district when they were boys. From this I concluded that about fifty years was the limit to the life of this giant species of Bambusa.

About three months before the flowering of the Bamboo, I had occasion to clear some 30 or 40 acres of land for the purpose of Coffee planting, the culms of the Bamboo being cut close to the ground. I waited patiently, curious to know the result of such an operation. When the monsoon rains began, the huge stools left in the ground began at once to send up numerous small culms of from 8 to 10 feet in height, and furnished with laterals. On the cessation of the rains these immediately flowered and seeded, after which the old stools perished absolutely, so that the act of cutting down the original culms had only the effect of delaying, not frustrating, Nature in her efforts at reproduction.—J. LOWRIE. —*Gardeners' Chronicle.*

[The flowering must take place at shorter intervals than fifty years, for we found the bamboos in South Wynaad, flowering, seeding and dying in 1877. We suspect much depends on seasonal influences. 1887 was a year of famine from drought.—ED. *T. A.*]

THE STORY of a coffee-plant as told by Dr. Kerr Cross possesses quite a romantic interest. Some ten years ago the authorities of Kew Gardens sent out a number of slips of the coffee-plant to Blantyre, in Central Africa. Only one survived the journey. This slip grew, bore seed proved itself wonderfully productive, and is now the progenitor of a million of plants growing on one estate alone, besides hundreds of thousands of others in that region. In three years the plants give a return. The quantity is also good, as shown by the fact that Shire coffee has recently been fetching wholesale 112s. a hundredweight in the London market.—*M. Mail*, Nov. 25th.

THE REAL POSITION OF THE NATIVE CULTIVATOR AND THE MEANS WHEREBY HE CAN IMPROVE IT.

(Communicated.)

The utterances of His Excellency the Governor, and the other speakers who addressed the meeting on Saturday evening (Nov. 28th) at the School of Agriculture, will show to the Ceylonese the deep interest taken by them in the future welfare of the nation as agriculturist, or cultivators of the soil. There is no blinking at the fact that the Ceylon of today is to the Sinhalese cultivator, the Ceylon of 70 years ago. For while commerce has increased and the planting enterprize of the British capitalist has progressed with leaps and bounds, the Sinhalese agriculturist has remained the veritable Rip Van Winkle of the country, to find himself sleeping over decades of progress, which came not to him in the land of his birth. His family has increased in numbers, but the area of his cultivation has remained much the same in extent. Lands available for asweddumizing is of limited extent in the populated villages, and the work itself involves much labour and expense which he cannot readily afford: and the consequence is that the limits of subsistance have been pressed against for some time past now, in different parts of the island in a manner that admits of no further doubt or speculation as to the cause of the widespread distress and despondency that prevails in the country. The next class that threatens to overun the country without finding adequate employment to maintain themselves, is from among the so-called educated section of the community. Schools, both Government and private, swarm with children of educated and uneducated Sinhalese parents, and the numbers keep increasing with the growing desire for knowledge as a means whereby to attain an end. The chief end being—after making every allowance for valuing knowledge for its own sake—the purchase of a meal. But out of the thousand who by reason of their scholastic and literary attainments at school and college are found knocking at the doors of Government offices for the privilege of filling a vacancy at R20 a month in exchange for services that are worth R100 in other countries, only the smallest percentage may hope to enter. So at the merchants offices, so also at the lawyers offices. What is to become of the rest of this educated class who from their very training are led to live a life rather of hope and expectancy, than of usefulness in the field of manual labours with their brethrens, till distress overtakes. The butler or the cook who earns his R?0 is better off by far than the educated clerk at R20 a month with his increased artificial wants and cultivated tastes; and disappointment and despair, poverty and its concomitants overtake him, and hold him with firmer grip than the less educated, less favored play-fellow of his childhood from an agricultural population large numbers have passed on to a wage earning section —seeking such services, menial and laborious, as were open to them to enter; while the ranks of the artificers and tradesman have been glutted to the last limit of profitable labours and investment, leaving still a large and constantly increasing balance or surplus population in the villages and in the towns for whom there is literally no work to do. There are many acres round about his fields and available forest land still in Ceylon for the Sinhalese cultivater if he will avail himself as the British planters have done. But the Sinhalese agriculturist has not been taught the art of cultivation as yet to see it as the China man, the Indian, or even the Jaffna Tamil in Ceylon sees it.

Beyond Chena cultivation, in the most primitive manner, even as nomadic races adopt it. The vast bulk of Sinhalese cultivators do not care to venture. The fact that these villagers has often a small garden with palms and jak trees, does not bear on the question materially as it does not provide him and his family with any thing like what his needs demand. But that he does not extend this garden by adding to it year after year, acre after acre is what is ground for just complaint and regret. It is to this class of the population that the pupils going out of the School of Agriculture will carry their apostolic missions. To those who have lived long enough in the island to watch the progress and the poverty of the country growing side by side, it must be painfully clear. That to many—and that a large majority—education and misery have grown as bud and blossom out of the same stem. It may seem rank heresy to some of your readers to hear such an assertion confidently put forward. But there is no denying that the Sinhalese boy has unconsciously and gradually been wearied from the traditions of his ancestors by the glowing prospects of wealth, influence and prosperity, that shines on his horizon in the early morning of his life as he turned his back upon his peaceful village and smiling cornfield to be initiated into the mysteries of English grammar.

The Australian Colonist educated or uneducated sees the necessity for manual labour in the gardens where he grows fruit for home and foreign consumption, as the first occupation for the colonist. Jamaica, as may be gathered from the paper contributed to a periodical this year by one of its ablest Governors, is reviving under the invigorating influence of its fruit trade. Singapore and the islands of the Malayan archipelago are busy with the cultivation of nutmeg, pepper, cloves and other tropical products. But the Ceylon of the Sinhalese is in this respect even under the blessings of British rule today what it was at the capitulation three quarters of a century ago.

AGRICULTURIST.

SCIENTIFIC GOSSIP.

Dr. Langenbeck has critically scrutinised the evidence that has been adduced during the last three years in the controversy between the supporters of Darwin's theory of the formation of coral reefs on areas of subsidence and the advocates of Dr. Murray's rival theory of their formation on areas of elevation, and he arrives at the conclusion that Darwin's theory holds its own as a general explanation, and is the only one that is applicable to the phenomena presented by a large class of well known reefs. It may be added that it is the theory which alone can account for the vast thicknesses of coral strata met with in geological formations. It is evident that when coral grows on an area which is undergoing elevation, the coral stratum must be thin and patchy, while coral which is formed on subsiding foundation, and continues to grow while the subsidence is going on may attain a very great thickness, limited only by, the time and vertical extent of the depression. When there is neither subsidence nor elevation, the reef may extend laterally till the depth becomes too great, but cannot become thicker. Of course, coral will grow wherever the proper depth of water and the supply of food are favorable to the life of the coral insect, but this life is most quickly checked on the rising areas, while there will be a rapid growth and accumulation on the areas of subsidence only. Dr. Murray's theory was first brought into prominence by the notice taken of it by the Duke of Argyll, whose fixed faith is that Darwin must invariably be wrong, and that, consequently those who differ from him must be right, There is, no doubt, some obstinacy and delusion on the other side, but hardly to such an extent.—"Œdipus" in *Melbourne Leader*.

[The interesting question of the distance down from the surface at which the polyparia can live and work requires to be settled.—ED, *T. A.*]

POULTRY SCRATCHINGS.

Use plenty of white wash in your chicken houses.

Green food is needed for young and old chickens.

A dust bath with a little carbolic powder mixed is a sure remedy for lice.

Charcoal, oystershell, bonemeal and gravel should be kept within reach of your fowls.

Do not expect that more than three-fourths of all your chicks will live to maturity.

Young turkeys have to be kept out of damp quarters; old turkeys will stand anything.

Try and set your hens so as to have two hatch out at the same time, and give the broods to one hen.

Good care, under all circumstances and at all times, is a prime necessity to success in breeding fowls.

Care must be taken that chickens are not brooded on cold, damp ground, and the bed, whatever it be, must be renewed when soiled.

There is no one thing which conduces more to cleanliness and healthfulness in poultry breeding than a liberal and judicious application of whitewash on the in and outside of the poultry house.

Farmers, invest a few dollars in pure bred fowls for the benefit of your boys if they have a fancy in that direction. A boy needs something that he can call his own. Don't compel your son to lead an altogether humdrum life. You were once a boy yourself.—*Rural Californian.*

HINTS ON WATERING PLANTS.

A report of the Ohio Experiment Station contains the following:—

Rain water is better than spring or well water. Hard water may be greatly improved by adding a drop or two of hart-shorn or a little soda—a small nugget about the size of a pea, to every gallon of water used.

Time.—Morning is best, next, the evening. Never water house plants when the sun is shining brightly upon them.

The supply of water must be regulated according to the demand of the plant.

The condition of the plant and of the surface soil is the best guide.

Never give water when the soil is moist to the touch.

Nearly all plants require more water when in bloom than at any other time; they require more in a warm temperature than in a cold; more when in a state of active growth than when at rest.

Plants in open rooms usually require water once a day and some that delight in moisture, need it twice.

All plants should be examined at least once a day with intent to water, if that is necessary. Experience alone determine the proper amount to give each plant.

Cleanliness.—The leaves of plants should be kept free from dust, hence frequent washings are absolutely essential.

Never wet the flowers of a plant, nor allow drops of water to stand on the leaves in the sunshine.

Never allow water to stand in the saucers of the pots unless the plants are semi-aquatic.—*Florida Dispatch.*

WHERE THEY CAME FROM.

"Lemons were used by the Romans to keep moths from their garments, and in the time of Pliny they were sconsidered an excellent poison. They are natives of Asia. Spinach is a Persian plant. Horse radish is a native of England. Melons found originally in Asia. Filberts originally came from Greece. Quinces came originally from Corinth. The turnip is a native of Rome. The peach originally came from Persia. Sage is a native of the south of Europe. Sweet marjoram is a native of Portugal. The bean is said to be a native of Egypt. Damson originally came from Damascus. The nasturtium came originally from Peru. The pea is a native of the south of Europe. Ginger is a native of the East and West Indies. Coriander seed came from the East. The cucumber was originally a tropical vegetable The gooseberry is indigenous to Great Britain. Apricots are indigenous to the plains of America. Pears were originally brought from the East by the Romans. Capers originally grew wild in Greece and Northern Africa. The walnut is a native of Persia, the Caucasus, and China. The clove is a native of the Malacca Islands, as is also the nutmeg. Vinegar is derived from two French words, vin aigre, sour wine. Cherries were known in Asia as far back as the seventeenth century. Garlic came to us first from Sicily and the shores of the Mediterranean. Asparagus was originally a wild sea coast plant and is a native of Great Britiain. Nectarine received its native name from nectar, the principal drink of the gods. The tomato is a native of South America, and it takes its name from a Portuguese word. Greengage is called after the Gage family, who first took it into England from a monastery in Paris. Parsley is said to have come from Egypt, and mythology tells us it was used to adorn the head of Hercules. Apples were originally brought from the East by the Romans. The crab apple is indigenous to Great Britain: It is a curious fact that while the names of our animals are of Saxon origin, Norman names are given to the flesh they yield. The onion was almost an object of worship with the Egyptians 2,000 years before the Christian era. It first came from India. The cantaloupe is a native of America, and so called from the name of a place near Rome, where it was first cultivated in Europe. Before the middl of the seventeenth century tea was not used in England, and was entire'y unknown to the Greeks. The word biscuit is French for "twice baked," because originally that was the mode of entirely depriving it of moisture."—*Florida Agriculturist.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Nov. 7th.

CINCHONA.—A supply of more than average extent had been declared for sale at Tuesday's auctions, but at the last moment about 500 packages of East Indian and Ceylon bark were withdrawn, in consequence, it is believed, of the death of one of the owners and the transference of his interests to trustees. The quantity offered for sale was, therefore, as follows:—

	Pkgs.		Pkgs.	
Ceylon ...	1,311	of which	1,206	were sold
East Indian ...	438	do	427	do
Java ...	33	do	33	do
South American ...	238	do	238	do
Total	2,020	do	1,904	do

The quality of the bark calls for no particular comment—there were no very fine parcels, but the average of the assortment appeared to be a pretty high one. Root bark was offered more plentifully than usual—one Ceylon plantation alone contributing about 12 tons of succirubra root. Competition was fully active throughout the auctions, and nearly the whole of the supply was taken at prices quite equal to those of the preceding auctions. The unit may be placed at 1 1-16ths d. to 1½d per lb.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Mannheim and Amsterdam works	209,830
Agents for the Italian and American works	63,615
Agents for the Brunswick factory	63,284
Agents for the Frankfort o/M. and Stuttgart works	47,59
Messrs. Howards & Sons	32,046
Various manufacturers' agents ...	14,49
Sundry druggists	42,905
Total quantity of bark sold	473,768
Bought in	29,941
Total quantity of bark offered	503,709

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it; firms who buy a small quantity of bark by weight frequently take the richest lots and *vice versa.*

ESSENTIAL OILS.—Oil of Citronella offers on the spot at 1 1-16ths d. per oz. for tins. To arrive there is no business doing.

NATIVE AGRICULTURE IN CEYLON.

"Agriculturist," whose communication appear elsewhere, is too pessimistic. Native agriculture has advanced in area and to some extent improved in modes of tillage and amount of yield since the capitulation and the days of the Madras Civilians and Governor North. The picture drawn by the latter of the scantiness of rice grown in the island in his day was far more marked by Rembrandt-like shadow than the scene depicted by Governor Havelock. Most of the people, however, have never heard of Malthus as a philosopher or of thrift as a virtue; and it is too true that in many parts of the island population is out-growing the means of subsistence. The remedy is either extended cultivation of the land, or improved and intensive cultivation of the portions already brought under the plough or the mamoty.

Let us have extended rice cultivation by all means, but more important still is the duty, which ought to be, we were going to say compulsorily pressed on the people, of so cultivating the lands already under crops, as to increase the yield manifold beyond what is now harvested. The experiments to which Mr. Green alluded and those recorded in Mr. Drieberg's comprehensive report show the vast room there is for possible improvement and the extent to which improved methods when adopted are rewarded. If we felt as Governor Havelock seemed from the tone of his utterances to feel, that poor returns from rice culture are the rule, and that such inadequate returns are due, not to the ignorance and carelessness of the cultivators but to natural causes which can be neither controlled nor overcome, of course we should feel as much the necessity of abolishing the paddy tax as His Excellency does. But in view of what was stated in the Hall of the Agricultural College, apart from the opinions of experienced servants of Government and others, previously expressed, we hold that the duty of Government is to retain the tax, using a large proportion of it to encourage not only improved and extended rice culture but the growth of other cereals and food products in the shape of root plants and fruit trees. We are specially glad to notice that the attention of the Principal and pupils of the Agricultural College is specially directed to such leguminous plants as dal and horse gram. The crops from such plants are far richer in nutritive properties than rice is, and the long-vexed question of leguminous plants deriving a large portion of their nitrogen from the air seems to have been settled in the affirmative. Lawes and Gilbert being converts to that proposition. To legumes ought to be added a larger cultivation of Indian corn than at present—the "mealies," to use the Cape Dutch term, for what formed the staple cereal of the colony whence Sir Arthur Havelock came to Ceylon. If the natives so used their cattle as to get plentiful supplies of butter as well as milk, the boiled heads of Indian corn, seasoned with butter, would constitute a delicious as well as a nutritive diet. Indian corn, like all other similar products, requires occasional applications of fertilizing matter, and one of the chief duties of the missionaries from the Agricultural College must be to teach the people the value, when collected and properly composted, of refuse matter which, when neglected, becomes not only offensive but injurious and dangerous to life and health." "Agriculturist" draws a gloomy picture of the condition of large numbers of Sinhalese educated to look down on honest labour. But education properly conducted, as it is at the Agricultural School, ought ever to recognize the dignity of labour; and knowledge ought not to be a hindrance but a help to the conscientious and industrious tiller of the soil, who ought to feel proud of "eating bread in the sweat of his face." We were specially interested in that portion of Mr. Drieberg's report which indicated that a Sinhalese gentleman who had received a training at the College had been successful in raising the tuber known as the common or Irish potato—not to be confounded with the sweet potato, which latter has been so naturalized in Ceylon as to be often regarded as indigenous. Both these valuable roots are really of American origin, and an abundant cultivation of both would largely alleviate that pressure of population on the means of existence which "Agriculturist" truly states is becoming a serious problem. We have alluded to the breeding of cattle and horses,—ponies, such as those for which Java is famous, would be specially useful,—and we have attracted attention to the necessity of increasing our food supplies in the shape of good and wholesome freshwater fish. This question, curiously enough, is an agricultural one. The water of irrigation in Ceylon is plentifully peopled by fish, but we want superior varieties such as the large golden carp of Java in which island, as our late friend Mr. Moens told us, the cultivators gather two harvests, of almost equal value: first the paddy crop and then the teeming wealth of fish. The fewer goats in a country the better: they are the inveterate destroyers of all vegetation. But could we not in regions of the lowcountry too dry for the existence of the land leech, and in our mountains at altitudes too high for the leech pests, breed sheep superior to the long-legged, goat-like creatures which in Jaffna are mainly valuable for manuring tobacco and vegetable fields? And the mention of Jaffna reminds us that great benefit to the Sinhalese would result, were they in many places to imitate the careful and productive well-cultivation for which the northern Peninsula is distinguished.

HERE is an Italian recipe (1659) for making Tea. "Take a pint of water and make it boily then put in it two pinches of Tea, and immediatel; remove it from the fire, for the Tea must not boil; you let it rest and infuse time enough to say two or three paters (*'l'espace* de deux ou trois pater'), and then serve it with powdered sugar on a porcelain disb; so that each one may sugar to his taste—*Madras Times*."

IN view of the "boom" that there has been in Ceylon Tea of late, it is a little strange to hear that even one tea planter thinks of deserting that island to try his luck in another part of the world. We are informed that a gentleman from Ceylon was in California last month, with a view of embarking in the Tea planting industry on the Pacific coast. He believes the climate and soil favourable for the growth of the plant. He is indeed more sanguine than some section of the American Press. A contemporary on the Pacific coast, [says:—"Considering the cheapness of labour employed in this industry in China, Japan, and Ceylon, even if natural conditions on this coat are favourable, it is difficult to see where the hands are to be found willing to work in California Tea plantations for wages anywhere near as low as those paid abroad. Chinese and Japanese labourers are out of the question, and no white man has yet been found in California who will willingly work for less than $150 per day." And a New York trade paper endorses this with the remark:—"It has been demonstrated that the Tea plant will thrive in the Southern States, but owing to the expensiveness of labour Tea growing cannot be made a profitable industry.—*Madras Times*.

THE AMSTERDAM CINCHONA AUCTIONS.

(*Telegram from Our Correspondent.*)
AMSTERDAM, Thursday Evening.

At to-day's cinchona auction 3,691 packages of bark were sold at an average unit of 6 cents (=1 1-16d per lb.), showing a barely steady market. Manufacturers' barks in quills, broken quills, and chips sold at 11 to 56 cents (= 2d to 0ld. per lb.) ditto root at 16 to 46 cents (2⅜d to 8¼d per lb.). Druggists' barks in quills, broken quills, and chips brought from 13 to 136 cents (=2½d to 2s per lb.), and ditto root 11 to 16 cents (=2d to 2¾d per lb.) The principal buyers were the Auerbach factory, Messrs. C. L. Schepp & Zoon, of Rotterdam, the Brunswick Works, and the Amsterdam Works.—*Chemist and Druggist*, Nov. 14th.

THE INDIAN TEA COMMUNITY.

To the Editor of the *Home and Colonial Mail*.

Sir,—While it can hardly, of course, be said that the Indian tea industry is, at the present time, altogether in a bad way; yet, looking to the competition of Ceylon and to the great increase in the production in India itself, there is no doubt that the situation is such as to give rise to some anxiety as regards the immediate future.

Taking current Mincing Lane prices, as represented by the sales of the principal well-known London companies' marks, and comparing them with the averages realised for these companies' entire crops in 1890, I am driven to the conclusion that many of them are at present obtaining much lower prices, and that, in the case of some, it is questionable whether the price of the produce is much in excess of the actual cost of production. In order to bring this home, attention may, with advantage, be drawn to the following comparison of current prices with those ruling during the last three years, taken from Messrs. Gow, Wilson, and Stanton's weekly circular:—

	1888.	1889.	1890.	1891.	Total drop.
Pekoe Souchong	7¼d	6¾d	8d	5¾d	2¼d
Common Pekoe	8¼d	8¾d	8½d	6¾d	2d
Medium Pekoe	9¼d	10d	9¾d	8½d	1½d

What is, then, the attitude which the tea community is prepared to take up in the light of this rather painful conclusion? This is a serious and an important question.

It is undoubtedly a satisfactory feature of recent years that there has been an increasing tendency on the part of tea producers to draw together and combine for their own mutual protection, and in various directions evidence is not wanting of the desire for such mutual support, which only requires some stirring up to ensure its manifestation. If, however, the great industry is to progress, and if it is to continue to be profitable to its members, much more than has hitherto been done must in the future be done to ensure this. The spirit of "No man for a Party, but all men for the Cause," must be much more strongly evoked. There must be more working together, more of the "shoulder to shoulder" which has won Britons their battles, alike in war and in peaceful competition.

This point can but be urged upon your numerous readers, and those who have been backward must be urged to come forward now; better late than never. There are many schemes at present on the *tapis* for extending consumption and improving the prospects of the tea grower, and it will not be difficult for your readers to inform themselves of what these are. Let them enquire diligently, and then give their support willingly and liberally. One-tenth of 1 per cent of the capital invested Indian tea would furnish a fund of well-nigh £10,000.

As has been frequently pointed out in your columns, the industry already possesses an organization both in London and in Calcutta, whose object is to further the best interests of the planting community; and as component parts of the organisation we have "good men and true," men who "mean business," and have the cause—their own cause and that of their brethren—a heart. These organizations, however, and the master spirits who work for the cause—let it be said with regret—do not always receive that cordial support and backing which is due them. It cannot be too strongly urged that all—that every man who has any, however small an interest in Indian planting, should enrol themselves in the ranks of one or other of the tea associations, and not only enrol themselves and pay their guinea subscription, but that they should work as one man, in every direction, to strengthen the organisation and increase the influence of these bodies and thereby help, if nothing else, to fill their own pockets fuller than would otherwise be the case. After all, I am merely appealing to self-interest, and lowest stimulus.

The world's consumption of tea must be increased if we are to continue to draw profit from our planting enterprize, and to effect this at all rapidly is a difficult matter and can only be done by combination and by push. Indian tea must be promulgated and its merits more widely preached, and money must be spent and "bread thrown broadcast on the waters," so that it may come to shore in future days.—Yours truly,

OBSERVER.

London, Nov. 11th, 1891.

"WICKED" TEA.

In the *Illustrated London News* of Nov. 7th, in the Ladies' Column, Mrs. Fenwick-Miller writes:—

Tea, that precious refuge of the nineteenth-century woman, has been much talked of lately. Here, as in the case of a lady's reputation, to be "talked of" means to be abused. One critic declares that it is no longer women who are the worst tea-drunkards; that the University undergrade has now far surpassed the weakness of the other sex. "Wicked" tea is Sir Andrew Clark's description of the liquor as it is frequently offered. He is complaining of the tea commonly dispensed as a beverage by ladies in the afternoon, which is allowed to stand in the teapot for half an hour after being made, and warmed up for new-comers by pouring a flood of hot water on the over-drawn leaves. This is "wicked" tea. That which is physiologically righteous, according to the learned physician, must have stood only five minutes after being made: it should be orginally black China tea—not Indian—and the old-fashioned allowance of one spoonful for each consumer and one over for "the pot" is the right quantity. Finally, a lady's article in a magazine declares that women "degrade themselves" by their out-of-door lunches, which usually consist of tea and buns; she avers that this habit of lunching on tea, so long as it be continued, will keep women feeble, nervous, and comparatively useless creatures.

These complaints, all appearing in the world of periodical literature, but in very diverse quarters, at one moment, may be taken as an illustration of the cycle of ideas. If we observe, we shall find that notions reappear at regular intervals, like comets. All this about tea has been said before; but, for all that, it is just as well to have our minds impressed now and again with the degree of truth that the lucubrations contain.

Studious men are, and always have been, quite as great consumers of tea as women, and for the best of all reasons—that there is not any beverage so stimulating to the nerves with so little necessary evil attendant on the stimulation. The evil of a stimulant may by measured by, first its temporary, and next its permanent, results on the constitution. Those which produce depression corresponding to or deeper than the stimulation they produce, and those which after a time injure the structure of the bodily organs, are dangerous. Now, tea can challenge the world of stimulants on both grounds. The great authority on food, Dr. E. Smith, says, "Tea promotes all vital actions"; Dr. Parkes, the standard writer on hygiene, avers, "Tea seems to have a decidedly stimulative and restorative action on the nervous system, and no depression follows"; while the great chemist Liebig

found that tea aided the assimilation of food, and made it "go further." I call that a comforting little list of scientific authorities to back us up in the consumption of our precious "fif o'cloquer," as the French fashionable world calls the afternoon meal that it has adopted from the English. I am afraid that I for one should go on taking tea if all the savants abused it; but still it is comfortable to be encouraged with scientific approbation in doing as one likes.

Something we must have when we are deprived by any circumstances of the great natural stimuli, plenty of open-air exercise and long sound slumbers. These natural boons are not to be commanded by students sitting close to work, by women engaged in sedentary employments, or by a large number of housewives, whose fingers must always be busy and whose brains must be, early and late, paying tax to family responsibility. Such classes positively have need of some stimulant to prevent their nerves getting exhausted and their faculties sluggish. Is there anything better than tea?

Certainly not. Alcohol is a thousand times worse, more disastrous to the body, more perilous to the mind. The tribe of narcotics, which have the dangerous peculiarity of stimulating in small doses and soothing in larger ones, are rapidly fatal to the health and energies of those who fall under their control. Even comparatively mild drugs do this, as well as opium and morphia. The nurses in a certain London hospital recently contracted a habit of taking antipyrin as a "pick-me-up," with results that need not be detailed beyond saying that they were quite deplorable. In fine, no beverage has yet been discovered that is for one moment comparable in the combination of efficiency as a stimulant and innocuousness with that so dear to the Englishwoman and the man of highly developed nerves—tea. [Hear! hear!—ED. *T. A.*]

But judiciousness is required in its use, of course. The tannin which is drawn out by prolonged infusion tends to cause indigestion; and the too-frequent or violent application of even this mild stimulation to the nervous system makes it over-excited and unstable. There is great truth in what Sir A. Clark says about the wicked tea of many afternoon "At Homes." Tea which has been nursed under a cosy for half an hour* is like corked wine or tainted fish—it was good once, but it has "gone off," to be disgusting and injurious. The only plan that a hostess can pursue to avoid at one time waste of tea and bad liquor is to have the tea poured off the leaves ten minutes after it is made.† I venture to say ten in place of Sir A. Clark's five, because London water is hard and draws slowly. The liquid can be kept hot afterwards in any way most convenient. It may even be left in a jug on the kitchen stove without doing it any damage. It is the continuous drawing of the leaves, not the standing in heat of the completed infusion, that is mischievous. The tea being made, therefore, in the proportion of one large teaspoonful of the dried leaves to each half pint of boiling water —not over-boiled but fully at boiling point—should be allowed to stand for ten minutes, and then the infusion should be poured off into a big teapot that can be kept under a cosy, or put into a silver urn with a little spirit-lamp burning underneath, not high enough to boil the tea, but just so as to keep it hot.

TEA IN THE UNITED STATES

Is thus noticed without a word about the essential element of cheap abour:—

A correspondent of the *American Garden*, Mr. W. F. Massey, writing from Charleston, S. C., gives some very interesting information about domestic tea culture. He says: "We were very much interested in visiting Dr. Shepard's tea gardens at Summerville, twenty-two miles from Charleston. Here Gen. Le Duc, when Commissioner of Agriculture, began some experiments in tea culture, which his short term of office left no time to complete and which his successor abandoned. Dr. Shepard has bought the old Government plantation, and has planted a large additional area. The old trees planted by the Agricultural Department have been given over to seed bearing, and now nurseries are being started from these and from imported seed. The new tea gardens are all planted with the Assam hybrid tea, but the doctor has orders abroad for seed of all the best sorts from China, Japan and the Himalaya region. His tea has been pronounced very superior by experts. The well-cultivated gardens and the thrifty plant is perfectly at home there. "That a high quality of tea can be easily made in North and South Carolina seems evident. Before going to South Carolina we visited a plantation of tea made over thirty years ago near Fayetteville, North Carolina. We found the tea bushes struggling for existence in a thicket of pine, laurel, cherry, and all manner of wild growth. It has had no culture whatever since the war, and yet from these trees the old lady who owned them gave me a large bundle of tea of remarkably fine quality, which a New York dealer who tested it at the hotel pronounced worth $1 per pound at wholesale. The ridicule with which the Northern press treated Gen. Le Duc's experiments caused the abandonment of systematic effort in this direction, but it does looks as though a new money crop of great value might be added to the South, and I am glad to record the fact that Dr. Shepard is giving the matter a thorough test. I hope his work may be crowned with successful results."

NOTES ON PRODUCE AND FINANCE.

THE IMPORT OF TEA IN OCTOBER.—The Board of Trade Returns for October show that the imports of tea reached the high total of 30,485,170 lb.—about the biggest total ever recorded in one month. India sent 18,263,000 lb., Ceylon 5,651,000 lb., and China, &c., 6,569,000 lb. The greatest proportional increase is of Ceylon, the receipts being more than double those of October, 1890.

LAST WEEK'S SALES.—The *Grocer* says of Indian tea:—"The deliveries continue to progress favourably, and last month equalled 10,520,450 lb., in contrast with 9,822,000 lb. in the former year, but as the imports were uncommonly heavy, stretching to 16,094,850 lb., against 15,236,900 lb. in October, 1890, the stock was further increased to 31,534,200 lb, and at the end of the month presented a comparative excess of 5,477,000 lb. The public sales since our last summary have offered about 42,900 packages Indian tea, which have had to be disposed of, as the saying is, 'by hook or by crook'; and a very trying period it has been for the tasters and valuers, who have had at least two days' hard work to do in the same time usually allowed for only one. This is the third week in succession that the auctions have aggregated over 40,000 packages as the supply to be immediately dealt with by the wholesale dealers, and no wonder that their energies begin to flag. The biddings have lacked sharpness and decisiveness in many cases and been positively spiritless in others, so that several invoices have had to be wholly withdrawn, and where sales have been completed prices have ruled irregularly and lower. The common to fair grades below 9d and 1s, which preponderate largely in the general supplies, have been, as hitherto, most out of favour, and must be considered ½d to ¼d per lb cheaper, or even 1d under the rates secured a month or six weeks ago; but prices for the medium kinds, though here and there weaker, have shown more uniform steadiness, and the finer qualities, being far from plentiful as they might be, have realised relatively firm rates. The landings of Ceylon tea last month amounted to 4,596,600 lb. The *Produce Markets Review* says:—"The demand for Indian tea is well maintained, but at the later sales the common grades sold at irregular, but, on the whole, at rather easier prices. These descriptions have been largely represented at recent auctions, and, as many of the teas are very inferior, it is not surprising that their value shows a drooping tendency. The demand for low-priced teas is also less active than

* Over the leaves.—ED. *T. A.*

† Five to seven minutes still better, in most cases.—ED. *T. A.*

it was some time ago, the consumption evidently shaping towards better quality than hitherto The quantity of Ceylon tea brought forward has again been moderate, and prices (with the exception of the commonest grades, which, in sympathy with the lower Indian and China growths, are rather easier to buy) have been firmly maintained. The quality of the teas now coming forward continues to be generally satisfactory, but really juicy teas above 1s are somewhat scarce and in strong demand."

HOW TO MAKE AND DRINK COFFEE.—The decline of coffee in public favour is discussed by the *British Medical Journal*, and the reason ascribed in some measure to the ignorance or apathy exhibited as to proper methods of making and drinking it. Notwithstanding the reduction of the duty on coffee, and the fact that the best coffee is sold in Great Britain cheaper than anywhere in Europe, it is steadily falling, we read, in consumption. There are (says the authority referred to) many theories put forward to explain this. One is that coffee is more adulterated here than on the Continent. That is certainly not the case. It is easier to get pure coffee here than in France, Austria, Italy, or Germany. The next and most common explanation is that we don't know how to make good coffee here. But that again is a fallacy and its terms a misstatement. We all know how to make good coffee, and there is no one who cannot make it. All coffee-drinking races, that is to say, all the Latin People and some few of the Teutonic, understand very well that the infusion or the decoction of coffee (and, unlike tea, coffee may be and is made all over Europe almost as well one as the other) is not a fluid like tea, to be imbibed in copious draughts. A weak infusion of coffee is a tasteless and almost nauseous draught; it loses all its aroma and delicacy of flavour when dissipated in an ocean of hot water. The only way to drink coffee in large draughts is to make a small quantity of strong coffee and add to it an amount of hot milk; of course, cold milk is out of the question. That is what we all drink abroad for "the first breaktast," and find it excellent; but in England we miss the lesson, and demand of the breakfast coffee an impossibility; half a pint of an aqueous infusion of coffee, made still more tasteless very often with cold milk. So long as the British coffee-drinker persists in treating coffee as if it were tea, and swallowing it by the pint, he will always find that he gets something unpleasing to his palate.

THE ADULTERATION OF COFFEE.—Commenting on the remarks of the *British Medical Journal*, the *Daily Telegraph* points out, with truth, that: "in all probability the real causes of the falling off in the British consumption of coffee adverted to by our contemporary are precisely those which it positively repudiates as baseless and delusive, that is, the too common adulteration of the article itself with chicory and other even cheaper and nastier substances, and the prevalent ignorance in respect to the true secret of efficient and palatable preparation." It adds: "Coffee-making in its every stage—from the roasting of the berry to its final decoction in the form of powder—is an art, by no means difficult of mastery, but the study and practice of which call for close attention as well as a certain measure of intelligence on the part of its votaries. This is why it has never been adequately cultivated in England, where the rough-and-ready methods of preparing all sorts of meals are still popular, where the foreign 'culinary artist' rapidly becomes demoralised and 'forgets his cunning,' and where the rarest of household treasures is a native cook, at once painstaking in small matters and ambitious to rise above the prosaic level of 'plain roast and boiled' and of the insipid breakfast coffee that 'everybody knows how to make.' In point of fact, it is not only with respect to this beverage, so deliciously prepared in Continental kitchens, that the ignorance and perversity of English cooks make themselves daily manifest in countless insular households, but in relation to 'after-dinner' coffee as well, the native confection of which in public and private establishments alike, is, for the most part execrable. Of this delectable liquid—at once a relish, stimulant, and digestive—it may with truth be said that only one of its varieties is known to English coffee-makers, who seldom manufacture even that one in such sort as to make it the crowning joy of a succulent repast."

COFFEE PROSPECTS.—The reaction favouring importers, noticed at the date of our last, is well maintained. The fact of the lowest point being reached was sufficient to induce general buying (says Messrs. Wilson, Smithett & Co.), and as stocks are absurdly small compared with former years, competition was concentrated on the little catalogued at auction. Every description of coffee on the spot shows a further improvement in price. Considerable transactions at advancing rates are reported in Brazil descriptions, and importers are strong, holders' firmness being caused in the first place by the smallness of the receipts, and again by revolutionary outbreaks in Brazil, which, it was feared, would prevent produce reaching the coast; but this disturbing element now appears less likely. Business is, of course, restricted by the dearth of arrivals, the trade finding extreme difficulty in executing orders, and the new crops of various growths are anticipated with some eagerness. The only new coffee to hand at present is Jamaica, of which growth one parcel was included in the auctions. The quality of this was better than that of the first shipment, being more carefully garbled, but the flavour was not satisfactory. Attention given by the planters to the careful curing and picking will be well repaid by the enhanced sale value. Jamaica of good even bean, free from blacks, is in high favour with the home trade, and always commands competition when common parcels for export. Very little Costa Rica or Guatemala were catalogued. More important quantities of Colombian were sold at extreme prices. The rise during the fortonight is from 2s to 4s, making the recovery from the recent lowest point about 8s per cwt. The terminal markets have shewn activity, considerable business being effected, and quotations show an irregular advance of 2s to 5s per cwt., some positions having arisen even more. The statistical position again favours importers, stocks everywhere showing a further reduction with a decrease in the visible supply of the world. European stocks November 1st (tons): 1891, 48,784; 1890, 47,480; 1889, 85,600, 1888, 71,100; 1887, 140,180. European stocks October 1st (tons): 1891, 54, 220; 1890, 62,000; 1889, 101,240; 1888, 76,930; 1887, 150,380. A circular from Holland gives the world's visible supply as:—November 1st (tons): 1891, 151,820; 1890, 128,804; 1889, 175,200; 1888, 150,165; 1887, 231,869. October 1st; (tons): 1891, 158,730; 1890, 132,722; 1889, 182,400, 1888, 138,500; 1887, 221,200.—*H. and C. Mail*, Nov. 13th

THE TARE OF TEA.

Commenting on some remarks made in a financial paper to the effect that, by the present mode of taring tea packages, the Government lose £25,000 per annum in the shape of the fourpenny (per pound) duty, and that the producer or importer also suffers to the extent of from 1 to 2 per cent. on the net weight, the *Grocer* says:—"Almost anything can be demonstrated by figures, and, in order to arrive at this sum, an isolated instance of a small consignment of twenty-eight chests of Ceylon tea has been selected, upon which there is apparently a loss of thirty-six pounds on a net weight of 2,492 lb.; but whether this arises from the process of taring alone, or from the two operations of ascertaining first the gross weight and then the tare, is not even mentioned. The remedy for the present assumed unfair state of things is to turn out every package of tea, and have an account taken of each one. This in theory sounds just, but in practice it would be found almost unworkable, considering the very large number of packages imported, and would be undesirable to buyers, and absolutely unjust to grocers in the country. At present the Customs authorities select a certain number of packages in every parcel of tea, and if they find

the variation in the weight of the wood and lead to be of an appreciable extent the whole of the chests are turned out; so that we fail to see how the Government could possibly make any gain on every package imported, and consequently the calculation of £25,000, which is based upon a percentage of the whole of the duty now paid, is simply erroneous and misleading.

"In turning out teas, grocers often find the tare actually more than the Customs have allowed, and the weight of tea is less than they pay the duty upon, and this is compensated by the little over-weight in others, so that by taking an average the out-turn of the tea is a fair one as regards the tare. It is rather curious that Indian and Ceylon teas have been selected, for they are often bulked in London after the tare has been ascertained; and as it is almost impossible to put as much tea back into a chest when turned out, and as teas are sold on the landing weights, the grocer does not get the full weight as imported, although he may get the net weight invoiced to him. Again, Indian, and especially Ceylon, teas are known to lose some of their flavour by keeping, and particularly by exposure to the air, and, if every chest were turned out, the pressure of work at the bonded warehouses would be so great that packages would be left open longer than necessary, and, although the importers might not suffer, as it is the custom to put teas up to action as soon as possible after arrival, yet the buyers would have to bear the loss of deterioration by exposure, which in most cases would be not only serious, but quite uncalled for. If there is really any loss by the process of taring worth consideration, the remedy is in the grower's hands, for he can, if he likes, have the packages made of more even weight; the Assam Company do, and have done so for some years, and we have heard from several buyers that the weight of the wood and lead is in many cases so nicely arranged abroad, that the gain in weight upon the tare now is fractional, and in some cases does not cover the weight of the package."—*H. and C. Mail*, Nov. 13th.

SOME ACCOUNT OF THE NUTMEG AND ITS CULTIVATION.

By THOMAS OXLEY, ESQ., A. B.,
Senior Surgeon of the Settlement of Prince of Wales' Island, Singapore and Malacca.
(*From the "Journal of the Indian Archipelago and Eastern Asia."*)

(*Continued from page 446.*)

Forest land, or jungle as we call it in these parts, can be cleared for about from 25 to 30 Dollars per acre by contract, but the planter had better be careful to have every stump and root of tree removed, ere he ventures to commence planting, or the white ants, attracted by the dead wood, will crowd into the land, and having consumed the food thus prepared for them, will not be slow in attacking the young trees. Whilst the Planter is thus clearing the ground, he may advantageously at the same time be establishing nurseries:—for these the ground ought to be well trenched and mixed with a small quantity of thoroughly decomposed manure and burned earth, making up the earth afterwards into beds of about 3 feet wide with paths between them, for the convenience of weeding and cleaning the young plants. Of course, if the planter can obtain really good plants the produce of well selected seed, it will be a great saving of time and expense to him, but unless the seed be carefully chosen, I would prefer beginning my own nurseries, and in the selection of seed would recommend the most perfectly ripe and spherical nuts Oval long nuts are to be rejected, particularly any of a pale color at one end. Few things tend more to ultimate success than good seed, therefore too much attention cannot be bestowed upon it. I am of opinion that Planters have been hitherto very careless on this subject, hence we see such varieties of the tree, which is becoming every day what the gardeners in England call more sportive; this also partly arises from continuing to reproduce plants from those of the place, whereas were the Planters of Penang and Singapore, to interchange their seed, it would be mutually profitable. We know that the Agriculturists of Europe find it to their advantage to obtain seed for their cereal crops from places remote, and even the inhabitants of the British Isees find it necessary to make such interchanges. It is not easy to afford a reason for this, but the fact is well established, and would appear to be the fiat of infinite wisdom for some great good, perhaps to induce indolent and selfish man by the strong stimulus of self interest to a mutual reciprocity and kindness of feeling, by demonstrating to him in so practical a manner that his own good is linked inseparably with that of his neighbour.

The planter having selected his seed, which ought to be put in the ground within 24 hours of being gathered, setting it about 2 inches deep in the beds already prepared, and at the distance of from 12 to 18 inches apart, the whole nursery ought to be well shaded both on top and sides, the earth kept moist and clear of weeds, and well smoked by burning wet grass or weeds in it once a week, to drive away a very small moth-like insect that is apt to infest young plants, laying its eggs on the leaf when they become covered with yellow spots, and perish if not attended to speedily. Washing the leaves with a decoction of the Tuba root is the best remedy I know of, but where only a few plants are affected; if the spots be numerous, I would prefer to pluck up the plant altogether rather than run the risk of the insect becoming more numerous, to the total destruction of the nursery. The nuts germinate in from a month to six weeks and even later, and for many months after germination the seed is attached to the young plant and may be removed apparently as sound as when planted, to the astonishment of the unlearned, who are not aware of the great disproportion in size between the ovule and albumen, the former of which is alone necessary to form the plant. The plants may be kept in nursery with advantage for nearly two years. Should they grow rapidly and the interspaces become too small for them, every second plant had better be removed to fresh nursery and set out a distance of a couple of feet from each other. When transplanted either in this way, or for their ultimate position in the plantation, care should be taken to remove them with a good ball of earth secured by the skin of the plantain, which prevents the ball of earth falling to pieces.

The nurseries being established, the ground cleared and ready, the next proceeding is to lay out and dig holes about 26 or 30 feet apart, and as the quincunx order has many advantages, it is the form I would recommend for adoption. The holes should be at least 6 feet in diameter and about 4 feet deep, and when refilled the surface soil is to be used and not that which is taken out of the hole. Each hole should be filled up about one foot higher than the surrounding ground, to allow for the settling of the soil and sinking of the tree, which planted even at this height will in a few years be found below the level. Over each hole thus filled up a shed, closed on two sides east and west, and proportioned to the size of the plant, is to be erected. The best substance for this purpose is I think the Attap;—lalang grass and bamboo, occasionally used, have their disadvantages, the former attracts white ants, the latter when commencing to decay, breeds a black blight that is soon transferred to the plant, injuring it most materially. It is not a bad plan to leave an open space in the centre of the top of each shed about 12 inches wide, by which the young plant can obtain the benefit of the dew and gentle rains, which more than compensates for the few rays of sun that can only fall upon it whilst that body is vertical. After the sheds have been completed, each hole should have added to it a couple of baskets of well decomposed manure, and an equal quantity of burned earth, when all is ready for the reception of the plant which, having been set out, if the weather be dry, will require watering for 10 days or a fortnight after, in fact until it takes the soil. As I have mentioned burned earth both for the use of the nursery as well

as final transplanting, I may as well here explain what I mean by that substance, this earth when well prepared is quite black, friable and pungent of smell, containing potass and abundant small portions of charcoal. It is eminently useful in all kinds of cultivation, rendering friable the stiff clay and affording carbonic acid to the plants. The Chinese with good reason place much dependence upon it as a manure, and most of them know very well how to make it, but unfortunately it cannot be made in every locality as it requires a very large quantity of firewood to prepare it properly, and is only really good when made of the peaty substance that forms the top surface of all the bottoms between the hills that spread over nearly the whole island of Singapore. This manure may be useless from two causes, either if over burned when it turns red and is effete, or if not sufficiently burned, when it will be filled with chips and portions of unburned wood and become a source of attraction to the white ants, by no means desirable visitants. The earth so soon as prepared ought to be placed under sheds until required for use, otherwise it loses much of its stimulating properties, particularly if exposed to heavy rains.

The Planter having set out all his trees must not deem his labours completed, they are only commencing. To arrive thus far is simple and easy, but to patiently watch and tend the trees for ten years after, requires all the enthusiasm already mentioned. About three months after planting out, the young trees will receive great benefit if a small quantity of liquid fish manure be given them. In the first six years they ought to be trenched round three times, enlarging the circle each time, the trenches being dug close to the extremities of the roots which generally correspond to the ends of the branches, and each new trench commencing where the old one terminated, they must of course greatly increase in size as the circle extends, requiring a proportionate quantity of manure, but the depth ought never to be less than two feet. The object in trenching is to loosen the soil and permit the roots to spread, otherwise the tree spindles instead of becoming broad and umbrageous. This operation might with much benefit be performed ere the roots arrive at the outer rim of the already prepared soil, instead of the usual plan of waiting until they penetrate the unloosened earth, by which many of the roots are necessarily obliged to be cut and the tree thereby checked for some months. The present plan of manuring has invariably this effect, and might be altered with decided advantage, for it can never benefit a tree to cut and destroy the extremities of the roots by which it is mainly supported. Were the trenches therefore made in an advance of the roots it would be a very great improvement in the cultivation. As the trenches are now dug for the purpose of manuring, the usual mode is to throw into the bottom of the trench all the grass that can be collected, covered by a layer of earth, filling up the remainder with manure and earth well mixed, part of which ought to be used for top dressing having previously scraped away the surface soil so as just to expose the extremities of the roots. In time the circles extending, will at last meet, and the whole of the ground having been by that time gone over, the trees ought to completely cover the ground and top dressing will then suffice. This latter would at all times be the most economical mode of manuring, and might be given after every heavy crop, but as I before mentioned it is essentially necessary to loosen the whole of the ground, or the thick fibrous root of the nutmeg cannot pierce through, and the plant will be stonted. Some persons apply their manure fresh from the stable or cow yard. There is no question that fresh manure enriches ground more than that which has undergone perfect decomposition, but unfortunately fresh manure when brought into contact with the roots of the tree destroys them, the ends blacken and decay, and in this state, if there be white ants in the ground, they very soon attack and kill it altogether. Manure is beyond all other considerations the most important to the welfare of an estate; it is that which gives quantity and quality of produce, and without it a plantation cannot be carried on. The want of it must limit the cultivation in the Straits, and will yet bring up many a planter, who having got his plantation to look well up to the eighth year with very little manure, thinks he can go in the same manner. But trees grows readily up to the 7th or 8th year;—it is then that really good cultivation begins to tell, and, even with the best care, trees receive a check upon their first shewing fruit, but the skilful Planter about this period will redouble all his energies, knowing that he is near to his reward, and will lose it entirely if he omits to do so. The nutmeg tree likes well all sorts of manures, but that which is best for it seems to be the well rotted stable and cow yard manure mixed with vegetable matter, and when the trees is in bearing the outer covering of the nut itself is about one of the very best things to be thrown into the dung pit. Dead animals buried not too near the roots are very acceptable to the trees, also blood, fish and the oil cake imported from Java, but the greatly lauded manure of the present day, Guano, I decidedly object to. Having tried several tons of it, I am of opinion that it is the least beneficial substance that can be given to the nutmeg tree. It certainly causes the tree to assume a deeper tint of foliage and at first to throw out young shoots, but there seems to come a very unpleasant reaction afterwards, and I am inclined to think the quality of the produce is deteriorated; at least such is my conviction on the subject that I shall never try it as manure again. With respect to the best mode of preparing and keeping manure I am disposed to the plan of placing it in pits, although in Europe stacking it in heaps is I believe generally preferred, but our climate here is so desiccating that manure thus exposed will lose too much of its moisture to ferment properly, and the loss will also be much greater. Besides if it be not required for immediate use, it keeps much better in a pit covered over by a coating of earth to prevent evaportation. When required for use it ought neither to be too dry nor wet, the best state is that of an homogeneous black paste. Equal parts of this substance and burned earth, such as already described, is the stuff to produce nutmegs, and he that uses most will get most. Slovenly cultivation is the most expensive in the end, and by far the least satisfactory.

TIN MINING IN PERAK.—In the report on the Kinta district for September, we have first an account of an "amok" as follows:—

On the 3rd a Malay named Puteh Jafar stabbed his wife, brother-in-law, and brother at Chumor. The first two died within a few days. Puteh Jafar was arrested at once and handed over to the Police; he acknowledges the crime, but gives no reason for it except that he had fever at the time.

Then comes notice of a rush into tin mining:—

On the 9th I visited the village of Mambang di Awan, in Kampar, on the Dipang-Tapah road, which has during the last two months grown from a little cluster of huts into a large and flourishing mining village with 154 shops in it. It has been laid out by the Assistant Penghulu Imam Prang Jeberumun in 60 ft. streets with the usual blocks of ten 20 ft. building lots, and is now one of the most thriving places in Kinta. There has been a regular rush into this part of Kampar, and over 1,000 acres of mining land have been taken up in the neighbourhood of the new village. Such mines as have been opened show very good prospects, especially that lately opened by Mr. Cologan for the French Société des Etain. The progress made lately in the mukim of Kampar has been extraordinary, and, from the most backward mukim in Kinta, it is fast becoming one of the most prosperous.

Again:—

Mr. Ortlepp, who is looking after the Menglembu Lode Company's concession, has supplied me with particulars of the sale of the last shipment of lode ore which the company made to England. 100 tons of the ore contained 12¼ per cent of oxide of tin and 25 per cent of arsenic, and realized £7 10s a ton. This is a very satisfactory result, and promises well for the future of lode-mining in the country.

The tin and charcoal duty for the month amounted to $42,912 94.

AT THE ROYAL COLONIAL INSTITUTE.

On Tuesday evening, the 10th instant, I had the honour of being a guest of the Council of the Royal Colonial Institute at the dinner which usually precedes the first meeting of each session, in the Whitehall Rooms of the Métropôle. Lord Brassey, looking the veteran skipper, even though a peer, was Chairman, supported by no less than three Colonial Governors or ex-Governors—Sir Wm. Robinson of Western Australia whom I saw in the Colony in 1875 and who maintains his youthful appearance in a wonderful way, Sir Wm. Jervois, the Royal Engineer veteran as well as ex-Governor, and highly artistic looking Sir Henry Blake * who with clever Lady Blake left next morning for Jamaica. There were also Sir Frederick Young (almost the Founder of the Institute), Sir Hugh Low (formerly of Perak), Sir David Tennant, Speaker of the Cape Parliament and Sir John Ackerman, Speaker of the Natal House of Assembly, a venerable genial colonist bearded like a wanderoo. I was honoured with a seat not far from the Chairman and had with gentlemen of the Colonial Office, whom I found on each side a very interesting, and, I trust, materially edifying conversation. There was a very large attendance, almost entirely of colonists, and the "function" or business of dining lasted quite a couple of hours, closing with the one toast usual on such occasions—"THE QUEEN AND EMPIRE," briefly but felicitously proposed by Lord Brassey. Ceylon was well represented; for, besides the Attorney-General looking a picture of robust health, there were present Mr. J. R. Mosse whom I was glad to find so hale and hearty and who, as a member of Council, takes a special interest in the Institute, as well as in all that concerns Ceylon; Sir George W. R. Campbell, looking as handsome and fresh as ever, though he told me he had had a bad illness since he left Ceylon; Dr. Van Dort and Mr. F. H. M. Corbet were also at the dinner and probably some more Ceylon men—at any rate Messrs. J. L. Shand, Herbert Anderson, J. F. Churchill (white but vigorous looking) and E. B. Hurley were at the after meeting. This was for the reading of a paper by Mr. W. E. Maxwell, C.M.G., Resident at Selangor, on "The Malay Peninsula, its Resources and Prospects." There was quite a crowded gathering in the large hall to listen to this paper and the discussion thereafter. Some letters of apology were read by the Secretary, Mr. O'Halloran, including one from Sir J. F. Dickson which mentioned that he had been called suddenly away on public business, I think to Gibraltar if I heard aright. A very large total of new members was announced for this year, and the Institute altogether is now a most influential as well as representative body, so that it is no wonder if, as Sir Frederick Young told me, the Council and Fellows have no idea of allowing themselves to be swallowed up by the Imperial Institute. If there is to be Union or Amalgamation, it must be on an equal platform. The delicate point is, of course, that H. R. H. the Prince of Wales is President of both Institutes; but there is no immediate movement, the big building for the "Imperial" being now only under construction in West Kensington, while the "Colonial" is very comfortably accommodated in Northumberland Street.

Mr. Maxwell's paper proved a very interesting one written in a clear, practical fashion, and he himself is evidently the right man for Resident in a Native State, straightforward, energetic and altogether an attractive personality. I send you the complete paper in print, but will only venture to mark a few extracts. He began as follows:—

In the early days of the East India Company it was to the Further East, rather than to the territories which now constitute British India, that English merchant adventures turned their eyes. In the reign of James I. the East India Company traded with seven ports or states in Sumatra, four in Borneo, and four in Java, and factories were established at most of these places. At Patani, on the East Coast of the Malay Peninsula, they had a factory (that is to say, a place of business where two or three Englishmen traded with the natives and collected produce for shipment to England) from 1612 to 1622. At this time our commerce with Hindustan was in its infancy, and Englishmen at Surat Broach, Agra, and Ajmere were making timid ventures in the country of the Great Mogul. That the men who, settling for trading purposes on the banks of the Hooghly, laid the foundations of the city of Calcutta and the great Bengal Presidency, had served a novitiate in Malayan countries is proved by some of the words which they and their Malay servants and seamen carried westward with them.* These still have a place in the Anglo-Indian jargon which the late Sir Henry Yule has so well described. We have so long been content with a second place in the East Indian Archipelago that the story of the long struggle between English and Dutch traders for supremacy there (the object being the trade of the "Spice Island"†) is almost forgotten. The brilliant history of our achievements on the continent of India supplies the reason for our gradual abandonment of much that we coveted and fought for in remoter regions. Though the places with which the English East India Company traded in India proper gradually fell into the possession of the servants of that Company, their stations in the islands and ports of the Eastern Archipelago were one by one abandoned in favour of the Dutch. We were driven by the Dutch from the Spice Islands in 1620, and from Bantam and Jakatra in Java in 1683. Expelled by their influence from Bantam, we established ourselves in Bencoolen (*Bangka Ulu*) in 1685, "our sole and humble object being to secure a share in the pepper trade."‡ Little more than a hundred years ago the only English station east of Cape Comorin was Bencoolen, on the West Coast of Sumatra.

The Settlements which we now possess in the Straits of Malacca, namely, the islands of Singapore and Penang, and the territory of Malacca, are remarkable as having been originally Indian Colonies. Calcutta, not London, was responsible for their first acquisition, and conducted their government until 1867. Penang, which occupies a commanding position at the Northern end of the Straits of Malacca, was occupied by the orders of the Supreme Government, then under the presidentship of Sir John Macpherson, in 1786. Malacca was taken from the Dutch (by an expedition sent from India) in 1795. Singapore was acquired (by cession from the Malays) in 1819, by Sir Stamford Raffles, acting under the authority of the Governor-General of India, the Marquis of Hastings. These places continued to be outlying portions of the great Empire of India until twenty-four years ago, and were, at the time of their recognition as a Crown Colony, being governed from Calcutta.

Early in this century events happened which might have given us that supremacy in the Eastern seas which

* Whom the highly aristocratic Queenslanders refused to receive as Governor, because, forsooth, he had worked his way up from Police Inspector! In that case it was the Colonial snobs and not the Secretary for the Colonies whom Lord Carrington ought to have denounced.—ED. *T. A.*

* I may instance the following words, well-known in British India, which are really Malay: *Compound*, the Anglo-Indian term for an enclosure round a house, is the Malay *kampong*, a plantation or orchard. *Godown*, a merchant's warehouse, is a corruption of the Malay word *gedong*, a brick house. *Bankshall*, the port-officer's place of business at a seaport, is easily recognisable in the Malay *bangsal*, a shed.

† Amboyna and the Moluccas.

‡ Crawford, *Descriptive Dictionary*, p. 73.

as I have already pointed out, we had gradually resigned to the Dutch. During the occupation of the Netherlands by the French, the Dutch Colonies in the East Indian Archipelago fell into our hands; an expedition, fitted out in India, under the command of the Governor-General, Lord Minto, having taken Java and its dependencies in 1811. We did not keep Java. With the fall of Napoleon, Holland was again made independent and Java was restored to her, no doubt in consequence of a wise and statesmanlike recognition of the fact that the retention by Holland of the principal of her Eastern colonies is essential to her vitality as a European Power. The creation of an important commercial emporium at Singapore was, however, the natural outcome of the surrender of Batavia, and the position of Great Britain in the Far East has since been further strengthened by the acquisition of Hong-Kong, and by the wonderful development of our Colonies in Australasia, to which I may add our recently-established protectorate over Sarawak and North Borneo.

Since 1824, when a treaty was made between Great Britain and Holland defining the sphere of action of each in Malayan waters, we have of necessity confined ourselves to the peninsula of Malacca, the islands of Penang and Singapore, and the parts of Borneo just mentioned.

My object in addressing you this evening, at the invitation of the Council of the Royal Colonial Institute, is to attempt a brief description of what is being done towards opening up the Malay Peninsula, the field which we reserved to ourselves when we voluntarily retired from all further political connection with Java and Sumatra. The period of active British Interference in the Malay States of the Peninsula dates from 1874 only. For fifty years after the cession to the Dutch of Bencoolen, in Sumatra, in exchange for Malacca, we confined ourselves to the two Indian Colonies (Penang and Singapore) which I have described as having been planted in the Straits of Malacca by the English in Bengal, and to the old Portuguese and Dutch Colony of Malacca, which had become ours by cession. The Government of India called their remote dependencies by the collective title of "the Straits Settlement" (in the singular), and supported them for years at the expense of the Indian tax-payer. Little was known of them in Calcutta, where, however, difficult questions connected with their administration caused infinite trouble from time to time. "These details may appear to your Lordship to be petty," wrote an Indian official apologetically to Lord Auckland in 1837, discussing some project relating to Straits finance, "but then every thing connected with these Settlements *is* petty, except their annual surplus cost to the Government of India"! It is amusing to recall an official remark of this kind now in 1891, when the Colony of the Straits Settlements, with a history of twenty-four years of independent existence as a Crown Colony, may, in spite of recent temporary reverses, fairly claim to be the most prosperous and successful of all the Crown Colonies, having a revenue of four and a half million dollars, surplus assets (at the beginning of 1891) of two and a half million dollars, and no public debt.

Later on, he referred to the transfer of the Settlement from the Indian to the Colonial Office authorities:—

During the time that the Government of India governed the Straits Settlements their relations with the Malay Rajas of the Peninsula were always friendly; but the native States were rarely visited by British officials, and their internal affairs were scarcely in any way influenced by our advise or counsel. Treaties of alliance and friendship were made from time to time with all the Rajas on the west coast, Kedah, Perak, Selangor, and Johor. When, in 1858, the Queen's sovereignty over India was proclaimed, each Raja found in the proclamation (which wat translated into Malay and sent to each native court) a Magna Charta of his rights in the following memorable words:—

"We hereby announce to the native princes of India that all treaties and engagements made with them by or under the authority of the Honourable East India Company, are by us accepted, and will be scrupulously maintained; and we look for the like observance on their part.

"We desire no extension of our present territorial possessions; and while we will permit no aggression upon our dominions or our rights to be attempted with impunity, we shall sanction no encroachment on those of others. We shall respect the rights, dignity and honour of native princes as our own, and we desire that they, as well as our own subjects, should enjoy that prosperity and that social advancement which can only be secured by internal peace and good government."

I do not think that I need enter into any detailed description of the circumstances which have led to the appointment of British Residents in certain States of the Malay Peninsula, to exercise a control which should secure "the rights, dignity, and honour" of the native princes whom they are instructed to advise. It will be sufficient to say generally that the chief, or, at any rate, the proximate cause has been the presence in large numbers of Chinese in the Peninsula, and the powerlessness of the Malays to control them. Then came the era of Residents for the native states:—

The Sultans of Perak and Selangor, the two States which are the centres of the tin-mining industry, asked in 1874 that British Residents might be associated with them in the government of their respective States. Sungei Ujong, a small State to the south of Selangor, which also possessed a somewhat intractable Chinese mining population, accepted a Resident in 1875. Later, in 1883, Governor Sir Frederick Weld induced the group of small States lying between Sungei Ujong, Pahang, Malacca, and Johor (called the Negri Sembilan, or the Nine States) to confederate and to conduct their government under the advice and with the assistance of a resident British officer. Lastly, in 1888, in pursuance of an agreement between Sir Cecil Clementi Smith, the present Governor of the Straits Settlements, and the Sultan, Pahang, a large State on the East Coast of the Peninsula, was added to the number of the Protected States, and its administration on an improved footing was made impossible by the appointment of a British Resident.

The names of the Malay States in which British officers are stationed do not by any means exhaust the list of the States on the Peninsula. To the North of Province Wellesley (a dependency of Penang) there is the ancient kingdom of Kedah, shorn of three of its provinces, Perlis, Situl, and Trang, which now form semi-independent States. These are, in a sense, subject to the suzerainty of Siam. Further north, again, there are numerous small provinces or governorships under the direct control of Siam. The indigenous population here is Siamese and not Malay, and these little States are chiefly interesting to us, because the settlers there include many (Chinese) British subjects. Indeed the Governors of two of these provinces are Penang Chinese, and in many places the authority of the Siamese seems to be overshadowed by that of a powerful Chinese secret society (the Ghi-Hin). They are visited annually by the Resident Councillor of Penang, who is British Consul for this region.

On the East Coast, the purely Malay States are Patani, which had a long history as an independent State, and where the factors of the East India Company had an "honourable reception from the queen and country people" in 1612. It was laid waste by the Siamese in 1818, and is now subdivided into seven provinces under separate petty chiefs. To the south, again, are Kelantan and Trengganu, virtually independent. At the extreme south of the Peninsula is the protected State of Johor, the government of which is conducted by its energetic and enlightened ruler with the aid of advisers chosen by himself.

Respecting the result, passing over a good deal, I quote as follows:—

The progress of States like Perak and Selangor can be illustrated in a striking manner by statistics, showing the extraordinary growth of the revenue since 1875. But statistics of this kind are, in my

opinion, misleading. Given abundant deposits of a valuable metal (two-thirds of the tin produced in the world is exported from the Straits Settlements), and given a Government, even a bad Government, strong enough to maintain order and to make the trader feel sure that he can keep what he gains, there is certain to be an ample revenue. There is no reason why a corrupt and selfish Government should not have sufficient financial sagacity to discover all reasonable sources of income, and at the same time avoid imposing on the people a burden of taxation which would deter immigration and diminish industry. Again, causes which do not arise within the State itself may unexpectedly, and not as the result of any conscious effort on the part of anyone connected with the Government, produce a great accession of revenue. For instance, the proximity of Johor to Singapore gives the former State a larger Chinese population, and consequently a larger excise revenue, than it would otherwise have. I do not therefore wish to say merely, "Just look at our balance-sheet, and see what we have done." It is by the application of the revenue for, as we believe, the best interests of the people that we and our work must be judged. The revenue of those States which have British Residents has been energetically employed, by their advice, in public works of all kinds, a civil list being first set apart for the maintenance of the Rajas, chiefs, and headmen of the State, and due provision being made for the payment of the police force and of the establishment of the various public offices.

PERAK.—The State (7,949 square miles) is divided into six districts—Larut, Kuala Kangsa, Kinta, Batang Padang, Lower Perak, and Krian. Taiping, in the Larut district, is the principal town, and it is here that the Resident lives. The Sultan (Raja Idris bin Iskandar, C. M. G.) prefers to dwell, like his predecessors from time immemorial, on the banks of the beautiful river Perak, and a palace is being built for him at Kuala Kangsa. A line of railway, eleven and a half miles long, connects the mining districts in Larut with the sea, and in Lower Perak work has commenced on the first section of the Kinta Valley Railway, a line which is designed to run from Teluk Anson to Ipoh, a distance of fifty miles. The open line in Larut is worked at a profit to Government of about 6 per cent.

Perak possesses no less than 138 miles of metalled cart-road, and each year the work of road-making is continued with the object of giving complete communication to all parts of the State. Besides first-class roads, there are unmetalled cart-roads and bridle-paths in many districts. The head judicial authority in the State is the Chief Magistrate (an English barrister). The public buildings in the State include Government offices, houses for officials, excellent barracks for the Sikh police, police-stations in all districts, a prison with cellular wards on the modern system, lighthouses, a museum (chiefly geological and ethnographical, founded by Sir Hugh Low, and well arranged and managed by Mr. L. Wray, junr.), schools, &c. The town of Taiping is provided with excellent drinking water brought in pipes from the nearest range of hills. There is telegraphic communication throughout the length and breadth of the land, and the completion this year of the principle line to a point where it joins the Selangor boundary enables messages to be sent now from Penang to Malacca by the Native States lines. The population, according to a census taken in 1891, is 213,000 including the unexpected number of 100,000 Malays; the revenue in 1890 was $2,504,116. On Jan. 1, 1891, the State had a surplus balance of more than $2,000,000, of which about $1,500,000 was invested in Indian or other securities. There are thus funds in hand to meet the cost of the construction of projected railways.

In Selangor progress has been equally remarkable. The State (3,000 square miles) is divided into six districts—Klang, Kuala Lumpur, Kuala Langat, Ulu Langat, Kuala Selangor, and Ulu Selangor. The town of Kuala Lumpur is picturesquely situated in the upper portion of the valley of the Klang River. From it good cart-roads radiate to the Perak frontier on the north-east, fifty-six miles distant, and to the Sungei Ujong frontier on the south-east, thirty miles distant. A line of railway twenty-four miles long connects the capital with the port of Pangkalan Batu, on the Klang River, the river being crossed by an iron railway-bridge 473 feet long. This short State line is, I suppose one of the most paying railway properties in the world. Having an up and down traffic, that is to say, carrying all the rice and other foodstuffs up to the mines and bringing all the tin down, it pays about 19½ per cent., though the tariff of charges is not a high one. This line is now being extended thirty-eight miles in a north-easterly direction, tapping a district known to be rich in tin. I hope that by the end of this year twenty-three miles of this extention (which was projected by my predecessor, Mr. Swettenham, with the sanction of Sir C. C. Smith) will be open and that 1892 will see the whole completed. Further railway extension is in contemplation; but whether this will take the form of a further advance in the direction of the Pahang border, or whether we shall improve our sea communication by carrying our railway coastward to a point on the Klang Straits where there is a deep sea harbour, I cannot at present say.

The revenue in 1890 was $1,888,928, and on January 1st, 1891, the Government had a surplus balance of $720,000. This is being applied in the construction of railways; and in this connection it may be desirable to state that the railways in Perak and Selangor are exclusive the property of the State, and have been and are being constructed out of revenue, no recourse having yet been had to loans.

Then as to Resources in Mining and Planting, the following are representative extracts:—

What field is there, then, for the successful employment of European capital in the Peninsula? I will deal first with mining, and then with agriculture. There were exported from the Protected Native States in 1889, 443,386 *pikuls*, or 26,392 tuns, of tin, and in 1890, 450,777 *pikuls*, equal to 28,173 tons of tin. At 86*l*. a ton, which is a fair average price, the metal exported in 1889 was worth 2,269,712*l*.; while the estimated value of that of 1890 was 2,422,878*l*. With insignificant exceptions the whole of this money less the royalty or export duty charged by Government, has gone into the pockets of the Chinese. Is it then impossible for Europeans to get a footing in the mining districts and work their claims at a profit? Not at all, I think, if mining adventurers are content to being in a modest way; but the events of the past few years justify the most extreme scepticism as to the possibility of the success of an English company formed to work an untried concession.

To summarise the general purport of these remarks, the European mining adventurer, whether an individual or a company, should, to be successful—(*a*) Deal direct with the Government for mining land instead of buying from a middle-man. (*b*) Start with a small capital, and consequently with a small labour force, which can be superintended with moderate case. As experince is gained the works, if successful, can be extended, and the labour force increased. (*c*) Imitate the Chinese, and spend as little as possible on anything that is not directly remunerative. The resources of the Peninsula in respect of gold are so vaguely known that I am able to say little about them. The precious metal may be found in sufficient quantities to pique curiosity, arouse cupidity, and incite speculation, and yet the most diligent search may result in the discovery of nothing that will pay a dividend. The existence of gold in the Batang Padang district in Perak has long been known. The Perak Administration Report for 1890 mentions the discovery in that district of "tin-stuff rich in coarse gold;" and the Resident adds: "This district has always produced stream gold, but no attempt has been made to make gold the principal object of mining, nor to search for it in the reef."

For every ton of metal produced in a year at least four coolies must be employed. One hundred coolies will work out 1½ acre of an ordinary tin-field in a year. To produce yearly 250 tons (value at 86*l*., 21,500*l*.)—and less, I suppose, would not be satisfactory

to investors—1,000 coolies must be employed. Now the European employer who can control a labour force of 1,000 Chinese is rare in the Straits Settlements.

Let us see what advantages the Peninsula has to offer to agriculturists. Rice grows well, and is cultivated by Malays for their own food. The rice of the country is preferred by Malays to imported rice, and commands a slightly better price than the latter. But it cannot be cultivated on a large scale to compete in price with that of Burma and Siam, which is the staple article of diet of the Chinese population of the Straits Settlements Native and States.

Cocoanuts and fruit-trees pay the native proprietor well, and at the various mining towns there is a steady demand for produce of this kind. In market gardening, however, the Malays do not attempt to compete with the industrious Chinaman.

Excellent pineapples can be grown, and in Singapore quite an important trade has sprung up in this fruit, large quantities being preserved in syrup and exported to Europe.

Gambier (*Uncaria gambir*, Roxb.), the shrub which produces the gambier of commerce, largely used in the tanning industry, grows to perfection in the Malay Peninsula, and Chinese have introduced it in Selangor on a concession of 11,000 acres granted for the purpose. It has long been grown extensively in Singapore and Johore, where the Chinese population employed in this industry is very considerable.

Coming now to products with which the English planter is more familiar, I must mention sugar, coffee (both Liberian and Arabian), tea, pepper and tapioca. In respect of all of these we are long past the stage of experiment. Sugar-cane cultivation has long been carried on in Province Wellesley (Penang), and one important estate has been opened in Perak, under European management; while in the same State there are 21 Chinese-owned sugar estates with an area of 21,663 acres which employ about 5,500 labourers, and last year exported 84,382 *pikuls* of sugar, valued at 401,122. But here, as in other parts of the world, the competition of beet-sugar is felt, and, with the Straits sugar-planters appealing to Government for special assistance in respect of their labour supply, English capital for new estates may not be forthcoming at present. Our planters probably have much to learn from those of Java in regard to machinery and cultivation; and as long as there are improvements not yet adopted by them for cheapening the cost of producing cane-sugar, they seem to have the alleviation of their difficulties in their own hands.

In Perak, the prospects of the only estate on which the cultivation of Arabian coffee is carried on are said to be excellent, and there are miles and miles of mountain ranges on which this product can be grown. It may be hoped that the check which coffee-planting received in Ceylon will not for ever hinder the extension of this industry in the Malay Peninsula. Liberian coffee, however seems at present to be the favourite, because the safer, article of cultivation. English and Scotch planters are hard at work in Perak, Selangor, and Sungei Ujong, and the various Governments are deeply interested in their success. It has been proved in Selangor that a return of nine or ten cwt. per acre may be expected.

Now that Ceylon tea has achieved such a marvellous success, it may be hoped that that Colony may send us some experienced tea-planters, for there is little doubt that the Malay Peninsula is as well adapted as Ceylon for this particular cultivation. A sample of tea grown on a Government plantation in Perak was sent to London in 1889 and favourably reported on, and we do not despair of seeing "Malay tea," as well as "Ceylon tea," an article of consumption in England.

Pepper is doing well on a small scale in Perak and Selangor. This is an old industry which has been resuscitated. It was one of the staple products of the island of Penang before 1810, and at one time more than 3,000 *pikuls* were exported annually. But a serious fall in price led to the gradual abandonment of the cultivation. The Chinese gambier planters generally unite pepper cultivation with their main industry, as the refuse from the gambier vats makes excellent manure for pepper plants.

Tapioca is extensively grown in Sungei Ujong and Negri Sembilan, and there is one good estate in Selangor. The objection to this cultivation, on the system pursued by the Chinese, is that it involves the exhaustion and abandonment of a great area of land.

An interesting experiment in rearing silkworms has been made in Perak. The mulberry can be successfully grown in the Malay Peninsula, and already the pioneer Chinese cultivator has sent six cases of cocoons to China, where the silk is wound. It is officially stated that the silk produced is excellent and unusually white, and an extension of this industry may be looked for, as Chinese are already taking up land for mulberry cultivation.

Fortunes have been made in tobacco cultivation in Sumatra, and I wish that I could hold out to my countrymen a reasonable prospect of rivalling on the mainland the plantations of Deli and Langkat. The tobacco leaf produced there is of an attractive, light colour, and fine, silky texture, and it is used almost exclusively for the outside leaf, or wrapper of cigars. There has hitherto been a great demand for it in America as well as in Europe, but it is said that the McKinley tariff is operating unfavourably on the trade in this product, which has been established between Amsterdam and New York. Apart from this, it has yet to be proved that in the Malay Peninsula there is any place where tobacco can be cultivated under the favourable conditions as to soil and climate which are offered on the East Coast of Sumatra. I have seen splendid specimens of tobacco plants grown in Perak, but any successful experiment must satisfy commercial exigencies, both as to quality of leaf and weight to the acre. It is in the latter particular that a tobacco estate on the West Coast of the Peninsula is likely to be found wanting.

Reasoning from the analogy of situation, aspect, &c., I should feel disposed to expect greater success in tobacco cultivation on the East Coast, and I should like to see a really business-like experiment tried by one of the numerous companies who hold land in Pahang.

As far, therefore, as the agricultural resources of the Peninsula are concerned, I may say that we have a climate suited to the production of all kinds of tropical produce, and soil fairly adapted to every sort of tropical cultivation. But, as I have already described the peninsula as being sparsely inhabited, it may be easily surmised that there is considerable difficulty about the supply of labour.

The time at my disposal does not permit me to enter into a disquisition on the labour question, and indeed the details of the subject are foreign to the object of this paper. It is enough to say that as the indigenous population is neither sufficiently numerous nor sufficiently industrious to furnish a permanent and cheap supply of agricultural labour, recourse is had to the labour-markets of India and China. The supply of coolies is a trade, giving employment to recruiters, brokers, shipping-agents, depôt-keepers, and a host of other people. An artificial system of this kind, dealing as it does with men's liberties, and perhaps lives, requires careful watching on the part of a Government. The coolie must be protected, but if the labour obtained is not cheap the planter says that it is of no use to him. The difficulty is to secure to the coolie all that he is entitled to, and at the same time satisfy the employer.

Intending planters can get any quantity of good Tamil coolies from India if they will give the rate of wages which is given to men employed on Government works. The term of agreement is three years, at the expiration of which the coolie is free to seek work where he likes. The planter must not expect, nor can I understand why he should wish, to keep on his labourers against their will after the expiration of their agreements. Chinese labour can always be obtained, though the competition of the Sumatra tobacco estates makes the bounty-money high. Javanese coolies are also used a good deal by planters.

Land can be obtained on easy terms. The Perak Government is advertising special inducements to Englishmen of capital and enterprise, and, as the States do not enter into competition with each other, I think that I may say that these terms may be had in any of the Protected States of the Peninsula.

The first ten approved applicants may select blocks of 1,000 acres, or two blocks of 500 acres each, which will be given free. After the end of the second year of occupation, a rent of 20 cents an acre will be payable; or, if desired, this may be commuted by one payment of $3 an acre. If the block selected has road frontage, the depth must be three times the frontage. A *bonâ fide* commencement of cultivation must be made within twelve months after selection. Cost of demarcation, survey, etc., must be borne by the lessee. The Government reserve the right to levy an export duty not exceeding 2½ per cent.

Applications addressed to the Resident of any one of the Protected States, or to the Colonial Secretary, Singapore, Straits Settlements, will receive immediate attention.

Finally, by way of summing up, I mark a few passages :—

Our hopes, of course, rest almost entirely on the tin-industry. Tin is the factor which governs everything in these States. We cannot expect to establish in the Straits of Malacca another sea-port for ocean-borne trade, when we already have Penang on the north and Singapore on the south. And in the absence of an indigenous agricultural population like that which any district in Java possesses, the progress of cultivation must be slow. Even if we could hope for the conspicuous success attending a particular cultivation which we have seen illustrated in Deli (Sumatra) in the case of tobacco, and in Ceylon in coffee and tea, it would not compare in immediate results with a successful mining rush. When the price of tin is high, fresh mines are opened, and coolies and capital pour in from China; with the increase in population the excise revenue goes up, lands and houses increase in value, and a general impulse is given to everything. And so, on the other hand, if low prices rule persistently for some time, inferior mines have to stop work, coolies leave the State, the excise farmers are ruinned, and there is general depression.

Supported by splendid mineral resources, the principal States have, unlike the British Settlements in the Straits of Malacca, been able to establish their financial independence within a few years of their first start under British guidance. They can thus construct their roads and railways now out of revenue, acting as if tin might some day fail them. Not that I think that there is any reason to fear that the tin deposits of Perak and Selangor will be exhausted within any period that can practically concern us. We may, I trust, look forward to fresh discoveries in these States when the tin-fields, only partially open out as yet, show signs of diminished production. And, as in the case of gold-mining in Australia, we may hope that when the alluvial deposits are exhausted, lode-mining may take its place. In the Perak Administration Report for 1890, discoveries are mentioned, but lode-mining, which seems to offer to European enterprise a better field than alluvial mining, has not yet taken a foremost place in the industries of the Peninsula.

This brings me to the subject of railway construction in the Peninsula generally. There are advocates for a trunk-line, or inter-State line, which would run north and south, connecting all the States between Singapore and Penang, and which could at some future time be extended northwards through Siamese territory to meet an Indian line at Tenasserim. This is a favourite idea of those who indulge in visions of a short route from India to Australia. It is combated by others who concur in the views expressed by Sir F. Dickson, when administering the Government of the Straits Settlements last year, that, "with so fine a highway as the Straits of Malacca, ready made and costing nothing for maintenance, no such line is required, or can be required, for many years to come." Leaving engineering difficulties out of the question, we may probably assume that neither India nor the Straits Settlements will find the money to carry out at one time an undertaking of this magnitude, and that if ever our Australian fellow-colonists find it absolutely necessary to shorten their sea-voyage to England to this extent, the line must be built with Australian capital. But the extension of inter State railway communication is much to be desired, and it seems to be not only reasonable but politic to keep in view in all railway extension now projected the possibility of through-communication being established at some time or other. Land-communication by rail with the food-producing districts (Siamese) in the north-eastern part of the Peninsula would be of incalculable benefit in time of war to the Straits Settlements and to the Empire, of which the coaling-station of Singapore is an outpost.

I have often regretted that the studies of learned Dutchmen in the field of Malayan literature, ethnology, &c., are so little known to us, owing to the general want of acquaintance, on the part of Englishmen, with the Dutch language. Among the subjects which candidates for cadetships in the Straits Settlements may take up is Italian. But Dutch has no place, an omission which might well be brought to the notice of the Civil Service Commissioners. I should like to see Dutch made an obligatory subject.

An ample revenue is being realised in Perak and Selangor, even though a temporary check is being experienced in financial progress. Let me say in conclusion that a Resident aims at being nothing more than a faithful agent of the Governor of the Straits Settlements, and faithful friend and adviser of the Malay Sultan whom he advises, and whose government he carries on. A distinguished Governor once quoted to me the candid admission of the chief official member of a Colonial Council that, "when a Colonial Secretary begins to think that he is a statesman, it is time for him to go on leave." Statesmanship the Resident is content to leave to the Governor, occupying himself with the busy post of Administrator, supported and fortified, if he deserves it, by the confidence and goodwill of his chief. I should deprive myself of a pleasure, and should deem myself ungrateful if I did not take this opportunity of acknowledging the lessons learnt and encouragement received from such men as Sir Andrew Clarke, Sir William Jervois, Sir William C. F. Robinson, Sir Frederick Weld, and Sir Cecil Clementi Smith, who have successively governed the Straits Settlements during the last sixteen years—a period notable for steady advance in the strength of our administration in the colony proper, and in the organisation of civilised government in the Malay Peninsula.

The paper was read after a business-like fashion rather than with elocutionary grace, and then the Chairman called on Sir WM. JERVOIS, as an ex-Governor of the Straits, to open the discussion, which he did in a commendatory speech with interesting reminiscences of his experiences in the early days of the Residencies, where he used to be in mortal dread of the Selangor salute, knowing the crazy old gun which was being utilised, and how when he had given an offhand invitation to a Sultan to visit him at Singapore, it resulted in 100 men and 50 women coming down for entertainment in one of Her Majesty's vessels! Sir Wm. Robinson, also an ex-Governor, followed, pleading however that his single year's experience of the Straits, did not enable him to say much. He contented himself chiefly with reading some appropriate and amusing extracts from a lecture delivered in Australia on "Social Life among the Malays." The white-haired and bearded veteran Sir HUGH Low followed with much that was interesting, showing how his heart was still in his old work if only the doctors would permit him to return, and urging that the authorities might adopt a more liberal policy in reference to the planters and their labour requirements, by importing direct all the coolies required for public works, &c. Sir Hugh believes that there is no chance of the tin mines being worked out for many years to come.

I was next, unexpectedly called on by Lord BRASSEY to speak—I have been asked to take part, but expected somewhat more of a general discussion first, with one or more Straits Colonists leading off—

Mr. J. L. Shand told me afterwards that he had been asked to speak on the paper, but gave me preference—all of which shows how the authority of "Ceylon" is looked up to !) My remarks were somewhat as follows :—

"My Lord, ladies and gentlemen,—I am full of admiration for the clear, concise and practical way in which Mr. Maxwell has prepared his paper considering the largeness of his subject. Some of us may have regretted the omission of all reference to such administrative difficulties as may be connected with the repression of gambling, the regulation of the opium traffic and sale of intoxicating drink; but we can understand how impossible it would be to find room for all that might be said. My interest in the planting divisions of the Malay Peninsula arises through prolonged residence in Ceylon and the opportunity of watching closely the rise and progress of the Straits Settlements. But before alluding to this, I would venture on one correction of Mr. Maxwell's paper where he speaks of the probable reason why, on the peace following on Waterloo, Java was given back to Holland, namely that it was essential to her vitality as a European Power. It must be remembered that the British had taken Ceylon as well as Java from the Dutch and that to the former England had no claim due to previous settlements or occupation, such as told in the case of Java; but the explanation we have always had why the much larger and richer island of Java was given back in place of Ceylon, is that it was urged that Ceylon was vital to the holders of India —that the grand naval harbour of Trincomalee especially was the key to the Bay of Bengal, and commanded the traffic of Calcutta, Madras and Rangoon. I mention this fact because it has an important bearing on certain controverted questions of great interest to us in Ceylon at present. (Hear, hear.) It is very satisfactory to hear of the large surplus revenue saved in the Straits to devote to Railway Extension and other public works, and one cannot help regretting that a similar wise policy was not adopted in Ceylon many years ago with reference to the proceeds from Crown Land Sales and surplus railway receipts. I also cordially endorse Mr. Maxwell's opinion that the Dutch language ought to be learned by Straits cadets, for a recent visit to Amsterdam showed me how much of great value to administrators, planters and merchants was published in that language. But now to turn to "planting," I must be remembered that between 1881 and 1886, some 400 planters left Ceylon in consequence of the failure of "Coffee" and wandered all round the tropical and sub-tropical world. The Straits Settlements, Sumatra and North Borneo especially got a large share—the last was indeed named "New Ceylon." Others went to Queensland and New South Wales, Fiji, Natal, West Indies, South and Central America—the President of Guatemala got a Ceylon planter to open a model coffee and cinchona plantation, and in 1884 I followed some of our ex-planters to California and Florida where they were orange-growing. But in the Malay peninsula—at Johore and at Perak—some of them went to work on the old products, Arabian and Liberian coffee, and although they experienced the usual proportion of disappointment as pioneers, still it is gratifying to know that a certain amount of success has been achieved with the promise of a good deal more. I know this from private as well as official reports, and it is one of the great advantages of Straits planters that from the outset they have the countenance and assistance of most sympathetic and interested officials. (Hear, hear.) It has not been so always in Ceylon. For planters there too, there is offered forest land on the easiest, cheapest terms; there are roads and railways ensuring cheap transport, and freight to Europe must always be safe at economical rates. As to labour supply, experienced planters of the right sort with a liberal enlightened Government can be trusted to overcome any difficulty in this direction. But now, as to the all-important matter of the products to be cultivated: I have a strong opinion that the Straits planters would do wisely to make coffee and pepper their principal products, as two articles the demand for which at present and in prospect is likely to exceed the supply. In respect of coffee since the failure in Ceylon, India and Java, the world is nearly altogether dependant on Brazil and no one can tell how soon the large crops there may fall off or be interfered with by revolution, &c. Then in the Malay Peninsula, the conditions are favourable for overcoming the fungus pest (should it appear)* which ravaged Ceylon and India: isolated plantations on virgin soil surrounded by forest can be opened, and heavy crops securing high prices have already been reaped. I must certainly offer a word of warning in respect of *tea* which is already in danger of being overdone, as falling prices show, in Ceylon and India. ("Oh !") I speak as much in the interest of Ceylon planters now connected with the Straits as of our own tea planters. Unless new markets are got for our teas, no one would advise more tea land to be opened. I have just returned from Austria and Germany where I have been trying to get the people and dealers to use more Ceylon tea, and in Holland I was much annoyed to find how little the Java tea planters had done to make a market for their product which, instead, is nearly all sent to London.—In conclusion, My Lord, I would with, I am sure, the concurrence of Australian colonists present, press the importance of developing the planting (or farming) industry as well as mining in the Straits. No country dependent on the latter alone can be said to be in a stable position. As regards the "stream gold" to which Mr. Maxwell alluded, I am reminded of an Indian saying in reference to this most widely distributed of metals, it is that the natives of Southern India when they have no other work go and work for gold in the nearest river and make two *panams* (3d) a day and it is on record that one made one day *four fanams* (6d). (Laughter and applause.)

Lord BRASSEY moved a cordial vote of thanks to the lecturer in appreciative terms, to which Mr. Maxwell responded, thanking the various speakers and proposing thanks to the Chairman, and so at 10 p.m. ended a very largely attended and pleasant gathering.

SOUTH INDIAN AGRICULTURAL PROVERBIAL PHLOSOPHY.

(Concluded)

Of the next series of proverbs Mr. Benson says :—

By far the most interesting series of sayings, &c. regarding the seasons are those which follow, No. 117 to 196. These are all based on a system whereby the year is divided into 27 astral periods, called *Karthulu*, which are specified on the margin. By these the ryot regulates all his agricultural operations, and it is thus that a study of the sayings affords a very good idea of the characteristics the ryot expects, de ires, and dreads in the weather throughout the year.

The great bulk of the sayings refer to the busiest part of the agricultural year, which is usually over except in so far as harvest is concerned, by December. Rain early in March is unusual, but occasionally

* It has long existed in Java and the Straits, though not quite with such virulent effect as in Ceylon and India.—ED, *T. A.*

heavy storms (117) do occur. Later on it is not so uncommon and the peculiarities (119) ascribed to its falling at different times between the middle of March and the beginning of May are not easily understood. That rain during the latter part of April should be so unfortunate (No. 120 and 121) is not explicable, especially when the fall of rain rather earlier (No. 118) and rather later (No. 123) is so highly prized. The usual extreme heat experienced in May and in June, if no rain falls, is noticed. Special attention is called to the value and importance attached to the June rains, although, as No. 126 shows, the usual fall in that month is light. The *mungari* crop alluded to in No. 130 is the early crop. A special value is attached to a good opening of the season, and if the rain does not come in Mrugasira it is ardently looked for in Arudra. In the latter period, the fall should be heavy—not drizzling—No. 136, and fears for the future will disappear. Following this, a spell of drier weather with light showers is expected (Nos. 137—142), from the beginning of July to the middle of August, during which the early sowings maybe pushed forward.

We quote a few specimens of the proverbs:—

Rain in Mrugasira will make even an old bullock bellow.

If rain fails after thunder in Uttara, if the king acts unjustly, and if the white-ant gets wings, the sequel will be very hard.

If there be no rain in Chitta, even an ant will suffer from heat.

The influences believed to be exercised over the weather by certain stars or their conjunction, and by certain natural phenomena, is shown in the next series of proverbs, from which we quote the following:—

The labours of a grumbler and thunder before rain will end in nothing.

If lightning flashes in the west, even a pig would not approach the water-course.

If the fowl spreads out its wings, it is a sign of heavy rain.

There will be rain in three hours, if a frog croaks in an open place.

If the *gryllus* croaks from a broken or leaky pot, rain is sure to fall.

If sheep flock together, there will be heavy rain.

A cobweb in a paddy-field portends heavy rain.

The appearance of dragon-flies is the sign of good rainfall.

If ants ascend trees, fields will yield in abundance.

The next series of proverbs refers to plants supposed to afford indications of the weather. We quote as follows:—

Mangoes for a good season, tamarinds for a bad one.

Mangoes foretell famine, rose apples a good season.

When the mango yields plentifuliy, people suffer very much from small-pox.

Then come some proverbs relating to the nature of soils. The last of these is the following curious one:—

The soil under a fowl's foot bears ten million colours.

Mr. Benson explains this as follows:—

In No. 274, the idea conveyed is that every inch of soil varies in colour: colour is, therefore, but a poor guide to classification.

The next series of proverbs relates to tillages and general management. From Mr. Benson's remarks on these we quote the following:—

No. 275 refers to the necessity for ploughing very frequently, as, according to the native system, one furrow will not run immediately over another except after crossing and recrossing several times. The succeeding sayings all refer to the necessity for thorough tillage, and No. 280 alludes to the advantages of deep ploughing. No. 281 is very interesting, and refers to the three main-stays of the South Indian farmer. In No. 284, the softness of the wood, which soon makes margosa wood wear out and the plough made of it become useless, is alluded to, and, in No. 285, the necessity for having a good leader to a string of ploughs.

The *magili* crops system, referred to in Nos. 288 and 289, may be compared to the autumn ploughing of English farming, as the chief feature of it is the breaking up of land immediately after harvest. The *egili* crops, referred to in Nos. 290 and 291, are crops that are restorative (or enriching) from the treatment they receive. The Málas and Mádigas, or the Pariahs, are regarded as the lowest and least competent members of the community, as being excessively stupid; cf. Nos. 279, 288, 291 and 355.

Nos. 292—297 allude to the essential characters of after cultivation and weeding. In No. 293, the *paitisal* is a harrowing, performed usually three days after sowing, to break up and loosen the surface soil so as to hasten sprouting. The same operation is referred to in No. 249, which shows that it must not be delayed. *Garika*, the Cynodon dactylon, is a common weed and if not thoroughly rooted out, soon overrun the land which then becomes useless for cultivation, No. 297.

The value of manure is clearly shown in Nos. 298—301, and the manner in which it should be used in No. 302. Reference to No. 280 should again be made here. A cow trained in the native way will seldom give any milk unless her calf be present. No. 303 has its parallel in—"The feet of the sheep are golden," and shows the value attached sheep-folding. In 304, the practice of the shepherds hiring out their sheep to manure the land of the actual cultivators is alluded to. The following are some of the proverbs alluded to:—

If land is in good tilth, it will yield even to a Pariah.

Good tillage prevents disease;

Leaf manure gives luxuriance;

Cattle manure increases the yield.

One hoeing is equal to ten ploughings.

A field without manure is as useless as a cow without her calf.

If there be enough manure, even an idiot will be a successful farmer.

Apply cattle manure to dry land and leaf manure to wet (paddy) land.

If you manure your field with the earth thrown up by whiteants, it will be productive.

The next series of proverbs relates to crops and cropping. From Mr. Benson's remarks we quote as follows:—

The judicious adaption of crop to soil (No. 309) is well understood by the ryot, as also is the use of good seed. No. 311 refers to the practice of sprouting paddy before sowing. The necessity for sowing at the proper time (Nos. 312-316) is strongly insisted on. The benefits of early sowing are also decisively pointed out, as well as the entire dependence of the farmer on the rains, No. 320; the *kist* is the land tax.

The practice of thin sowing, alluded to in Nos. 322-328 is very generally followed on dry land. The effect of thick sowing producing straw and thin sowing grain is well pointed out in Nos. 325-27. Transplanting (No. 329) is chiefly confined to paddy and to garden crops, and with the former is by no means universally followed.

No. 333 alludes to the injury that may be done by part of the crop being unripe and so causing fermentation in the sheaf.

No. 335 insists on the advantages of having rain at any cost, whilst No. 336 refers to the injury it sometimes does if it comes immediately after sowing. As specimens of these proverbs we quote the following:—

Even in dreams, the seed should be sown in proper season.

A thin crop yields well, a thick one looks well.

Rain before the seed sprouts is as painful to see as the face of an enemy.

Paddy forms the subject of the next series of proverbs. Mr. Benson says:—

Nos. 365 to 389 relate solely to this crop and bring out the main points regarding the treatment of it pretty fully. Paddy does not like a poor soil, No. 365; it requires care and attention, No. 366; and land when being prepared for it should be thoroughly levelled, No. 369; and properly weeded, No. 370. The crop requires a large amount of water, Nos. 375

and 376. No. 379 is tantamount to saying "early planting should be thin, late planting thick." In Nos. 380 and 381, early sowing is shown to be valuable, and in Nos. 382 to 385 the results of late sowing to be disastrous. No. 385, alludes to the fact that such late sowings rarely come to anything. No. 362 the *chitta* (an insect), which attacks the leaves and stalks of the paddy, is believed to do the crop good, if the attack be timely, as it leads to greater vigor. In No. 387, the paddy crop is understood to be speaking: the meaning being that it becomes ripe at that time.

We quote the following :—

Will sugarcane and paddy grow on poor soil ?

Watch and you have a paddy field; neglect and you have only a waste.

A paddy field without weeding is like a temple without a god.

Growing tailed paddy is like befriending a blood-sucker.

A stream for a rice field, a troop for a chief.

Other crops form the subjects of the next batch of proverbs. The following are some of them—

Cholum succeeding cholum will not grow well.

The first part of a maize cob and the last part of a tobacco leaf are the best parts.

In a bad season, even red gram does not grow.

When you take up land, sow horse gram : before you relinquish it, crop it with gingelly.

An easterly wind to green-gram, and mouth disease to cattle (are injurious).

An impoverished man should sow gingelly.

Did castor cultivation ever pay well ?

Ten ploughings for cotton.

If sugarcane runs crooked, it does not get bitter.

The more you press sugarcane, gingelly seed, or a Sudra, the better will the result be.

(Transplant) brinjals old and paddy tender.

If we touch a pumpkin it decays, and if we walk over a water-melon plant, it grows well.

Garlic is as good as ten mothers' care.

Water obtained after cleaning rice is injurious to coconut plants.

The last batch of proverbs relates to live stock. From Mr. Benson's remarks we quote as follows :—

The number of sayings on this subject is comparatively limited and they are not very comprehensive.

No. 464 alludes to the real extravagance of purchasing poor cattle. Nos. 466 to 472 give varied advice as to purchasing stock—color, horns, legs and tail, are all to be taken into account. In No. 469 the seven members are the legs, horns and neck. In No. 471, the bullock referred to is one that has been troublesome to break in. The birth of a short-tailed, or of a blind animal in a man's herd are believed to be followed by the results noticed in No. 472 against each. No. 473 indicates much carelessness in breeding. Nos. 478—481 allude specially to the necessity for feeding cattle well, the last mentioned alluding specially to the value of fodder given to cattle in the early morning before they go to work. The *Buttukadimi* is the *binauclea parvifolia*. No. 482 alludes to what is seldom practised, *i.e.*, littering cattle well in their stalls. The high value set on dairy cattle is referred to in several sayings, many of which convey practical hints :—Thus No. 487 refers to the great care required by milch cattle ; Nos. 488 and 489, to the necessity for feeding them well ; No. 490, to the value of breeding ; No. 492, to the prevailing idea that a she-buffalo will yield as much whether milked once or twice a day ; Nos. 495—498, to the difficulties experienced in milking cows which have lost their calves; No. 500, to the habit of concealing the value of a milker as long as she lives; No. 502, to the practice which prevails in places of turning out the buffalo to act as the village scavenger ; and No. 503, to the way in which the calf is usually half-starved. No. 504 alludes to the fact that the care of the she-buffaloes is especially the women's work. Few of the ryots' cows calve annually (No. 505), and the calves of those that do are usually puny. The belief that a cow will invariably kick (No. 506) when they are being milked leads to their legs always being tied. Nos. 509 and 510 allude to the differences in the qualities of bullocks and he-buffaloes for draught purposes. In No. 513, the necessity for branding in exactly the right spot, being as great as that of speaking to the point, is alluded to.

The following are specimens of the proverbs :—

High-priced cloths and low-priced cattle should not be bought.

Purchase without further inquiry a bull with thin horns.

One word is enough for a good man, and one stroke for a good bullock.

A bullock without a nose-string and a child brought up by a widow are uncontrollable.

The ploughman who works a bullock for more than ten years is sinful.

Property is the strength of man, food that of a beast.

There will be no want in a house where the churn and the spinning wheel are at work.

There are sixty-six varieties of sweetmeats in the udder of the cow.

Look to the mother before you marry the daughter, milk a buffalo before you buy it.

Though a she-buffalo eat filth, will the milk be spoilt ?

To keep an elephant a man requires a district; to keep a horse a village ; to keep a she-buffalo a maid.

Cultivation with buffaloes is useless.

We have thus given specimens of this interesting collection ; and we hope that we shall soon see in print a similar collection of the wise saws of our Ceylon agriculturists.

BRICK TEA AS CURRENCY.—Mr. Julius M. Price, the special artist of the *Illustrated London News*, in his description of his journey across Mongolia writes :—

The currency of Mongolia is peculiar, and requires much experience to understand it. On one occasion I bought some trifling article and paid for in it Russian money, which the Mongols are, at any rate, shrewd enough never to refuse. But imagine my surprise when, for the change, I was handed a small slab of brick-tea and two dirty little bits of floss silk, which I should have passed unnoticed in the gutter. These rags, which intrinsically were probably worth less than a farthing, represented twenty kopeks (sixpence), as I was informed, while the tea was equivalent to thirty kopeks. This tea, by the way, is the only real currency throughout Mongolia: the silk is becoming gradually obsolete probably because it wears out too soon, whereas the tea will stand almost any amount of hard wear. A "brick" of tea, sixteen inches long by eight wide and about one-and-a-half thick, represents sixty kopeks, equal to one shilling and sixpence. If a smaller sum is necessary, the brick is cut up into sections worth six or ten kopeks each, and even these are again subdivided by the poorer Mongols. It is curious to note that, although Mongolia is really Chinese territory, eveything is Russian, so to speak; and even the tea and silk represent an equivalent in Russian and not Chinese money. Some of the Russian merchants in Ourga have even adopted a sort of private bank-note system, so as to do away with the bother of having to keep a large stock of loose cash—that is, of "brick"—always handy. These notes represent so many bricks each, and are redeemable on demand; but I hear that the Mongols prefer the bulky article to the flimsy paper substitute. When, after a time, this currency becomes injured by hard usage, and chipped round the edges, it is used for the usual purposes of tea, and it may be imagined what a delightful beverage it makes after it has been passing from hand to hand for some months among the dirty Mongols. However, these childern of the desert are not fastidious, and the greasy-looking stuff is broken up and literally put to stew in the common caldron of the "yourt," where, eaten with millet seed, it makes a dish much appreciated for some days.

NOTES ON PRODUCE AND FINANCE.

INDIAN TEA IN FRANCE.—In another column we reproduce a report of the first statutory meeting of the Palais Indien Tea Houses, Limited, which was held at the registered office, under the presidency of Mr. R. B. Magor. We would call the attention of our readers to the excellent work which is being done by this company. It is with regret that we learn that the company has received but very limited support from the members of the tea industry, and that for this reason it is in contemplation to appeal for further subscriptions, neither to the outside public or to the Ceylon tea growers. It would manifestly be of immense advantage to the Indian tea community to keep, more or less, in its own hands this enterprise, and utilise it for its own purposes. If it is allowed to drop into the hands merely of a circle of shareholders, who may wish to utilise it solely for profit, or into the hands of the Ceylon industry, its special *raison d'être*, namely the pushing of the interests of Indian tea only, will disappear, and it may ultimately descend, some day into a mere Congou-selling establishment, or, at any rate, altogether lose its original and much to be desired character. We urge on our readers—those who have been tardy in supporting it—to obtain a shareholder's footing in the company, either as debenture holders or as preference shareholders. The Board of the company is a thoroughly representative one, the secretary is a gentleman whose interest is altogether bound up in Indian tea planting, and should any one fail to be satisfied with what is known of the company's work, he has only to present himself at the offices of the company at 138, Leadenhall Street, to be furnished with the full information regarding the whole working of the Paris business from its commencement to the present time. Our readers will observe that the next forward movement of the company is to make a great show of Indian tea at the forthcoming Chicago Exhibition, an opportunity which, undoubtedly, should not be neglected,

LOSSES IN THE CHINA TEA TRADE.—As many importers of China tea supposed to have been losing money for years it can only be imagined that either the sums lost are not very large, or that the said importers can thrive on them. There are now rumours in the "LANE" that further heavy losses have been made in the China tea trade. Those who know most about this business speak of £750,000 as a minimum of the amount of loss to be made up between now and the end of the year. It is quite evident that the game of losing money cannot go on for ever. In the absence of any other result the present state of affairs should at least lead in some interesting information being given on the subject of "how to continue to trade on reputed losses."

CEYLON TEA SALE DAYS.—The large supplies of Ceylon tea which have recently been placed on the market have been the means of again raising the question as to whether some alteration in present arrangements could not be made for regulating supplies. A meeting of the Tea Brokers' Association is to be held today, when the question will be considered. At the last meeting of the Tea Committee of the Ceylon Association the matter was under consideration, and the following resolution was adopted :—"That a letter be addressed to the chairman of the Wholesale Tea Dealers' Association enquiring if he has any special suggestion to make on the subject, and asking if it would tend to lessen the pressure if in each week two entire days were devoted to Ceylon sales." As an instance of the large increase, it may be pointed out that the sales for the ten months of the current year have exceeded those of the same period in 1890 by 16,000,000 lb.

TEA SALES WITHOUT RESERVE.—It used to be the custom, when the words "without reserve" were printed in a catalogue, that tea was sold in the Commercial Sale Rooms, Mincing Lane, to the highest bidder, but complaints, says the *Grocer*, have been freely made recently of the inconsistency of importers putting up their teas for sale with the intimation referred to, and yet either attending the public sale themselves and buying the tea in, or protecting it by the bids of their representatives. Of course, every man has a right to do what he likes with his own. If he puts a tea up for sale by public auction in the ordinary way, and the bids do not reach the prices he wishes to obtain, no one can object to his either withdrawing the tea or making a higher bid, either directly or indirectly; but when the words "to be sold without reserve" are printed in the catalogue as an inducement to buyers to attend the sale, the buyer has a right to expect the importer or his broker will accept the highest bid, and thus fulfil one of the conditions upon which the sale is attended and an offer made. There can only be one end to such an inconvenient and irregular proceeding; buyers will abstain from attending the sales of any broker who misleads the public by having such words printed on a catalogue and does not carry them out faithfully. We can hardly think importers have fully considered the consequence of adopting such an ill-advised course, for they cannot wish to drive away their best supporters, and that they will assuredly do unless they maintain the correct principle of selling teas strictly in accordance with the terms of the catalogue. The recognised conditions of public sales are already drawn up almost entirely in favour of the seller, and require amendment in several particulars. In the interests of the importers we advise them not to provoke buyers in the manner indicated, or they may have to consider the whole subject of the public sale conditions, and this, without doubt, would not be to their ultimate advantage.

LAST WEEK'S TEA SALES.—The *Produce Markets' Review* says :—"There has been a considerable falling-off in the quantity of Indian tea brought forward, but the demand for all good grades remains steady, with a hardening tendency in some cases. Well-selected teas of any grade continue to meet with good competition, and have probably now touched the lowest point; they are in many cases cheaper than at any time last season. The excellent value offering, especially for really good liquoring sorts under 1s, is shown by the increasing consumption, and although the exports from Calcutta will probably be 8,000,000 lb. more than last year, most of this increase has already been disposed of. At the public sales 39,369 packages were offered, against about 43,000 last week, of which 3,500 were withdrawn. There was a good enquiry for all good medium and fine descriptions at steady prices, while the finest sorts fetched firm rates. About 20,000 packages of Ceylon teas were offered at Tuesday's sale, but the dealers showed little inclination to buy, except at lower prices, and a reduction of from ¼d to ½d was established in common to medium teas. A strong impetus has thus been imparted to the country demand, and most of the tea sold has probably already passed into the hands of country buyers. Good teas, however, continue to be enquired for at fully late rates, and for fine liquoring Pekoes at from 10d to 1s 1d there has been increased competition. The quality of the teas shown has again been disappointing, and it is to be hoped it will improve. The arrivals for the week are :—The "Glen Sinclair," "City of Edinburgh," "Dictator," and "Scindia" from Calcutta; "Yorkshire," "Massilia," and "Clan McKinnon," from Colombo; "Sutlej" and "Gaekwar" from Calcutta and Colombo; "Keemun," from Yokohama Shanghai, Foochow, Hong Kong, and Colombo; "Glenfalloch," from Shanghai, Foochow, Hong Kong, and Colombo; and the "Radnorshire" from Hong Kong. The *Grocer* says :—"Quite a low range of prices is now being established in Indian as well as other branches of the tea trade, and the only question left undecided is whether the reduced values ruling are attributable to a deterioration in the quality or to a feeling of heaviness in the market. We are inclined to think that both these facts may be urged as a reason for the present cheapness of Indian tea, which is likely to continue so long as the plethora of supply exists, or at least until importers cease to press forward their consignments to such an extraordinary degree as they have done of late. As an outcome of the increasing pressure to sell Ceylon tea on two days of the week, it is understood that a meeting will shortly be called to consider the expediency of having different arrangements for holding public sales in the future."

THE ADULTERATION OF PRODUCE.—Tea under this category occupies much the same position as the subject-matter of the well-known chapter on "Snakes in Iceland." There is no tea adulteration now if the official report on food analysis issued by the Local Government Board may be taken as conclusive. The following shows samples of some produce examined during the year, and the percentage of cases in which adulteration was reported:—Coffee: Number of samples examined, 1,733; number of samples adulterated, 266; percentage adulterated in 1889, 14·9; percentage adulterated in 1890, 15·3. Sugar: Number of samples examined, 246; number of samples adulterated, 34; percentage adulterated in 1889, 0; percentage adulterated in 1890, 13·8. Pepper: Number of samples examined, 1,329; number of samples adulterated, 75; percentage adulterated in 1889, 8·9; percentage adulterated in 1890, 5·6. Tea: Number of samples examined, 349; number of samples adulterated, 0; percentage adulterated in 1889, 0·5; percentage adulterated in 1890, 0·0. The number of samples of coffee condemned is very high, the adulterant being almost invariably chicory, and the proportion used being often enormous. Proceedings were taken in 171 cases, and fines amounting in the aggregate to £179 were imposed. Of these, one was of £20, two of £10, two between £5 and £10, and four of £5. Of the 246 samples of sugar examined, nearly one-seventh were reported as having been coloured with an aniline dye of an amber tint in order to make white crystals of beet sugar imitate the most valuable Demerara. The quantity of the dye used however, is very minute. In the case of pepper, adulteration a few years ago was on the increase, owing to the use of ginger fibre from which the active properties had been abstracted by the ginger beer manufactories, and which, after being dried, was ground up with peppercorns. This practice, however, seems to be now out of favour, and the percentage of samples condemned, which in 1886 was no less than 13, sank in 1890 to 5·6.

SMART.—In his monthly journal, *Night and Day*, Dr. Barnardo makes the following announcement:—"The Dalukola Tea Company will give 1d to the Homes for every pound of tea sold, the labels for which are sent to me. As a pound of tea is sold for 2s, this offer amounts to nearly 5 per cent on all sales. As I can personally bear witness to the really fine quality of this tea (every packet of which has been sealed up in Ceylon), I imagine I am doing my readers as good a service in bringing it to their notice as I shall do my Homes if a vast number of labels are forthwith returned to me by purchasers."

A SUGAR BOOM.—There is a "boom" in sugar, the price of which has advanced in Mincing Lane more than £1 10s per ton. The advance has been established without the excitement which has characterised similar movements of past years, and has been due, not to the unreasoning fears of bear operators, but to the steadily-growing conviction that without the check of enhanced values, consumption will more than absorb the world's supply. Year by year the production of sugar has been on a more gigantic scale, but this year the crop of beet sugar—the basis of speculation—is stated to be seriously deficient.—*H. and C. Mail*, Nov. 20.

A POSSIBLE COALFIELD NEAR MADRAS.

Twenty years ago Mr. R. Bruce Foote, late of the Geological Survey of India, in company with Messrs. C. A. Oldham and W. King also of the Geological Survey, examined and mapped geologically the District in the neighbourhood of Madras, and published the results in the "Memoirs of the Geological Survey of India" Vol. X., Part I. At that time certain plant beds were indentified as corresponding with the Rajmahal Series of the Upper Gondwana system, but owing to the very level nature of the country, and the difficulty of obtaining sections, it was impossible to say positively what formation lay next below these plant beds. It was however, supposed that the Lower Gondwanas, the formation in which nearly all the coal seams are found in India, might possibly be found at some depth below. Now, after a lapse of twenty years it has been proved beyond all doubt that the Lower Gondwanas are present and the discovery is due to the enterprise and perseverance of the Rev. S. Dominic, a priest of the Roman Catholic Church, in sinking an artesian boring with the object of obtaining a permanent supply of water. This boring he commenced so far back as April 1886, but owing to various interruptions of the work, it was not sunk further than 272 feet by last May. In that month Mr. Bruce Foote went at Father Dominic's invitation, to inspect the boring which is situated in Place's Gardens, in the Conjeveram taluq of the Chingleput District, and to give his advice on the prospects of the boring. The results of the inspection were published at the end of last August in a Government Order on Mr. Bruce Foote's report, which we publish in another column. The opinion there expressed by Mr. Bruce Foote does not appear to have impressed the Madras Government much, although it sanctioned an additional grant of R500 to Father Dominic for carrying the boring down to a greater depth. Two gentlemen in Madras, however, considered the subject of such enormous importance that they immediately paid a visit to Place's Gardens, carefully inspected the specimens raised from the lowest parts of the boring, and have since obtained regular information in regard to the further indications disclosed by its progress downwards. The boring has now reached a depth of 296 feet, the last 24 feet having pierced a bed of black clay which has become steadily richer in bitumen, and under which there are fair reasons for hoping that a coal seam may be met. In the meanwhile a more detailed report has, we understand, been obtained from Mr. Bruce Foote, who has expressed, in even more decided terms, his opinion that an extensive coal field will probably be found under, or in the neighbourhood of Place's Gardens. Messrs. Leighton and Co., who have the matter in hand, after obtaining Mr. Bruce Foote's advice as to what lands to select, have lost no time in applying to Government for prospecting rights over a large tract, and they have received assurances from the Madras Government that it will do everything in its power to expedite the work of proving whether coal is to be had there or not. A Company, to be called The Arconum Coal Company, Limited, is already in course of formation, and it is intended to raise captal in the first place to search for coal seams by means of steam boring machinery.—*M. Mail*, Nov. 18th.

[If coal is found near Madras there may yet be hope for coal in Ceylon.—ED. *T. A.*]

PALAIS INDIEN TEA HOUSES.

The statutory general meeting of the Palais Indien Tea Houses, Limited, was held on Friday at the offices of the company, Roobester Buildings, 138, Leadenhall Street, E. C., Mr. R. B. Magor in the chair.

The Secretary (Mr. F. A. Roberts) read the notice convening the meeting.

The Chairman said:—Gentlemen,—As this is merely the statutory meeting, there are no accounts to submit to you. But as it was thought possible there might be some shareholders present who would like to have some information about the progress of the company, and what it has been doing, a few facts and figures have been prepared, which I will submit to you. The origin of the business is familiar to you. The Indian tea importers subscribed the sum of £3,000 to bring forward their products at the Paris Exhibition, 1889. Owing to the very large sum that had to be paid to the British Commission and the unsuitable situation of the Indian Palace, it was found that if the committee had withdrawn from Paris at the close of the Exhibition most of the money would have been expended without any pronounced advantage to the tea industry, and any effect that might have been produced in the minds of the French people with re-

gard to the advantages of tea-drinking or the merits of Indian tea would have soon disappeared. The committee therefore wisely resolved to find a little more money, and continue the work in Paris in the hope of recovering at some future date some portion of the outlay. With this in view, a house for the sale of dry Indian teas was opened at 204, Rue de Rivoli. From the experience of the Associated Tea Planters in America it was felt that this alone would not lead to very satisfactory results. It was necessary to reach the tea-drinking public, and no simpler way of doing this could be devised than to continue in outside permanent establishments the work that had been commenced in the Indian Palace. Tea rooms were, therefore, fitted up in the Indian style in the most frequented parts of the city at which pure Indian tea is sold in cup and in packets. The first of these places was only opened on November 25, 1890, almost a year ago, the second in the end of April, and the third in the month of May this year. At this stage the present company was formed. It was thought that the business had sufficiently developed to warrant the enterprise being taken over by those who had hitherto found the bulk of the capital, so that, as it became lucrative, their previous outlay might be recouped. A prospectus was issued in July last, and a scheme arranged under which the previous guarantors mainly found the additional capital necessary for present requirements in Paris. Owing to the short time the branches have been opened it will be seen that opinions as to ultimate success must be more or less speculative. Nevertheless, the time that has passed does much to warrant an opinion being formed. The two first tea-rooms are in the best part of Paris, one near the Opera House and the other in the Avenue des Champs Elysées. They are most conveniently situated for that portion of the French people that have been, even in a small way, accustomed to drink tea. From the moment the doors were opened these establishments received a considerable measure of support. It was evident that they met a want which had been felt. In each, Indian tea is served in a separate pot, with milk and sugar, for half-a-franc (say 4¾d), and the service is much better than anything of the kind in England. The company took over the business in the midst of the holiday season, when everyone who can afford to do so leaves Paris for about two months. During that period the returns fell off, but they did not sink to a lower point than might fairly have been expected, and with this exception the progress has been continuous from the time each house was opened. It is most satisfactory, therefore, for us to be able to report that at the moment the holiday makers came back the returns at once increased practically to the highest level they had even reached. Now every week and month shows such satisfactory progress that it seems probable that each of these places will be paying within three or four months. As refreshment houses of this nature cannot be expected to make a good return on the day they are opened, probably this is as good a result as could be anywhere achieved. The committee felt that their work in Paris would not be satisfactory if they did not break new ground and try to develop a taste for tea amongst a portion of the population not yet accustomed to drink it. It was with this end in view that the third premises were taken. They are more in the east of Paris, situated in the Boulevarde Bonne Nouvelle, nearly opposite the Lycée, and in the neighbourhood of some of the large theatres. This place also is showing steady progress, and as the premises are most advantageously situated, there is every reason to hope that in a little time they will be as satisfactory as the others. Probably these three establishments are the only places in which one is sure of getting a drink of pure Indian tea. Nothing else is supplied in the restaurants. Although we consider it advisable to keep other kinds of dry tea, especially Ceylon, in stock, the total sales are over 90 per cent Indian. Every opportunity is taken to attract attention to Indian teas. Since the great exhibition, where a gold and silver medal were obtained, two other medals have been gained. This year there was a very interesting exhibition opened in the Champs Elysées in the month of August, which remains open till the end of November. The company were offered a large salon here, rent free, subject to a moderate commission on their takings, and in this room an increasing business has been done. In August 800 persons were served there, in September 950, and in October 1,586, showing a satisfactory increase. A business of this nature requires more capital than shops in which dry tea only is served. Suitable fittings and furniture must be provided, and the best situations must be secured, all of which cost a good deal of money. Probably there will be not difficulty in finding of the money that will be required for extension from time to time, if it can be shown that a fair return will be made. The figures that are at our disposal up to the present are, of course, not conclusive; nevertheless, I think, they will be regarded as satisfactory. Our total sales in the year 1889 was over 16,000 francs, in 1890 over 30,000 francs, and in 1891 (estimating the two last months of the year on the basis of the others) they will be over 120,000 francs. Seeing that two of the places have only been opened since May, it is fair to anticipate that next year will see a very considerable, if not quite proportionate increase. There is the strictest supervision from the London offices of the company, where daily returns are received. The directors feel that these facts should be sufficient to satisfy the shareholders. It will be asked, "What is to be our future progress?" There is no intention at present to open more branches in Paris. Efforts will be concentrated to improve those already going. There is a strong feeling, however, that something should be done in other quarters. A favourable space for buildings at the Chicago Exhibition has been practically secured, and seeing that the consumption of tea there is about 1¼ lb. per head of the population against about ½ oz. in France, good results will probably attend an energetic effort made in the same judicious manner. If the resources of the company admit it the directors would consider the practicability of opening similar branches in other parts of Europe, Possibly good prospects also await such attempts in Nice, Milan, Vienna, and Berlin. There can be no doubt but that the work of opening new markets becomes more important year by year. In the face of the large estimate of the present crop and the low London prices, together with the annually increasing yield, I think that even the busiest should be willing to spare a few moments to consider whether the organisation that is furnished by the Palais Indien Tea Houses Limited, is not one that would pay all those who are interested in Indian tea to support.

Mr. Bullock (chairman of the Upper Assam and Assam Frontier Companies) referred to a visit he had paid to the company's branches in Paris, and expressed a desire that only Indian tea should be sold at them.

Mr. Seton wished to point out, in case there might be any misconception about what Mr. Bullock had said, that the question of a certain admixture of other teas with Indian tea in the first place had been frequently before the Board. The matter had been fully discussed and it was not without a full knowledge of all the aspects of the question that what had been referred to had taken place. Quite recently, however, the Board feeling that there had been a great deal of criticism about the tea sold not being all Indian tea, called for special reports on the subject of the respective quantities of Indian and other teas sold and they were pleased to find from those reports that the teas sold, other than Indian, constituted a very small proportion indeed—only one per cent.

Mr. Thomas Lough said that in the course of a few months Mr. Bullock's wishes would be carried into effect. There were several practical difficulties to deal with, but the board had taken steps to obtain the end desired.

After some further discussion, the proceedings concluded with a vote of thanks to the chairman, proposed by Mr. Bullock and seconded by Mr. Seton.—*H. and C. Mail*, Nov. 20.

LARGE PIECES OF AMBERGRIS.

The exceedingly high prices (equal to fully three times the weight in gold of the drug) which perfumers have been compelled to pay for the finest ambergris lately is the best proof of the indispensability of the drug in the preparation of high-class perfumes. For over a year the price of the best ambergris has now ranged from 180*s.* to 200*s.* per oz., and until quite lately there did not seem to be any prospect of an early fall in prices. The small compass within which a very valuable quantity of the drug may be imported without attracting attention, and the ease with which the requirements of the Customs regulations that all goods imported shall be entered under their proper name and at their full value may be circumvented, where it is deemed advisable to keep quiet concerning a consignment of ambergris, render it exceedingly difficult to follow closely the imports of the drug. It is stated, for instance, that although for many months fine ambergris has been thought to be exceedingly scarce in our market—and the visible supplly has been so in reality—there has been a far greater supply available than has appeared on the surface. Under these circumstances, the recent importation, to which we drew attention in our trade report, of a piece of ambergris from Melbourne weighing, it is said, 136 lb., and valued at 10,000*l.*, naturally caused a good deal of excitement. The piece is believed to be the same which was captured by a black man in Tasmania some time ago, and of which we gave a description. But the matter still remains shrouded in some mystery, for the London consignees of the parcel refuse to show the piece to anyone, and even decline to give the slightest information of any value. Whether this policy is a wise one or not is an arguable question; it is certain, however, that the mysteriousness of the consignees has not assisted in allaying the fears of a heavy fall in the price of the drug that were the natural outcome of the announcement of the large importation. It may be presumed, however, that the consigness will want to dispose of the drug, and it is certain that they will not be able to do so without showing their hand.

The historiological references to ambergris have recently been enriched by the publication, under the auspices of the Hakluyt Society, of the account of the voyages of François Leguat, a French Huguenot, to the isles of Rodriguez and Mauritius, Java, and the Cape of Good Hope. The Sieur Leguat', voyages were made during the years 1691 and 1698, and in his narrative frequent references are found to the precious perfume. He states that it occurs plentifully on the shores of Mauritius, as well as of the island now known ae Reunion, in the Indian Ocean, due east of Madagascar, and also on those of the little island of Redriguez, in the same latitude, where, to quote his words, "the sea brings up yellow amber and ambergreece." The word "amber-gris" (grey amber) was, in fact, given to the substance expressly to distinguish it from the ordinary or yellow amber. Possibly both were believed to be of common or allied origin. Ambergris has been a prized and costly luxury for centuries, though the Sieur Leguat does not appear to have been quite alive to the value of the drug until taught by bitter experience. At Rodriguez he found a large piece of the substance, and carried it along as a curiosity, not knowing the true importance of the find. That piece of ambergris wrought its discoverer cruel misfortunes. It weighted about 6 lb, and as Leguat's party no longer cared to carry it, they disposed of it for a trifle to a Dutch artisan of the island, which was then a Dutch colony. The colonists were stringently forbidden to own or trade in the commodity, which was a monopoly of the Dutch Trading Company, who forwarded to Batavia all the ambergris found on its outlying stations, and from that port shipped the drug to Holland for sale. When the Governor of Rodriguez learnt that Leguat's party had traded in the substance, he seized all their belongings, and finally banished them to a barren island rock, where they suffered great hardships. In the "London Price Current of Colonial Produce" of 1777, which we reproduced in facsimile last year, ambergris is quoted at 40*s.* to 45*s.* per oz. troy for "gray fine," while Irish amber, obtained on the Atlantic coasts of the Emerald Isle, was valued at 25*s.* per oz. Considering the respective purchasing powers of money two centuries ago and at the present day, these prices are quite equal to the average value of ambergris in recent years.

So plentiful was ambergris on the shores of the islands in the Indian Ocean in the seventeenth and eighteen centuries that some islets off the north-east coast of Mauritius became known as the "Isles d'Ambre." Ambergris was also found in the Japanese waters; and the Dutch traders not only kept Europe supplied with it from their emporium in Batavia, but also imported it into the dominions of the various Eastern potentates with whom they came into contact. A piece almost rivalling the latest giant find was imported from Batavia into Madras in 1699, and is described in contemporary chronicles as a "very stately piece of Ambergriese, upwards of 800 oz." On the Madras * islands, again, west of Ceylon, ambergris, according to another seventeenth century-traveller, was more plentiful than in any other part of the Indies. Any of it found on shore had to be delivered up to the king, the penalty for failing to comply with this order being the cutting-off of the culprit's hand.

In the writings of earlier travellers references to ambergris are also by no means infrequent. Zanzibar was famous for its ambergris from before the time of Marco Polo. But there is no need to hark back to the half-forgotten worthies who made history in the Indies centuries ago for accounts of gigantic pieces of the valuable drug. It is true that the largest single piece recorded in history as an authentic find (it weighed 182 lb.) was one purchased from the King of Tydore by the Dutch East India Company nearly two centuries ago, but from America stories have since come of pieces many times heavier than that of the King of Tydore's, It is only fair to say, however, that these American stories have never been backed by trustworthy evidence. Hence the account of the find, in the year 1853, by the schooner "Watchman," of Nantucket, of 640 lb. of ambergris in a whale floating on the high seas, with the stories of a 560-lb. piece brought home by an American whaler in 1886, of a 266-lb. trophy captured by a New Bedford whaler, and of a 130-lb. piece taken out of a whale near the Windward Islands, may be dismissed as "not proven"; and the mass of detail with which some of these accounts are embellished may fairly be regarded as having been added simply "to lend artistic verisimilitude to a bold and unconvincing narrative," as Mr. Gilbert has it.

It is a fact, however, that in 1882 a piece of ambergris weighing 12 lb., and found in a gravel-pit in New Zealand, was sold in the London market. It realised an average price of about 85*s.* per oz. There is also a story current that a well-known Mincing Lane broker was instructed some years ago to sell "a barrelful" of ambergris which had been for many years in the unappreciated possession of a gentleman who was altogether unaware

* Maldive!—ED. *T. A.*

of the nature of the substance of which he was the fortunate owner. The barrelful proved to be ambergris of very fair commercial quality, and was disposed of with careful management, at the full market value of the day, the broker wisely never hinting to anyone until the last piece was sold how great was the quantity entrusted to his care, for fear of spoiling the market.

The greater part of the ambergris sold in London during the last few years has been that obtained by the New Zealand and Tasmanian whalers who ply their trade in the Antarctic Ocean. Whale-fishing was once an important industry in Tasmania, and quite a large fleet of whalers was owned by Hobart firms. Now the Tasmanian industry has practically ceased to exist, and there is no hope of its revival. New Zealand still possesses fisheries of some importance, and will probably continue to supply our market with much of its ambergris for many years to come. Meanwhile spermaceti whales are getting scarcer year by year, and the time may soon come when the scarcity of ambergris shall be chronic instead of spasmodic. It is to be hoped that before that date science will have taught us how to supplant nature in the production of ambergris; but at present there are no indication whatever of an efficient synthetic substitute.—*Chemist and Druggist.*

NOTES ON POPULAR SCIENCE.

By DR. J. E. TAYLOR, F.L.S., F.G.S., &c.,
EDITOR OF "SCIENCE GOSSIP."

Professor Bailey, an American botanist, has been reporting on the experiments recently made at the station connected with Cornell University with electricity. Professor Lodge, one of our own most eminent scientists, some years ago showed that the electric light dispelled fog. A report on fog just published demonstrates how injurious it is to plant healthiness. Hence, if we can dispel fog, and at the same time stimulate the growth of plants by electricity, the latter will be doubly useful. Professor Bailey's experiments were made during January, Feburary, and March, one forcing-house being exposed to the normal light of the sky during daytime, and illuminated by electricity at night. Another forcing-house containing the same kind of plants, was not lit at night. The difference in the results was so marked that the experiments have been continued this year with a view to noting the effects on colour.

Two distinguished French chemists have just read a paper before the Paris Academy of Sciences on the "Proper Odour of Earth." Everybody in the country is well acquainted with the delicious smell the earth yields after a shower of rain. This is now found to be due to an organic compound of the aromatic family. Its odour is very penetrating, and analogous to that of camphor. Its proportion in the soil is, however, only a few millionths of a grain—indeed, one threemillionth gives a decided smell. The new principle is neither acid, alkali, nor a normal aldehyde. Its concentrated aqueous solutions may be precipitated by carbonate of potassium with the production of a resinous ring. When heated with potash, an acrid odour analogous to that of the resin of aldehyde is developed. Under certain conditions, such as by the employment of potash and iodine, iodiform is produced. This property is common to many other substances, but alcohol, acetone, &c., were not found during the experiments just mentioned, although some chemists state they have been met with in vegetable mould.

Here is good news for potato growers. It has long been known that a solution of sulphate of copper checked mildew in vines, and an experienced French agricultural chemist determined to try the effects on the allied species of fungus which causes potato disease. He has been trying it on the potato plants for two summers past, and has recently published a lengthy statement of the experiments, which are of a very remarkable character. He shows that an application of sulphate of copper not only checks the ravages of the disease, but vastly increases the crop—in some instances to the extra value of £5 an acre.

The fascinating and important problem as to the acquisition of nitrogen from the atmosphere by plants is still occupying the attention of chemists, both in this country, America, and France. In the United States two eminent investigators have arrived at the conclusions that atmospheric nitrogen is undoubtedly acquired during the growth of peas and alfalfa, and that the amount of nitrogren gained increases with the number of root tubercles. Further, that the addition of soil-infusion is not necessary for the production of root-tubercles—a fact which may be accounted for by supposing that the micro-organisms or their spores exist in the air, and are deposited in the pots where the plants grow. Cereals do not, as a rule, manifest the power of acquiring the nitrogen from the atmosphere, nor are root-tubercles formed on them, as in the case of leguminous plants. The latter fact disproves the statement recently made by a French agricultural chemist, that cereals have the power of absorbing atmospheric nitrogen. Professor Gilbert has also arrived at the conclusion that free nitrogen is fixed in the course of the development of the organisms within the nodules, and that the resulting nitrogenous compounds are absorbed and utilised by such leguminous host-plants as the common red clover.

Dr. John Murray has read another paper before the Royal Society of Edinburgh on the much-disputed subject of silica and siliceous formations in modern seas. The facts are of great interest to geologists generally. There is great difficulty in accounting for the number of organisms which secrete silicic acid, and for the remains of such organisms which occur in and on the bed of the ocean. The amount of silicic acid which exists in solution in sea-water is far too small to account for the immense development of such organisms in various parts of the ocean. Dr. Murray and Mr. Irvine have proved that clay and mud carried down by rivers to the sea are to be found in even the least disturbed parts of the ocean. Diatoms can extract from these clays sufficient material for the formation of their flinty shells.—*Australasian.*

HOW TO SET A HEN.

It may seem to be an easy matter to many to do this seemingly simple piece of work, but it is indeed a thing that requires forethought, experience and great care. To set a hen so as to secure best results is indeed no child's play. In the first place, be sure your hen wants to sit. Then be sure she is in a good location; if not, move her to one. If she can be set on the ground, you will find it to be the very place; if not, cut a sod, turn it over, scoop out a dish like place, then put the sod in a box, grass side down. A nest made in this way will hold moisture—one of the reasons why a hen sitting on the ground always hatches better than when up in a building. Sprinkle a little litter over the nest and put in your eggs. Always have the nest arranged so that the hen can walk on and not fly down upon the eggs. If you breed the heavy varieties the best nest can be made by turning down a barrel with only one head out and scooping out a place in the ground so the barrel may be sunk in the ground a little. The hens can then walk on their eggs without danger of breakage. The ground will help to secure moisture for the eggs, and you can close the open end of the barrel every night, preventing rats from interfering. Take the hen off every day or two to give the eggs an airing, if the hen does not go off on her own account.

Be sure and set your hens in such a way that others cannot interfere. Mark the eggs, so that if others lay with the hen you can remove the fresh ones. After a week, test the eggs to see which are fertile and which are not. It is not your policy to have in the nest eggs that will not hatch. After removing the unfruitful eggs you can replace them with fresh ones, marked, and upon the first ones hatching, the

others can be placed under other hens. Always set two or more hens at the same time when possible, that the chicks may all be placed with one of the hens and the other set over. This saves in the way of two mothers for a few chickens. If your hens are sitting high off the ground, where moisture is not sufficient, sprinkle the eggs daily for a week before. A day or two before hatching take a bucket of water, heated to about one hundred degrees, place the eggs in and let them remain for some five minutes. This will soften the shells and inside covering and the chicks can come out of the shells with greater ease. Oh, yes, it is no trouble to set her, but you always find that the persons who take the most pains with their sitting hens always raise the most chickens.

COCONUT TOFFY—Boil one pound of white sugar and two gills of water together, while boiling stir in two ounces of butter. Boil until it will pull between the fingers, add three ounces of grated coconut; pour out to cool, mark in squares.

FROM the annual report of the East Java Agricultural Company, it appears that the crop of coffee has been small and would not cover the cost of production. The profit and loss account closes with a deficit of f. 88,982. Notwithstanding, the reports regarding the condition of the estates are satisfactory. The next year will not answer the high expectations which were formed, and the crop will not be more than about 3,000 piculs. Although the prices made are not unfavourable, the quantity is too small to compensate for the loss. The president further informed the shareholders that, according to a telegram, a fire has broken out on one of the estates, causing considerable damage to the crop, and only the quantity harvested was insured.—*L. and C. Express.*

GERMAN EAST AFRICAN PRODUCE.—The German East African Company and its kindred associations are proceeding energetically with their work of developing the natural resources of their territory. Following the example of their British fellow-organisation in securing the services of a practical Ceylon planter to superintend its new culture, the German East African Plantation Company have engaged a Mr. John Schrœder, an experienced Sumatra tobacco-planter, as expert adviser for their cultures. Mr. Schrœder has already commenced his duties and pronounced himself exceedingly satisfied with the produce and the capacities of the Lewa plantations. The German East African Company have been so unfortunate as to lose the services of their plantation-manager, Dr. Hindorff, who has had to resign through ill-health. A successor to that gentleman will be appointed shortly. Dr. Peters, who is now commissioner in the Kilima-njaro district, reports that he is busy with plantation work, and has attained excellent results already.—*Chemist and Druggist*, Nov. 14th.

CINCHONA IN JAVA.—The report by Mr. van Romunde, director of the Government cinchona enterprise in Java, for the third quarter of 1891 states that with the exception of a couple of showers in the latter part of the quarter the three months had been practically rainless. Night frosts were experienced, though in small degree, in places lower than any that have hitherto suffered; but the damage done was trifling. The severe and continuous drought of the quarter caused considerable mortality among the plants put out during March and April of this year, in spite of the grounds having been kept moist by working the soil. This operation was also carried out systematically in those gardens where it had not already been done in the second quarter. On the setting in of the rain, therefore, a vigorous growth of the plants is expected. Of the crop of 1891 some 450,000 half-kilograms of bark were gathered, of which by the end of September 348,272 pounds had been despatched to Tandjong Priok. The crop of the last few months consisted chiefly of shavings from typical ledgerianas, obtained by the scraping of second and third stems and thick branches. The object of this method of harvesting was not simply nor chiefly to obtain bark, but the formation of single-stemmed trees and the prevention of the caterpillar plague by the sparing of the crowns. For it has been found that by means of a thickly grown plantation the increase of the insects is greatly hindered. The fact is worthy of notice, that the bark obtained by the scraping of second and third stems and branches showed a mean yield of some 10 per cent sulphate of quinine, and that by this harvest of shavings about 200,000 half kilos of bark will be obtained. On 10th July and 3rd Sept. sales of bark of the crop of 1890 were held in Amsterdam. The unit price for manufacturers' bark amounted at these two sales respectively to 6¼ and 6 cents. At the end of the quarter there were 3,664,600 trees in the Government gardens, viz:—In the nurseries—440,000 ledgeriana (including 30,000 grafts) and 443,000 succirubra—total 883,000. In the open—2,109,000 ledgeriana (including 270,000 grafts and cuttings and exclusive of the 3,000 more or less original ledgerianas), 2,200 calisaya and hasskarliane, 621,000 succirubra and caloptera, 47,900 officinalis, and 1,500 lancifolia—total 2,781,600.

CINCHONA SAMPLING IN AMSTERDAM.—The *Chemist and Druggist* of Nov. 14th says:—It is well known that for a long time the method of sampling cinchona in Amsterdam has failed to give general satisfaction. The plan hitherto followed has been to allow the analysts appointed by the importers and the agents of the buyers to take against payment each a sample of bark from every bale of certain parcel. Experience has shown that the analyses of the samples are not only often at variance with that of the bulk of the parcel, but absolute, or even approximate, accord in the results obtained from any one parcel by various analysts is exceedingly rare. This unsatisfactory result probably arises from the fact that the samples are always taken from the top of the bale only, whereas the contents of the package are made up of parts of various trees, differing in alkaloidal contents. In order to remedy these drawbacks a meeting of gentlemen interested in the subject was held in Amsterdam on October 30th, under the auspices of the Kina-Etablissement or cinchona warehouse. Mr. Gustav Briegleb presided, and there was a full attendance. After some discussion it was decided, practically unanimously, to adopt a fresh system of sampling manufacturing barks. The Kina-Etablissement will provide, at an estimated cost of from 400*l* to 500*l*, a 3 or 4 h. p. steam-engine, mills and other plant required for drawing samples on the new system. Importers and merchants are still to be allowed, if they like to draw samples on the old plan, but it is thought that few, if any of them will do so. Under the new scheme the samples will be drawn by special instruments from every part of each bale forming a parcel. The whole of this sample will be ground to powder, and a 150 gramme (about 5 oz.) sample of this will be furnished to each applicant. The cost of the new method of sampling to the Kina-Etablissement is computed at about 3*d* per bale, and to defray this the importers will pay 2d per bale sampled and a charge of 2d per 5 oz. sample will be made to all applicants. The quinine manufacturers declared their approval of the scheme except the agent of the Frankfort works, who announced his intention to adhere to the old method. The Brunswick works stated that they would require samples unground as well as ground.

INJURY TO THE GOOD NAME OF CEYLON TEA.

With depressing shame and bitter indignation, we attract attention to the truly shocking and disgraceful condition of things in regard to our tea enterprise, of the high character of which we were until recently so proud, contained in Mr. John Ferguson's letter "From the Metropolis." That tea, properly plucked and as carefully as possible prepared, should suffer from meteorological conditions and be inferior in quality to the high standard once enjoyed by our teas, is a matter for regret, but not a cause of shame or an occasion for censure. But what are we to say to the unprincipled enemies of Ceylon and its best interests who have managed to creep in amongst an honourable body of men and who have been guilty of the gross iniquity of deliberately sending into the market, as Ceylon tea, trash only fit for the dunghill, consisting of old leaves, twigs, and not contented with that, earthy dirt! What was called Ceylon tea has, to our ineffable injury and disgrace been condemned by the customs authorities as unfit for human food and how much better can the rubbish have been which sold in Mincing Lane down to a penny per pound. When the husbandman found tares in his field, he was justified in saying, "An enemy hath done this." Equally legitimate is such language applied to the persons who prepared and those who sent into the London market, the abominable trash described by the absent editor. Typical specimens of inferior teas, sent to us by Messrs. Gow, Wilson & Stanton, can be seen at the *Observer* Office, and we only regret that specimens of the old leaves, twigs and dirt were not also sent out. The time has surely come when the names of the wrong-doers should be published and for measures being taken to prevent the despatch from our shores in the future of stuff which can yield no profit to the exporters, but which is calculated most seriously to injure a great enterprise, on which the fortunes of the colony as well as of the mass of honourable men engaged in it so largely depend. If, as is indicated, the rubbish complained of was exposed for sale at Colombo, surely there was a failure of duty amongst members of the Tea Association?

FROM THE METROPOLIS.

CEYLON TEA IN THE LONDON MARKET.

Nov. 20th, 1891.

I have been this week more than once with Mr. Stanton of Messrs. Gow, Wilson & Stanton (the well-known brokers) arranging for a very much fuller telegraphic message each week, by a new code, respecting Ceylon tea; and during these visits to Rood Lane, as well as others to the adjacent Mincing and Philpot Lanes, I have been much distressed to have indubitable evidence presented to me by the brokers and by such firms as Messrs. Anderson Brothers and others of the really deplorable character of some of the teas sent over from Ceylon to London this year. I need not refer to the published lists of late when sales at 6d, 5d and even less carry their own tale and must read a wholesome lesson; for, of course such prices must mean a downright loss to those concerned in preparing and shipping them. But I have actually seen samples of "Ceylon tea" sold at 3d, 2d and dust at 1d, and have had to hang my head in dismay before the absolute trash liquored for my conviction in the brokers' offices. To think that we who have been proclaiming the absolute purity and good quality of Ceylon, as contrasted with dirty, adulterated China teas, should have proof given that Ceylon tea planters or shippers are capable of sending over to London, parcels unworthy of the name of tea, in some cases made up of twigs and big tea leaves (not flush) and even—mixed with foreign earthy matter—even dirt. Some of the worst, I am told, are teas sold in Colombo (at the weekly auction) and re shipped. If so, surely a remedy can be applied by the Chamber of Commerce and Planters' Association? Something must be done; for, (tell it not in Gath, publish it not in the streets of Askelon, but) it cannot be too soon known by these bodies and Ceylon planters generally that one parcel of so-called "Ceylon tea" sold in the Lane, has been refused delivery by the Customs authorities, as being unfit for human food. Now this we must hope is a climax to be reached only once in our history as a tea-producing country. But to ensure no repetition of an act which almost amount to a crime against the good name of Ceylon, it is absolutely necessary that public opinion through the two representative planting and mercantile bodies should be brought to bear on such offences. I know nothing of names in the case; but if there is a repetition, it must be a necessity forced on Ceylon-London journalists to get full particulars and to publish them. Perhaps the Ceylon-London Association Tea Committee may take some steps; but certainly the Kandy P. A. should not wait for this, but make some move of its own. Excuse can be made for tea being occasionally injured in the course of preparation—a bad withering, an error in rolling, fermentation, or even drying; but there is no excuse for preparing twigs, big leaves of tea bushes or for allowing earthy matter to get mixed with tea; for packing and shipping trash condemned as unfit for human food. As matters stand, I (and others) will be afraid to open our mouths as we have been doing in Venice, Vienna, Prague, Karlsbad, Munich and a host of other places about the purity of Ceylon teas. Some of the county dealers in England have even been returning purchases made on their account as unsaleable, and others writing sneeringly, that it is a good thing for Ceylon that they don't sell such teas unblended.

I have asked that certain samples of teas that never ought to have left Colombo should be sent out to be shown at the *Observer* office to any interested, and perhaps circulated through the the Fort offices. The news I got yesterday in the Lane is that some more poor, if not bad, teas may be looked for from wet districts, consequently perhaps, on the heavy burst of north-east monsoon. But all allowance can be made for this cause of hurried imperfect preparation; but not for the admixture of foreign substances, twigs and absolute dust. Let us trust that the comparatively good prices offering for fine teas will make all planters careful to see that their "plucking" is looked after; for even now there is an indisputable absence of much of the really good high-class teas that first gave a name to Ceylon. I heard of a buyer at Tuesday's sale who wanted "a tippy parcel of tea" for a special market (the South America) and who could find only one in the sale with a value properly of about 1s 5d, but for which he had to pay over 1s 8d, because the quality was in such poor supply. This ought not to be.

It is gratifying to learn of new markets opening like those in South America as well as North America. In one case of a dealer in a South American coast town to whom Messrs. Gow, Wilson, & Stanton sent a trial chest of Ceylon tea, he has responded with an order which has

doubled in quantity each time it has come until the latest one was for 100 chests. For Russia too, the demand through London for Ceylon tea is very steadily bettering. Much can no doubt be done to advertise our tea at the Chicago Exhibition if gone about in the right way, and in this connection it is of interest to read the speech of the Secretary to the Society of Arts at the opening meeting two nights ago. I quote as follows :—

The Attorney-General (Sir Richard Webster, M.P.), chairman of the council, last night delivered the opening address of the hundred and thirty-eighth session of the Society for the Encouragement of Arts, Manufactures, and Commerce at their rooms, in John-street, Adelphi. The Queen had appointed the president, vice-president, and council of the Society of Arts a Royal Commission for the International Exposition at Chicago in 1893, and he appealed to the members to justfy the selection. The founders of the Society of Arts, or those who controlled its operations during the earliest periods of its existence, where the inventors of industrial exhibitions, and the council were fully qualified to secure efficient representation of Brithsh interests at the coming exhibition. It was most important that the manufactures and art productions of the United Kingdom should be worthily represented. Jackson Park, in which the exhibition to be held was almost as large as Hyde Park, and the whole of its area would be devoted to buildings appropriated to the various sections. No doubt the Chicago Exposition would be a great success, but he looked forward to another international exhibition in the metropolis in a few years, which should eclipse the American and every other display of the kind. (Cheers.) Our great Indan Empire and the British colonies would all show up well, and England must make a supreme effort to sustain its high prestige. (Cheers.) The Attorney-General then presented the medals to those who had rendered distinguished service to the society and its members by the merit of those papers read during the last session, and the usual complimentary votes concluded the meeting.

You will doubtless have had some particulars of the meeting of tea dealers, brokers, &c., at the Ceylon room on the 11th to consider the need of some further means of accommodating the sales of increasing quantities of our teas. I did not hear of the meeting from Mr. Leake, when I saw him on the 7th, or I should gladly have been present, if only to look on the men dealing and interested in our produce: better luck next time, as Messrs. Gow, Wilson & Stanton will keep me apprized of any tea business or gatherings of interest. Buyers complain of the short time often allowed to draw and test samples before Tuesday's sale to which all Ceylon agents, &c., wish to send their teas. It is true that nominally, Ceylon teas may be offered on Thursday, after the Indian teas; but, as a rule, there is seldom time and still less chance of doing justice then. The remedy is to have a separate room for Ceylon teas, and two clear days for the sales each week. There may be disadvantages though, and in any case the change is not one to be made without deliberation and the full consent of buyers or dealers, brokers, &c.

THE GREAT LOSSES IN CHINA TEA form one topic of City conversation at present. Our friends in Philpot Lane were making a calculation of the totals some days ago, and one of the partners worked the total out at £800,000 for the present season to London buyers. How near he was may be seen from the following extract which appeared in a daily, a few days after:—[Cannot find paragraph at last moment, but it gave the losses at £750,000.]

I regret to learn through Mrs. Alex. Ross that bad news has arrived concerning our good friend and old colonist Mr. Arthur Sinclair, one of the Commissioners to Peru. While Mr. Ross, with his spare, lithe figure, kept his health in crossing the higher passes of the Andes, Mr. Sinclair being much stouter and heavier seems to have suffered a good deal—liver and heart got affected and in place of riding, he had to be carried. The latest news as I gather is that he was at a point close to the Amazon and hoped to get down the river by steamer, but was not yet well enough to travel. Mr. Ross, I gather, had to return to the West Coast again. I earnestly trust that Mr. Sinclair may soon be enabled to start and that both Commissioners may return in safety. Mr. Clarke of the Peradeniya Gardens has already come back, bringing various articles of interest, a sight of which I am promised on an early day. Possibly you may have later news direct from Peru. From Aberdeen I learn that Mr. Sinclair is expected before Christmas; but I do not know if the news of the illness was sent there.

THE CEYLON TEA CROP AND DELIVERIES OF CEYLON TEA IN LONDON.

We have already shown that the export of tea from Ceylon in 1891, will not exceed, if even it reaches 65 millions of pounds, and, of course the whole of this quantity will not reach the London market in the year. There is the quantity which will go into the imports of Britain in 1892 apart from the now considerable portion diverted to the Australian and other markets. But it may be interesting to compare deliveries with crop. In the 10 months ended October, then, the deliveries of Ceylon tea in London were 44,416,000 lb. Adding for the remaining two months of the year at the same rate we get a total of deliveries for all 1891 equal to 53 300000 lb. or 11 to 12 millions less than our probable exports. Considering, as we have said that a very considerably less quantity than 65 millions, say 60 at the utmost will reach Britain in 1891, the figures would be satisfactory but for the evil name and the low prices which much of our tea has obtained The comparative figures for deliveries for the 10 months in London, were:—

	lb.
Indian...	81,868,000
China	67,698,000
Ceylon...	44,416,000

In one, or at most two years, Ceylon will supersede China in the second place, and with good and wholesome and high quality tea we trust. All our efforts to obtain new markets will be in vain if strennous efforts are not made to wipe away the disgrace which unprincipled (in some cases perhaps, thoughtless,) persons have brought on Ceylon tea.

TEA IN FOOCHOW.—We are assured by teamen, well known to us, that they and all other holders of fine teas will keep them until next season. They probably exaggerate the real state of the case when they tell us that present prices would not do more than cover the cost of labour carriage, chests, lekin, &c., but there is no doubt their losses are extremely heavy. Some are still so comparatively well off that they will live through these bad times, but others will be ruined. Whether they will do better by carrying over these teas to the new season remains to be seen. From all we can learn it is exceedingly doubtful.—*Foochow Echo.*

NOTES FROM OUR LONDON LETTER.

INADEQUATE SAMPLING OF CEYLON TEAS—SUGGESTIONS WITH REGARD TO MINCING LANE SALES—MR. ROGIVUE'S MISSION IN RUSSIA—CEYLON AND INDIAN TEA IN FRANCE—CEYLON TEA IN AMERICA AND MR. ELWOOD MAY—STANLEY WRIGHTSON TEA CHESTS—CEYLON ESTATES TEA COMPANY—LANKA COMPANY—A NEW COMPANY FOR BRITISH NORTH BORNEO.

LONDON, Nov. 20.

My last letter contained very full reference to the question at present under discussion with respect to the insufficiency of time allowed for the efficient testing of the samples of Ceylon teas. During last week the Tea Committee of the Ceylon Association considered this matter, but was unable to arrive at any decision as to the course to be taken, though it made several suggestions to be conveyed to the parties interesting themselves as to some remedial action being taken. The nature of these suggestions has already been conveyed to you by me, and the leading brokers have expressed the opinion that if they can be acted upon great relief will be obtained.

But the experience of last Tuesday's sales proves very conclusively that the real remedy rests to a very great extent with the brokers themselves, though these complain that they are not free agents in consequence of the pressure referred to in my previous letter put upon them by their constituents to press sales on. Now the sales of Ceylon tea of last Tuesday week included no less than 18,716 packages in 798 breaks. In each of the latter there was a sample. These were not, except in a few instances, available for tasting before the day preceding. It was a manifest impossibility for the intending purchasers to properly test these before the sales opened. Competent authority has expressed the view that the irregularity of the sales and the depressed prices obtained on that particular Tuesday were almost entirely due to this fact. On the Tuesday in this week there were less than half the number of breaks offering as compared with the week previous. The result to this was thus expressed in the market report of the day following the sale:—

"17th November 1891. Supplies were offered in a more manageable quantity of samples, there being less than half the number of breaks that were offered last week. Consequently the sales passed off with a very firm tone, and the irregularity noticed last week has to a large extent disappeared."

Manifestly it is the duty of the brokers to so arrange their sales that such an overcrowding of the market on any particular day should be avoided. It cannot be difficult, one would think, to average the supplies to be put forward. If your planters are to secure the proper result to their labour, they should take steps to place the brokers in a position to do this; and this can only be done by allowing to them a greater latitude in selection of a day for offering than is at present given to them.

The Citizen of the 14th November contained the following paragraph, certainly extracted from Messrs. Gow, Wilson & Stanton's tea circular. You will see it embodies the main point upon which I have previously written you:—

"The following will interest those in the tea trade:—'The present rule of devoting Mondays and Wednesdays to auctioning Indian teas, Tuesdays to Ceylon tea, and Thursdays to both kinds, has now been in force more than three years. Since its institution the output from both countries has so vastly increased, that an alteration in the arrangement of public auctions is now generally recognised as likely to be beneficial to both industries. Not only have Monday's auctions of Indian tea of late been occasionally very heavy, but last Tuesday's Ceylon sale of 18,716 packages comprised so large a number of breaks (798) that it was impossible for buyers to give careful attention to the entire sale—the result proving most unfortunate for importers. The obvious course to pursue, now that Ceylon has grown so enormously since the present plan was adopted, seems to me to devote more days to the sale of Ceylon tea. This would enable dealers to distribute their purchases over a longer time instead of operating practically only once a week, as they are now compelled to do, owing to the objection of Ceylon importers to sell late on Thursdays. To facilitate this operation, it may become necessary to hold auctions of Ceylon tea in a separate room from Indians, a result which might ultimately be advantageous to both industries, although perhaps at first attended with some slight inconveniences."

With reference to the final suggestion of the above extract, it has been mentioned to me that if Ceylon sales were to proceed simultaneously with Indian sales, and in a separate room, buyers would be placed in a considerable difficulty. They might want to purchase of both kinds, and it would be impossible for them, of course, to be in both rooms at once. Some, however, think that this difficulty would prove in practice to be more fancied than real. As to the provision of a second room, I have been told this week that it would be perfectly practicable, there being no sparseness of the accommodation required in the existing building. What course will be determined upon remains yet to be seen. Possibly, I should say, all the remedies I have suggested may be given a trial to, or even all of them, viz:—1st, greater discretionary power given to the brokers by your consignors; 2nd, the averaging of quantities to be offered on particular days; 3rdly, the conducting of the Ceylon sales in a separate room from that devoted to Indian, and simultaneous selling; and 4thly, an alteration in priority of offering at the Thursday's sales. Either one or other of these several courses must afford considerable relief, and it seems certain that the trade will not allow the present unworkable system to much longer continue.

My letters recently mentioned to you that Mr. Rogivue had experimented with a Ceylon tea kiosk at the great Russian fair at Nijni-Novgorod. At the time of my writing, the source from which funds for this experiment had been derived was unknown to me; but from what has since reached me it would appear that Messrs. Spence, Willis & Co. undertook the whole financial responsibility of it. From what has before been written you upon this matter by me, you will have learned that Mr. Rogivue considered the result of that firm's enterprise to have been a successful one.

You will recollect that very recently, as the final result to rather disagreeable correspondence between the Ceylon Association in London and your Planters' Association, the latter approved of suggestions made by the first-mentioned body as regards the agency for the sale of your teas in France. In this connexion it will interest you to know what progress has been made by that agency which works the *Palais Indien* tea houses in Paris. At the statutory general meeting of his Company the Chairman gave very full details of what had been accomplished. He told his auditors that their work had been taken up in continuance of what had been done at the Paris Exhibition, and to prevent the fruits of their labour there from being lost tea-rooms had been fitted up in the Indian style in the most frequented parts of the city, at which pure Indian tea is sold in cup and in packets,

The first of these was opened about a twelvemonth back, the second towards the end of April, and the third in the month of May of this year. The Company took over these establishments on its formation, and sufficient time had now elapsed to warrant an opinion being formed as to the prospects of success. From the moment of the establishment being opened they had secured a considerable measure of support. Each customer is supplied with a separate pot of tea, with milk and sugar, for half a franc (4½d). The service was decidedly superior to anything of the kind in England. Progress since the holiday season of the Parisian had been continuous. Every week and month showed, the chairman said, such satisfactory progress that it seemed probable that each of these places will be paying within three or four months. The third establishment was designedly opened away from the fashionable quarters of the city in the Boulevard Bourse Nouvelle in the neighbourhood of some of the large theatres. Ceylon tea was kept in stock, but 90 per cent of their sales was of Indian tea. They had done well at an exhibition opened in the Champs Elysées in August, which remains open till the end of November and each succeeding month had increased the number of their customers. The Chairman continued:—"Our total sales in the year 1889 were over 16,000 francs, in 1890 over 30,000 francs, and in 1891 (estimating the two last months of the year on the basis of the others) they will be over 120,000 francs." No intention was at present formed to open further establishments in Paris, but the directors thought of trying branches in other parts of Europe and had secured a site at the Chicago Exhibition. Mr. Bullock (Chairman of the Upper Assam and Assam Frontier Companies) expressed an objection to any but Indian tea being sold. Mr. Seton said that the proportions of other teas sold was only one per cent of the total sale, and Mr. Thomas Lough remarked that "In the course of a few months Mr. Bullock's wishes would be carried into effect. There were several practical difficulties to deal with, but the board had taken steps to obtain the end desired."

It is to the closing utterance by Mr. Thomas Lough that it seems desirable to call the special attention of your Planters' Association, as I shall also take care that it has that of the Ceylon Association in London's Tea Committee, if it has not already been under that Committee's consideration. Mr. Lough was, as you know, appointed on his own application the recognized agent for Ceylon teas in Paris. Yet to judge from the words he is reported to have used, he would seem to be doing his best to exclude Ceylon tea from sale by the company he represents in Paris! I may, of course, be mistaken. You will notice that the Chairman stated that ten per cent of the teas sold were other than Indian. Did he use Indian as a generic term to include Ceylon; and did the ten per cent mean China or other teas used for blending purposes? If he did not include this, then Mr. Lough is apparently aiding him to keep Ceylon teas out of sight. It is to be hoped that we misunderstand this; but it is difficult to put any other construction upon what Mr. Lough is reported to have said. No doubt the *Palais Indien* Company is doing a good work in popularizing tea-drinking among the Parisians, and the taste for this established Ceylon teas are sure in time to find many patrons. But the question we are more particularly concerned with is how far, to judge from what he has said, Mr. Lough is fulfilling his compact as the recognised Agent for Ceylon teas in Paris? The matter certainly merits inquiry.

I have this week seen a letter from Mr. Elwood May to Mr. Leake in which he complains of the difficulties arising from want of adequate capital. He says that neither in England nor Ceylon have any of his Company's shares been taken up, and that it is very difficult to get the necessary cash capital from Americans. This does not surprise me, any more than it surprises me to learn that capital has not been subscribed either by people here or in Ceylon. We have perfect reliance on Mr. Elwood May and his good faith and intentions, but capitalists here are now very shy of investments outside of Great Britain or her colonies; and we fear Mr. May will have to depend entirely upon what capital he can raise locally. He tells Mr. Leake that "Our advertising contracts, for which we pay only in the stock of this Company, already amount to over 160,000 dollars."

Mr. Arkell, whom you will know to have been the gentleman who entered into the first of these contracts with Mr. May, has written to that gentleman:—"I expect from the present outlook to have the whole 200,000 dollars of your advertising placed within the next six months. To place this properly, it takes a long time, as I wish to get the very best results; therefore, it cannot be done in a hurry. From a close study of your enterprise I am fully convinced that a very large and profitable business can be made of it. I think your Company ought to expend, in addition to this 200,000 dollars in stock, 200,000 dollars in cash, and that certainly would put the Ceylon tea upon the market under all hazards. If your Company, or members of it, would raise 175,000 dollars in cash to be used in this direction, I would be willing to 'chip in' 25,000 dollars and take it in stock at par, with understanding that no stock is to be sold less than par."

Evidently Mr. May wants cash to work his enterprise, but it is much to be feared he will not obtain it on this side of the Atlantic. The question is if he was not too sanguine of the support to be obtained in England and Ceylon. He would seem to have forgotten the many other quarters in which you are making efforts to introduce your teas, and that nearly all the capital which might otherwise have flowed in his direction has been absorbed by such ventures.

Mr. May has been obtaining the opinion of certain strawboard manufacturers in America as to the cost of making the Stanley-Wrightson tea chests by them, and we are surprised at hearing from him that their price quoted is 1 dollar 50 cents, equivalent to about 6 shillings per chest. Making every allowance for the higher cost of labour in America, it is impossible to see how such an estimate can be justified, for the boxes were made here at a cost of 2 shillings each! If the price quoted cannot be reduced, it is not likely that the States will furnish an opening for the Stanley-Wrightson boxes.

The Ceylon Estates Tea Company has opened a very neat-looking establishment at 166, Fenchurch Street, the agents working it being Messrs. Edwards & Co. Fenchurch Street is, of course, an admirable locality for such an establishment, and we have no doubt the Company will find its full account in it.

The Lanka Company has removed from its former office in the Old Jewry and has taken fresh ones at No. 12, Fenchurch Street. The report of this Company should now be in course of preparation, and no doubt is, but it was too late when I called at the old address this week to return to make inquiry at the changed one.

Borneo seems still to attract investors, though we have not yet heard of very successful results

to any enterprise connected with it. The following extract refers to a new venture of the kind :—

The British North Borneo Development Corporation (Limited) is a new company, with a capital of £300,000, divided into 299,500 Ordinary shares of £1 each and 500 Founders' share of £1 each. The present is an issue of 200,000 Ordinary shares and 350 Founders' shares, of which 29,650 Ordinary shares and 350 Founders' share will be issued as fully paid to the vendor in part payment of the purchase-money, and the balance of 170,350 Ordinary shares are now offered for subscription. The company has been formed for the purpose of acquiring and developing several concessions of lands and other advantages in British North Borneo, at and near Sandakan, capital of that country.

—London *Cor.*

THE JAFFNA TOBACCO TRADE AND THE GOVERNMENT OF TRAVANCORE

We quote the following from the *Hindu Organ* :—

We referred at some length, in our issue of the 28th ultimo, to the wretched plight into which the Jaffna tobacco trade with Travancore has been reduced by the Government of that State, reducing the duty on Coimbatore tobacco without at the same time reducing the duty on Jaffna tobacco also. Not content with the injury thus caused to the Jaffna tobacco, that Government, according to recent intelligence received here, is now enforcing without any previous notice or warning, another new order, equally prejudicial to the interests of the Jaffna tobacco. It has been the practice hitherto to store the tobacco imported into Travancore in the several Government bankshalls and to weigh it for duty when it is sold and removed away from them. The native Government now insist that the tobacco should be weighed immediately after landing in the customs, and that the duty should be paid according to this weight, and not as heretofore according to the weight at the time of its removal from the bankshalls. The Jaffna tobacco is prepared here to suit the Travancore market, moistened with tea water, and it will not become dry and fit for consumption till after some months of its landing there. In the meantime, every bale will be reduced several pounds in weight. The merchants are, therefore, against custom and long continued practice, now forced to pay duty for weight which does not actually exist at the time of its removal from the Government bankshalls. Judging from these proceedings, it seems that the Government of Travancore are determined to favour the Coimbatore tobacco at the expense of the Jaffna product. The merchants who suffer these wrongs at the hands of that Government are British subjects, who have been enticed by the just and equal laws that had prevailed there to invest their all in that trade, but who now find themselves in a helpless condition, those laws being suddenly altered to compass their ruin. We feel sure that if the whole case were properly laid before the Colonial Government, a strong representation will be sent by them to the Government of India protesting against these questionable proceedings of the native State.

SOME ACCOUNT OF THE NUTMEG AND ITS CULTIVATION.

BY THOMAS OXLEY, ESQ., A. B.,
Senior Surgeon of the Settlement of Prince of Wales' Island, Singapore and Malacca.

(*From the "Journal of the Indian Archipelago and Eastern Asia."*)

(*Continued from page 464.*)

But although manuring is the chiefest element in successful cultivation, there are many other matters for the Planter to attend to during the period that his trees are growing. All bad grasses must be carefully kept out of the plantation, at least from between the trees, and the harmless grasses rather encouraged as they keep the surface cool. I have seen the reflected rays of the sun from an uncovered whitish soil, regularly scorch up the leaves although the plant was covered over on two sides and the top by the usual artificial shade. The trunk of the tree ought to be carefully washed with soap and water once a year to keep it clear of moss, this has been ridiculed as being a work of supererogation ;—let those who think so, omit the operation. Parasitical plants of the genus Loranthus are very apt to attach themselves to the branches, and if not removed do great injury, in fact if altogether unattended to, they will in time destroy the tree. The enemies of the Nutmeg tree are fortunately not numerous, but they have a few ; white ants among the number. I know of no remedy for these but cleanly and good cultivation, they seldom if ever attack a vigorous plant ; it is upon the first symptoms of decay that they commence their depredations,—their nests may surround a tree and their small tunnels pierce the earth in every direction about its roots without the plant giving any indications of decay, but whenever I have discovered them in such localities I have always endeavoured and often successfully, to dislodge them by a dose of a solution of pig dung, an article apparently not at all to their taste, although fresh cow dung is a strong source of attraction, another reason to those I have already given for using this latter substance in a perfectly decomposed state when it can be well mixed up with the soil, and appears no longer to have an attraction for those destructive insects, which cannot be too jealously watched, for when once they attack a tree the case is hopeless. The first notice a planter has is the withering of the leaves, and when he comes to examine he generally finds it necessary to dig up and uproot the plant at once, rather than leave it as a nidus for those voracious depredators ; every planter must lay his account to losing occasional trees by them, but he who has his ground clearest and most free of old roots and stumps of trees will lose fewest. There are several species of insects which lay their eggs on the leaves but they are not all of equal importance ; that which manifests itself by the discolorization of the leaf, and the larvæ of which are embedded in the substance and not on the surface, appears the worst, but all ought to be carefully watched and removed or they rapidly spread and cause great havoc amongst the trees. For this purpose it is necessary to wash the leaves with a decoction of Tuba root, and syringe them by means of a bamboo with Chunam and water of the consistence of white wash, this adheres to the leaves and will remain even after several heavy showers giving for the time rather an unsightly appearance to the tree, but making amends by clearing it of the larvæ already alluded to ; another nuisance is the nest of the large red ant ; these collect and glue the leaves together forming a cavity for the deposition of their larvæ. All leaves thus made use of turn yellow and die ; they do not that I have observed otherwise injure the tree, but trees so infested do not bear well and the ants bite the collectors severely, and indeed any person incautious enough to brush against the tree. The best mode of destroying them is to hang a portion of some animal substance such as the entrails of a fowl or the like to the end of a pole, the opposite extremity of which is allowed to pass through the branches, the ants will run along the pole and collect in immense quantities around the bait, when by a lighted faggot they can be burned by thousands. This operation repeated a couple of times a day for a week or so, will rid the tree of the invaders, their nests should be broken up by the collectors as they go their rounds, but this they are very unwilling to do seeing that there are few insects more ready to revenge themselves, and the coolies never fail of a good biting whenever they try the experiment of disturbing them. I have now made the planter tolerably well aware of what he has to do and of most of the difficulties he has to encounter. I shall now endeavour to give some notion of the prices of labour and material, and speak of the work best done by contract and that which one had better perform with the labourers on the estate.

The first operations of clearing ground and digging the holes can be done more cheaply by contract labor than by men on monthly hire, very little

supervision in such case being required as it is easy to see whether the ground be well cleared or not, and the size of holes being determined previously, there can be no dispute about the matter afterwards. It is surprising how much better the Chinese work when they are paid by the task rather than the day, and singular enough they are better content, working harder and earning less by the former system than the latter. Few labourers in the world can equal them when working on their own account, but on regular wages they are most complete eye servants: they are however upon the whole the best class of field labourers. The usual monthly pay to good strong men is 3 to 3½ Spanish dollars per month, but those who have become expert at any particular work very soon discover their value and cannot be kept without an increase of wages. Malays are to be had for dollars 2½ per month, and it is well to mix them with the Chinese; in making sheds for trees and all work where the rattan is used, they are more expert, they are also more to be trusted, and are a very wholesome check upon the vagabond sons of Han. Patience and temper are eminently necessary to get on with the Malay; they are not to be driven, but kindness and a little banter occasionally have excellent effect upon them. The Boyans are the most quiet, the most honest, and the most to be trusted of any of the races we see here; they are very slow and not over bright, but they perform their work as well in the absence of the overseer as before him, and they are by far the best nut gatherers. The Klings, or natives from the coast of Coromandel, are good workers if they choose to exert themselves, but they are the most wretched eye servants, and seem to delight in chicanery of all sorts: unlike the Malay, fear is the only motive capable of exciting them to action, and the application of the Mundoor's or Superintendent's rattan seems the only argument they understand; they are chiefly valuable in taking care of horses or cattle, cutting grass and driving carts, all other work is better done by Chinese or Malays; their wages is about the same as Chinese labourers, that is from 3 to 3½ dollars per month.

Manuring, making sheds over young plants, and extirpating bad grasses, are works which had better be performed by the regular monthly labourers on the estate, and indeed so soon as a plantation comes into bearing all contract labour must cease, as by admitting strangers the facilities for robbery would be more than any supervision could frustrate. The number of men to be kept on an estate, to preserve it in first rate order, after it has come into bearing, must depend of course upon the size of the plantation, but in general one man for every 100 trees will be found sufficient, provided there be some 4 to 5 thousand trees. On a small scale the proportion must be greater, as the idlers, such as those who take care of and prepare the spice, gather the nuts, and manage the horses and carts, tell more upon a small than a large scale. A man by planting the Guinea grass and feeding cattle may make his own manure, and I believe it to be the best mode of proceeding; those who depend upon the town for their supplies will frequently meet with disappointment and never obtain such good manure. The price of manure generally speaking is about 8 cart loads for the dollar, each cart containing 20 baskets. I conceive that two such carts with a similar amount of burned earth to be little enough manure for a tree of 12 years of age. It is almost impossible for a Planter to manure the whole of his trees in the same season, if they amount to several thousands: in this case the best plan is to divide the property into sections, manuring them in regular rotation, and to apply a few baskets of manure as top dressing to any particular trees that shew symptoms of flagging.

The nutmeg Planter is under the necessity of keeping up nurseries throughout the whole of his operations, for the replacement of bad plants and redundant males. Of the latter, ten per cent seems to be about the best proportion to keep, but I would have completely Dioecious trees. No person can boast to get a plantation completly filled up and in perfect order much sooner than 15 years. Of the first batch planted not more than one half will turn out perfect females, for I do not take into account Monoecious trees which I have already condemned. The tree shows flower about the 7th year, but the longer it is before doing so, the better and stronger will it be. I cannot refrain from a smile when a sanguine planter informs me with exultation that he has obtained a nut from a tree only 3 or 4 years planted out,—so much the worse for his chance of success, too great precocity being incompatible with strength and longevity. The best trees do not shew flower before the 9th year, and one such is worth a score of the others. This will be evident when it is stated that I have seen several trees yield more than ten thousand nuts each in one year, whereas I do not believe that there is a plantation in the Straits that averages 1000 from every tree. This very great disparity of bearing shews plainly that the cultivation of the plant is not yet thoroughly understood, or greater uniformity would prevail, and I think it clearly enough points out that a higher degree of cultivation would meet its reward. It is not quite safe to cut down the male plants upon first shewing flower, as they many times show perfectly female flowers the following year, and in that case are generally the strongest and finest trees. But there is some indication of this in the first mode of flowering. When the racemes are many times divided and have numerous flowers, there is no chance of its becoming entirely female, but where there are only two or three flowers on a raceme there is a fair prospect of its doing so. The tree has not been introduced into the Straits sufficiently long to determine its longevity, but those introduced and planted in the beginning of the present century as yet shew no symptoms of decay. The experiment of grafting the trees, which at first view presents so many advantages, both in securing the finest quality of nut and the certainty of the sex, has still to be tried in this cultivation. Some three years ago, I succeeded in grafting several plants by approach, these are not sufficiently old for me to decide whether it be desirable or not, for although the plants are looking well and growing, they as yet have thrown out their branches in a straggling irregular manner, having no leaders, and consequently they cannot throw their branches in the regular verticles necessary for the perfect formation of the tree, without which they must ever be small and stunted, and consequently incapable of yielding any quantity of produce. The grafts have succeeded so far as stock and scion becoming one, and in time a perpendicular shoot from the wood may appear. If after this it should increase in size and strength so as to form a tree of full dimensions the advantage gained would be worth any trouble, the quality of some nuts being so far above that of others it would make a d fference beyond present calculation; in short 1000 such picked trees at the present prices would yield something equivalent to twenty thousand dollars per annum, for $·20 per tree would be a low estimate for such plants. If this ever does occur it will change the aspect of the cultivation altogether, and I see no good reason why it should not, except that those possessing trees of the quality alluded to, would not very willingly permit others to graft from them, so it is only the already successful planter who can try the experiment properly.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Nov. 21st.

CINCHONA.—The periodical actions of cinchona bark were barely up to the average as regards quantity offered. The total supply in the catalogues consisted of

	Packages.		Packages.	
Ceylon... ...	999	of which	972	were sold
East Indian ...	460	,,	379	,,
Java	102	,,	87	,,
South America ...	193	,,	110	,,
	1,754		1,548	

The bark offered contained a more than avrage portion of Officinalis parcels from India and Ceylon, and also included a supply of about 110 packages of Darjeeling bark, a variety which has not been offered in public

sale for several years. The offerings of South American barks were small, and in no way remarkable. Competition throughout the sale was fairly active, nearly all manufacturers participating in it. Prices showed no quotable change, but there was, perhaps, some slight tendency towards greater firmness. The unit remarks at 1 1-16ths d. to ¼d per lb.

The following are the approximate quantities purchased by the principal buyers :—

	Lb.
Agents for the Mannheim and Amsterdam works...	120,543
Messrs. Howards & Sons	69,325
Agents for the Italian and American works ...	56,742
,, Auerbach factory	34,246
,, Frankfort o/M and Stuttg ks	27,461
,, Brunswick works	23,995
,, French works	8,880
Mr. Thomas Whiffen	1,484
Sundry druggists..	25,829
Total quantity of bark sold	368,235
Bought in or withdrawn...	35,872
Total quantity of bark offered the	404,107

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it; firms who buy a small quantity of bark by weight frequently take the richest lots, and *vice versa*.

CINCHONA.—A parcel of 4 bales of Huanoco bark, the first of this variety which has been imported this year has just arrived; the last price paid for this class of bark was 1s 3d per lb., but in view of the great scarcity the importers expect to get a trifle more now. The following are the approximate quantities of bark, with their equivalents in sulphate of quinine added in ( ), purchased by the various competitors at the last Amsterdam auctions :—Auerbach 100,579 kilos (4,240 ko.); Philadelphia 66,929 kilos (2,775 ko.); Mannheim and Amsterdam 43,228 kilos (2,052 ko.); Brunswick 38,284 kilos (1,679 ko.); Paris 19,799 kilos (990 ko.); Howard & Sons 19,378 kilos (1,080 ko.); Frankfort and Stuttgart 12,925 kilos (649 ko.); Hoppert & Heyse, Amsterdam 5,177 kilos (228 ko.); druggists 16,700 kilos.

CINNAMON.—The market has advanced further, and sales of 200 bales Ceylon, second quality, have been made this week at 7 7-16ths d. to 7½d per lb. At auction yesterday 250 bags chips were partly sold at 2s 1 per lb.

QUININE.—Very flat; a sale of 5,000 oz at 9¼d second-hand was reported, yesterday, but has not since been confirmed. The E & S agents sold a small quantity this afternoon at 9¾d per oz. The following are the present quotations of the manufacturers :—Howard & Sons 1s 1d to 1s 2d in tins, 1s 3d to 1s 4d in 1 oz vials; Thomas Whiffen 1s 1d in tins, 1s 3d in 1 oz vials; Zimmer and Jobst 1s in tins; Milan 11½d in tins, 1s 1½d in 1 oz vials; Pelletier's 1s 9d in 1 oz vials; Auerbach, Brunswick, Mannheim 10d per oz in tins.

THE LANKA PLANTATIONS COMPANY, LIMITED.

Report to be presented at the Eleventh Ordinary General Meeting of the Lanka Plantations Company, Limited, to be held at the Offices of the Company, on Wednesday, the 2nd December, 1891, at 3 o'clock in the afternoon.

1. The Directors submit their Report for the twelve months ending 30th June last, together with the Balance Sheet and Accounts of the Company made up to that date.

2. The coffee crop was 2,031 cwt., and the amount realised therefrom was £9,603 18s 9d. All fields of good coffee are receiving liberal cultivation, but each year the acreage becomes unavoidably smaller. The Thotulagalla estate continues to give satisfactory returns, as well as some fields on Ampittiakande, Arnhall, Rappahannock and Gonagalla.

3. The cinchona bark shipped has been 61,905 lb., which has been realised, and produced £731 12s 10d. There is no improvement in this market, and the only outlay made on this product is that of harvesting Bark from trees which are cankered, or which injuriously affect the Tea or coffee beneath them.

4. Cocoa realised £5,071 10s 6d, the quantity gathered from the 341 acres now in bearing being 1,106 cwt., shewing a profit therefrom on the 12 months' working of £2,856. The following extract is taken from the Superintendent's Report dated 15 th July :—

"Last year I planted 18 acres of cardamoms with cocoa, the growth is remarkably good even for Yattewatte. I have noticed also along the jungle boundaries, and through the jungle, that cocoa plants from seeds carried by monkeys are springing up wild and competing with the natural growth, which shows that the plant has thoroughly established itself in this locality."

The cocoa trees are very favourably reported on and there is every prospect of a good crop again this season.

As the acreage in Ceylon suitable for the successful cultivation of cocoa is limited, the Directors confidently look forward to present quotations being maintained for this product.

It seems therefore most desirable that a very considerable extension of acreage under cultivation should at once be made, but the Directors cannot undertake this expenditure out of income, and unless the Shareholders will take up a substantial amount of the unissued 6 per cent. Cumulative Preference Stock it cannot be carried out. The cost of planting and cultivating Cocoa, until the plants begin to bear enough crop to pay expenses, is about £12 per acre, or £2,400 for 200 acres: a moderate subscription from each Shareholder would produce this sum. The calls could be spread over the year, and the interest would be but a slight burden on the nett profits. The Directors therefore enclose a form of application for Preference stock and will open as much land as the subscriptions justify.

5. The cardamoms have produced 3,224 lb. The amount realised therefrom was £271 1s 4d.

6. The tea received from the Company's estates, without purchase of any outside leaf, has amounted to 248,574 lb. which have realised £9,627 11s 2d, an average of 9½d per lb. nett. The leaf from Rappahannock and Rillamulle is manufactured in adjacent factories, the rest in the Company's own factories. A small amount of leaf is being plucked on Thotulagalla, and this for the present will be sold to a neighbouring estate.

The following Statement shows the acreage and state of cultivation of the Company's estates on the 30th June last:—

Estate.	Coffee.	Cinchona.	Tea.	Cocoa.	Cardamoms, &c.
Ampittiakande ...	100	...	193	...	...
Arnhall ...	132	40	124	...	...
Fruit Hill ...	...	...	220	...	...
Fordyce Garbawn, Gonagalla and Paramatta	235	...	527	...	...
Rappahannock ...	40	21	270	...	...
Rillamulle ...	28	...	187	...	15
Thotulagalla ...	220	...	145*	...	...
Yattawatte ...	...	...	...	384	41
	755	61	1.666	384	56

* Partly in Coffee.

	Grass.	Pattina.	Forest & Timber Trees.	Total.
Ampittiakande ...	2	3	34	332
Arnhall ...	15	37	25	373
Fruit Hill ...	...	...	...	220
Fordyce, Garbawn, Gonagalla and Paramatta	23	16	135	936
Rappahannock ...	25	62¾	55	473¾
Rillamulle ...	2	6	20	258
Thotulagalla ...	...	143	50	558
Yattawatte ...	95	150	277	947
	162	417¾	596	4,097¾

The profits for the past year amounted to £6,443 2s 6d, and had the rate of exchange during the first half of the year not ruled higher than it has done during the last few months, the profits would have been much better; as it is, they are sufficient for the dividend on the Preference Shares and also to pay nearly 4 per cent on the Ordinary Shares, but deeming it expedient, having regard to possible depreciation, to reduce the Machinery Account by £410 0s. 10d., and having to reduce the Suspense Account by £1,427

0s. 6d., the Directors have taken £1,837 1s. 4d. from the profits for these purposes, and they now recommend the payment of the dividend of 6 per cent. on the Preference Shares, and a dividend of 5/- per Share (free of Income Tax) on the Ordinary Shares, carrying forward a balance of £727 19s. to the next account.

Sir R. P. Harding and Mr. Edward Pettit retire on this occasion, and being eligible offer themselves for re-election.

Mr. John Smith, the Auditor (a Shareholder), also retires and offers himself for re-election.

The Directors regret exceedingly that they have had to accept the resignation, from failing health, of Mr. Wm. Bois, who since the formation of the Company filled the post of Secretary to their entire satisfaction, and who still remains a Shareholder.

A Summary with the details and the Report of the Agents may be seen at the office.

By Order, C. M. ROBERTSON, Secretary.

12, Fenchurch Street, E. C. Nov. 1891.

THE WEATHER IN GALLE IN NOVEMBER.

BY AN OCCASIONAL METEOROLOGIST.

		Max.	*Min.*	*Wind,*	*Rain.*
Nov.	1s	81	76	West	·21
Do	2nd	82	75	N. W. and West	·66
Do	3rd	80	75	Calm	1·65
Do	4th	80	75	N. N. W. & Calm	·12
Do	5th	82	77	W. S. W. & Calm	·02
Do	6th	83	77	N. E. and N. W.	·03
Do	7th	83	76	N. W.	·00
Do	8th	83	76	Calm	·00
Do	9th	83	75	Calm	·00
Do	10th	83	76	Calm and West	·00
Do	11th	85	76	West	4 06
Do	12th	80	75	West and Calm	1·51
Do	13th	80	74	Calm and West	1·25
Do	14th	80	75	West and Calm	·98
Do	15th	81	74	West	1·74
Do	16th	81	74	N. W.	·09
Do	17th	82	75	Calm and N. W.	·07
Do	18th	84	74	Calm and West	·00
Do	19th	84	74	Calm	·00
Do	20th	82	76	N. W and Calm	·11
Do	21st	81	75	N. W.	·00
Do	22nd	83	75	West and Calm	25
Do	23rd	82	75	Calm	·00
Do	24th	82	75	Calm	·00
Do	25th	84	75	N. W. and Calm	·26
Do	26th	83	75	Calm	·00
Do	27th	84	75	Calm	·00
Do	28th	84	75	E. S. E. and Calm	·00
Do	29th	84	73	Calm	·16
Do	30th	82	73	Calm	·09

These papers have now been continued over the month when the north-east monsoon should have proved itself, and yet we see that even in November there was a north-east wind only on the 6th of the month, and the only other day on which the wind was east was on the 28th, when it was E. S. E., and for not less than 15 days out of the 30 there was a west wind, and only for 9 out of that 15 partaking of a direction partly north. The maximum thermometer on the 11th when it was 85° drew on a heavy fall of rain, over four inches, only to remind us of the heavy fall in October, and to ensure that the rest of the month would be comparatively dry. There was evidently nothing connected with the changes of the moon or barometical changes deserving of special mention. The sensation of heat continued throughout, and continued to be normally unaffected by the fall of rain. The nights were perhaps cooler in other parts of the island; but in Galle it is only when near December that there is any promise of improvement in this respect. And so, we close our little observatory for the present.

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A TALK ON TOWER HILL.

THE other day that famous physician Sir Andrew Clark gave a prescription for a really nice cup o tea, which appeared in these pages. This has excit d so much interest in the bosoms of so many correspondents that we sent one of our representatives to have an afternoon tea talk with another famous Tea Doctor —namely, Dr. "Mazawattee," whose consulting-room is on Tower-hill. The following is a short account of our representative's visit:—

The Mazawattee tea warehouse is an immense brick pile that stands on Tower-hill. There were so many doors in the building, so many windows, so many pairs of stairs, so many chests of tea, that they would have furnished a mathematician with examples for a new arithmetic, especially if he possessed the gift of a Hamblin Smith for such matters. After fighting our way between the horses and vans—there was a big crowd despatching and receiving—we made our way to the lift and rattled up to the top of building. In a few seconds we were in the printing-room in the centre of a busy crowd: men and boys turning out labels for the packets of tea, stamping diaries—a neat little book of 144 pp. printed by constable of Edinburgh—with the names of clients; binding up an abridged English dictionary, and "A Language of Flowers," both of which have been distributed in millions by the firm as a *vade mecum* to their wares; sorting out Mazawattee envelopes with the firm's patent "loving cup" opener; or rattling off at the printing-presses billheads and account-books for the customers. In another room the whirl of the steam saw might be heard, and the hammers of the joiners making old packing-cases into new ones. On the next floor we came across the secret of the success of the Mazawattee tea. It was a section of the blending department. In one instance nineteen and in another fifteen chests of different sorts of tea stood ready to be poured into the mixers to get the standard quality for one or other particular blend; for the principle is that, once having discovered an acceptable blend, it is registered. The taster consults past records, spreading over from that of the last mix to that compiled often six months ago, and aims always at producing a tea similar in taste and quality to that which has been acquired before. This, of course, can only be accomplished in very large establishments, and it is this order of things and the sealed packet system, such as that of the Mazawattee tea people, which ensures the customer receiving a uniform article time after time. The rows of mixers looked monsters. Each holds a ton of tea. We wondered how all the tea was consumed. The wonder was removed when Mr. Lloyd, who was kindly showing us over the building, pointed out that the firm have agents in every village, town and city from Land's End to the Shetlands, from Cape Clear to Rathlin, and that the yearly output by the firm exceeded 12,000,000 packets of tea. We took a peep inside the mixers. They are lined with a series of shelves; the tea is shuffled off from one shelf to the other and so ensures a perfect blending. In this room there stood other machines for breaking up the large leaf, from which, in its original state, it is practically impossible to obtain a perfect brew, but when broken up in this way the big leaf makes an excellent beverage. Another and yet another flight down; both rooms were filled with a crowd busy at work. Here the tea was being run from the accumulators; a hundred hands were weighing it, and doing it up in the now familiar tinfoil packets with their labels of yellow, dark red, black, brown, and green, with gold letterings, and storing the pound and half-pound packets in trays of 10 lb. divisions, ready for the packer. Tea bloom in these rooms appeared to permeate everywhere. The men and boys looked as if they had been in a shower of gold, and the aromatic odour from the bloom made one feel full of delight. Sombre November, on the morning of our visit, seemed to have taken a leaf out of spring's book. The sun was shining brightly on London's most ancient pile, the Tower, as we wended our way out to Messrs. Densham's tasting-

rooms in Philpot-lane, through the tiers and piles of cases waiting for despatch by the numerous carriers to their respective destinations. For, though "Mazawattee" is comparatively a new definition, the firm of Densham and Sons is an old one, and one of wide experience, and this is all in all to the consumer. As we tramped along Great Tower-street we gathered from Mr. Lloyd that it may be taken as an invariable rule that, although cheap teas are good, the higher priced ones are better. "Sir Andrew Clark tells his patient to get a 'good cup of tea,' does he? Now, of course, all our teas are good, and cheap teas are equally carefully selected, but you can't expect the same same fine quality at one shilling and tenpence per pound that you get in our Golden Tips!" In the tasting-room there stood piles of small, flat round tin boxes, filled with samples from the chests, under consideration for the blenders, and rows of little white tea-mugs with lids and basins lined other counters. A boy, kettle in hand, was making the round of other tasting-cups into which samples had already been turned, pouring piping-hot water into them, and setting the sand-glass in order to know how long to keep the brew going. As we sniffed this pot of tea and wetted our lips with that one we were compelled to confess to being novices. Neither did we envy the taster his profession—certainly not when we learnt that an ordinary daily task with him was to make some six hundred tastings.—*Pall Mall Budget*, Nov. 26.

THE COFFEE DRINKER'S LAMENT.

Mr. John Hughes writes:—Analytical Laboratory, 79, Mark Lane, London, E. C. Nov. 20th.—A correspondent in the *Daily Telegraph* having written a long letter lamenting that no good coffee was obtainable in this country the following replies were the consequence.

Various correspondents write to express their views upon this subject. Mr. George Newton disputes the assertion of "Purple Drupe" that the finer growths of coffee rarely reach England, and only in small quantities imported to special order. He says, "I am acquainted with one firm in this city—whose address I enclose for your satisfaction—who import and sell on this market from 500 to 700 cwt. of Mocha coffee annually, and although they are the largest importers of the article, there are other firms doing similar business. Moreover, it must not be forgotten that we import largely of other coffees—Brazilian, Javan, Mysore—a good proportion of the finest quality, and by some preferred to Mocha. Beyond all controversy there are numerous retail shops, both in and out of the City, where the pure article can be bought, but either the prolonged habit of swallowing the nauseous compound which prevails here has destroyed the appreciation for that which is good, or the public will not give the price necessary to secure berries of fine quality. Hence the abomination you are expected to swallow in nine cases out of ten, both in public and private life." With regard to the proper way of making coffee for the table, he remarks: "Years ago—thirty or forty—and, for all I know, now, it was the custom to boil (and perforce to spoil) coffee; and although this generation is conspicuous for the number and variety of contrivances specially designed for making it, the outcome of all inventive effort is a variety of machines of greater or less complexity for the performance of an operation of the simplest nature conceivable. I am a great lover of coffee, and I believe, somewhat of a connoisseur, and during my whole life have never used anything but an ordinary covered hot water jug for its manufacture. One of your correspondents asks for a recipe for making this delicious beverage. Here it is for any who care to use it. Heat the aforesaid jug by pouring into it and out again boiling water, put therein coffee in the proportion of three piled teaspoonfuls for half a pint of the beverage, and pour on it sufficient boiling water, five minutes later pour a little into a teacup and return it to the jug twice, and then let it stand in a warm place for 15 minutes. Result, a cup fit for the gods. Much insistence is made by some that the coffee be freshly roasted and ground. My experience is that the value of both operations is much exaggerated. I roast and grind my coffee—pure Mocha—and if it is kept in a closed vessel of metal, earthenware, or glass, no discoverable deterioration takes place by keeping."

Mr. John Hooke, of 29, Bishopsgate-street Without, as one "who knows what is going on in the great coffee markets of the world," also controverts the statement that pure Mocha never reaches England, and quotes Professor Palgrave's report in the "Encyclopædia Britannica" to the contrary. "With regard," he adds, "to the other choice coffees which your correspondent boldly asserts never reach London, I may tell him that in the opinion of men who spend their lives tasting coffee and comparing values, Java and Martinique never have produced coffee that would in any way approach the splendid flavor of Vera Paz, which until recently has been sold under the name of Honduras, and which is considered by experts to be the finest coffee ground."

"Amateur" writes to give modes of making both tea and coffee. He says: "For tea, fuse freshly boiling water, infusing the leaves for not less than three or more than four and a half minutes, removing the leaves, and using the liquor, with new milk to taste. The use of condensed milk, I think, improves coffee or cocoa, but spoils tea. For coffee, I use not less than two ounces, to one pint of cold water, or one pound to one gallon, stirring it into, and allowing to stand not less than twenty-four hours, in an earthenware vessel. I object to metal utensils for coffee, and also boiling the liquor; so when the coffee is required I stand my earthen, or china, pot in a vessel of boiling water until the temperature of the coffee reaches, say, 210 deg., or just short of boiling point, and it is ready for use to flavour my hot milk to taste."

Mr. W. Maxwell Maynard, writing from Broomrigg, Dumfrieshire, desires to "try and relieve the sufferings of 'Victim,' whose pathetic cry found expression in your columns." As to kinds of coffee, he believes Mysore plantation is as good as anything ordinarily to be procured in the markets, and proceeds to give a recipe for making it. "Supposing a pint of good coffee is required for breakfast, grind some coffee the night before, take an earthenware jug of suitable size, warm it and put three ounces of the ground coffee into it and pour upon it one pint of boiling water. Stir it well with a spoon, cover it with a clean damp cloth, folded five or six times, to keep in the aroma, and stand it at the cool side of the kitchen range. Give it a good stirring three or four times in the course of the evening, then remove the spoon, replace the cloth, and put it anywhere where it will not be disturbed till next morning. Before breakfast gently raise the jug and pour off the liquid through a bit of thick wet flannel (well washed), and this will catch any floating grains. Put the clear liquid into a china-lined saucepan, warm it, and serve in a jug. In pouring out coffee the rule is, half coffee and half boiled milk and a little cream. Also avoid putting the coffee into a metal pot—it is infinitely bitter if it never touches metal at all. Never use less than three ounces of coffee to every pint of boiling water."

THE WILD FLOWERS OF FLORIDA.

I will endeavor to give your readers a description of our wild flowers, shrubs, etc. Florida is called "the land of flowers," and I think she justly deserves the title. If we were to gather up the wild plants in our woods, what a beautiful flower garden we might have. Many of our native plants have been introduced and bring good prices, while many have been passed unnoticed. In early spring, January, and February, we have Violets, three distinct varieties,—the Pine-woods Violet, which is supple and slender in habit with large flowers varying from white and palest blue to deep blue and reddish violet; the Hammoc Violet, which grows close to the ground, firm and compact in habit, with deep blue

violets on short firm stems, the leaves are similar to the English Violet. Then there is the White Violet which grows in low lands and swamps, has a mass of long narrow leaves and any quantity of small white violets. They are beautifully marked, and I have often thought how much handsomer they would be for Bouttonieres than the blue ones—the flowers are the same size as the English Violet—sometimes larger. They are slightly fragrant.

The Yellow Jessamine (Gelsemium Sempervirens) with its deliciously fragrant bell-shaped flowers and lovely foliage makes atristic many an unsightly stump and neglected cottage, and decks the woods with its glory. The wild honeysuckle (Azalea Nudiflora) is a shrub found growing on edges of creeks and branches. The flowers are borne in clusters, very fragrant and in all shades of pink and light red. The pistils of the flowers are very long—hence the name—Wild Honeysuckle. This is a valuable plant for bees. The White Elder makes a tree here, and is also found near water. The flowers are valuable for bouquets, etc., and the berries make fine jellies, jam and pies. The jelly is very beneficial when used as cough medicine. The flowers make a tea excellent in cases of dropsy, and it is useful in many ways, in fact everyone ought to plant an Elder in their yard. We have any quantity of the Prickley Pear Cactus which has large brilliant yellow flowers in the spring, and is followed by small fruit a pear, which becomes a deep red when ripe, and is fine for jelly and pickles. The Prickley Pear has medicinal qualities, but I am not "posted." The Dog Banana (Asimina Grandiflora) is a low growing shrub with large straw colored and deep maroon flowers, followed by clusters of small bananas which are said to be edible. The Easter Lily (Zepharanthes Tretea) a pure white delicately scented lily, springs up singly out of the ground in low places. It is much used in floral decorations. A species of clematis with beautiful foliage and delicate flowers renders the low swampy lands very attractive in spring. We have a large variety of ferns, mosses, etc., fine for aquariums, also a species of the Resurrection fern. Then there is the Milkweed with its long pods containing silky floss. I hear it is a rubber plant. The Magnolia blooms in April and May. We have the Swamp and Highland. The Swamp Magnolia has the handsomest foliage. The Sweet Bay makes a large tree, the flowers are about the size of the top of a small teacup. The Bay does not bear seed, but the Magnolia produces an abundance.

During the summer and fall we have an endless variety of flowers—Lillium Luteum a double yellow pond lily—fills our creeks. They are showy but have an obnoxious odor. We have the double white Pond Lily in swamps and lakes, also in little arms of the river. The white "Crinum" or Spider Lily is very sweet and thrives in the creek edges. The Veiled Lily (Pancratium) is found in Southern Florida. The purple Iris (Fleur de luce) grows along the creeks and swamps. It is a showy flower. The Scarlet Hibiscus waves its flaming banner in the grey marsh grass, and two species of Althea with handsome silvery leaves flourish there also. One has a medium sized deep rose flower, the other a very large light pink with maroon centre and pistil like the Calla. Bullrushes and a species of Agapanthus are also at home here. We have a miniature snow-ball, cream colored and fragrant, which grows along the creek. Two species of Begonia, one with coarse leaves and dull red trumpet shaped flowers and the other with handsome foliage and brilliant red flowers. The Virginia Creeper (Ampelopsis Quinquefolia) grows luxuriantly here. We have one lovely species of Passion flower (Passiflora Incarnata.) In the low land is found the Wild Tiger Lily (Lillum Catesbœi). It is deep orange red with dark spots. Golden rod grows to perfection here, and I must not forget the purple Thistle, which furnishes us with silky white pompons for our hats. In the swamps there is the Tulip tree and wild Laurel, the latter is good for flavoring meats and sauces. Sassafras grows wild here. "Life everlasting" is a small plant gathered (the roots) by the colored people and sold at the drug stores. They also skin our prickly Ash for the same purpose. It seems a pity! We have a Sumac, too, and numerous other vines and flowers which I will not mention for this grows already too long. The "Yucca"—commonly called Spanish Bayonet—is a grand old shrub. It sends up a head, or spike rather, from which hang suspended dozens of pure white waxy bells.

I feel that I have only told you half, but space forbids. This neighborhood before the war was an indigo plantation, and many bushes still remain as an emblem of past and gone grandeur. I read the letters of our sisters with great interest and hope you will all come forward and tell us of the flora of your State.—"Aida," in Home Journal.—*Florida Agriculturist.*

THE INDIARUBBER INDUSTRY OF DUTCH GUIANA.

The caoutchouc, or indiarubber, is produced in Dutch Guiana under different species, the most important of which is "balata" or "milk of the bullet tree." the export of which, says Consul Wyndham, of Paramaribo, is attaining considerable proportions, and will, it is believed, be very productive for a time only, as there is no forest conservancy law in the colony. Persons who are granted tracts of land for the gathering of this product are uncontrolled in their method of drawing the milk, which results in trees being totally destroyed to get the greatest amount of milk by the quickest and most inexpensive method. The district where the largest quantity of "balata" trees are known to exist in the colony is that bordering on the Correntyne River, known in Dutch Guiana as the "Nickerie district" and large tracts of land have been given to an English firm to collect balata. Balata is treated by the manufacturers simply as a superior kind of guttapercha, and therefore its name disappears when manufactured; nevertheless balata is distinctly different from guttaprecha, and this is manifested in some of its physical characters—for instance, it is somewhat softer at ordinary temperature and not so rigid in the cold. Besides the bullet tree, there are trees or plants known as the *Tonckpong*, which gives a valuable rubber, and again *Bartaballi* and *Bushrope*, to which collectors do not appear to have given a name. The indiarubber balata industry, although carried on in the colony of Dutch Guiana in a desultory way for a long time, has never until quite recently assumed sufficient importance to cause the local government to legislate upon it. As yet the law only lays down the regulations under which concessions are granted, and does not deal with the supervision or treatment of the trees, or the method of extracting the milk. Caoutchouc or indiarubber is yielded both by trees and vines. Those already mentioned are, as far as it is known, the principal ones in the colony, and the method of collecting the milk is by cutting down trees, by incisions, and by circling the tree. In each case there is no protective law, and the trees are generally ruined. The chief port of export is Demerara, and as yet no export duty exists, but as the production increases it is expected that it will not escape taxation. Nothing has been done to cultivate the plant, neither does the soil seem to favour its growth except in some peculiar circumstances. Consul Wyndham says that new laws are contemplated for the leasing of lands to prospect for balata. An article on the "Balata Industry," taken from the report of Mr. G. S. Jenman, Government Botanist, British Guiana, will be found in the *Journal*, vol. xxxiii, p. 92 3.—*Journal of the Society of Arts.*

TEA is called by some physiologists a "savings bank," in which tissue is preserved. Tea is classed by scientific men as coming under the head of paratriptics, a class of substances which serve to prevent waste in the body, so that by their help and stimulus greater privation can be endured and more work accomplished. Coffee and Tobacco come under the same classification.—*American Grocer.*

THE PLANTERS AND THE CHICAGO EXHIBITION FUND.

The following is a copy of the circular that is being sent round the Dimbula district, and we reprint it for the benefit of the planting community in general. The amount estimated as likely to be given by the Colombo mercantile community has already been considerably exceeded; so that the planters should do their best to try and make up even more than the sum put down here as their quota. The Agrapatana planters are setting a good example, their list including R200 from Mr. Wm. Mackenzie, R200 from Mr. Ashton, and R250 from Mr. Seton. We would draw special attention to the statement that "the measure of usefulness attained depends upon the balance left over after all initial expenses are paid." Let Ceylon aim high and act accordingly.

Resolution passed at the Dimbula Planters' Association on November 6th, 1891.

"That in the opinion of this Association the Chicago Exhibition should, in consideration of the great importance of gaining a footing in America for Ceylon Tea, receive the support of every member of the Planting Community; and it is earnestly hoped that the members of this district at any rate will subscribe liberally, either through the Ceylon Tea Fund or by special subscription, towards the Exhibition."

The Committee appointed to collect subscriptions in Dimbula is of opinion that it cannot do better than quote the words of the Chairman of the Planters' Association in his circular to non-subscribers to the Tea Fund:—

"I appeal to you not to leave it entirely to others to supply the necessary funds. I cannot but feel that those who have subscribed to the Tea Fund throughout have been somewhat ungenerously treated by those who do not subscribe, since the benefits reaped—and of these there can be no doubt—are reaped by non-subscribers equally with subscribers. I ask you, therefore, with confidence to contribute a special donation towards the Chicago Exhibition Fund, and I would suggest for your consideration that this should be based on the rate of ¼ of a cent per lb. made tea for the current year."

The Committee would point out that in this district alone there are over 80 estates which have not hitherto subscribed to the Fund, and earnestly entreats the consideration of owners or managers of such estates to the extreme urgency which has called forth the above appeal.

The mere fact that our Teas are falling in price at this season—although quality is wired good, consumption of Ceylon tea is increasing, and stocks decreasing, in England—points with irresistible conviction to the conclusion that the trade is possessed with the idea of imminent enormous over-production. One authority at home, writing last month, estimates the production of India and Ceylon Tea in 1894 at 300,000,000 lb. Without agreeing with this estimate, it must be apparent to all that it is absolutely necessary to endeavor to open up new markets, and such an occasion as the Chicago Exhibition is not likely to occur again for many years.

The Committee would point out the success already attained in Australia, where almost 9,000,000 lb. of India and Ceylon tea will be consumed this year, all of which would otherwise have found its way to swell the stocks in England.

Considering the vast extent of the Exhibition, covering as it does 300 acres, and the efforts all nations are making to secure adequate representation, the Committee is of opinion no time should be lost in arriving at a knowledge of the amount likely to be at the disposal of our Commissioners. Upon this depends the amount of space for which Ceylon can apply. It has been said that £10,000 is the very lowest sum with which a start should be made. But the Committee would point out that for £15,000 not only 50 per cent. more could be done, but many times the number of people attracted, as the measure of usefulness attained depends upon the balance left over after all initial expenses are paid, such balance to be expended in advertising, covering expense of a Ceylonese band, or in the many other ways necessary to conform to the American methods of drawing attention to specialties.

With £20,000 the degree of usefulness might again be enhanced many times. For an object so vital to our existence as Tea Planters, it should not be difficult to raise £14,000 (leaving the Government and the Tea Fund to make up £6,000) from dependents on an industry covering 240,000 acres. It amounts to 1s 2d per acre or two-thirds of the monthly cost of weeding.

The Committee would suggest that the above sum (£14,000) may be raised, provided subscriptions be apportioned somewhat as follows:—

	R.
Supposing Estates which have not contributed to the Tea Fund give R1 per cultivated acre—say, 100,000 acre	100,000
Special subscriptions from estates which have paid, Superintendents, and Assistants	50,000
From Agents, Brokers, and Shippers	12,500
Donations from wealthy natives (who are to be asked to subscribe by Hon. L. H. Kelly)	12,500
	185,000

The Committee suggest the above merely to show what an average subscription should be; not doubting, however, that many hitherto non-subscribers, and even shrewd and far-seeing subscribers, will contribute largely without respect to average.

The Committee would point out that Dimbula, being the first district in which subscriptions have been started, as well as the largest in the Island, the degree of liberality displayed here is certain to be the measure of the liberality of other districts. For this reason a sense of responsibility rests upon Dimbula Planters.

In proportion to our area, our share of the total should be R25,000, or about R140 from each estate, and its European staff.

The Committee hopes every man will do his duty.

NOTES FROM OUR LONDON LETTER.

CHINA *versus* INDIAN TEAS—MORE ACCOMMODATION FOR CEYLON TEA SALES—LANKA PLANTATIONS COMPANY—LOSSES FROM CHINA TEAS.

LONDON, Nov. 27.

There is very considerable excitement shown here respecting a statement made by Sir Andrew Clark recently when lecturing to the students at the London Hospital that he considered China teas to be infinitely less harmful than Indian teas. By making such a statement Sir Andrew Clark has thrown out a challenge which is being freely taken up by the London newspapers, as well as by many of those published throughout our provinces. My space would not admit of my quoting the many extracts that might be made from these. We suspect that it will be found that the distinguished *medico* has got his head into a hornets' nest. It seems to be the generally entertained view that it is quite impossible, as well as unfair, for any medical man to formulate a proposition as to the relative wholesomeness or otherwise of various teas which could hold good in all cases. As one man well qualified to judge remarked to me:—"Indian and Ceylon teas are both of them stronger than China. It may be that, the condition of infusion being in all cases the same, the China teas might suit some of the weaker stomachs better than Ceylon or India; but if either of the last were dealt with as they should be in such case, and the tea only allowed to draw for say three minutes

at the very outside, the result would be no difference in the constituents of the liquor, while the superior flavour of the Ceylon would still remain manifest."

Now this, we think, would have been a fair way for Sir Andrew Clark to have dealt with the subject. It is manifestly quite the reverse for him to have condemned as inferior certain growths of tea, which, if dealt with according to circumstances, would yield exactly the same results that he asserted to be so beneficial in the use of China tea. No doubt a good many of his younger professional brethren may follow the lead that has been set by Sir Andrew, and a deal of harm may follow. In a letter from Sir William Gregory shown to me this week, he recommends that the Ceylon Association should take the matter up. He wrote that he thought the statement made was likely to have a very bad effect if not strongly combated in the papers, and further told his correspondent that a Dr. Little, a leading Dublin physician, was also recommending his patients to drink nothing but China tea. We hear that the Tea Committee of the Association had Sir William Gregory's proposition under consideration, but that it deemed that, as Sir Andrew Clark had not specifically mentioned Ceylon tea—though doubtless he had intended to include it under the category of Indian—it was scarcely worth while for the Association to take the matter up.

It has been mentioned above that the references to this topic by the Home Press are too numerous for notice here, but I should like to quote the following from *Trade and Finance* because it agrees so well with my own former experience and those, it is quite certain, of many other tea drinkers :—

Sir Andrew Clark, in a recent lecture to the students of the London Hospital, informed them that the proper quantity of tea was one spoonful to each person and one for the pot. Who does not know this? As for his very strong condemnation of Indian tea, and the statement that a cup taken early in the morning "disorders the nervous system and induces a state of tea intoxication and nerve disturbance most painful to witness," like most such sweeping assertions, it is not founded on fact. The writer was for six years in India, and every morning during this time—2,190 mornings—took one, and often two cups of Indian tea for his *chota hazri*, besides what he may have drunk at breakfast and in the afternoon, and his nerves are still unshaken. Of all the hundreds of people he knows who do the same, he has never seen one intoxicated from Indian tea.

Too much tea, either Indian or Chinese, is probably bad for anyone predisposed to nerve disorders. A man in the position of Sir Andrew Clark should be especially careful not to be carried away in the heat of oratory. His remarks are calculated to unnecessarily prejudice many against the tea of India.

The resolution arrived at by the Tea Committee of the Ceylon Association in London to address the Tea Brokers' Association on the subject of insufficient accommodation for Ceylon tea sales has led to the receipt by it of a letter from the latter body dated 23rd November, informing it that a special general meeting had been called, and that the following resolution had been adopted at it :—

"That this meeting is of opinion that a further Ceylon tea sale should be held on two days, at least, during the week, and that the Brokers' Association approach the Directors of the London commercial sale-room without delay to request them to set aside a special room for that purpose."

If the request of the brokers above indicated be complied with, it is probable we shall hear of no further difficulties of the kind which have lately been so fully discussed. This will not, however, altogether relieve your planters from the necessity of giving their brokers more time between the arrival of their teas and these being put up for sale. It is quite impossible under present conditions insisted upon that the breaks of tea can be properly judged of by intending buyers. One day cannot suffice for all of these to taste the teas, even although, by the yielding of a separate room and a second day, the pressure will be very materially reduced.

With this you will receive copy of the report of the Lanka Plantations Company, which is to be presented to the shareholders at their general meeting to be held on December 2nd. You will find it to be a document, when consideration is given to all the circumstances, of a very satisfactory character. The Company seems at length, and after many years of arduous working, to have turned the course of the difficulties which have so long beset it, and now by far the larger area of its proportion is under tea cultivation and yielding well. You will note, however, that 755 acres are still under coffee, and that efforts are being made to retain so much of this as promises to repay high cultivation. During the year to which the report refers this coffee area seems to have done well, though some of it certainly has given but a poor return. Taking it all round, barely 3 cwt. per acre was secured; but some estates, no doubt, such as are referred to in the report, gave a very much higher average. Fotunately the price obtained throughout the year was good, and altogether a sum of £9,603 was obtained from this source. Of cinchona 61,905 lb. was shipped, but for this only £731 was obtained, and no effort was made either to maintain or extend this particular cultivation. Cacao is reported most favourably of, and some of the estates owned by the Company seem to be particularly well adapted to the growth of the plant. So much is this the case that the directors are anxious to widen the area now devoted to it, but they state that their capital is insufficient to do this effectively, and ask the shareholders to subscribe additional debenture capital for the undertaking. £5,071 was obtained from this item. Of tea, the estates yielded from 1,666 acres 248,574 lb. This sold for £9,627, an average of about 9¼d per lb. net. The total acreage of the Company's nine estates is 4,097¾ acres. The proposals of the directors as regards dividend justify what has been said above as to past difficulties being now surmounted, and the profit and loss account has warranted them in recommending a dividend of 6 per cent on the preference shares and of 5s per share on the ordinary shares. This second dividend might have been made at a rate of nearly 4 per cent, but that the directors wisely thought it desirable to write off a sum of £410 for depreciation on machinery account and to reduce the suspense account by £1,427. The dividends recommended will be paid free of income tax.

A friend interested in the China tea trade having recently described to me the methods he has seen adopted in the preparation of green tea and the prices realised here for the finer qualities, I was induced to ask a gentleman well up in all matters respecting Ceylon tea if any effort had been made to send home similar teas from your island. He told me that some 18 months back a very fine lot was received, and that it fetched a high price at the sales. Perhaps that price was too high, for the purchaser was unable to dispose of it to the retail trade save at a heavy loss. The result to the first venture having proved so good to the shipper, orders were wired out to send home more of the same sort, but the buyers had taken alarm, and when the fresh lot was put forward there was scarcely any bidding at all. In the

course of time, however, the purchaser of the first lot not only sold off all he had bought but found fresh demands made upon him for a further supply. This he now finds himself unable to obtain, the manufacture having been stopped by orders from home. It is questionable, however, if your planters would do wisely to recommence shipping green tea, for it has been told me that the market for it is most precarious. A demand may spring up for a short time and then die away suddenly, and any attempt to supply so capricious a market would almost certainly result in disappointment. There is no doubt that the prices obtained for the first shipment could never again be got. From all I can learn, it appears to be the case that *all* the green tea coming from China is more or less coloured, some of it so thickly that the scum can be taken off the infusion with a spoon; others so delicately that not a trace is observable on the surface of the hot water. The Chinese are said to be remarkably skilful in the manipulation of the colouring matter. A man will take a handful of this, and with it stir up a quantity of tea leaf with such judgment and deftness that not a single leaf will remain uncolored, and not one with more than its due proportion.

The state of the China tea market is, it would seem, a ruling factor just at present in paralysing all business on the Stock Exchange. At least the *Echo* seems to think this. That paper has declared that the losses this year in dealings connected with China tea have amounted to no less than £750,000 and that until the embarrassment caused by this loss has disappeared, the present difficulties of the Stock Exchange must remain and speculation be slack and dangerous. And yet we have not heard of any serious failure among the firms which deal mainly in tea from the Celestial Empire. There is, however, probably some basis of truth for what the *Echo* has stated, though it may be doubted if the loss has been as that it could have the effect mentioned on such enormous transactions as those of the Stock Exchange. Still, of course, the loss must mean diminished capital in this country to the amount, whatever it may be, of the losses if sustained.

CEYLON TEA FUND.

Minutes of proceedings of a meeting of the Standing Committee of the "Ceylon Tea Fund" held within the Planters' Association's Rooms, Kandy, on Friday, the 11th December 1891, at half past nine o'clock (9 30 a.m.) in the morning.

Present:—Mr. Giles F. Walker (Chairman, Planters' Association of Ceylon), Messrs. W. D. Gibbon (Kandy), T. O. Huxley (Kandy), W. S. Thomas (Chairman, Dimbulla Association), A. M. White (Kandy and Kelbokka), A. W. S. Sackville (Chairman, Maskeliya Association), Sholto G. D. Skrine (Chairman, Dikoya Association), T. O. Owen (Kandy), John Aymer (Honorary Secretary, Dolosbage and Yakdessa Association), A. E. Wright (Maskeliya), L. Stuart (Chairman, Dolosbage and Yakdessa Association), A. G. K. Borron (Kandy), Hon. L. H. Kelly (M. L. C., Kandy), Messrs. Wm. Forbes Laurie (Kandy and Kurunegala), A. Philip (Kandy, Secretary to the Planters' Association, of Ceylon).

The notice calling the meeting was read.

The minutes of proceedings of a meeting of the Standing Committee of the "Ceylon Tea Fund" held at Nuwara Eliya on Friday, the 9th October, were taken as read and were confirmed.

CEYLON TEA FUND SUBSCRIPTIONS.—Read letter from Mr. A. G. Layard, Detenagalla Estate, Bogawantalawa. Read letter from the Honorary Secretary, Dikoya Planters' Association. Read letter from the Chairman, Dimbula Association. Read letter from the Honorary Secretary, Maskeliya Association. Read letter from the Chairman, Kalutara Association. Read letter from Mr. Robert Young, Benveula Estate Wattegama, intimating that from 1st January 1892 his estate will subscribe to the "Ceylon Tea Fund." Read letter from Mr. George Beck, Henfold, Lindula, enclosing cheque to Ceylon Tea Fund, and inviting attention to his proposal to increase the rate of subscription to the Fund on the ground that the funds at present available are far too small for the vast undertakings before the Committee. Read letter from A. Bethune, proprietor Madooltenne, Veyangoda, intimating that it is his wish that the estate should subscribe to the "Ceylon Tea Fund" on the usual terms. Read letter from R. Innes Berry on behalf of Mr. Thomas J. Liptons' Pooprassie group stating that he has been instructed to notify that the subscription is discontinued from date. Read letter from Messrs. J. M. Robertson & Co. Resolved:—"That the letter be acknowledged." Read letter from Mr. A. H. Mallet intimating that the proprietor of Ruanwella estate would subscribe to the "Ceylon Tea Fund" in 1893.

CEYLON TEA AT THE WORLD'S EXPOSITION AT CHICAGO IN 1893.

NOMINATION OF A COMMISSIONER.—Read letter from Mr. Morey, United States Consulate of Ceylon, enclosing copy of his letter to the Hon. Geo. R. Davis, Director-General, Columbian Exposition 1893, Chicago. Read letters from Messrs. W, M. Smith & Co., Walter Agar, H. F. Dunbar, J. M. Macmartin, J. A. Roberts, A. Rossie Ashton, Thos. Dickson, Junior, James Westland, F. J. Whittall, P. E. Radley, J. Manley Power, Arthur Anson, Chas Ogilvie, W. L'amy Smith, Reginald Ellis, L. B. H. Dickinson, E. R. Wiggin, H, W. Hornby, R. B. Hector, W. Harman, J. H. Wynell-Mayow, F.D. S. Amarasuriya, E. V. Carey, E. de Fonblanque, H. D. Deane, E. Rodwell, Walker, A. M. Ferguson, Junior, and Honorary Secretary, Dikoya Association.

Resolved (1):—"That the nomination of the Hon. J. J. Grinlinton as a Commissioner to represent the planting interests of Ceylon at the World's Colombian Exposition, Chicago 1893 meets with the approval of the Standing Committee of the Ceylon Tea Fund and that the Chairman do submit his name for approval at the general meeting of the Planters' Association of Ceylon to be held this day.

Resolved (2):—"That the sum of R30,000 granted towards the Chicago Exhibition be raised to R35,000 and that the half yearly instalments be made accordingly.

CEYLON TEA IN RUSSIA.—Read extract of letter from the Secretary, Ceylon Association in London, on the subject.

CEYLON TEA IN VIENNA, PRAGUE, KARLSBAD &C.—Read letter from Mr. John Ferguson of the *Ceylon Observer* making suggestions as to further pushing the sale of and making known Ceylon Tea in Vienna, Prague, Karlsbad &c. Resolved:—"That the Standing Committee of the Ceylon Tea Fund do convey to Mr. John Ferguson their thanks for the interest he has taken in pushing Ceylon Tea in Austria, and inform him that his recommendations will receive full consideration."

CEYLON TEA IN ITALY.—Read letter from Messrs. Whittall & Co. notifying that the Tea for presentation to Her Majesty the Queen of Italy (100 lb. finest Ceylon tea packed in two ornamental half-chests—one of calamander and the other of tamarind wood) had been handed to Mr. Geo. Vanderspar, the Italian Consul. Read letter from Mr. George Vanderspar intimating that the tea had been duly shipped.

CEYLON TEA IN GERMANY.—Read letter from Mr. Shelton Agar enclosing a letter from Mr. E. Schrader on the subject of further pushing the sale of and making known Ceylon tea in Germany. Mr. E. Schrader addressed the Committee on the subject. Resolved:—'That a special meeting of the Standing Committee of the 'Tea Fund' be held in Kandy on Monday, the 4th January 1892, at 3 o'clock in the afternoon, to consider the question of a subsidy of tea to Mr. Schrader."

ANALYSES OF SAMPLES OF CEYLON TEAS.—Submitted letter from Mr. H. Atkinson. Resolved:—"That its consideration be postponed to next meeting."

CEYLON TEA AT THE KIMBERLEY EXHIBITION 1892.—Submitted letter from the Secretary Ceylon Chamber of Commerce.

NEW ZEALAND AND SOUTH SEAS EXHIBITION.—Submitted letter to the Government Agent, Western Province, dated 10th November 1891, transmitting to him Bill of Lading duly endorsed in his favour for a case said to contain fancy goods referred to in the extract of the letter received from Lord Onslow, Governor of New Zealand, and requesting an acknowledgment which, however, up to date has not been received.

PURE CEYLON TEA.—Read letter from Mr. Geo. J. Jameson submitting proposal for introducing and pushing the sale of pure Ceylon Tea in Manchester, and the Lancashire districts generally. Resolved:—"That the Standing Committee of the Tea Fund would recommend to the General Committee of the Planters' Association of Ceylon that Mr. Jameson be recognised as an agent of the Planters' Association of Ceylon for the sale of pure Ceylon Tea in Manchester, and the Lancashire districts generally."

The Standing Committee of the Tea Fund then adjourned.

A. PHILIP.
Secretary to the Planters' Association of Ceylon.

NOTES ON PRODUCE AND FINANCE.

LOSSES IN CHINA TEA TRADE.—*Apropos* of our remarks on this subject last week, the *Financial News* says:—"For a long time the China tea trade has been in process of displacement so far as England is concerned. Although our consumption of tea has enormously increased during the past ten years, it is mainly Indian tea that we consume. China has had to send its produce to Russia, although mostly by way of Mincing Lane; but now there is a curious change apparent in the course of this trade. Either Russia is importing less tea—which is doubtful—or it is importing more from China direct. It is said that the losses of English speculators in the China tea trade have, thanks to this cause, been enormous during the past twelve months. The figure is even put as high as £750,000.

LAST WEEK'S TEA SALES.—"So far as it relates to Indian tea," says the *Grocer*, "the process of deluging the market with supplies seems to go on apace, for, notwithstanding the unheard-of quantity put forward since the early part of October, the total amount offered by auction during the present week has embraced no less than 39,830 packages, which, strange to say, and despite the excessive preponderance of inferior qualities, have been taken off, and that, too, without signs of such exhaustion on the part of the dealers in their efforts to clear the market as were apparent a short time back. With such an enormous supply as the above to handle in two or three days, it is no matter for surprise that there has been some unevenness in prices; but, admitting that the tendency here and there has been rather against the seller, it has been chiefly for poor low stuff which hardly deserves the epithet of tea, and with these and one or two other unimportant exceptions the auctions have had a tolerably favourable result. The grades that have seemed to engage most attention have been leafy Pekoes, which at 9d and over are unmistakably cheap, and the only wonder is that the trade in the country are not fully awake to the discovery. Really fine teas are scarce, and realize firm rates. Smaller supplies of Ceylon tea have come as an unmixed relief to the market, and the irregularity of last week's prices has disappeared. Quotations have shown no recovery, sellers having to buy in when offers were too low to accept, and common grades constituting the chief supply, tend to prevent any appreciable improvement in values, especially as Indian teas of a similar character enter sharply into competition. The *Produce Markets Review* says:—"There has been no falling-off in the demand for Indian tea. The quantity brought forward has not been excessive, and there was a hardening tendency at the earlier sales for the good common sorts. These teas offer better value than for a considerable time past, and the trade are not slow to take advantage of this, as is shown by the freedom with which they are buying. A slight check in the demand, however, is not improbable during next month, but if the importers regulate the supplies, and avoid weighting the market too heavily, prices may remain steady. The medium kinds of both whole and broken leaf have been well bid for, at steady, and in some cases rather firmer, rates. The finest kinds continue to sell readily, and as they are not too plentiful, they command high prices.

THE COFFEE MARKET.—Discussing the position of coffee, Messrs. Wilson, Smithett and Co. say:—"The position of this article has altered but slightly since the date of our last. The attention of the trade is still fixed on the political crisis in Brazil, as in the event of serious disturbances there, which would delay the shipment of Rio and of Santos coffee, the long-continued scarcity would extend into the New Year; and with exhausted stocks in every port a rapid appreciation of values would probably take place. It is expected that difference will be peaceably arranged, and confidnce seems more general; the most recent daily receipts are also on a larger scale. In this market great scarcity prevails, and all grades show a further advance. The speculative markets have shown excitement during the past fortnight, but business was of small extent, although quotations fluctuated considerably.—*H. and C. Mail*, Nov. 27.

THE RETICULATED OR SPONGE-BEARING CUCUMBER.

Under the name of "Luffa," or "Cucumber Sponge," we now import in compressed bales, from Japan and Egypt, the reticulated skeletons of two varieties of what Ebn Baitar, the Arabian botanist, twelve hundred years ago described as the "Luffah," taking his title from the Egyptian name of "Luff." Dr. John Veslingius, of Holland, in 1638, in writing a work upon the plants of Egypt, as a sequel to that of Prospero Alpini, describes, with two engravings, the Cucumber-plant that now furnishes the commercial Luffa of Egypt, under the title of *Luffa Arabum* or *Cucumis reticulatus Ægyptius*. The Japanese and Egyptian commercial varieties so closely resemble each other that the pictures of Veslingius, which were taken from plants grown by himself, are excellent representations of the Japanese *Luffa macrocarpa*. Had he cultivated the Japanese variety, which comes to maturity much earlier, he would not have fallen into the error of describing the seeds as white instead of black. From a very early period the reticulated skeletons of *Luffa Arabum* were used by the Egyptians in their bath-rooms, and it is probable that the Japanese did the same with that of the *L. macrocarpa*.

Sponge-bearing Cucumbers may be found in a large number of hot countries, and vary in size from that of a plum to three feet in length. In some the skeleton is very thick and strong, and capable of being made of use in the household, but in the majority the netting is thin and delicate, and can only be regarded as a curiosity. Like ordinary Cucumbers, some are edible and are grown for the table, while others are more or less medicinal, and are used as domestic remedies. As the reticulation forms at a late period, the Luffa, when of an edible sort, can readily be cooked as a vegetable when young; the rank odor of the fruit would be an objection to its use with us, but this has not availed much against the tomato.

But little attention has been paid by botanists either ancient or modern, towards collecting, arranging and describing the class of cucumbers which is distinguished by bearing a subcutaneous or a complete internal skeleton. Under the name of Momordica, Cucumis, Pepo and Luffa we may find several varieties described in old botanical works, chiefly in Latin, Dutch and French; and may also discover that several, as the *Luffa Petola*, *L. acutangula*, *L Ægyptica*, etc., have been very correctly represented by large plates.

The Luffa is fully entitled to membership in the Cucumber family, and is in no sense a Gourd, as it has sometimes been called. It is monœcious, having separate staminate and pistillate flowers, of which the former are much the larger, or more conspicuous; and the leaves much more closely resemble in form those of our common cucumber than do many in Egypt, Palestine and India, upon

plants producing the best table varieties, some of which are much more like Cantaloupe-vines than Cucumbers, as we know them.

My first trial in growing Luffa-seeds was a failure, because I made the attempt with a variety that required so long a season in which to perfect its net-work, that frost came, even before it had begun to form. The fruits grew half a yard in length, and the vine was vigorous, but the season required was too long for this latitude. My second venture was with the *L. macrocarpa* of Japan, which produced fully matured fruits in five months from the day of planting. This is the best sort to grow in a temperate climate, and bears the most symmetrical of all the sponge cucumbers; the fibre of the netting is coarser than that found in the Egyptian variety, and not so well adapted for use as a scrubber in bathing. *L. macrocarpa* bears cucumbers from thirteen to fifteen inches long, and some of them are very nearly straight. The vine is a vigorous grower, and, in favourable seasons, a fair crop of cucumbers. In very dry weather there will be a scarcity of pistillate flowers until after a supply of rain, when they will appear in almost every joint. The cucumbers develop rapidly, and, but for the slow growth of the vine in the early season, would come to maturity in large proportion; as it is, however, there will be many fruits that will only be partly grown when frost arrests their development. Much time may be saved by having the plants grown a yard or two in height in a greenhouse, and then setting them out on the 10th of June; as the plant is tropical, it will stand the full heat of the sun all day without drooping, and grow all the better for it. My best success came from planting against a trellis on the south side of a wooden building, with an all-day exposure to the sun.

Next to *L. macrocarpa*, the wild Cuban does the best in Philadelphia, as it comes to maturity early, and grows much larger than in its native island. The Egyptian variety grows well and sets many fruits; but these are late in maturing, so that as yet I have not produced any with black seeds. The Petola I have not tested yet; it looks promising in its picture, and is one of the few that produce a good reticulation. A hybrid between the Japanese and Egyptian varieties might readily be produced with a brush, and, theoretically, should be finer than the Japanese in its netting, and shorter-season than the Egyptian. Hybridization should be produced each way between the two parents, and plantings tested with seeds from several experiments, as this way of producing new varieties has much uncertainty in its final results.

The first Luffa sponges sold in this city were grown from Cuban seed; the second came from Japan, and the third from Cairo, in Egypt. Japanese seed were grown in Louisiana before there were any sponges of *L. macrocarpa* for sale here, and my first stock came from that state. Under the name of the Bonnet Gourd and Dishcloth Gourd, this and the Cuban Luffa are now well known in several of the southern states, although, as I have stated, the name of Gourd is a misnomer. Bonnets are sometimes made from the opened sponges, shaped out with some woven fabric, but the entire head-covering was not produced of the net-work until the large white Luffas of Egypt furnished the material for cutting and fitting.

The *Cucumis reticulatus* of Egypt is grown in large quantities, and has become quite an article of commerce, being exported mainly to England and Germany, the packages containing 1,000 to 1,500 each; but a small proportion of these are sponges of the whiteness and quality that indicate a proper care in preparation. When a sponge cucumber is dried whole the netting is easily separated; but its fibre will have a brownish color and will have lost much of its tensile strength. Naturally, the reticulation is of silvery whiteness, and this can only be preserved by a proper method of cleaning it from rind, seeds and pulp when the cucumber is matured, but still green; and the whole must be done at one operation or the sponge will change in color. When a Luffa has reached its maturity of growth it will be known by its green rind lightening in color and becoming more dry; it should then be cut off and hung up in the house for a week or more until the juice in large measure dries out of the rind. The cucumber should then be pared and the cap at the lower end removed, which will open the seed channels; it should then be kneaded and squeezed under a large pan of hot water until the seeds and pulp are washed out. When fully ripe the seeds are jet black, and will number from 400 to 600 in very large fruits. When the reticulated skeleton has been well cleaned, hang it up on a pin-hook and string to dry in-doors, when it should become of silvery whiteness and weigh three-quarters of an ounce to an ounce.

By exposure, to the air, even when kept in darkness, the whitest luffa-sponges gradually change to a light orange-yellow. This color is largely soluble in hot water with soap, and much of it may be washed out, leaving the fluid of a decidedly yellow tint and the sponge much lighter in color. Sponges in frequent use become of a light grayish white tint and slowly weaken in fibre, particularly in the outer or circular layer, which is not so tough as the internal longitudinal one. The sponges are quite durable when compared with those obtained from the sea, and are odorless when well washed; no fabric when wet has as decided an effect as a rubefacient upon the skin, and care must be taken that it does not take too deep a hold where the surface is young and tender. For delicate skins and children the immature skeletons should be selected, or the small end of the mature ones, which is much finer in fibre than the base.

My record of varieties in the *Cucumis reticulatus* amounts to twenty, and these belong to Japan, Moluccas, China, India, Africa, Spain, Cuba, Brazil and Mexico. The tests thus far made go to show that but very few of the varieties will perfect fruit in this latitude, and that it is useless to grow the others, expect for ornament or curiosity. The Macrocarpa stands at the head of the list, as it has been repeatedly grown; the Acutangula, as a curiosity, grown equally well; the Cuban comes to perfection; and by starting under glass, the Egyptian may likewise; the Petola and Mexicana are yet to be tested in a favorable season. Some others have grown well, but the character of the cucumbers does not make their propagation desirable.

The plants designated are quite ornamental and interesting, with their beautiful leaves, large staminate flowers and hanging fruits, borne sometimes as high as a second-story veranda. The Egyptian flower is about four inches in diameter, and others are nearly as large. The staminate-buds grow in bunches and bloom singly, so that the vines are constantly in flower; all of the blossoms are a bright yellow. The pistil of the productive flower develops into the point of the cucumber, and the long ovary into the fruit, the sepals of the blossom long remaining attached.—*Dr. R. P. Harris before the Pennsylvania Horticultural Society.—Garden and Forest.*

WHY DO WE STIR THE SOIL?—If compacting the soil make it retain moisture, why do we advise frequent stirring of the soil in times of drought? The question is a legitimate one, and we will answer. It is necessary to plant seed near the surface, especially in the spring, for the soil is warmer there and the conditions of germination more readily supplied. But after the seeds have germinated, the roots strike downward and the moisture is supplied largely by the soil water rising from below by capillary attraction. If the surface is left hard, then the water will ascend to the surface and be rapidly evaporated. But if a steel rake or hoe is frequently used to stir an inch or two of the surface, it breaks the capillary tubes and the moisture ascends to the roots of the plants and there stops until absorbed by the roots and reaches the air by passing through the cells of the roots and plants and leaves, depositing the dissolved plant food by the way.—*Queensland Planter.*

MARKET FOR TEA SHARES.

To the Editor of the *Home and Colonial Mail.*

Sir,—The attention of my Board has been called to a statement in your issue of 20th inst. under the above heading, in reference to an offer for this company's property having been unconditionally refused by the directors.

The facts are:—Two offers were received, and both the offering companies were informed that the offers would be submitted to the shareholders, but before this could be done both were withdrawn. I shall be obliged by your inserting this correction in your next issue.—I remain, sir, yours &c.,

EDWARD CARTER, Secretary.

The Wilton Tea Company of Assam, Limited,
27, Austin Friars, London, Nov. 25th, 1891.

THE INDIAN TEA COMMUNITY.

TO THE EDITOR OF THE "HOME AND COLONIAL MAIL"

Sir,—I notice that your correspondent, Mr. D F. Shillington, responds, in your last, to my letter of the previous week. My remarks had reference, not so much to matters such as Mr. Shillington alludes to, as to others having a wider bearing such as the questions of opening new markets and generally pushing the merits of Indian tea. I am fully in accord, however, with Mr. Shillington as to arranging upon a better basis the sales in Mincing Lane, which are now so very large. I believe most persons engaged in the trade, whether importers and growers on the one side, or dealers and buyers on the other, are agreed that it is merely a matter of arrangement; unless, however, there is some pulling together and cordial co-operation amongst the principal parties controlling the trade, it is manifest that things will go from bad to worse, very much, as Mr. Shillington points out, to the detriment alike of buyer and seller. Last year at the urgent call of the most go ahead representatives of the large importing houses and companies, a sub-committee was appointed by the Indian Tea Districts' Association to deal with this matter, and an instruction to them was to arrange with the Mincing Lane "broking" firms to formulate some scheme which would obviate the present rather suicidal system (or, rather, lack of system) which prevails. Unfortunately, the "broking" houses, powerful though they are, appear to have altogether failed to accomplish what was required. It is inconceivable how this has been the case, and the failure to effect the desired object points as its cause to petty jealousies among the "broking" houses very unworthy of the standing which they occupy. Perhaps it may put some of them "on their mettle" to know that quite recently proposals have been made in certain quarters for the formation of a co-operative selling agency among the importing houses, which, if really carried out, would probably result in doing away altogether with the necessity for the presently-existing broking houses.

I do not mean to aver that such a scheme is just at present practicable, nor even desirable; but I allude to it in order to impress upon the "broking" fraternity that owing to the lack of combinative power which appears to exist among them, a scheme of this sort is actually "in the air," and is regarded in certain quarters as not only possible but quite feasible.

Before tea importers are driven to such a course, surely the large "broking" houses, whose usefulness the importers are quite ready to recognise, will be able to find some method whereby the present difficulty can be overcome and the necessity for such a step altogether avoided.

What Mr. Editor, I would ask, is the so-called Brokers' Association doing that it permits a scheme such as this, which would practically cut away the ground from beneath the feet of the whole Mincing Lane broking fraternity, being every mooted?—I am, Sir, yours &c.,

London, Nov. 25th. OBSERVER.

SUPPLIES OF INDIAN AND CEYLON TEAS.

Judging by the correspondence in our last two issues, it is evident that the future supply of Indian and Ceylon teas is causing both buyers and sellers to look forward with some degree of apprehension. We have always favoured the view that the more the better, and that if it became a choice between Indian and China tea the latter would be displaced rather than the former; but since Ceylon tea has arrived in such rapidly increasing quantities year by year the situation has become more complicated, and all parties are now agreed that the consuming power of the English market has been overtaken by such a superabundant supply that unless new outlets can be opened there must be a further decline in values to an utterly unremunerative point. Our contemporary, the *Produce Markets' Review*, makes the following very pertinent observations on the subject:—

"The future development in the production of Indian tea points to a large increase, and according to the figures recently issued by the Indian Tea Planters' Association, it will reach 150,000,000 lb. during the next two years, without any additional area of cultivation. This coupled with a probable increase of from 30 to 40 per cent in the production of Ceylon tea during a similar period, will give a supply more than equal to the total delivery of all tea, both for home consumption and export, for the past twelve months. Should this take place, and it is certainly not improbable, it will be necessary to open up new outlets for the surplus supply, as otherwise prices must fall to a disastrously low level, which would, however, have the effect of checking production. The exports of Indian tea although comparatively small, are steadily increasing, but they will require to be greatly accelerated if they are to keep pace with the increased supplies. Those interested in this industry, therefore, will do well to study both the manufacture of the tea and the likely packages to meet with favour, where the prospects are most encouraging for breaking new ground. Judging of the probabilities of the future export demand, the United States of America and Canada are the countries most likely to show the greatest development. One of the most important considerations is to assimilate the leaf to that of China Congou, as appearance is a leading feature. There is also an objection to the largeness of present Indian packages, and to meet this complaint it will be obviously necessary that a certain portion of the tea, and especially that most suitable for export, should be packed in half-chests containing from fifty to sixty pounds, and at uniform tares."

We see no reason why our own Eastern dependencies should not seek to supply the world with tea. Everywhere in which Indian and Ceylon teas have hitherto found a market, the result has been a certain growth in the demand and a manifest appreciation of the quality. But, we confess, we view with regret the very marked deprecation in the average quality of the tea sent to the London market this season. We cannot think that the best interests of either India or Ceylon are served by unduly increasing the production of what the buyers class as very third-rate. Prices this season are probably at the lowest point ever seen, and we must add that never in our recollection have we seen such an undue proportion of undesirable tea offered. There has, no doubt, been a steady decline in the generally accepted standard of quality for several years past, owing to competition among retailers and "present" tea shops; but the descent this season has even outstripped, in many cases, the desires of the most hungry seekers after "tea for price." It becomes, therefore, matter for very grave consideration whether it would not pay planters much better to stay their hands somewhat in regard to fresh extensions, and try to manufacture a rather smaller quantity of rather better tea. China tea has been displaced simply because the quality did not bear comparison with Indian and Ceylon growths. But the retail dealer in tea has now acquired a very cosmopolitan taste, and

cares not where in the wide world the leaf grows so long as it pleases his customers. It is, therefore, worthy of the serious consideration of all tea planters whether they will go on aiming at large quantities of inferior quality about which no enthusiasm will be possible, and which will inevitably land the tea-producing industry in another such bog as it floundered out of with such difficulty five-and-twenty years ago, or will they, to use the language of the Malthusians, impose a modified description of preventive check on production, which will raise the standard of excellence in the thing produced and restore the waning prestige of British-grown tea?—*H. and C. Mail.*

THE LAND MORTGAGE BANK OF INDIA, LIMITED.

The extraordinary general meeting of the shareholders of the above Bank, to which we referred last week, was held on Friday, at the City Terminus Hotel, Mr. J. R. Boyson in the chair, in compliance with a requisition to hear a proposal by the requisitionists to the following effect:—"To elect a committee of investigation to enquire into and report on the necessity or expediency of the call of 10s. per share made on Sept, 23rd, 1891; also to enquire into and report upon the management of the bank and future prospects of the shareholders; and for the purpose of hearing any explanation the directors may have to offer." The chairman, in opening the proceedings, stated that the only object of the meeting, and the only question they had to decide, was whether there should be a committee of investigation to look into the conduct of the directors for the past twenty-three years. A most unfounded attack had been made on the board, who had done a great deal for the shareholders, and he alleged that a persistent attempt had been made since 1881 to wreck the bank. The beginning of the affair was in that year, when Mr. Stewart, the then manager of their tea estates in India, happened to be at home on short leave. Unfortunately for the bank their manager had allowed himself to be tampered with by Messrs. Buchanan and Muir, who at the time had not a farthing of interest in the company. Mr. Buchanan remarked that he was a shareholder at the time. The chairman, continuing, stated that there had been an attempt ever since 1881 to get the affairs of the company into the hands of Mr. John Muir. He read a letter marked "confidential," which was sent by Mr. Stewart, dated Feb. 9th, 1883, to Mr. Muir relating to the business of the company and the value of its tea properties and other assets. He afterwards referred at length to the subsequent action of Mr. Buchanan and Mr. Muir, and stated that the shares consequently went down to nil, and their 5 per cent. and 4½ per cent debentures to a discount. The call had been decided on by the directors after considerable thought. The fact that they had to pay off £14,000 in January had not caused them to make the call, the object of which had simply been to strengthen the credit and the financial position of the bank. Even after making the call he had been in hopes that they would be able to adopt some course which would put a stop to the possibility of any further call. When they had brought their debenture liability down to £160,000 or £170,000, which he was sure they could have managed, he felt that they could go to the holders, point out the position of the company with its uncalled capital of £1,000,000, and ask them to take debenture stock or preference shares, thereby relieving the shareholders from any further anxiety as to calls. When, however, the requisition was received for an extraordinary general meeting to pass a vote of censure on the board's management, he confessed that he had not felt so sanguine of being able to carry out a plan with this object in view. As to the general charge of mismanagement which had been brought against them by the requisitionists, he claimed in view of the facts set out in the circular issued by the board, that this charge could not be sustained, and that, on the contrary, they were entitled at least to the confidence of the shareholders. A certain proposal had been received by the directors from Messrs. Finlay, Muir & Co.; but it could not be dealt with at that meeting, which had been called for a specific object. After reading the letter containing the proposal—which was to finance the bank for the next five years without making any call—the chairman read the reply which he had made to it, stating that if it had been received sooner, and supplemented by additional information, the directors would have deemed it their duty to submit it to the consideration of the shareholders in general meeting; but that as the directors had almost concluded an arrangement with Messrs. George Williamson for their assuming charge of the estates in question from the end of the current season, on very satisfactory terms, there might be some difficulty in now entertaining Messrs. Finlay, Muir & Co.'s offer. He had had a long interview on the previous day with Mr. John Muir, to whom he had given the fullest information respecting the affairs of the company. Mr. Buchanan afterwards addressed the meeting at length, entirely repudiating the construction which the chairman had put upon his action, and giving an unqualified denial to the statement that he was working in this matter for his own personal ends and not for the interests of the shareholders. He urged that an investigation was needed to see whether the call was necessary, in view of other courses which had been suggested, and which might be capable of being adopted. The chairman, interposing, said he had foreseen that some of the shareholders might regard the call as a hardship if they had to pay it before the offer made by Messrs. Finlay, Muir, & Co., and other proposals were considered as these might render a call unnecessary; and the directors had therefore determined on issuing a notice deferring payment of the call until January next, or later. Mr. Buchanan said he regarded this as a very gratifying announcement, and added that half of his contention had gone by the chairman having conceded that it was necessary for the company to have an Indian agency. He still, however, maintained than an investigation into the company's affairs was necessary, and that it would be beneficial; and concluded by moving a resolution in accordance with the object of the meeting. After a protacted discussion, the chairman expressed his readiness to accept a suggestion to the effect that the board would take into its counsels seven shareholders holding not less than 1,000 shares each, pucbased before January 1st last. Upon this Mr. Buchanana withdrew his motion.—*H. and C. Mail*, Nov. 27.

THE LAND MORTGAGE BANK OF INDIA LIMITED, AND MR. STEWART.

TO THE EDITOR OF THE "HOME AND COLONIAL MAIL."

Sir,—My name was pretty freely mentioned by the chairman at the meeting of shareholders held on the 20th inst. From the special nature of the business for which that meeting had been called, as well as owing to the time occupied by the chairman's opening speech, it would have been impossible for me to have obtained an opportunity of replying to the structures which he chose to pass on me. I beg to be allowed to do so through the medium of your columns.

When I voyaged to Calcutta in November, 1881, Mr. Buchanan led me to understand that he was, at that time, a shareholder in the bank. At the meeting of shareholders on the 26th inst., he specially interrupted the chairman to say that at the time referred to he *was* a shareholder. The value of this interruption was, that it supported my narrative of what had occurred on board ship; and next, that it enabled many—myself amongst them—to disabuse our minds of any idea of a wilful attempt on the part of that gentleman to mislead me.

At that time I foresaw (as it turns out, only too accurately) what would ultimately befall the bank when the time should come that its Indian realisations would be insufficient to meet

the debenture bonds as they fell to be paid. I further saw that, at such a time, what the bank would require was a strong-backed firm in the position of agents in India. On board that outward steamer I found myself in the company of two gentlemen representing one of the wealthiest tea agency firms in Calcutta, and who, moreover, were known to be on the outlook for further tea business. Under these circumstances I considered myself to be acting for the bank's true interest in reviewing its position with them in order that it might be improved. It is very well to say that I had no authority. Had the scheme produced been carried out in the peaceful way intended, the result would have been beneficial alike to board and shareholders, and instead of being balmed I would, as in another instance where I overstepped my limits of authority, have received thanks for the common sense exercised.

The proposal to have the bank's agency transferred at the proper time to a strong agency firm, has the stamp of the board itself imprinted upon it, for such is now the very scheme which they recommend and which, ten years ago, I foresaw to be a coming necessity. Had this step been taken, say three years ago, instead of waiting till a call was to be made they could have selected their own agents.

I have only to add that the motives assigned to me by the chairman are as ungenerous as they are unfair. The bank's welfare had my first and chief care during the nine years of my service, whilst at the meeting of 20th instant, as well as previously, the chairman held my proxies as a shareholder.—Yours truly,

D. M. STEWART.

London, Nov. 24th, 1891.

COCONUT DISEASE IN JAMAICA.—The Bulletin of the Botanical Department of Jamaica, for September, contains a report by Mr. W. Fawcett, Director of Public Gardens and Plantations, on a disease causing the death, on a large scale, of the coconut palms in the neighbourhood of Montego Bay. The disease first attack the tissues of the youngest parts. There is no evidence that it is produced by an insect, and Mr. Fawcett considers it is due to an "organized ferment." In the supplement of the *Jamaica Gazette* for September is the remark that the disease is "rapidly destroying the coconut walks in the parish of St. James, and that, if not checked, in a very few years the coconut will cease to be a product of this parish, indeed if not of the island."—*Nature.*

GOOD NEWS FOR COCONUT PLANTERS.—It is said that the Admiralty authorities are devoting their attention to the remarkable properties of a new material, which it is claimed will make an almost impenetrable lining to a ship's sides. This is made of the cellulose of coconuts, which has the property of absorbing eight times its weight of water, and several experiments have been made with it under Government auspices at Portsmouth. The material is made into squares, which are affixed to the interior plates of vessels, and it is asserted that it is extremely difficult to penetrate. It is claimed that the material will work a complete revolution in the present system of ships' protection.—*Colonies and India.* [This statement has been going the round for several years back.—ED. *T. A.*]

CHINA *v.* INDIAN TEA.—A Glasgow correspondent writes:—I notice in your last issue that efforts are being made to bring China tea to the front again. I am dead against this Indian rubbish. I find great difficulty in getting any China—I mean genuine stuff—and especially good tea. When next I go to China I must make arrangements for having the article sent home. Have you any friends in the China tea line in London? I should be so glad to get a specimen or two of good China tea, and then if price and quality are approved to buy a considerable quantity. Can you help a poor fellow who does not want to be dosed with so much tannic acid as is contained in the Indian article? I am at one with the views expressed by Sir A. Clark on this subject. —*L. and C. Express*, Nov. 27th. [Sir A. Clark is to be congratulated on one adherent.—ED. *T. A.*]

CLOVE AUCTION IN ZANZIBAR.—A Reuter's telegram from Zanzibar, dated November 21st announces that the first public auction sale of cloves, subject to duty, was held there that day. There was a large attendance. Mr. Gerald Portal, the new British Consul-General was present, and stated that it was hoped to make Zanzibar the centre of the trade of East Africa, and that it would probably be declared a free port for imports at the beginning of next year. Public sales of cloves will henceforth be held fortnightly. We understand that the spice trade here are quite in doubt of the results (if any should ensue) which this innovation may have upon the London market. London is now the largest centre for cloves, but yet, if our information is correct, the announcement that public sales had been instituted in Zanzibar came upon dealers here as a surprise. It is well known that the Sultan of Zanzibar derives a considerable proportion of his revenue from an export duty on cloves, and it is surmised that the bulk of the cloves offered by auction in Zanzibar may be those which are said to be sometimes tendered to the Sultan in lieu of cash by exporters. One of Mr. Portal's chief duties is thought to be the reorganisation of the finances of the Sultan, and it is probably in connection with this matter that the sales have been instituted.—*Chemist and Druggist.*

THE TRUTH ABOUT COFFEE.—Notwithstanding the reduction of the duty on coffee and the fact that the best coffee is sold in Great Britain cheaper than anywhere in Europe, it is steadily falling in consumption. There are many theories put forward to explain this. One is that coffee is more adulterated here than on the Continent. This is certainly not the case. It is easier to get pure coffee here than in France, Austria, Italy, or Germany, for abroad it is usually largely mixed with chicory, and is liked all the better for it. The critics who are fond of praising "coffee as you get it in France" are, in fact, praising a heavy admixture of chicory with coffee, which they deprecate here, greatly preferring to have the opportunity of making the combination optional. The next and most common explanation is that we don't know how to make good coffee here. But that again is a fallacy, and its terms a misstatement. We all know how to make good coffee, and there is no one who cannot make it. It is in fact so easy to make good coffee that it is almost impossible to make it badly if only one condition is observed which depends not on the "making the coffee," but understanding the principle of drinking coffee, which everyone understands abroad, and which the travelling Briton perforce practices because he has no chance of doing otherwise, and falls in with "the customs of the country." All coffee-drinking races understand very well that the infusion of coffee is not a fluid like tea, to be imbibed in copious draughts. A weak infusion of coffee is a tasteless and almost nauseous draught; it loses all its aroma and delicacy of flavour when dissipated in an ocean of hot water. This is probably due to the fact that its flavour is largely due to empyreumatic oils, which will not bear copious aqueous dilution. The only way to drink coffee in large draughts is to make a small quantity of strong coffee and add to it an ample amount of hot milk; cold milk is out of the question. The small cup of "black coffee" is to be had now everywhere as good in England as elsewhere. But so long as the British coffee drinker persists in treating coffee as if it were tea, and swallowing it by the pint, he will always find that he gets something unpleasing to his palate. —*British Medical Journal.*

THE CEYLON TEA CROP OF 1891.

The exports up to the middle of December closely touched the round number of 63 millions of pounds, the exact figures being 62,948,000 lb. We may, therefore, fairly estimate the total to 31st December at 65½ millions of pounds. Of the quantity already sent away, 58,814,000 lb. went to Britain, and 4,134,000 lb. to other countries, the chief of which were :—

	lb.
Australia	3,022,000
India	427,000
China (!)	162,000
America	158,000
Germany	90,000
Austria	70,800
Africa	69,000
Mauritius	68,700
France	21,000
Spain	17,000
Russia	11,000
Other places, aggregate about ..	20,000

It seems extraordinary that India, which was a tea-growing country nearly half a century before Ceylon was compelled, by the failure of coffee, to enter on the cultivation, should be our best direct customer next to Britain and Australia. There is a taste for our tea amongst many Europeans in India ; but the larger portion of the tea exported to India is, doubtless, destined for the Persian Gulf. Still more extraordinary is it that China, which preceded both India and Ceylon by many centuries in the production of *cha*, should now import no less than 162,000 of the fragrant leaf from her youngest rival in the enterprise. But very little of this quantity is likely to be consumed by Chinese. Germany and Austria together, show better than America, which is disapppointing while Russia is still more so. We must not, however, forget the exports of our tea from Britain, which are shown in Gow, Wilson, & Stanton's latest report. None, of course, went from Britain to Australia, but to other countries quantities went as follows, Germany, in this case, including Austria :—

	1891. lb.
United States	314,127
Canada	353,671
Holland	100,480
Germany	419,640
Russia	49,174
France	34,581
Other places	406,854
Total ..	1,678,527

Taking exports direct and from Great Britain, the quantities of our teas which will be taken by countries other than Britain in 1891 may be approximately estimated as follows :—

Countries.	Direct. lb.	From Britain. lb.	Total. lb.
Australia	3,150,000	———	3,150,000
India	450,000	———	450,000
China.....	170,000	———	170,000
United States	165,000	330,000	495,000
Canada	———	370,000	370,000*
Holland.....	———	110,000	110,000
Germany	139,800	440,000	579,800
Russia	13,000	40,000	53,000
France.....	25,000	40,000	65,000
Other places.....	150,000	440,000	590,000
Total.....	4,262,800	1,770,000	6,032,800

As over 4½ millions of our exports will go to other countries than Britain and nearly 1,800,000 will be re-exported, while of the 61½ shipped hence for Britain only about 60 are likely to reach it before the close of the year, the proportions in which our teas are likely to be taken by Britain and other countries in 1891 will be about as follows :—

Britain	58,000,000 lb.
Other countries ..	6,000,000 ,,
Total ..	64,000,000 lb.

Of the whole of our crop, Britain and British Colonies, Australia (Canada, India, Mauritius, &c.) take about 62,500,000 lb., against 1,500,000 taken by all foreign countries,—whether direct from Ceylon or by way of Britain !

Such figures strongly emphasize the necessity of abating no effort to open up and cultivate markets for our tea in countries beyond the bounds of the British Empire.

The United States, instead of less than 500,000 lb. of our tea, ought, before the close of this century to be our customer for at least 30 millions ; Russia instead of a beggarly 53,000 lb., taking at least 10 millions, and Canada an equal quantity. Germany and Holland should not be far behind, while even France ought to take 5 millions instead of a miserable 65,000. There are great possibilities too in the expansion of the Asiatic markets, if only peace and progress can be preserved. But "Push ! push ! push !" must still be the motto of Ceylon tea planters.

* Total to all America 865,000 lb.

THE REPORT OF THE LANKA PLANTATIONS COMPANY (LIMITED).

The annual statement published by the directors of the above Company has always a particular interest. It is one of those Associations, now but comparatively few in number, which have had to fight the battle of the changed conditions which some years back overtook this colony, and which yet continue the cultivation on any considerable scale of that product which, after giving to this colony a cycle of years of great prosperity, failed so suddenly and almost so utterly. Coffee still finds mention, and in no insignificant degree, among the sources whence the Lanka Company derives its income, and on that account, as well as from the fact that the report under notice evidences that the Company is emerging from its long season of difficulty, that document will be regarded as one claiming particular attention by ourselves and by our readers. No less a sum than £9,603 18s 9d was obtained for the coffee produced during last year on the Company's estates, the weight of the crop being 2,031 cwt., or approximating to something like 100s per cwt. This crop appears to have been a satisfactory one on five of the estates growing coffee, and we must presume that on other of the Company's properties the yield had not been so good. It would seem that the directors were determined that nothing should be left undone to maintain a high cultivation of such fields of coffee as continue to promise well, while they had decided to gradually substitute tea in those localities where the trees did not give evidence of a lasting vitality. It would be interesting to know how it can be that a tree, which at one time flourished under almost all conditions in our hill country, now promises vitality only in certain restricted areas. Might not consideration given to the conditions under which it still survives enable some conclusions to be arrived at as to how such conditions might be secured for other localities ? Or is it simply a question of shelter and of soil, or, possibly, one of the date at which

the still successfully cultivated trees were put in? The report furnishes us with no data by which such hypotheses as these could be replied to. It is, however, very certain that there yet remain to us fields of coffee which, at the present high rate obtainable for the berry at home, are very remunerative. And yet, in the face of this fact, the directors of the Lanka Company announce that "each year the acreage becomes unavoidably smaller." It is a pleasing feature of the report that it informs us of a sufficiently profitable result to the year's working to enable substantial dividends to be declared. Even with an unfavourable rate of exchange during the first half of the year, the profits made reached £6,443 2s. 6d. From this the directors have decided to pay 6 per cent on the preference shares, and, but for precautionary reasons, they might have declared 4 per cent on the ordinary shares. We are not saying that these are high rates of dividend, but they at least show a very marked advance as compared with many past years. Reverting to the matter of produce on the Company's estates, it is to be observed that cinchona is still regarded as almost a hopeless production, and so we must consider it to be until "time brings about its revenges." On the other hand, cacao appears to have given such good results that the directors are anxious for more capital to develope its cultivation, and the Company appears to have been fortunate in discovering upon its properties sites well-suited to its somewhat capricious taste. We note that 341 acres planted with cacao returned last year a profit not far short of £3,000. This seems good enough to tempt further extension, and will doubtless set some of our planters on a further look-out for such localities of soil &c. on their estates that might prove suitable for experimenting. We notice that the average price obtained for the Company's tea throughout last year was 9¼ per lb. net.

CONSUMPTION OF CEYLON TEA IN BRITIAN AND HER C OLONIES AND IN FOREIGN COUNTRIES.

By an unaccountable oversight, we yesterday, in dealing with the comparative consumption of Ceylon teas in Britain and her colonies and in Foreign countries, omitted to include Australia in the formor category while the figures against it went into the latter. The result was to give a far too favourable idea of the extent to which, with all our efforts, we have been able to open markets for our teas other than those of Britain and her colonies. The real figures are such as will still more enforce the necessity and the duty of relaxing no efforts to open foreign markets, especially those of the American continent by means of the Chicago Exhibition. Supposing Ceylon produces, as we estimated, 65½ millions of pounds of tea in 1891, we may, perhaps, strike off the odd half million for local consumption. The disposal of the rest will then be :—

	lb.
Taken by Great Britain, say	60,000,000
„ British Colonies, „	4,500,000
„ Foreign countries (*only*)	1,500,000

So that, allowing for portions of the exports to India and China (Hongkong) going ultimately to foreign countries, the proportion of our crop of 65½ millions (with the prospect of considerable increase for half a dozen years to come) taken by foreign countries is considerably less than two millions of pounds! We confess to being personally taken by surprise by such a result as this. Our planters and their agents have made no impression worth mention on Russia and as yet there is nothing very hopeful in regard to the other great tea-consuming country, the United States. This is not a time for holding back on any pretext, but for a long pull and a strong pull and a pull altogether in favour of the introduction of our teas into foreign countries, especially the United States, Russia, Germany and France.

THE TEA ROLLER PATENT CASE.

The case for infringement of patent at the instance of Mr. Wm. Jackson against Mr. A. Brown and the Commercial Company came before Mr. Morgan in the District Court of Colombo yesterday afternoon.

Mr. WITHERS for the plaintiff wished to know whether any legal objections were going to be pressed; and being told by Mr Browne that there were he said they should be stated so that he might be able to meet them.

Mr. BROWNE for the defendants said it would be a good thing if they could get the issues in law and fact laid down in the first place. He suggested that members of the bar might make it a point of practice amongst themselves that plaintiff's counsel should draft the issues and submit them to defendant's counsel say a week before the trial came on. If they were accepted well and good, but if the parties disagreed then the Court would have to settle them on the day of the trial.

The JUDGE said it would be a very convenient way of doing business.

Mr. WITHERS wished to know the legal issues. The only one, as he understood, was that remedy by this action was barred, because the plaintiff had not taken a statutable remedy.

The JUDGE said there appeared to be two matters of law. It was stated that the plaintiff had not stated the invention in respect of which exclusive privilege was granted to him, and secondly it was stated that the plaintiff should have recourse to certain procedure.

Mr. WITHERS remarked that the defendants in their answer did not say that the machine referred to was the one of which the plaintiff complained.

The JUDGE thought that was the inference from the whole of the answer.

Mr. BROWNE said the argument on that part had better be postponed till it was shown, so far as the plaintiff's case had gone, that it was the triple action tea roller which was the machine that he complained the defendants had imported and sold in Ceylon. If he said that it was, which the pleadings did not as yet disclose, it might be time for them to say "Oh! we have taken a patent for that." It was a matter that would arise out of the state of facts that might be proved.

Mr. WITHERS thought that had better be assumed for the sake of argument.

The JUDGE was understood to say that he thought there could be no doubt that it was the triple action machine that was referred to.

Mr. BROWNE said the plaintiff in the fourth paragraph of his libel did not say that the machine which the defendants had imported was the triple action roller. He only said they had infringed the plaintiff's patent right by importing into and selling in Ceylon machinery and apparatus for rolling tea possessing the arrangement described in the specification of the plaintiff's patent. The second objection was a special defence in law which might arise hereafter according to the facts, but he intended to press the objection that the plaintiff had not disclosed any cause of action against them. The plaintiff had not alleged what was the invention in respect of which exclusive privilege was granted to him. The whole machine was described in the specification. Had the defendants infringed the whole of it? Three things were singled out afterwards, but the plaintiff did not particularise what was the invention infringed. He did not say that it was the arrangement for transmitting motion to the top rolling surface through the case or jacket surrounding it. Mr. Browne then proceeded

to refer the Court to the case of Foxwell v. Bostock in Goodeve's patent cases. Reading through the specifications he said there were really four inventions, the whole thing and three parts. Which of the four were, the defendants going to take as the invention upon which the plaintiff proceeded in this claim.

The JUDGE said it seemed to him that plaintiff complained that what had been infringed was the arrangement described in the specification as the arrangement for transmitting motion to the top rolling surface through the case or jacket surrounding it which was a substantive part of his invention.

Mr. BROWNE :—Is that the only claim ?

The JUDGE :—I understand so.

Mr. BROWNE :—Then let him bound to that.

Mr. WITHERS :—So we are.

Mr. BROWNE asked the Court to note his objection that in the specification the plaintiff practically claimed a patent for four things.

Mr. WITHERS afterwards referred the Court to a decision by Lord Justice James, one of the best judges that ever lived, and also pointed out that under section 21 of our Patents Ordinance no suit should be defended on the ground of any defect or insufficient specification of invention nor upon the ground of misdescription of the invention in the petition unless the defendant shall show that he is the actual inventor. He subsequently stated the issues as follows—(1) What is the nature of invention the plaintiff averred the defendants have infringed; (2) was the plaintiff the first and true inventor of that; (3) was it new and useful and had the defendants infringed it ?

Mr. BROWNE intimated his acceptance of these issues and thereafter the Court adjourned for half-an-hour or tiffin On the Courts resuming,

Mr. WITHERS opened the case for the plaintiff. He thought he need hardly dwell upon the policy of the patent law which affected all its subjects who invented manufactures which were useful to the subjects. In the science of economics a man's good name, skill and industry were as much his peoperty as a man's house or garden or his balance at the bank and as deserving of protection as other kinds of property. The law had a special regard for a man like Mr. Jackson who was the pioneer of a very useful invention in a country like Ceylon. Mr. Jackson was an engineer by profession. He went to India early in the seventies where for two years he studied tea as a product, and from that time till now his whole time and labour had been devoted to the contriving of machines useful in manufacture of tea. The particular kind of machine to which he had given time and attention and to which they confined themselves in this case, was that for rolling tea and producing that particular curl or twist in the leaf which gave it a marketable value. They must first consider what a manufacture was. In our Ordinance an inventor " shall include the importer and an invention not publicly known or used in Ceylon," and it would simplify matters very much if the court would bear in mind that from first to last in this case they were confined to inventions in Ceylon. The plaintiff's was an improvement on machines for rolling tea, not machines all over the world, although he thought the Court would be satisfied after hearing the case that it was a distinct improvement on any machine that was ever made for the special purpose, but an improvement on pre-existing machines of this class in Ceylon. The word invention included "an improvement"—and the machine in question was an improvement—and the word manufacture included "any art, process or manner of producing, preparing or making an article, and also any article prepared or produced by manufacture." In Johnstone pages 16 to 19 the word had a larger signification and included in its terms the part of the plaintiff's claim which had been so often cited. At the time Mr. Jackson invented the machine in question which is called the " Excelsior" or the "Universal"—sometimes both names were used but they merely devoted a difference in size, the " Universal being a larger machine than the "Excelsior" but the same in principle—it would be proved that in Ceylon there was no other machine of this class in perfect use or really had ever been in perfect use except one which Jackson had himself introduced into Ceylon some few years before which was called the 'Standard," and for which he had taken out a patent in India. He had not taken out a patent in Ceylon, but the machine came to be used in Ceylon and it was the only one that had existed in Ceylon before and at the time Mr. Jackson invented his " Excelsior" which was an improvement of the "Standard." The learned gentlemen then proceeded to describe the " Standard," the " Excelsior " and Brown's triple action tea roller of which he had models before him. On his left was the machine which the plaintifff complained of as infringing his manufacture, that was his improved arrangement for the transmission of motion through the case or jacket surrounding it. On his right was the "Standard," and in the centre the " Excelsior." The " Standard" might be roughly described as a machine for tea rolling between surfaces called tables. The lower table was that on which the tea was placed, and it was between it and the upper table or surface that the tea was rolled. Of course the tea had to be confined in some way so that it should not escape all over the machine. In the " Standard" the tea was confined in a loose case or jacket, a sort of box. Inside this case was the upper table or cap which pressed the tea down on the lower table, there being weights upon it or other machinery for giving pressure. In the " Standard " the cap when it was moved by the machinery attached to it carried the jacket with it. Now the cardinal difference between the two machines was that in the "Standard" the driving machinery was attached direct to the upper table and carried the jacket about with it, and in the other it was exclusively attached to the cap and had nothing whatever to do with the jacket. There were several defects in this machine. One was that the loose case or jacket actually rested on the lower table and when it was carried about by the cap to which the driving machinery was attached it of course rubbed the lower table and the wear and tear was very considerable. Not only did it tend to destroy the machine itself but it interfered very much with free movement of the machinery making it very stiff in action. Another defect was that the cap or upper table had no movement upwards; one could not see what was going on with the tea; and one could not feed the tea except by pouring it down through the cap itself. This was very inconvenient and in order to obviate that Mr. Jackson happened to think of a plan by which he could drive the cap about the lower surface and yet leave the cap itself free to move up and down. That was one of the very useful advantages derived from this improvement. Now really the improvement in the " Excelsior" over the " Standard" was that it was the jacket itself which carried this about and caused the eccentric motion so that at the same time while it was in motion this could be lifted up or down and fed through what was called the hopper and through which one could see what was going on with the tea underneath. Simple as it might seem great ingenuity was required to do that. If he had left the jacket as it was resting on the table it would have torn the whole lower table to pieces ; it tore it about sufficiently when it was going about loosely with the cap; and so he had to devise a means of suspending the jacket on suitable bearings, just not quite touching the lower table so that it might go rolling and rolling about without coming into actual contact with the lower table without of course letting the tea escape without wear and tear of the table, and without the stiffness of movement that the older machine had and so as to allow the cap to be lifted up and down—it had an antomatic movement—and so as to be able to feed the machine and see what was going on. The contrivance of attaching the machinery to the table itself and carrying about the cap had been transformed into the very opposite process of attaching the machinery to the jacket and driving the upper table in it—exactly the converse motion—and it required a good deal of ingenuity to bring that about. That really was the improvement of the one machine upon the other. With regard to the machine on his left he must read

the specification and explain how the parts of it corresponded with the parts of his machine.

Mr. BROWNE:—Does my friend propose to read the specification in evidence.

Mr. WITHERS:—Yes.

Mr. BROWNE then objected on the ground that what the defendants were charged with in this case was importing and selling and in the case of the second defendant company using certain machines an alleged infringment on the plantiff's machine, They were not charged with having patented a machine or made a specification and thereby infringed a right. In other words they were charged with things they had done and not with things they had written or said the specification might possibly affect whatever man signed or filed it. It could no more affect anybody else in this suit than it could affect any leading merchant in the Fort like Mr. Henry Bois for instance, and therefore it was inadmissible in evidence as a second ground against anybody except the person who signed it.

The JUDGE was understood to say that being part of the defendants' answer the plaintiff had a right to refer to it.

Mr. BROWNE:—Possibly as a matter of pleading but not in evidence.

Mr. WITHERS then proceeded to identify the various parts of the one machine with the other. The difference struck the eye at once. There was nothing of the kind ever seen before in any machine in Ceylon or, he made bold to say, in any tea roller elsewhere, and its usefulness would be proved by the fact that it had met with public acceptance. Hundreds of the machine had been sold, and that was one of the ordinary proofs of usefulness. It was most useful by having the independent vertical movement b which it could be fed easily; and by having the parts removed which required oiling so that not a drop could fall into the tea. He would read from the specification to show the corresponding parts of the other machine. It was said that the invention consisted of a circular table or of platform and hollow cylinder in which the latter revolved a circular lid. That circular table or platform answered to the square table of Mr. Jackson's machine and theirs was round whereas Mr. Jackson's was more or less square, the square hollow cylinder answered to the square hollow jacket in which the latter revolved, and the circular lid was the upper table corresponding to the square cap in the "Excelsior"; and it was perfectly clear that the motion which was directly imparted was an infringement of the motion in Jackson's machine. It was also said that they imported eccentric motion to the table, that was the bottom one, and to the whole cylinder. That showed that the driving machinery in Brown's imparted the motion the same as in Jackson's. It was also said that the cylinder carried the table with it and that was really a description of plaintiff's machinery, the only difference being in shape; that what Mr. Jackson had done on the square they had done in the round. In reply to the Judge he showed that the triple action was fed in the same way as the "Excelsior." In conclusion he said that however much the alleged infringing machine might differ in appearance from Mr. Jackson's the court must not be guided or influenced by that. Parts of Mr. Jackson's machine might be omitted in the infringing machine; there might be additions to the infringing machine which were not in the plaintiff's; these omissions or additions might make the defendants' machine a better one than his; but all that went for nothing if the plaintiff's vital arrangement had been substantially taken and by them and with all these omissions and additions the machine was a colourable imitation of the plaintiff's patent. (Mr. DORNHORST:—I admit that to be the law.) He cited the case of Proctor *v.* Bennis and called upon the plaintiff to give his evidence.

Mr. WM. JACKSON, the plaintiff, examined by Mr. Withers said:—I am a mechanical engineer by profession. I began the study of my profession when I was 16 years of age and served an apprenticeship of 5 years. After that I went to India, going to Calcutta and afterwards to Assam, where I was on a tea plantation of the Scottish Assam Co. for two years, after that I confined myself entirely to tea machines—rolling, drying and sifting and various classes of machine. I came to Ceylon about three years after the introduction of this machine (the "Excelsior") I think. My first visit to Ceylon was during 1885 or 1886. I called at Colombo before that but did not stay. I first introduced some of my machinery here in 1878 or 1879 when the "Standard" machine which was sold in London was sent out. As far as I am aware that was the machine in use up to the time of taking out the "Excelsior" for which I took out a patent in April 1881. The "Standard" was one of my inventions. It was invented when I was in India The first thing that led me to invent the "Excelsior" was that the planters wanted a less costly machine, and in the "Standard" there was a considerable amount of time wasted in India where the leaf was rolled very much quicker than here in trying to get the leaf down through the centre of the roller cap. The next point was that the jacket had to be made heavy to prevent it from jerking or jarring over the leaf whilst it was contained by it. The jacket of the "Standard" rests on the lower table and its heavy weight made it stiff to drive. I was not satisfied with the rolling obtained by that machine, and what I had in my mind when working out the idea of the "Excelsior" was to contrive that there should be the same action on the leaf as in the case of the Standard, but in a less costly way and that the machine should be more easily driven and worked. In the "Excelsior" it is necessary to place the leaf on the feeding platform at the top of the machine. If you place a sheet of paper on the lower table and pass a pencil through the upper surface, jacket or cap a true circle will be described. That motion is precisely the same as the motion of the "Standard" when the cranks are geared up at right angles to each other. I have now transferred the driving mechanism from the cap or upper rolling surface to the jacket surrounding it, that is to say that I have connected the driving crank with the jacket itself. The driving mechanism in the "Standard" was coupled direct to the upper rolling surface or cap, the jacket surrounding such upper cap or surface being left free or loose. In the "Excelsior" or improved machine I have just reversed that. I have taken the driving mechanism away from the upper cap or surface and attached it to the jacket which surrounds the surface. By connecting the driving mechanism to the jacket I was enabled to keep the lower edge of the jacket or outer case just clear of the lower table. By this arrangement of driving through the case or jacket I was also enabled to secure free vertical movement of the surface. In connection with that I was the first to introduce the bow and bracket attached direct to the jacket through which the cap is operated. This arrangement of driving through the jacket which we must continue to refer to as the jacket enables me to lift the cap sufficiently far to feed the leaf in on one side underneath. I can see the leaf being operated on in this machine by looking through the same passage as the leaf is passed in, That passage is called the hopper. The pressure by the cap on the leaf under this system resulted in the work being accomplished more quickly and promptly than under the old system in the "Standard." By transposing the driving mechanism from the cap to the jacket surrounding it, the dirty, greasy oily parts are removed from the cap or top of the surface. In answer to Mr. Morgan he said:—The jacket in the "Standard" weighed from one to two cwt. and that weight resting on the lower table whilst the machine was in action produced an amount of wear and tear on the lower table which wore that lower table out, That wear and tear does not take place in the other machine because the weight does not rest on it Replying to Mr. Withers he said:—Of the "Excelsior' embodying the improvement of driving through the jacket we have sold I suppose 800 in Ceylon. Did the "Excelsior" that you brought out when it

became known to the public in Ceylon supplant the "Standard." Yes. We did not sell any more "Standards" when this became known. There was really only one "Standard" sold in England for Ceylon. We never had any enquiries for the "Standard" when the "Excelsior" became known. Ever since I took out this patent I have had the exclusive use of the invention. In 1885 I considered that my privilege was interfered with by Mr. Kerr against whom I brought an action for infringing my patent in Ceylon and I succeeded in so far and after that action he never interfered with my patent. Since that it has not been interfered with to any great extent. The defendants' machine is known as Brown's triple action roller, and I have seen that machine in action on Bearwell estate in Lindula, on Henfold in Dikoya, and on the Great Western estate. I produce the model. I swear that the model before me is a substantially faithful copy of the "Standard." The difference between the model which I produce of the "Excelsior" and that which the defendants produce is that in the latter the spindle is plain and in the former the spindle is screw cut. In the model produced by the defendants also the bow is fastened to that outer casting, which is according to the specification of patent, and in my model here it is fastened to the web of the jacket. Will you explain where the triple action roller infringes your arrangement of transmitting motion to the cap through the surrounding jacket? Will you explain to the Judge in what respect the defendants' machine complained of infringes the "Excelsior"? In respect that the driving mechanism is coupled to the jacket direct. It is on that point that I complain. The results flowing from that arrangement are the same in the defendants' machine as in the "Excelsior." There is free vertical movement of the cap as in the "Excelsior," the only differerence being that the manipulation is by a lever instead of a screw and nut as in my model and in actual practice. In the specification it is worked by a pulley and chain for which I have substituted the mechanical equivalent of a screw and nut. Another result of adopting my arrangement is that one is able to feed the tea underneath in the triple action roller just as in my machine; also the lower edge of the jacket comes down to the lower table but does not rest on it. The carriage of the jacket is just free of the lower table. These results flow from naturally from my arrangement. Without that arrangement they cannot be produced; the production of these results required the invention of that arrangement. If you pass a pencil through the jacket of the triple action roller and place a sheet of paper on the lower table a true circle will be produced just as in my machine. I produce in evidence a certified copy of the letters patent, a certified copy of the specification.

This concluded the evidence; and as was mentioned yesterday the further hearing of the case was adjourned till 28th January. Mr. Browne stated that his cross-examination of Mr. Jackson might last about three hours and Mr. Withers said that he had three or four scientific witnesses and formal evidence that the machine was used. Mr. Browne laughingly remarked that this was a case that was going to the Privy Council in the end.

(To be continued.)

BOTANY OF THE EMIN RELIEF EXPEDITION.

The botanical exploration of Tropical Africa leaves so much to desire that it was somewhat disappointing to find that Mr. Stanley brought nothing back which would give any idea of the nature of the dense forests which he traversed. The conditions under which such an expedition is necessarily executed make natural-history-collecting extremely difficult. Travellers, however, often suppose that because they cannot make extensive collections they can do nothing to add to our knowledge. Yet to fill a small portfolio with well-selcted and significant specimens is not a very difficult matter, And these may often furnish the basis of useful and important conclusions as to the general nature of the flora. Sir Joseph Hooker was able to give the first account of the vegetation of Kilimanjaro from a small parcel of plants collected by a missionary, the Rev. Mr. New, who was supplied for the purpose by Sir John Kirk, with "a bundle of old *Guardians*." An officer of the Ashanti Expedition brought from Comassi the fruit of what proved to be a new species of *Duboscia*. And quite lately Lord Lamington sent to Kew a small parcel of plants collected by himself in an expedition through the Shan States, which contained good specimens of an interesting plant only known previously from imperfect material collected by Griffith. It has now been worked out and figured in the Kew "Icones Plantarum."

Nor is it so difficult as it might be supposed to do even more than this. And I am not sure that a little careful and intelligent plant-collecting would not be a healthy and useful distraction to the tedium and strain of an arduous journey. Nothing could probably exceed the difficulties under which Joseph Thomson travelled in Masailand; yet he managed, notwithstanding, to get together a tolerably extensive and most valuable botanical collection. Upon this Sir Joseph Hooker was able to base the first attempt at a rational theory of the geographical relations of the high-level flora of Eastern Equatorial Africa. Nothing, again, could be more admirable than the collections made by Brigade-Surgeon Aitchison when attached to the Kuram Field Force under Sir Frederick Roberts in Afghanistan. And the Government of India has now arranged—and it is an indication of the sympathy for science which animates its members—that, as part of the organization of the Botanical Survey of India, a botanist shall for the future be attached to all frontier expeditions.

Major Jephson,* who accompanied Mr. Stanley, seems, however to have had his eyes about him. A correspondent has sent me a copy of the October number of the *Mayflower*, a small monthly horticultural periodical published in New York, which contains (pp. 155, 156) a short paper by him on the "Plants of the Dark African Wilderness." This seems to me worth putting on record in the pages of *Nature*, where it will be at least more accessible for future reference. At my request, Mr. Baker, the Keeper of the New Herbarium, has had the paper annotated with such critical comments as were possible.

To Major Jephson's paper Mr. Stanley has prefixed a brief introduction, which adds nothing of importance. He remarks :—

"In this branch of science I fancy we were all but amateurs, and considering what very little time any of us could devote from the engrossing business of marching, and seeking for food to sustain life, Mr. Jephson shows what might have been done by him had circumstances been more favourable."

This is, however, erring a little on the side of modesty. As I have already shown, amateurs can do very useful work without much difficulty, if they are content to do only a little, but to do that little carefully. Some further observations are open to more serious criticism :—

"Africa is yet too young and too crude for the scientific botanist. We have only been pioneers to stake the highway to make ready for those who shall come after us. When the rails have been laid in pairs of iron lines across the swamp and desert, and the engined boat cleaves the red bosoms of the great rivers, and furrows the dead green face of the fresh-water seas, then the tender-nurtured botanist, conveyed from point to point without danger to his valuable life, may be trusted, with his enthusiasm and devotion, to bring to us results worthy of science and the age. Of those who have given us an insight into the botanic treasures of the African world, Schivernfuth (*sic*) is by far the best; but he has also laboured under such disadvantages and discomforts that he was not able to do for Equatorial Africa a tenth part of what Betes did for the Amazon."

* Mr. Jephson is not a military man: he was a Ceylon planter not long ago.—ED. *T. A.*

One cannot but wonder a little at the ignorance of the literature of African travel which this paragraph displays. Men like Grant, Speke, Kirk, Welwitsch, Mann, Vogel, Barter and Thomson (to mention only a few of those to whom we owe our knowledge of the African flora, would have thought it comical to be described as "tender-nurtured" botanists. The work of Schweinfurth was admirable; yet no one would, I think, be more surprised than that distinguished naturalist, Mr. Bates, to learn that the botanical collections which he never even professed to make, were ten times better.

W. T. THISELTON-DYER.

Royal Gardens, Kew.

"It is difficult to give an accurate idea of the flowers we saw in our march through Africa in a short magazine article, but I here give a short sketch, mentioning some few things which I think may be interesting to my reader.

"The great forest of Central Africa through which we passed is not so rich in variety of flowers and orchids as the forests of Mexico and Brazil, or even the jungles of India and Ceylon. It is chiefly rich in flowering vines, trees, lilies(*a*) and Bigonias. There is, however, a great wealth of different kinds of ferns, such as I have often seen cultivated in hot-houses in England. In many places the damp ground was covered by a thick growth of filmy ferns and Lycopodium of the most beautiful description.

"Here is a short extract from my journal which will give some idea of the everyday-sights we saw on the banks of the Lower Congo, 1,700 feet above the sea and 250 miles distant from it :—

"'At the bottom of a piece of swampy ground I came to a small stream, on the banks of which were growing *Osmunda regalis*(*b*), or Royal fern. It was slightly stunted in growth, being not more than 2 feet in height. It is the first I ever have yet seen in the tropics. Close by the stream was growing a group of beautiful ground orchids(*c*), in form like a *Hyacinthus candicans*. There were clusters of great pink flowers with yellow centres; the whole had a very gorgeous effect. Here, also, was a profusion of Lycopodium (*d*). It is of a kind I have not yet seen; it creeps up and over everything in great bluegreen masses; its long tendrils creep up the tree trunks like ivy, to a height, in some cases, of 4 feet. There were quantities, also, of the ribbon fern, exactly like the *Davallia pentaphylla*, (*e*) which has been introduced into English hothouses from the Malayan Archipelago. What would not florists at home have given for an acre of this ground?'

"In the forest there were two kinds of lilies which were common. One, which grew in swampy ground, was in form like an Amaryllis. (*f*) It was white, with a deep crimson centre, and had a delicious but heavy scent. The other was a lily, (*g*) which grew everywhere through the whole length of the forest. It was of a brilliant scarlet colour, and was formed of several hundreds of small flowers, forming a round ball like a huge Guelder rose, four inches in diameter. It was of such a brilliant scarlet that it looked almost metallic, growing in the darkest recesses of the forest. One of the commonest and most striking of all the ferns we saw was the *Platycerium alcicorne*. (*h*) It is an extremely interesting fern, one of a singular genus of epiphytal plants, growing on the branches of trees. Our Zanzibaris called it 'elephant ear,' from its curious shape. There was another of the same family, *Platycerium Stemmaria*, which we found growing upon rocks in the open country. Both these ferns grew at altitudes from 1,000 to 5,000 feet. Tree-ferns (*i*) of the ordinary kind we found growing in all the gullies and steams on the slopes of the mountains above the Albert Nyanza. The altitude was from 5,000 to 6,000 feet above the level of the sea, and I noticed especially that the flora here was remarkably like that in the Central Province of Ceylon, which is an altitude of 2,500 to 4,000 feet above the sea.

"By far the most common plant which we saw in the jungle was the Amomum, or wild cardamom. (*j*) It was almost precisely the same in form as the cardamom which is cultivated in Ceylon. It grew almost throughout the whole of Central Africa. It has a large purple flower, which grows in clusters on the ground at the root of the plant, and from it a bright scarlet fruit forms, of a pear shape, and about the size of a small fig. It is divided into four quarters, and contains some white, fleshy pulp, very juicy and acid. This pulp is of small black aromatic tasting seeds like those of the cultivated cardamom. If ever planters go into Africa, the cardamom will be an important product of the soil for commerce, for there are vast tracts of forest with the climate, soil and checkered shade which are necessary for the cultivation of the cardamom. Orchilla weed should also become a valuable article of commerce; it grows in many parts of the forest. I consider, however, that when the great forest of Central Africa is opened up to civilization, by far the most valuable article of commerce will be india-rubber, the want of which is increasingly felt in the civilized world. Now that electricity is so much used for various purposes, the demand for india-rubber grows larger and larger: the supply which is shut up in the African forest is practically unlimited. There are various trees of the fig tribe which yield this product, but by far the greatest amount is contained in the india-rubber vines (*k*) which abound in the forest and hang from almost every tree. In cutting our way through the forest in some places, we got covered with the milky glutinuous sap, which dropped upon us from the vines we cut through.

"The natives know its value, and use it largely for smearing the inside of their buckets in order to make them hold water. They use it largely also for covering the ends of their drumsticks. The india-rubber obtained is of a clear, yellowish colour, like glue, and is of the most elastic description.

"In the forest region I saw no water lilies, but in Emin Pasha's Province in the Bari country, I saw two kinds. (*l*) They were both about the size of an ordinary white water-lily, and the leaves and flowers floated on the surface of the water, but the stalks and formation of the leaves and flowers was finer and more slender. One was of a pink coral-like colour, not white like the Zanzibar lily, and the other of a pale bluish lavender. They were growing in small clear pools only a few miles apart in the valley of the Nile, at an altitude of about 3,000 feet above the sea.

"One of the most interesting botanical discoveries I made in the forest was the discovery of a wild orange tree. During our march through the forest I had continually come upon trees varying from 8 to 15 feet high. They had double leaves of a peculiar shape, which had a delicious smell like orange leaves; the branches were covered with long sharp thorns, and I at once pronounced them to be orange trees. My fellow officers smiled incredulously, and exclaimed: 'Orange-trees (*m*) in the middle of the forest!' But I held to my opinion, and

(*a*) Crinum.

(*b*) *Osmunda regalis* is cosmopolitan, but in tropical zone is high up only.

(*c*) Mr. Rolfe cannot suggest anything better than Lissochilus.

(*d*) *Selaginella scandens*, no doubt.

(*e*) "Ribbon fern" would suggest *Ophioglossum pendulum* or *Vittaria*, but they are not like *Davallia pentaphylla*.

(*f*) *Crinum zeylanicum*.

(*g*) *Brunsvigia toxicaria*.

(*h*) *Platycerium alcicorne* is not African, but *P. Stemmaria* is widely spread.

(*i*) No doubt *Cyathea Thomsoni*, Baker, which is very near *C. Dregei* of the Cape.

(*j*) There are a large number of Amomums in West Tropical Africa. The fruits are 3- not 4-celled. See *A. Daniellii*, &c., in Oliver and Hanbury's paper in Journ. Linn. Soc., vii. 109.

(*k*) Landolphia.

(*l*) *Nymphæa stellata* and *N. Lotus* are both plentiful in Upper Nile-land.

(*m*) This reads like a tree *Citrus*, and if so is an interesting discovery, as no species is hitherto known here.

just before reaching the open country, I came upon a tree with both flowers and fruit upon it. The flowers were exactly the same as the flowers of a cultivated orange tree. The fruit, which was green, was about the size of a marble. On cutting through it with a knife I found it had the same divisions as an ordinary orange, but each division was full of small seeds, which were very bitter and aromatic. On reaching Emin's Province I told him about it, and he regretted very much that I had not brought a specimen with me, for he was a good botanist and wished to add it to his collection of dried plants. He told me my discovery was doubly interesting, as many years before a German had penetrated the forest on the west coast of Africa, and reported that he had found wild orange trees. His story was discredited, and now our discovering the orange tree in the forest pointed that his report was after all true.

"I have not space to speak much about the flowers we saw in the open country, but will say a few words about those flowers which we found at a high altitude on the slopes of Ruwenzori, or the Mountains of the Moon. Lieutenant Stairs who made the ascent of the mountains, gives the following facts in his report:—

"'The barometer stood at 21·10, thermometer 70° F. Ahead of us and rising in one even slope stood a peak, in altitude 1,200 feet higher than we were. This we now started to climb, and after going up a short distance came upon three heaths. Some of these must have been 20 feet high, and as we had to cut our way foot by foot through them our progress was necessarily slow. Here and there were patches of inferior bamboos, almost every stem having holes in it made by some boring insect, and quite destroying its usefulness. Under foot was a thick spongy carpet of wet moss, and the heaths on all sides of us we noticed were covered with 'Old Man's Beard' (*Usnea*). We found great numbers of blue violets which had no smell, and from this spot I brought away some specimens of plants for Emin Pasha to classify. The altitude was 8,500 feet. We found blueberries and blackberries (*n*) at an altitude of 10,000 feet. The following (*o*) are the generic names of the plants collected as named by Emin Pasha:—

Clematis.	Moschosma.
Viola.	Lissochilus.
Hibiscus.	Luzula.
Impatiens.	Carex.
Tephrosia.	Anthistiria.
Glycine.	Adiantum.
Rubus.	Pellæa.
Vaccinium.	*Pteris aquilina.*
Begonia.	Asplenium.
Peucedanum.	Aspidium.
Gnaphalium.	Polypodium.
Helichrysum.	Lycopodium.
Senecio.	Selaginella.
Sonchus.	Marchantia.
Erica arborea.	Parmelia.
Landolphia.	Dracæna.
Heliotropium.	Usnea.
Lantana.	Tree Fern.'

"These were just a few specimens Lieutenant Stairs brought down with him. But the slopes of Ruwenzori will, when properly explored, yield numbers of unknown treasures to be added to the Botanical Encyclopædia.

"For many weeks we drank coffee which we made from the berries of the wild coffee-trees which abound on the highlands round the great lakes of Central Africa. The Arabian coffee was originally supposed to have come from Kaffa, in Abyssinia. That which we found in Karagwe; Ankori, and Uganda is equal in flavour to the finest Arabian coffee, and will, when Central Africa is opened up, be another of the chief articles of commerce. "I. A. M. JEPHSON."

—*Nature*, Nov. 5th.

(*n*) It would be very interesting to have these identified. The two highest-known species of Rubus are *pinnatus* and *rigidus*, at 5,000-6,000 feet.

(*o*) This list is in Stanley's book. The *Viola* is no doubt *abyssinica*, common to the mountains of Madagascar, Abyssinia, the Cameroons, and Fernando Po. There are three heaths known on the high mountains of Central Africa, viz. *Erica arborea*, *Ericinella Mannii*, and *Blasria spicata*. There is no *Vaccinium* known before in Tropical Africa; though three or four are plentiful in Madagascar, and there is one on the Drakensberg, so that its occurrence is most probable. The ferns of Tropical Africa are nearly all species widely spread in other continents.

TEA AND COFFEE FOR FAT PERSONS.

We have received from Messrs. Chatto & Windus of London a copy of the third edition of "Foods for the Fat: A Treatise of Corpulence, and its Scientific Dietary Cure," by Mr. N. E. Yorke-Davies, L.R.C.P., M.R.C.S., &c. The fact that this work is in its third edition within the course of a couple of years is a proof of its usefulness and acceptability among those troubled with obesity. It is written in a popular style, and gives valuable information as to diet, dress, exercise, &c., for those who wish to reduce their weight without injury to their health. The second part contains a large number of menus,—soups fish, meats, vegetables, fruits, jellies, beverages and sauces. The author is a strong advocate of Ceylon tea. We quote what he says regarding tea and coffee:—

TEA: ITS USE.

Tea is not food, and should not be taken as such. Tea taken three or four hours after dinner is valuable, for this is the time that corresponds with the completion of digestion, when, the food having been conveyed away from the stomach, nothing remains but the acid juices employed in digestion. These acid juices create an uneasy sensation in the stomach, and a call is made for something to relieve this uneasiness. Tea fulfils this object better than stimulants; more than this, it satisfies some unknown want in the system. This refers to the moderate use and enjoyment of tea, but there is a large class who drink an enormous quantity of this beverage, to the undoubted impairment of their health.

Those who take it to excess are found principally among the poor.* They become pale and bloodless, much given to faintness, nervousness, and depression of spirits, and suffer excessively from flatulence and loss of appetite. This is no doubt partly due to poisons used to colour and adulterate it. One form of indigestion caused by tea deserves special notice, as it is commonly observed by medical men: the appetite is unimpaired, and no particularly unpleasant sensations are felt after meals; but almost as soon as food is taken it seems to pass out of the stomach into the bowels, causing flatulent, colicky pains, speedily followed by diarrhœa. Hence, there is a constant craving for food, and a feeling of sinking and prostration.

In moderate quantity, tea exerts a very decidedly stimulant and restorative action on the nervous system, which is aided by the warmth of the infusion, and is particularly useful in over-fatigued conditions of the system, and under these circumstances it is infinitely preferable to alcoholic drinks, Lord Wolseley considers it is the best drink for exhausted soldiers after a long march.

The harmful effects of tea depend a great deal on the way it is made. If it is allowed to infuse too long the tannin and other injurious ingredients of even the best tea are drawn out and the infusion becomes bitter and astringent, and unpleasant to the taste. To make tea properly, the teapot should be warmed, and the water poured over the tea immediately it boils. Five teaspoonfuls of pure Ceylon tea should be put to each quart of boiling water, and it should draw for eight minutes. Professional teatasters are very particular to use only water which is freshly boiled.

* Whose sufferings, as described, may be due to want of nourishing food, mainly.—ED. *T.A.*

In China tea is sometimes infused in a teacup, and sometimes in the cup from which it is drunk. In Japan the tea-leaves are ground to powder, and, after infusion in a teacup, the mixture is beaten up until it becomes frothy, and then the whole is swallowed. The Chinese drink their tea in a pure state; the Russians take it with lemon-juice; and the Germans often flavour it with rum, cinnamon, or vanilla. In England we know it is customary to add cream, milk, or sugar, but for corpulent people the Russian mode would be the best.

Ceylon tea is now justly taking a high place in public favour. There is no doubt it is more wholesome and more delicately flavoured than any other, and as it contains more theine and less tannin than Indian and Chinese teas, is more healthy. It does not injure the most delicate stomach, or disagree with those whose digestive powers are weak. When its virtues become fully known it will take the place of all other teas. It is a difficult matter to get pure Ceylon tea; most of those sold with high-sounding names as Ceylon tea are simply mixtures and blends in which common China tea predominates and the names of the estates they are supposed to come from exist only in the imagination of the teadealer. One or two owners of Ceylon plantations do import their teas direct to the consumer; in this case it is a guarantee of their purity, and under these circumstances they can be bought much cheaper than where they have passed through the hands of the importer the broker, and the tea-dealer.

Those who would like to have Ceylon tea in its pure and natural state can get it from the Agra Ceylon Tea Association, of 76, Shaftesbury Avenue, London, W. C., who import their teas direct from the estates in Ceylon of Mr. H. R. Farquharson, M. P., and it is handed to the consumer pure and unmixed as it leaves the factories.* Independently of its good quality and freedom from tannin, Ceylon tea is machine made and is not, like Chinese tea, handled and pressed in dirty and squalid huts, and by the hands and feet of the unwashed Mongolian.

COFFEE: ITS USES.

'Coffee,' says Dr. Pavy, 'is said to have been in use in Abyssinia from time immemorial, and in Persia from A. D. 875. It was used in Constantinople about the middle of the sixteenth century, in spite of the violent opposition of the priests, and in 1554 two coffee houses were opened in that city. It was introduced into Europe in the seventeenth century. It was drunk in Venice soon after 1615, and brought into England and France about forty years after.' Like tea, coffee produces an invigorating and stimulant effect, without being followed by any depression, and fully justifies the estimation in which it is held. It increases the action of the pulse, and is more heating than tea, while at the same time it arouses the mental faculties and so disposes to wakefulness. To make the infusion properly 2 oz. of freely-ground coffee should be used to each pint of boiling water.

Coffee is especially useful to those who suffer from redundancy of fat, as it has the power of relieving the sensation of hunger and fatigue, and may be used two or three times a day as a beverage. It has all the advantages of a stimulant without the ill-effects following alcohol in its various forms. It exerts a marked sustaining influence under fatigue and privation, and sustains the strength where a restricted diet is necessary, and this enables arduous exertion to be better borne under the existence of abstinence or a deficiency of food.

THE OUTPUT OF BRITISH MINERALS.

There has recently been issued from the Home Office a tabular return, showing the annual output of the principal minerals produced in the United Kingdom, from the year 1860 to the year 1890.

* The writer's son is a pupil on this estate, and I gather these facts from him, and certainly can speak from experience of the delicious flavour of these teas. That sold at 2s per lb. is incomparable.

The term United Kingdom includes the Isle of Man and Ireland. The quantity in tons, and the value in pounds, are given for each year. The compilations have been made from Official Returns, by Mr. James B. Jordan, the clerk of Mineral Statistics. Copies of the return may be obtained from Messrs. Eyre and Spottiswoode. For the benefit of our readers, the figures for last year (1890) are culled from the report:—

MINERAL	QUANTITY Tons	VALUE £
Alum clay (Bauxite)	11,527	5,763
Alum shale	6,420	802
Arsenic (white arsenic, crude and refined) produced from arsenical pyrites not included in the next line	7,776	60,727
Arsenical pyrites	5,114	4,414
Barytes	25,353	29,684
Clays (China clay, potters' clay, fullers' earth, &c., but exclusive of ordinary clays)	3,308,214	899,166
Coal	181,614,288	74,953,997
Cobalt and nickel ore	84	260
Copper ore and copper precipitate:—		
Copper ore	12,136	27 801
Precipitate	345	4,670
Fluorspar	268	392
Gold ore (auriferous quartz)	575	434
Gypsum	140,293	57,991
Iron ore	13,780,767	3,926,445
Iron pyrites	16,018	7,666
Lead ore	45,651	405,164
Manganese ore	12,414	6,733
Ochre and umber	19,088	17,475
Oil shale	2,212,250	608,369
Phosphate of lime	18,000	29,500
Salt (rock salt, and salt obtained from brine)	2,146,849	1,100,914
Slates and slabs	434,352	1,027,235
Sulphate of strontia	10,276	5,138
Tin ore (*"black tin"*)	14,911	782,492
Wolfram	104	1,848
Zinc ore	22,041	109,890

It is to be noted that, in addition to the above, small quantities of other minerals are occasionally produced, *e.g.* ores of antimony and bismuth, bog iron ore (used for purifying gas), jet, lignite, petroleum, plumbago, silver ore, steatite and uranium ore.

"A very large quantity of stone used for building and other purposes is also annually raised, besides chalk, ordinary clay, gravel, &c., the total quantity of which cannot be accurately ascertained, but the value in 1890 was estimated to be upwards of £8,708,000."—*Chemical Trade Journal.*

CHINA TEA LOSSES.—We learn that the China Association has been asked to take up the consideration of China tea, in view of the heavy losses which have been made this year, and the great decline which continues unchecked. A meeting will be shortly called to consider the matter.—*L. and C.* Nov. 27th.

PERAK TEA.—The Manager of the Cicely and Hermitage Tea Estates, Mr. Fred. Watson, passed through Penang today with 2,000 pounds of tea for Singapore.—This is the first crop from these estates prepared by special machinery, the preparation of the leaf, formerly, having been done by hand.—*Straits Independent*, 9th Dec.

TEA-DRINKING IN JAPAN.—The *Athenæum* in a review of Sir Edwin Arnold's new book "Seas and Lands" says:—

The author enlarges, too, on the institution of tea-drinking, a much more serious affair than the banquet, the strict etiquette and ceremonial recalling in a strange way the *kava* drinking of the Pacific Islands. The "cha-no-yu" (literally "tea of honour") is, indeed, not to be spoken of lightly, and the author describes with much gravity the prescribed treatment of the "honourable hot water," the reverent handling of the cup, and the refined conversation which alone is permissible during the function. It may, perhaps, be to Buddhism, as the author declares, that the Japanese owe not only the tea-leaf, but how "to honour, enjoy, and infuse it."

Correspondence.

To the Editor.

COFFEE CULTIVATION IN THE NEW HEBRIDES.

Santo, New Hebrides, Oct. 30th.

SIR,—As many old coffee planters appear to be casting about for new soil and climate it might not be out of place to bring under their notice this island, which has upwards of 2,000 square miles of country, much of which is highly mineralized soil with any elevation up to 5,000 feet.

We have the same minerals as are found in New Caledonia, but no open country as on that island. The highest peaks here are completely overgrown with vegetation.

The timber is small and all soft wood. The banyan is the largest tree we have, and the remainder are acacia, wild fruits, and mostly the bastard cotton tree.

We have between 50 and 60 acres cleared, the cost of which has been from 25s to 30s per acre, that is with native labourers who work freely for payment, of which the standard is one stick of tobacco per hour. We have an average of 50 daily without intermission, but the number often reaches 160 and over; these are composed of different tribes who work in gangs. Of course no one would depend entirely upon native labour for any important work, but the facilities here for opening up the country and cutting roads by this means are worth consideration, as they thoroughly understand this part of the work and can work like demons at it for five or six hours. Any planter should bring a certain amount of labour with him, and with proper attention he can rely upon the natives for the bulk of the first year or two's hard work. The rainfall is considerable here; a drought of 10 days is an exceptional event, and if anyone speaks against this island or the climate, it is most likely to be the Fijians who would object to see it prosper. We have some acres of young Coffee Arabica 12 months old, but at a low elevation owing to there being no roads to the hills which are only three miles from us. We had 30,000 fine young seedlings coffee in the nursery from seed obtained from Ceylon, but on the recommendation of Mr. C. P. Atkinson, who was round here, we had them all completely destroyed for fear of the *hemileia vastatrix* being introduced in the seed; these we have replaced with seed from Calcutta and other places known to be free from disease. Of course the drawback here just now is the want of some settled government, but this would follow immediately if any desire is shown by the planting community to make use of the land. At present the majority of settlers are composed of inexperienced English, French and Colonials (and the mission stations), all of which are likely to be ignored by the Home Government, but let a *bona fide* intending planter come here and state his wants and he is sure to receive attention.

We feel sure if some of your experienced planters saw this island and realized the position, compared with the interior of some countries where transport is difficult, they would never allow the French nation to have a say in the matter of annexation, and it is these northern islands that the French are most desirous of securing.

The object of the formation of the Australasian New Hebrides Company some two years since was, I believe, to encourage British settlement, as the French settlers were likely at that time to predominate. We have a monthly steam service with Sydney running in connection with the boats to and from Fiji, but more trade is wanted, and the islands are well worthy of more notice.—Yours faithfully, POWELL BROS.

UNDULY NUMEROUS BREAKS OF TEA.

38, Mincing Lane, E. C. London, Nov. 13th.

SIR,—In the interests of all connected with the Ceylon Tea Industry we would call serious attention through your valuable columns, to what happened last Tuesday, when about 19,000 packages were catalogued for sale, and buyers had to taste nearly 800 samples! With the result that the auctions lasted from 12 o'clock till 5; and as the Trade were unable physically to value a large proportion of the teas offered competition was very dull and prices were unduly depressed.

We have frequently referred in our circulars to this vital question of the size of breaks—but the time has now come when something must be done or the industry will suffer: proposals are being made to render the Ceylon sales on Thursdays Independent of the Indian—an advisable change—but he shall be unable to combat this difficulty in the future unless we have the cordial co-operation of planters in reducing the number of samples by every means in their power.—Yours faithfully,

W. JAS. & HY. THOMPSON.

INFERIOR CEYLON TEAS.

13, Rood Lane, London, E. C., Nov. 20th.

DEAR SIR,—We forward you by tonight's mail samples of extremely common Ceylon tea. The prices realised by these teas ruled between 3d and 6d per lb. Some of the samples represent good sized breaks.

We have selected these to show you the poor quality of some teas now arriving from Ceylon, and we are sure that you will agree with us when we say that teas of this character are doing considerable harm to the Ceylon tea industry.

Ceylon tea has obtained a name in this country for good quality which is too valuable to be trifled with, and we would only ask that you will use your powerful influence in endeavouring to impress upon planters the necessity of not trifling with a name which is so good that many industries would be glad to possess it.—Yours faithfully,

GOW, WILSON & STANTON.

INADEQUATE SAMPLING OF TEA.

DEAR SIR,—Seeing your editorial on this subject in tonight's *Observer* (p. 449), I am reminded of the paper sent herewith, which has been lying on my table nearly a fortnight since it was written. With correct data the pencil figuring might be made interesting. —Yours PLANTER.

THE PRICE AND SAMPLING OF TEA.

Is not the cause of low prices the utter confusion and disorganization of the London market? All the wholesale traders are able to snap up lot after lot of splendid tea at their own price, so that they by reason of the competition which this engenders—in order to make their turn-over large—constantly "bear" the market in order to sell cheap to the trade. The "trade" plays the same game with the consumers, so that tea of the best quality is (or should be) now everywhere procurable for a song, and the consumers will never care to give more. But what is at the root of all this evil? What, but the congestion in Mincing Lane. All the tea produced for

exportation in India, China, Ceylon and the world (the fraction sent elsewhere is not worth considering, unfortunately) has to be infused and tasted in a few rooms in Mincing Lane, by a small number of men who have been trained to do this. But they are completely overwhelmed by the rush of the sales, and thousands of lots must be left untasted and unpriced by the buyers, who, probably, to reduce their own risk, bid only a price at which they could not lose if the tea turned out to be of inferior quality. The producers therefore are the victims of this state of things in the central and sole outlet for our tea. What is the moral? Should America be won for our tea surely every pound of it consumed there should be shipped direct, otherwise we should be no better off than we are now. Centralization is sometimes good, but not when that centre is unprepared to do the work thrown upon it. Unfortunately the sole sufferers from this state of things are powerless to alter it. It makes no difference to the merchants and brokers, who, therefore, don't care.

TEA SALES IN MINCING LANE.

	lb.		lb.		
Ceylon	.. 60,000,000	in	4,000 lots	equal to	15,000 lots.
India	..100,000,000		do	do	25,000 do.
China	.. 90,000,000		do	do	22,000 do.
Other	.. 20,000,000		do	do	5,000 do.
	290,000,000	Days sales 100			67,000 do.
		Daily average			670 do.

Each in 5 grades, each sale day 5
3,350* infusions to be tasted

by a dozen men, each sales day; but each buyer is supposed to taste them all, in about an hour and half, or about 40 minutes! The fact is no buyer tastes more than a dozen or 20 samples, so that competition is out of the question.

THE PRICE OF PEKOE SOUCHONG.

Colombo, Dec. 7th.

DEAR SIR,—I notice a correspondent in your paper quotes Fair Pekoe Souchong in the Colombo market at 22c 24c, against 30c in London, the standard being Messrs. Geo. Wilson & Stanton's as per their weekly telegram.

Though I have attended the local sales regularly I have not been able to purchase pekoe souchong equal to the London standard as under 30c—32c, and therefore shall be glad if your correspondent will tell me where I can buy at the price he quotes: at that price I can take a considerble quantity. —Yours faithfully, A BUYER.

THE PRICE OF PEKOE SOUCHONG.

DEAR SIR,—I see "A Buyer" disputes the fairness and truth of the inference drawn by me in comparing London and local averages for P. S., and asks me to inform him "where he can buy fair Pekoe Souchong at 22 to 24 cents." This question reads almost like a joke, and the answer is very easy, namely:—At the Colombo sales every Wednesday. What he intends to say, of course, is that the lots that are sold in Colombo every week at 22 to 24 cents are not average Pekoe Souchongs as sold in London. Well, who is to decide? I don't suppose any seller who accepts the 22 cents will rise up in his wrath and in his own name fight the question out. So all we can do is to fall back upon the published price lists, and on what we, upcountry, know of our neighbours' plucking and make. I take the London value to be the average of all P. S.'s sold, if not such "as usually made" by one or two big factories, *usually under the average*. My question, therefore, is very natural, "Why should the Colombo average be 6 to 8 cents lower than the London, as seen in every week's local price lists?" I would like to sell locally myself, but do not for this reason; though I see tea of my neighbours (the plucking and making of which I know) being sold at 22 cents, and I cannot understand WHY.

* Correct quantities required for the right answer.

THE PRICE OF PEKOE SOUCHONG.

Colombo, Dec. 18th.

DEAR SIR,—I was very much surprised at "Why" 's first letter, but his second throws a little light on his astonishing statement that Pekoe Souchong equal in quality to those in London selling at 6½d per lb. are sold in Colombo at 22 cents per lb. Of course to anyone who is selling or buying on both markets, and so knows by the inexorable logic of account sales the relation of Colombo to London prices, the above statement is absurd. But "Why" states that he supposes the quotation which appears in your valuable paper every week refers to the average price of Pekoe Souchong sold for the week on the London market; if he reads carefully he will see that you quote the price of "Average Pekoe Souchong" of one uniform quality which does not vary, as you explained in answer to a letter which appeared in your paper some time ago.

The latest mail from London is dated 26th ultimo. On referring to Messrs. Gow, Wilson & Stanton's circular of that date I find the lowest quotation for pekoe souchong is 4½d, only a single package, it is true, but a large proportion sold at between 5d and 6d, some from estates of high altitude, and good reputation. At about this date your quotation for fair pekoe souchong was 6½d. This of itself is, I think, sufficient answer to "Why" 's question.

I herewith send a sample of pekoe souchong sold in London at 5½d and sent to me as a buying standard. If "Why" can tell me where I can buy tea equal to this at 25 cents (3 cents over his quotation for pekoe souchong worth in London 6½d) I shall esteem it a favour.

If "Why" really thinks there is a margin for profit of 1½d between the Colombo and London markets, why does he not buy all he can get? It is not often such a good thing offers.

One other thing I may as well mention: tea sent down for sale on this market is not always what it is described to be. 12 chests described as pekoe souchong was sold at 12 cents; it was not pekoe souchong at all, but common red leaf.—I am, dear sir, yours faithfully, A BUYER.

TAPIOCA JELLY.—Soak a quarter of a pound of tapioca in water enough to cover it. Let it stand several hours, then stir it into a pint of boiling water. Simmer it slowly till it appears semi-transparent. Sweeten it to taste, and flavour with wine and nutmeg if approved of by the physician. Turn it into cups or molds.—*Florida Despatch and Fruit Grower.*

LOW-FIRED TEAS.—We learn that telegrams have been received in Colombo announcing that the first Ceylon teas low-fired according to Mr. Davidson's system have sold in Mincing Lane at good prices, showing an advance on ruling prices of 1d to 2d, thus proving the success of Mr. Davidson's method.

THE ZANZIBAR CLOVE TRADE.—A proclamation signed by the Sultan of Zanzibar, and countersigned by Mr. Gerald Portal, the British Resident was issued on November 27th, declaring that a duty will be levied on all the organs of florescence of the clove-tree, whether clove stems, buds, or seeds, after December 2nd next. The object of the measure, Reuter thinks is to increase the value of the clove stems, upon which no duty has hitherto been paid. We should rather incline to the belief that the measure is aimed at the discouragement of the exportation of parts of the clove other than the buds.—*Chemist and Druggist*, Dec. 5.

SISAL HEMP IN THE BAHAMAS.

EDGAR MAYHEW BACON.

On Inagua Island, the most southern of the Bahamas group, there is a stone building known as the salt house, under the ample roof of which frequently sounds the clatter of a vigorous donkey engine. Entering the building, the first sight to meet the eyes is a heap of sharp pointed, deep green leaves, which a negro is feeding, one by one, into a rapidly revolving machine. At his right lies a pile of long, powerful fibre, such as is used in rope making. Near by is a cart into which a boy is throwing the vegetable waste or pulp which he gathers from beneath the machine. This bagasse, as it is called, is wet with sap, and so strongly acid as to kill other vegetable growth with which it may be brought in contact. The fibre is the product, the bagasse the refuse (as yet unused) of the sisal leaves. There are about four feet and a half in length, averaging longer than do the leaves of the same plant grown in Yucatan. At the base, where they have been cut, they are thicker than a man's hand and from three and a half to five inches in breadth, running from this to a point so fine and hard that it can be used as a stiletto. The edges are armed with slight spiny serrations. An attendant with knife and maul removes the sharp points, crushes the thick ends, and divides each leaf longitudinally. Each strip is fed, by the negro in charge, into the mouth of his machine, through which it is carried half its length by the rapidly-revolving cylinder. It is then drawn out, which scrapes the bagasse from it. Reversing the strip, the operation is repeated and the result, a long, white "switch" of fibre, is added to the pile already noticed. The fibre is now washed in salt water (which gives better results than if fresh water is used), after which the hanks are hung in a drying house or better still, in the sun till perfectly dry, when the material is ready for baling and shipment. An old turtle tank or "crawl," cut out of the soft calcareous rock, with a small hole in the wall, which divides it from the ocean, so that the tide can flow in and out, makes an excellent basin for rinsing the fibre.

Sisal closely resembles the manilia hemp of the Spice and Philippine Islands, when prepared for market, and is not unlike it when growing. In Yucatan they are generally known as Hennequin. They possess in varying degrees the strength, length, and luster of fibre upon which the market value depends. The Sacqui, botanically known as *Agave Ixtli*, introduced some years ago into Florida under the name of *Agave Sisalana* and often called Maguey, has received the greatest attention from Mexican (Yucatan) cultivators. The plant which is being cultivated in the Bahamas was at first called "Pita," and, although greatly resembling the Sacqui, is considered a superior kind. A number of more or less worthless plants, having apparently the same general characteristics, are to be found throughout the West Indian Islands. A gentleman in Jamaica, with five hundred acres prepared for hemp planting, recently showed me the plants which he proposed to use, and which he imagined to be good Sisal. They were the valueless Keratto, the leaves of which might deceive any but an expert, but which upon being cleaned produce a fibre so weak that its cultivation would be utter folly.

A full-grown Sisal plant has sixty to eighty great leaves, growing around a common centre, which incline from a group of upright, undeveloped ones in the middle of the cluster to an outer circle that is nearly horizontal. Many leaves measure over six feet in length, but the average length of the "ripe" ones, as already stated, is four and a half feet. The average number of leaves which may be procured from each plant annually is over forty, being in excess of the Yucatan production. The separation of the the leaf from the plant is made with a knife near the base, and ripe leaves may be cut from two-and-a-half-years-old plants, although the length of time required for maturity differs in different localities. One cutting does not exhaust the plant. It may be stripped annually, or even more frequently, for twenty years, and when it shows sign of age may be replaced by a sucker, of which the careful Sisal cultivator will be sure to have a nursery full for such emergencies. The propagation of the Sisal is either by seeds or suckers. The latter spring up around the mature plants constantly, and should be carefully removed because they sap the life of the parent and also for the reason that they are most valuable for replanting. When plants remain uncut for too long a time, a huge flower stalk shoots up from the centre to the height of eighteen feet. After having flowered and matured its seeds, the plant invariably dies.

Experienced growers use six hundred and fifty plants to the acre, in rows eleven feet by six feet distant from each other. This will give room for the laborers to walk between the rows without being wounded by the terrible spurs which, like a cluster of keen spears, make each plant a menace to the unwary. Besides this, the closer planting would result in the piercing of innumerable leaves every time the wind blew, and the consequent destruction of much fibre. Stabs and bruises mean discoloration, and the expense of sorting damaged lots apart from the proportional loss would be an added and not insignificant item in the labour account of a plantation. Many people who have caught the "Sisal fever" are planting acre after acre, expecting nothing less than that the farms, when planted, will take care of themselves. To be successful in this enterprise requires unceasing activity and care. One must be Argus eyed. One season of poor prices, with the consequent discouragement which is apt to follow in the case of nine small proprietors out of ten, in a country where the peasantry are all negroes will result in an overgrowth of suckers and the poling of mature plants till nothing short of absolute clearing and starting anew will save the farms. There is no cultivation where system and perseverance are more necessary to success. The dropping of the seed from a single "pole," if not watched and attended to immediately, will produce little spears enough to destroy a hundred plants, and I have frequently seen a dozen suckers start up around and under the leaves of their parent. After such crowding, the leaves would be worthless, even could they be reached; but no man, unless arrayed in metal armor strong and stout enough to withstand the thrust of steel, would be so foolhardy as to attempt to penetrate such a growth. What I want to impress is the fact that without that patient and systematic care, which I have no where observed as characteristic of the unled negro, a field of Sisal is as valueless as a field of mullein.

The hardiness of the Sisal is something wonderful. It grows best on lands which seem good for nothing else. Rock land, where the hardy sage, the sword plant, or cactus crowd the stunted, gnarled hardwood trees; where the fissures in the sun-hardened limestone are filled with a dry, sandy soil, and hardly a barrelful of that to the acre, will produce Sisal. If hard pushed, it will grow in the air, without soil, I have twelve living plants which I kept shut up for eighteen months in a cigar box without light, air or water. But such growth as will result in a marketable commodity is a different matter. That requires a soil not too rich, which induces fatness and loss of fibre, nor too poor, or the plant grows dwarfed. The ground must not be too wet or too dry.

When the right spot has been found; when the selection of seeds or suckers, the preliminary preparation, has been accomplished; then, the choice of season hastens or retards the work of preparing the ground for the reception of the plants. Of course there is no winter; no frost or cold to contend with; no blizzard to calculate for. But there are rainy and dry seasons. One must calculate so that the necessary burning of cut brush and trees will not occur when the fires are liable to be extinguished by the violent down-pour of the "winter" rains, nor the planting delayed until the dry months interfere with the advance of the young plants.

All the ground is gone over first with the machete' a long, heavy, cutlass-line knife, which the negro uses either as a tool or weapon. All trees and underbush are cut down except the very large ones, which require an axe. Then the stumps are grubbed up so far as they are likely to interfere with the work. Next, fire is employed, and quickly runs over the acres where the negroes have toiled in gangs with their cutlasses. In this work of clearing, women are often found more satisfactory as laborers than men, and they receive but thirty-six cents where the men get fifty cents. Few laborers are paid by the day. Task work, *i.e.* so much for clearing a piece of land of a given size, called a "task of land," is the usual method. In clearing brushland in the Bahamas, one-fourth of an acre is a task. When, at last, all the clearing and planting has been done and thousands upon thousands of perfect plants, in absolute symmetry of arrangement, with unbroken ranks, their rich green showing no blemish, stretch before the eye, the spectator (especially if he happens to have a financial interest in the plantation) feels that there is a beauty apart from mere picturesqueness.

The present boom in Sisal in the Bahamas, although, like all excitements of the kind, doomed, without doubt, to considerable depression in the future, will not be without beneficial results. Even with the great falling off in enthusiasm which the next two or three years are likely to bring, there will remain a new industry, a source of greater prosperity to a people who have been for many years almost inactive.—*Nassau Guardian.*

BOTANY AND NOMENCLATURE OF CACAO WITH DESCRIPTION OF TYPICAL FORMS, Etc., Etc.

Under this heading Mr. Hart, Director of Botanical Gardens in Trinidad, contributes an elaborate article to the *Agricultural Record*, **as follows:—**

The name which Linnæus conferred upon this plant is derived from the Greek *Theos* (god) and *Broma* (food) or "Food for the gods."

There are several species of the genus, which is native of tropical regions extending from Mexico to Brazil, and among the known species are the following:—*Theobroma bicolor, T. guianensis, T. sylvestris, T. ovatifolia, T. angustifolia*—all said to be distinct from our cultivated *Theobroma cacao*, L., and its varieties, or the kind from which the major quantity of the marketable product known as cacao or "cocoa" is derived.

The Mexicans give to *Theobroma cacao* the name of Cacaoquahuitl, which has been in a great measure retained in the word chocolate. The trees of *Theobroma cacao* grow in some places to forty feet in height, the writer having seen them of this size in the province of Veragua when travelling there in 1885, but the usual height of the Trinidad tree averages about fifteen or twenty feet, the lateral diameter of its branches being about the same measurement. In Grenada, Tobago and St. Vincent the tree is generally of smaller size.

The Botanical characters of the genus are given in Griesbach's Flora of the British West Indies, p. 91, as follows:—

ORDER STERCULIACEÆ.

TRIBE BUETTNERIEÆ.

Calyx 5 *partite, colored. Petals* 5*: limb cucullate, with a terminal, spathulate appendage. Column* 10*-fid: fertile lobes bi-antheriferous: anthers bilocular. Style* 5*-fid. Fruit baccate,* 5*-celled: cells pulpy, polyspermous. Embryo exalbuminous: cotyledons fleshy, corrugate. Trees; leaves entire; pedicels fascicled or solitary, lateral.*

The description of our species is given in the same work in similar terms:—

T. Cacao, L.—Leaves oblong, acuminate, glabrous, quite entire; flowers fascicled; pericarp ovid-oblong, 10 *costate. Calyx rose-colored; segments lanceolate, acuminate, exceeding the yellowish corolla; pericarp yellow or reddish, leathery* 6 *to* 8 *inches long. Habitat, Trinidad —De Schach. Naturalized in Jamaica! Dist. St. Lucia! Anderson. (Guiana and Brazil!)*

The various names under which the varieties of this tree *(Theobroma cacao)* are known do not constitute species, but must be merely considered as varieties of one original species. These varieties probably owe their origin to seed variation, together with the influence of soil and climate, and to enumerate the whole of their names would serve no useful purpose.

Mr. Morris's clasification* was based upon the nomenclature of some of the best estates in Trinidad and has stood the test of ten years' criticism without serious contradiction, and may well be adopted for Trinidad with slight modification. It must be admitted that the local nomenclature of various districts differs much, one with another, and it would therefore be a hopeless task to attempt to reconcile these names. It is but patent to a close observer that there are certain characters of cacao more strongly marked than others, as exemplified in the varieties known as Criolla, Forastero and Calabacillo, though Mr. Morris contents himself with forming them into two great classes, "Criollo and Forastero," and he gives the Calabacillo as a variety only of Forastero.

Judging from a series of observations it would be better I am inclined to think, to make three classes, placing Criollo as Class I., Forastero as Class II., and Calabacillo as Class III., being the lowest type of the species.

CLASS I. CRIOLLO—OR FINE THIN-SKINNED VARIETIES.
1. Var. *a.* Amarillo.
2. „ *b.* Colorado.

CLASS II. FORASTERO—OR THICK-SKINNED CACAO.
3. Var. *a.* Cundeamor verugosa amarillo.
4. „ *b.* „ „ colorado.
5. „ *c.* Ordinary amarillo.
6. „ *d.* „ colorado.
7. „ *e.* Amelonado amarillo.
8. „ *f.* „ colorado.

CLASS III. CALABACILLO—OR SMALL-PODDED, THICK, SMOOTH-SKINNED, FLAT-BEANED.
9. Var. *a.* Amarillo.
10. „ *b.* Colorado.

The finest cacao is by general consent admitted to be produced by the Criollo variety, and this is assumed to be identical or similar in character to that called the Caracas variety. In the Consular Report on the agricultural condition of Columbia, Consul Dickson mentions that "*the variety chiefly grown in Columbia is different to that of Venezuela, which produces Caracas cacao, the pods being much larger, and containing a greater number of beans, but as the number of pods produced by a tree is greater, it is probable that on the whole the Venezuelan variety is the more productive of the two. The quality of Columbian cacao is little, if at all, inferior to that of the Venezuelan, but it is little known in commerce, as only an insignificant amount is exported, the supply scarcely satisfying the demand of the country.*"

What this variety spoken of by Consul Dickson may be, we have no means of correctly ascertaining at present, but from the comparison with the Caracas variety given by Mr. Dickson we might assume that it was very near to, if not synonymous with our Forastero, and it is to be noted that such a variety would also be "Forastero" or foreign to the Caracas people.

Dr. Trimen of Ceylon, in his annual Report for 1890, falls into the error of interpreting the word "Criollo" as being synonymous with "wild."

It is well known, however, that the word is never used in this sense in the West Indies, the true interpretation of the word "Creole" being—one born

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* "Cacao, How to grow and how to cure it." (Jamacia, 1882.)

† *No. 1, red Creole; No. 2, yellow Creole. Nos. 3 and 4, Cundeamor, is derived from the Spanish name of the "Cerasee" (Momordica Charantia) which possesses a peculiar warted appearance. Thus the name means Momordica-shaped, rough red or yellow cacao. Nos. 7 and 8 are Amelonado or melon-shaped, red and yellow cacao. Calabacillo, calabash-shaped cacao, red and yellow.*

in a country or one belonging to a country. With European Anglicans the word "Creole" is generally supposed to have reference to a mixture of races, but it is not used in that sense here.

For instance a child born of white parents in any West Indian Island, or even on the mainland of Central and South America is a "Creole," and just as much so as a black or coloured child would be. In fact "Creole" would be better translated as "native" than as "wild" or coloured, a black or coloured child being just as much a Creole as a white one. An English clergyman lately travelling in Trinidad was much surprised to find that the word Creole was used in this sense here, and even when shown that the use of the word in his sense would often subject him to ridicule, still he said he was not inclined to allow that the West Indian interpretation was right, but felt inclined to follow his own. This gentleman was writing a book, and possibly we may hear more of his conservatism later on.

It is important that the sense in which the word "Creole is used should be fully understood as we have Criollo" as our first variety of cacao.

If we interpret the words Criollo cacao as native cacao, and Forastero as foreign cacao, and Calabacillo cacao as calabash cacao, we shall have a better definition of terms, and prevent further misapplication of the word "Criollo." The Calabacillo is so named from its fruits resembling those of the calabash tree *(Crescentia cujete, L.)*

Dr. Trimen (Annual Report, 1890,) remarks that these names appear to have had their origin in Trinidad, and doubts whether the first or Creole was "ever really a native plant there." The misunderstanding of the word Creole probably leads him to this conclusion, for how could it be *Native* or *Creole* (Criollo) if imported into Trinidad, unless its name was imported from South America with it, and if so it should be known as the Criollo of South America and not simply *Criollo*. The word Forastero is also applied on the Main to the same cacao as in Trinidad, for they term it "Trinitario"* in contradistinction to their own Criollo, and certainly a plant of Trinidad would be Forastero or foreign in Venezuela or any other part of Central America, and therefore their Forastero being a foreign cacao and supposed to have its origin in Trinidad, would properly be the Criollo of Trinidad if the word was used in the correct sense.

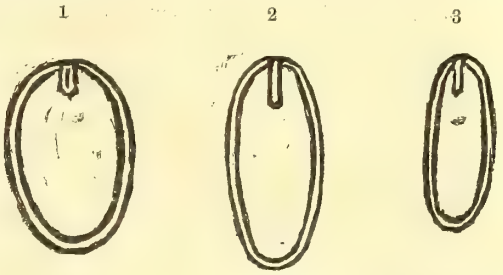
It may be possible, however, that Criollo cacao is a native of both countries, and that one has as good claim to it as another, but the balance of probability appears to be that its origin can be rightly traced to South America as indicated by Dr. Trimen, but there at present appears no ground of proof in support of the proposition.

Dr. Trimen also repudiates the authenticity of the word Criollo as attached to plants sent him from the Trinidad Botanic Gardens, and turns them into Forastero apparently on account of their being dissimilar to "the Old Ceylon Red cacao, also called Caracas" (Report for 1890,) but he allows a little later, that the Forastero sent from Trinidad to Ceylon is in the opinion of a large grower gradually changing its character and "becoming more like the Old Ceylon Red," or in other words, is reverting to its original type through the influence of the soil and climate in which it grows.

If therefore it is possible for Forastero to revert into the Caracas or Criollo, this circumstance goes very far to sustain the supposition that Forastero is merely a descendant of Criollo, or that Criollo is a descendant of Forastero: the change being brought about by circumstances of soil and climate in each case. That such a change is quite possible and very probable, is shewn by the fact that our best scientific botanists do not find sufficient distinctive characters (notwithstanding the differences in the form, size and colour of fruit, leaf and tree) to make more than *one species of all our cultivated varieties;* which as Dr. Trimen truly says, probaly trace their origin to a common wild parent.

The characteristics of the Criollo cacao are the thinness of its pod, its rounded beans and pale colour of the interior of the bean on section. The leaves of the tree are small whencompared with the Forastero varieties and the tree itself is not nearly so sturdy and thriving, and does not produce such regular and abundant crops as the Forastero and Calabacillo varieties. The skin of the bean is thinner, and the interior has but a small proportion of that bitter flavour which is characteristic of the unfermented bean of Forastero and especially that of Calabacillo.

The flattest beans art those produced by pods of the Calabacillo type. The beans of Forastero are intermediate between these and the rounded form of the Criollo.



CRIOLLO. FORASTERO. CALABACILLO.

The above sketch of sections of the beans of the three typical varieties, shows the difference in form which occurs, but still there will be found intermediate forms hardly reconcilable with any of the figures, so that they are to be taken as representative only of the typical varieties with some latitude.

There are rounded beans* to be found in almost every pod towards its extremities, but the proportion of rounded beans in Calabacillo is very small indeed, and the yield of this form of bean increases only as the character of the pods approaches the Criollo type. The Calabacillo, or that class which gives small, rounded and smooth pods and flat beans, having a bitter taste, is the lowest type of cacao that is grown, and requires the greatest amount of skill during treatment to bring it into marketable form, the process of fermenting it, taking more than double the time required for Criollo. The tree however is the strongest grower and the hardiest of all the varieties and will thrive on poorer lands, and on lands on which it would be impossible to grow the finer kinds.

Trees of the Forastero type are also strong growers, and its varieties are suitable for most lands in which cacao can reasonably be expected to thrive. It approaches the Calabacillo type by the Amelonado variety, both red and yellow, and certainly stands as a large intermediate and somewhat variable type between Criollo and Calabacillo. In general the Forastero type has a thick skin. It approaches the Criollo in form, or runs into Criollo by its variety Cundeamar verugosa, red and yellow, but trees may be found bearing pods which are hardly to be distinguished from the Criollo on the one side and the Calabacillo on the other, thus showing the breadth of form covered by this kind.

It becomes a question, therefore, for the planter to ascertain the character of his land with as much accuracy as possible before deciding what variety of cacao he will plant. If very poor he can rely upon Calabacillo only. If from moderately good to fairly rich, he should rely upon the varieties of the Forastero type, but if rich and lasting ground, only the best types of Criollo should be planted.

The generality of plantations are however of so mixed a character that it is difficult to separate one kind from another, though there cannot be any doubt that it would more than pay for any extra trouble were the system of planting each type in separate fields faithfully carried out.

* Dr. Chittenden in *Agricultural Record*, vol. ii., p. 107.

* *The word "bean" is incorrect, but as it is the common form of expression among our cacao planters, it is used as being better understood than any other.*

The contract system which prevails in Trinidad is probably more to blame for the mixed character of the fields than anything else. The contractor has perhaps in the first instance planted from seeds supplied to him—all of one kind. In supplying first vacancies he uses stronger and larger growing plants, and in places where the plant has refused to grow after planting twice or thrice, he will (rather than lose a count of a tree) put in a plant of the strong-growing Calabacillo.

In length the leaves of Criollo vary from 5 to 12 inches and from 2 to 4 inches in breadth. Forastero cacao gives the largest leaves of all. For the sake of accuracy I have made special measurements of some growing in the Royal Botanic Gardens and find that they vary from 9 to 21 inches in length, and range from 2½ to 6 inches in width.

The leaves of the Calabacillo type are shorter and wider in comparison with their length than either Criollo or Forastero.

It must be understood, however, that these measurements are taken from extreme forms, and that the nearer the trees approach other varieties, so also do the leaves vary in size and shape.

Cacao is said to have been cultivated largely in Jamaica some two hundred years ago, but according to Long, in his History of Jamaica, the plantations were destroyed by a "blast." Mr. Morris mentions in his pamphlet that in Trinidad also the trees were visited by a blast "some time during the last century." He interprets the word "blast" as a "blow or hurricane," but the word in East Anglican brogue is also given another meaning. "Blast" is there synonymous with "blight," and this is confirmed by Walker's Dictionary as follows: *(to blast—to strike with some sudden plague)*. Either interpretation would however fully account for the destruction of plantations, especially when taken in conjunction with the high rate of duties which was imposed on the article in England at about the same time. Whatever the cause, the cultivation of cacao in Jamaica received a wonderful check, for in 1671 Long states there were as many as sixty-five walks in bearing; while in 1882 it was only grown in isolated instances until the value of the product was brought into notice by Mr. Morris, when the cultivation became largely increased. The introduction to Jamaica was probably effected by the Spaniards as the English only came into possession of that island in 1655, or sixteen years previous to the date mentioned. One species is mentioned by a writer (Martius) as having been found in Jamaica *(Theobroma sylvestris)* but this would appear to need confirmation before being accepted as fact.

There appears to be little doubt, however, that *Theobroma cacao* is a native of the Northern territories of South America, and as the character of the flora of the mainland is closely approached by that of Trinidad it is quite possible that this species is indigenous to Trinidad, or was introduced at some remote time into the island.

Many writers agree that the flavour of cacao is dependent upon the soil, and in this they are probably correct, but much must also depend upon the surrounding conditions, viz.: moisture, exposure, and temperature, in their respective order, and perhaps more is to be attributed to these than to the soil, although all of them, it is freely admitted, may have a direct influence on flavour and quality.

Spon's Encyclopœdia gives *Theobroma angustifolia, T. bicolor, T. guyanensis, T. microcarpa, T. ovalifolia, T. speciosa, T. sylvestris* as producing commercial cacao, but we cannot learn upon what authority.

When travelling in Central America in 1885 I found *Theobroma bicolor*, Humboldt and Bondland, indigenous in the province of Veragua, United States of Columbia. It was known as "tiger cacao," so named from the rank smell of the seeds. It is not in general use by the inhabitants, though it is said to be used in some manner by the Indians. It has also the name of "Indian chocolate" and "Wariba," the latter being the Indian name, and appears to suggest some connection with the "Wari" or wild hog, probably one of the peccaries *(Dicotyles)* which are known to emit from a gland on the back a strong-smelling fluid.

It must be doubtful, therefore, if commercial cacao is produced by *T. bicolor*, and such a supposition would also throw some doubt upon any species producing commercial samples other than our *Theobroma cacao*, L., though we do not think it impossible or improbable that they should do so, and would rather infer that it would be possible by bringing them into cultivation in Trinidad, to be able to add to the variety of our produce and perhaps to improve it by hybridization with other species.

The kernel of *Theobroma guyanensis*, Wild, is said by Don to be white, and good eating when fresh. He also says that the seeds of *T. bicolor* are mixed with the seed of the common cacao (presumably *T. cacao)*.

According to Aublet's illustrations the pods of *Theobroma guyanensis* are small and oval, distinctly marked with five raised ribs, and the leaves are much like those of *T. cacao* but more cordate at the base. The fruit of *T. sylvestris*, from a plate by the same author, is small, smooth, yet still showing the five divisions of the pod by slight depressions or lines on the outside at equal distances from each other. The leaves are small and suggestive of the ordinary form borne by "Criollo." The pod of *T. bicolor*, Humboldt, is woody in texture, hard and dry, and specimens can be kept for any length of time. I have a specimen, collected in 1885, in the herbarium of this department, and also specimens of the leaves and flowers.

CHINESE CINNAMON.

BY HENRY HUMPHREYS, PH.C., HONGKONG.

It is generally supposed that Chinese cinnamon is the same thing as cassia, but there is reason to believe that this is not the case. One day I noticed our Chinese manager take a piece of bark out of his pocket, cut a bit off, and put in his tooth. He explained that it was cinnamon, and that it was used to stop his toothache. I looked at the bark and asked him if it was not cassia he meant. He smiled complacently and remarked, "One does not pay 5 dollars an ounce for cassia." I have since investigated the matter, and although unable to identify the "Chinese cinnamon" plant with Ceylon cinnamon, owing to the impossibility of obtaining the flowering branches, the results of my inquiries tend to show that Chinese cinnamon differs very materially from ordinary *Cassia lignea*, if only in the fact that it is certainly obtained from very old wild trees, whereas the cassia of commerce is obtained from cultivated trees only (Ford).

I found the six samples I worked on and which I have sent to Mr. Holmes for further investigation, to differ from cassia in appearance, taste and smell, and to contain little or no mucilage. On the other hand the iodine test gave a similar reaction to cassia. Owing to the costly nature of the bark, I was able to experiment only on very small quantities.

The Chinese call their cinnamon bark by different names and pay more in some cases for an ounce of "cinnamon" than a picul (133⅓ lb.) of cassia.

A cold aqueous infusion of all six samples yielded with iodine a bluish-black coloration, but with $HgCl_2$ there was no evidence of the presence of mucilage. The aroma of all six came near that of Ceylon cinnamon, but in some cases there was a pungency more consistent with the idea of their being derived from cassia.

One important point, however, I have been able to ascertain is, that "Chinese cinnamon" grows wild in Annam much further south than the West River in the Kwangsi and Kwangtung provinces, where cassia is cultivated.

The Chinese adopt the common name of Kwei for both cinnamon and cassia, but distinguish the two by an additional name; for instance, ordinary cinnamon is Jan Kwei and ordinary cassia Kwei pi.

Chinese cinnamon is never exported, owing to the heavy prices the Chinese pay for it. There are a good many varieties, all of which grow wild in Annam, in the neighbourhood of a mountain there, called Ching Fa. The most expensive kinds come

from the mountain itself, and are obtained from trees one or two hundred years old. It is said that trees of this age emit a fragrance. The size of one of these trees is from twenty to fifty feet high, and four to five feet in circumference. Annamites, who go in search of these trees, usually carry provisions to last for two months. Owing to the enormous price the Chinese pay the trees are denuded of their bark and consequently die.

Ching Fa Kwei, so called because it comes from the Ching Fa mountain, is the best kind, and its cost is about 25 dollars an ounce. Chinese doctors say this kind of cinnamon is good for curing and purging disease of the lungs and kidneys, inflammation of the eyes, convulsions in children, toothache, etc. When a piece has actually cured a dangerous disease, it is called Shan Kwei or God's cinnamon, and is held to be invaluable by the Chinese, and if procurable costs from fifty to one hundred times its weight in silver.

Foc Kwei (bitter cinnamon) and *Ye Kwei* (wild cinnamon) are also obtained from the same mountain. An infusion of the former is colourless and bitter, while that of the latter gives a sweet taste and imparts a dark red colour to the water.

All the above kinds are very scarce.

Ngoi Ho Kwei.—A very good kind obtained from hills close by the above named mountain. It is readily procurable at Chinese druggists' shops and costs from 5 to 7 dollars an oz. Chinese doctors generally prescribe this kind for sickness.

Ko Shan Kwei.—This is an inferior kind of cinnamon, and is an article of trade; cost 50 cents. to 3 dollars a catty.

All the samples sent to Mr. Holmes are strongest in flavour in the liber or endophlœum.

The liber of this drug in fact agrees with Ceylon cinnamon.

The remarks already made on the subject by various authors may be here summarized.

Wells Williams, in his Chinese Commercial Guide, under the head of "Chinese Imports," gives the following :—

Cinnamon (Jan K'wei). "A little is imported into the northern provinces where none of the cinnamon or cassia trees grow. Cochin china produces both these plants, and the true cinnamon has long been sent thence to China both by vessels and travelling traders across the frontier."

Stillé and Maisch (page 476), "A kind of Chinese or Saigon cinnamon of late occasionally met with is in more regular unscraped quills, yields a darker colored powder (than cassia), but has a very sweet and warm cinnamon taste. Its histological structure is very similar to Ceylon cinnamon."

'Pharmacographia' (pages 528-30), "China cinnamon of 1870 comes still nearer to Ceylon cinnamon, except that it is coated. A transverse section of a quill not thicker than one millimetre exhibits the three layers described as characterizing that bark. The schlerenchymatous ring is covered by a parenchyma rich in oil ducts, so that it is obvious that the flavour of the drug could not be improved by scraping."

The expedition of Lieut. Garnier for the exploration of Cochin China found cassia (?) growing wild in about north lat. 19°. Dr. Thorel also states that it grows in a wild state in the forests of Cochin China. Ford in his West River expedition, 1882, says *C. Cassia* was not met with anywhere in a wild state, nor could any native be found who knew where it did grow wild.

Dumoutier's 'Essai sur la Pharmacie Annamite' mentions both the bark of cinnamon and cassia.—*Pharmaceutical Journal.*

CANARYSEED.—A peculiar feature of the past week has been the increased sales of canaryseed, which is becoming a popular food for horses and cattle, as well as for pheasants and poultry. Prices have gone up, and now stand at 36s per 464 lbs. Some of the finer sorts, for which there is a fancy demand, sell, however, up to 52s.—London *Times*, Nov. 17th.

DESTRUCTION OF COCONUT PALMS BY PUTREFACTIVE FERMENTATION IN JAMAICA.—We have marked for the *Tropical Agriculturist* a report by Mr. Fawcett, the Jamaica Botanist, on an obscure disease in coconut palms. The remedies are fire applied to the trees, or a solution of sulphate of iron.

JAMAICA CACAO seems to be easily and plentifully grown but badly cured, while the market price is in proportion. From the Bulletin of the Jamaica Botanical Department we have marked for the *Tropical Agriculturist* letters from Mr. D. Morris and Messrs. Wilson, Smithett & Co. accompanying samples of well-cured cacao, in which Ceylon stands first beyond all compare: Aloowihara 154s per cwt.

OPIUM seems to be taking the place of tea in the Fokhien province. The *Foochow Echo* says :—Two tea-growers are we understand, planting poppies in the place of tea in the lower ranges of their tea plantations. If they meet with success, others will follow their example, and give up tea altogether. The Imperial Government with its heavy export duty and the local government with their likin and other squeezes, have, between them, effectually killed the once flourishing tea trade of this province.—*China Mail*, Dec. 16th.

CEYLON EXPORTS AND DISTRIBUTION, 1891.

COUNTRIES.		Coffee, Cwt. Plantation	Coffee, Cwt. N'tive	Coffee, Cwt. Total.	Cinchona 1891 B'nch &Trunk lb.	Tea. 1891 lb.	Cocoa. cwt.	C'moms. lb.	Cinnamon. Bales lb.	Cinnamon. Chips lb.	Coconut Oil. 1891 cwt.	Coconut Oil. 1890 cwt.	P'bago 1891 cwt.
To United Kingdom	...	60630	...	60630	46 12319	90961665	14958	129479	1089979	260078	126620	94151	147791
,, Austria	...	4869	47	4916	...	74426	...	4088	6300	21390	17688	18333	...
,, Belgium	...	18	2	20	293600	85	...	...	68500	8600	3508	1161	9958
,, France	...	209	56	265	3362	21110	149	...	132400	25660	3002	5007	...
,, Germany	...	113	302	415	...	89936	275	2701	447965	126784	18376	18777	32851
,, Holland	...	...	...	...	21438	2280	...	...	...	...	...	10	944
,, Italy	...	55	...	55	...	3649	...	...	121300	89600	5969	4530	...
,, Russia	...	...	...	...	...	11230	...	...	50	...	5512	8062	...
,, Spain	...	...	...	...	...	16995	...	...	66000	...	...	...	...
,, Sweden	...	...	...	...	...	300	...	...	...	...	...	...	...
,, Turkey	...	...	100	100	...	4211	...	89	24272	...	106073	84394	307
,, India	...	1930	2927	4857	...	451414	...	219026	7200	11148	2341	1891	687
,, Australia	...	9374	1318	10712	...	3074340	2410	188	8710	...	98993	88100	182680
,, America	...	259	...	259	...	163137	...	7643	...	...	33	...	...
,, Africa	...	127	...	127	407414	69078	...	290	...	...	1455	41265	8
,, China	...	104	...	104	...	163031	...	525	100368	...	58	...	...
,, Singapore	...	35	...	35	...	3174	84	...	...	...	...	...	...
,, Mauritius	...	263	145	408	...	68783	...	...	...	...	...	...	...
,, Malta	...	...	...	...	...	2000	...	...	...	...	...	...	...
Total Exports from 1st Jan. to 31st Dec.	1891	78006	4897	82903	5336333	64480734	17676	364429	2156634	540160	389629		375131
Do	1890	76224	2927	81151	8627452	44913918	14628	346216	1817814	435847	335609		368952
Do	1889	76041	4359	80548	9305502	32450372	17111	292112	2259399	518536	309758		448278
Do	1888	126607	6287	132894	12948185	22975112	11730	244403	1564532	458246	349526		2.3255

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current. London, December 3rd, 1891.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry ...	£3 a £5 10s
Zanzibar & Hepatic	Common and good ...	40s a £5 5s
BARK, CINCHONA Crown	Renewed	3d. a 8d
	Medium to fine Quill ...	4d a 7d
	Spoke shavings	2d a 4d
	Branch	1d a 2d
Red...	Renewed	2d a 7d
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow ...	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to good	£5 5s £6 5s
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine...	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 6d
Ceylon, Malabar sort	Fair to good bold bleached	2s 4d a 3s
	,, ,, medium ,,	1s 6d a 2s 2d
	,, ,, small	1s a 1s 6d
	Small to bold brown ...	1s a 1s 6d
Alleppee and	Fair to fine bold ...	2s 2d a 3s 3d
Mysore sort	,, ,, medium ...	1s 6d a 1s 10d
	,, ,, small ...	1s a 1s 4d
Long wild Ceylon...	Common to good ...	6d a 2s
CASTOR OIL, 1sts	White	4d a 4½d
2nds	Fair and good pale ...	2½ a 2¾d
3rds	Brown and brownish ...	2¼ a 2½d
CHILLIES, Zanzibar ...	Fair to fine bright ...	48s a 55s
	Ord'y. and middling ..	40s a 45s
CINNAMON, 1sts	Ord'y. to fine pale quill...	6½d a 1s 3d
2nds	,, ,, ,, ,, ...	6½d a 1s
3rds	,, ,, ,, ,, ...	5½d a 11d
4ths	,, ,, ,, ,, ...	5d a 10d
Chips	Fair to fine plant ...	2½d a 7d
CLOVES, Zanzibar	Fair to fine bright ...	3 7-16d a 3⅝d
and Pemba.	Common dull and mixed	3d a 3½d
,, STEMS	Common to good ...	1d a 1¼d
COCULUS INDICUS ...	Fair sifted... ...	11s a 11s 6d
COFFEE	Mid. Plantation Ceylon	93s 6d a 95s 6d
... ...	Low Middling ,, ,,	88s a 93s
,, COLOMBO ROOT... ...	Good to fine bright sound	22s 6d a 31s
	Ordinary & middling ..	16s a 20s
CROTON SEEDS, sifted...	Fair to fine fresh ...	15s a 20s
CUTCH	Fair to fine dry ...	24s a 32s 6d
DRAGONS BLOOD, Zan.	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah & Turkey	Fair to fine dark blue ...	65s a 70s
	Good white and green ...	55s a 60s
GINGER, Cochin, Cut ...	Good to fine bold ...	90s a 95s
,, ...	Small and medium ...	55s a 65s
Rough...	Fair to fine bold ...	45s a 55s
,, ...	Small and medium ...	35s a 40s
Bengal, Rough	Fair to good	19s
GUM AMMONIACUM ...	Blocky to fine clean ...	50s a 100s
ANIMI, washed ...	Picked fine pale in sorts,	£11 a £12
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£9 a £10 10s
	Medium & bold sorts ...	£6 10s a £10
scraped...	Good to fine pale frosted	
ARABIC E.I. & Aden ..	sifted	60s a 80s
	Sorts, dull red to fair ...	35s a 55s
	Good to fine pale selected	45s a 55s
Ghatti ...	Sorts middling to good...	25s a 33s
	Good and fine pale ...	65s a 90s
Amrad cha.	Reddish to pale brown ...	25s a 50s
	Dark to fine pale ...	15s a 50s
Madras ...	Fair to fine pinky block	
ASSAFŒTIDA	and drop	30s a 80s
	Ordinary stony to midling	15s a 25s
KINO	Fair to fine bright ...	60s a 65s
MYRRH, picked	Fair to fine pale ...	£4 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 10d a 2s 1d
East African Ports, Zanzibar and Mozambique Coast	White softish ditto ...	1s 7d a 1s 11d
	Unripe root	10d a 1s 4d
	Liver	1s 2d a 1s 8d
Assam,	Sausage, fair to fine ...	1s 8d a 1s 10d
	Good to fine	1s 6d a 2s
Rangoon	Common foul & middling	9d a 1s 5d
Madagascar, Tamatave,	Fair to good clean ...	1s 7d a 1s 10d
Majunga and Nossibe	Good to fine pinky & white	1s 8d a 1s 11d
ISINGLASS or FISH MAWS { Tongue.	Fair to good black ...	1s 5d a 1s 10d
	{ good to fine pale ...	2s a 2s 9d
	{ dark to fair ...	1s a 2s
Bladder Pipe...	Clean thin to fine bold...	1s 6d a 3s 4d
Purse ...	Dark mixed to fine pale	8d a 1s 8d
Kurrachee Leaf ...	Common to good pale ...	1s 8d a 3s 6d

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet...	4s a 5s 2d
	Ordinary to middling ...	3s a 3d 10d
Kurpah	Fair to good reddish violt	3s 2d a 3s 6d
	Ordinary and middling...	2s a 3s
Madras (Dry Leaf)	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 8d a 2s 4d
IVORY—Elephants' Teeth		
65 lb. & upwards ...	Soft sound	£65 a £71 10s
over 20 & under 60 lb.	,, ,,	£52 a £66 10s
40 a 100 lb. ...	Hard ,, ,,	£45 a £57
Scrivelloes	Soft ,, ,,	£25 a £41
,, ...	Hard ,, ,,	£23 a £34
Billiard Ball Pieces 2¾ a 3¼ in	Sound	£75 a £91
Bagatelle Points ...	Sli. def. to fine sound ...	£62 10s a £78 10s
Cut Points for Balls	Shaky to fine solid sd....	£52 a £67
Mixed Points & Tips...	Defective, part hard ...	£40 a £53
Cut Hollows ...	Thin to thick sli, def to sound	£29 a £56
Sea Horse Teeth—		
¾ a 4½ lb.	Crvd. crkd & close stright	1s a 3s 9d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	11s 3d a 13s
	,, II, fair pickings	7s 6d a 9s
	Jubblepore I, good & fine pale	10s a 12s
	,, II, fair rejections ...	7s 6d a 8s 6d
	Vingorlas, good and fine	9s 3d a 10s 9d
Madras, Upper Godavery	Good to fine picked ...	10s 6d a 11s 3d
,, ,, ...	Common to middling ...	7s 3d a 8s 9d
Coast	Fair	10s a 10s 9d
Pickings ...	Burnt and defective ...	7s a 8s 6d
MACE, Bombay ...	Dark to good bold pale...	2s a 3s 2d
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,, ...	65's a 80's	2s 11d a 3s 1d
	83's a 180's	2s 4d a 2s 10d
NUX VOMICA { Cochin, Madras and Bombay	{ Fair to fine bold fresh	11s a 13s 6d
	{ Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour...	½d a ¾d
LEMONGRASS ...	,, ,, ,, ...	1½d a 1¾d
ORCHELLA WEED { Ceylon ... Zanzibar ... Mozambique	Mid. to fine, not woody	20s a 25s
	Picked clean flat leaf ...	10s a 20s
	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy ...	3¾d a 4d
Alleppee & Tellicherry	,, good ,, ...	
Tellicherry, White ...	,, ,, ,, ...	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 22s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 8s
RED WOOD	Fair and fine bold ...	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	50s a 60s
	Ordinary to fair ...	28s a 45s
	Inferior and pickings ...	15s a 25s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs ..	Fair to fine flavour ...	£35 a £60
,, ,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	50s a 90s
SENNA, Tinnevelly ...	Good to fine bold green...	8d a 1s 2d
	Medium to bold green...	5d a 7d
	Small and medium green	2½d a 4d
	Common dark and small	1d a 2d
Bombay ...	Ordinary to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—med. to large small and medium, oyster and chicken	92s 6d a 105s
large	BOMBAY—fine thick ...	85s a 105s
medium stout ...	bright fairly clean	100s a 105s
chicken part stout	,, ,, ,,	100s a 115s
oyster part thin ..	,, ,, ,,	82s 6d a 107s 6d
Mussel	bold sorts	70s a 95s
	small and medium sorts	50s a 60s
Lingah Ceylon ...	Thin and good stout sorts	40s a 48s
TAMARINDS	Mid. to fine blk not stony	4s a 11s
	Stony and inferior ...	10s a 12s
TORTOISESHELL ...	Sorts goosmo'tlepatheavy	6s a 8s
Zanzibar and Bombay	Pickings thin to heavy	17s a 22s
TURMERIC, Bengal ...	Leanish to fine plump finger	9s a 15s
Madras ...	Fin. fair to fine bold brgt	17s a 18s
,, ...	Mixed middling... ...	24s a 30s
,, ...	Bulbs	20s a 24s
Cochin ...	Finger	10s a 12s
VANILLOES,		13s a 14s
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 18s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	7s a 12s 6d
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	4s a 7s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for January :—

THE SCHOOL OF AGRICULTURE.

DISTRIBUTION OF PRIZES.

THE ANNUAL distribution of prizes at the School of Agriculture took place on the 28th November, 1891, under the presidency of His Excellency the Governor. Among the company, which was the largest ever assembled at the School on such an occasion, we noticed the following :—

The Hon. the Colonial Secretary, the Hons. W. W. Mitchell, Seneviratne, Grinlinton, Abdul Rahiman, and Dr. Anthonisz, Messrs. A. M. Ferguson, C.M.G., Wm. Ferguson, H. W. Green, J. B. Cull, J. F. de Saram, J. W. C. de Soysa, and J. H. Barber, Mr. and Mrs. F. Beven, Mr. and Mrs. and the Misses E. Ludovici, Mr. and Mrs. and Miss Daniel, Mr. and Mrs. and the Misses Swan, the Misses Beven, Watson, Langenberg, Dr. and Mrs. and Miss Keith, Mr. and Mrs. Jacob de Mel, Mrs. James Pieris, Mrs. C. Drieberg, Miss Morgan, the Committee members of the Gramaraksha Samagama, Mr. Sangarapulley, Mr. and Mrs. C. B. Nicholas, Mr. and Mrs. C. Kriekenbeek, Mr. and Mrs. Alport, Dr. Drieberg, Mrs. E. Joseph, Misses Vanderstraaten and Drieberg, Mr. Richard de Silva, &c., &c.

The building was gaily decorated for the occasion. At the main entrance was erected a triumphal arch bearing the inscription "Welcome to H. E. Sir Arthur Havelock, K.C.M.G.." The drive from the gateway was left unadorned, evidently with the idea of securing for the visitors a good view of the grounds; but from the main entrance to the school and along the long corridor till the large halls at the posterior end of the buildings were reached, a profusion of flowers, foliage and fruitage tastefully put together adorned the walls and pillars or hung from the roof. The usual embellishments, consisting of mosses, coconut leaves and bunting were much improved by the addition of arecanuts, dates, sugarcane, tamarinds, cacao, &c., and hundreds of miniature bouquets of roses and other flowers that hung from festoons. The adornment of the principal hall gave evidence of much care and trouble, and here in addition to the other decorations were groupings of foliage plants, and a splendid collection of the choicest flowers in vases and cornucopias. The whole length of the long corridor was also strewn with rose petals, which however became a source of danger on the cemented floor and had to be swept aside. A carpeted space in front of the platform was reserved for the Governor's party, and there the floral arrangements were particularly striking and elegant.

The following is the PRINCIPAL'S report :—

The pleasant duty falls to me today, of extending to Your Excellency a hearty welcome to the School of Agriculture, on this the first occasion on which you have come to preside at our annual prize-giving.

You are not altogether a stranger, sir, to this institution, for with your well-known promptitude to acquaint yourself with the condition and needs of all departments of Your Excellency's Government, you visited the School shortly after your arrival in the island, and on that occasion expressed yourself, to quote Your Excellency's own words, "much interested in this useful institution." The pleasure of welcoming you, sir, is moreover greatly enhanced by the fact that within the short time that has elapsed since you assumed the reins of Government, you have given unmistakeable evidence of your kind and encouraging sympathy with the cause of agricultural education in this country. We who are engaged in

this branch of agricultural work have considered the past year a most eventful one; and for the provisions that have been made, and the facilities that have been granted us for the carrying on of our work, I take this opportunity of thanking Your Excellency in my own name and on behalf of the staff of this School.

Since the foundation of the institution the students have had a great struggle with the adverse natural conditions attaching to the situation of the greater part of the land available to them for cultivation,—conditions which though science can undoubtedly cope with and alter, were altogether beyond our control, in-asmuch as the drainage outlet which should carry away the excess of moisture that remains to, in a great degree, sterilize our land, is under the care of another public department which has not yet solved the problem of the drainage of the Cinnamon Gardens. To meet the difficulties in the way of raising such crops and carrying on such field-works as it is necessary to do for purposes of illustration in the teaching of the science and art of agriculture, we have, during the past year, received a grant of land, over 40 acres in extent and immediately adjoining the School premises, on which the necessary operations connected with our agricultural course may now be practised under more favourable circumstances than hitherto.

Another matter I have to record is the possession which we have come into of a good type of stud-bull, an agent that has for long been desiderated at this centre of agricultural education, which is not least concerned with the improvement of the stock native to the island.

Provision has also been made for the employment of a Government Veterinary Surgeon who is to be attached as a lecturer to the School of Agriculture. I have already been introducing our students to the elements of veterinary science (a subject closely allied to agriculture) with the knowledge I possessed of its principles, gathered under a press of other work which left me little opportunity for attending to and mastering its practical details to the extent I should have wished. But I trust I shall very shortly have to resign this part of the work of the School into more competent hands, and that the teaching of the expected veterinary surgeon, and the practical instruction which our students will receive at the veterinary hospital it is intended to erect on these grounds, will turn out men, who, as Veterinary Inspectors, will carry on a most useful and important work.

If the Superintendent of the proposed Technical Institute were to join forces with us in tke cause of education, you will admit, ladies and gentlemen, that these old walls which have experienced many vicissitudes will support a great educational stronghold, and enclose a most important educational centre.

There have altogether been about 40 students turned out by the School, 6 of whom are employed as agricultural instructors by Government and 5 privately. Of the rest some are engaged in the cultivation of land on their own account, notably the students from the Southern Province, while 3 or 4 have left the island and found employment under the Straits Settlements Government.

Mr. Laurence Perera who was so successful with cotton at Nikaweritiya is doing excellent work at Kuliyapitiya. His paddy cultivation according to different methods has given useful results which I shall not cumber this report with, but I may say that its success has been testified to by the Government Agent and Assistant Government Agent of Kurunegala. His experiments with cotton have brought out the fact that the Bourbon variety may be remuneratively grown in the district; and Mr. Perera has also given his neighbours practical lessons in the cultivation of arrowroot, potatoes and onions, all of which have been found suited to the locality.

At Navadimunmarai in the Batticaloa District, Mr. Chinasivagam brought an extent of 26 acres under the cultivation of the improved plough with most satisfactory results. He reports that the villagers in his district closely watched the several processes he went through, and that six cultivators borrowed his implement for working their fields, while a few applications were made for Massey & Co.'s cheap ploughs.

Mr. Tiathonis, Agricultural Instructor at Madampe is giving all his attention to the encouragement of pepper and cacao cultivation which the Government Agent of Ratnapura is very wisely urging the natives to adopt, by distributing seeds and plants with instructions as to cultivation and curing.

The splendid work which is being done in Happy Valley is I doubt not well-known to Your Excellency. Mr Hoole, the Agricultural Instructor, reports the comparative immunity of the paddy cultivated by him both from insect attack and the evil effects of drought. It is quite apparent that the villagers about this centre are being appreciably influenced by the work at Happy Valley, and encouraged to carry on the systematic cultivation of different kinds of garden produce.

The Agricultural Instructor at Kadugannawa, Mr. J. A. P. Samarasekera, reports that he has introduced horse-gram, green gram, and arrowroot to the natives, to whom these crops were quite unknown, and that they have already begun to grow and prepare arrowroot for consumption.

Mr. P. Samarasekera, Agricultural Instructor at Akmimana, has been engaged in the cultivation of 10 acres of paddy and 4 acres of arrowroot, dhall and vegetables. He reports that two ploughs have been purchased by the villagers, and expects that more will before long be imported into the district.

Mr. Ranasingha writes from Kolonna Korale that he has been distributing dhall seed from trees raised in his experimental garden, and that the villagers are beginning to cultivate this most desirable product in their own gardens.

Mr. J. W. P. Samarasekera, Agricultural Instructor in Kegalla District, furnishes me with an interesting report in which he states that he has conclusively proved to the cultivators in his vicinity that he is able to produce twice the ordinary crops of paddy by his method of cultivation, and that his plough has been in great requisition among them. The crops, whose cultivation has been demonstrated by this instructor are arrowroot, tobacco, dhall, green gram, horse-gram, and Indian corn, besides paddy.

Mr. Chelliah, Agricultural Instructor at Nintavur, gives an interesting account of the cultivation of 35 acres of paddy land, which yielded 1,140 bushels, or an average of 33 bushels per acre, and showed when all cost of cultivation was deducted a profit of nearly R1,000. Mr. Chelliah reports that the cultivators in his district are following his methods of culture, that many applications have been made for the loan of his ploughs, and that half-a-dozen cultivators have purchased improved implements. He also mentions the interesting fact that he has found burnt lime, when applied to the land before sowing, a certain preventative against insect attack. "My experience leads me to infer," says this Instructor, "that everything connected with paddy cultivation is under the control of the influential irrigation Vaniyas, who if they be trained agriculturists will have grand opportunities for improving paddy cultivation and making it a successful and profitable industry."

Mr. Rodrigo is still working well at Bandaragama, where since his appointment as Agricultural Instructor the attendance at the village school has considerably increased.

I must ask your indulgence, sir, for the length at which I have referred to the results of our Agricultural Instructors' work, but I am anxious that there should be some record of it, and that Your Excellency as well as the public should know something of the outcome of our teaching in this school. It is supposed by many that our great object is to get the goyiya to cultivate with Howard's Cingalee plough on every description of land; but from the references to the reports I have made it will be seen that while the use of improved ploughs is advised, where it is advisable to use them, other desirable methods, besides ploughing, are brought to the notice of the native cultivator, while not the least important work of the Agricultural Instructor is the importation and popularizing of products comparatively unknown to special districts. I am most anxious that greater facilities should be given us for the distribution of seed among the poorer cultivators,—a measure which at this stage of our agricultural reform it is most necessary to favour.

I must not omit to mention that great help and encouragement have been given towards the furtherance of our work outside the School by both Government officials and private gentlemen. Among the former, are the Government Agents of Kurunegala, Ratnapura, and Batticaloa, the Assistant Government Agents of Kegalla and Matara, while among the latter I must specially mention Mr. Clovis de Silva of Moratuwa among a number of our benefactors.

Our School Magazine still flourishes, and the project of issuing Sinhalese leaflets embodying useful agricultural information for the people has been an unqualified success, and will, I feel confident, bear much good fruit. I must acknowledge my indebtedness to the assistant masters, Messrs. Jayawardene, Silva, and Rodrigo, for the willing and efficient help they have rendered me in carrying on the work of the School. Mr. Jayawardene is still our practical instructor, and his self-imposed dairy work has been as creditable as it has been successful.

The crops that have been and are being raised on the School grounds include paddy, Indian corn, arrowroot, dhall, horse-gram, manioc, cumbu, black, gram, lathyrus sylvestris, grasses, fruits, and vegetables. It is contemplated to adopt the method of improving our poor sandy soil by folding cattle on the land next year.

On the whole I am led to believe, when all circumstances are considered, and the difficulties which beset them are (as is seldom the case) fully appreciated, that those concerned in the work of agricultural education, whether within school-walls or in the open field, have good reason to congratulate themselves on the support and encouragement they have received in their work from all classes, and on the fact that their detractors are in a very small minority. I trust, sir, that in spite of the necessarily slow progress of agricultural reform—whether in this country or any other country in the world—Your Excellency will—before the close of your reign in this island—be able to recognise very general and marked traces of the beneficial influence which the School of Agriculture has exercised on the native agriculture of the country.

Mr. J. B. Cull then addressed the meeting. After the lengthy report which had just been read, he need only say a very few words. There were, however, one or two points to which he might refer. The School was established by his predecessor nearly seven years ago, on the abolition of the old Normal School. It began, to a certain extent, in a humble way. Its numbers since then had been increased, though not very appreciably. At the outset of course it met with difficulties—difficulties which he thought were almost inevitable. There was the difficulty as regarded the conservatism in cultivation which prevails in all countries. Husbandmen were very tenacious of old systems and unwilling to embrace new systems. In the second place there was the difficulty—though it might seem paradoxical to say so—of the bountifulness of nature. In the greater part of this island nature responded with so lavish a hand to any call that was made upon her that the husbandman was not inclined to make any effort to increase the productiveness of the soil. At the outset also it, of course, met with some detractors. There were fears as to its permanance and usefulness. Both these fears had proved to him, he was glad to say, and were still proving groundless. Its permanance he thought they might take as assured, and of its usefulness he did not think there could be any doubt judging from the number of applications that he received as Director of Public Instruction, from month to month, from the various Agents in the island for the facilities of agricultural instruction. The number on the list at present was 26. He could see that the area of the usefulness of the school might well be enlarged, and he hoped it might be in his power to do so before long. He felt perfectly sure that if one could only have a successive supply of agricultural teachers to go out to the various schools in the island and energize there,—not only in the schools but amongst the village population,—good results could hardly fail to be produced. In this respect he was very glad to be able to acknowledge with thanks the generosity of

Government in allowing a vote for six new agricultural instructors next year. It seemed to him that the best plan of dealing with these students was to utilize them as itinerating instructors—not confining them to this school or that school, but alloting them to a certain district, say for a couple of harvests or even more, but not for any length of time, and then transferring them to other districts which also required exploiting so to speak. He had spoken of the preliminary difficulties which were encountered, but he thought he could now say, judging from the applications for instructors which had been made to him by the various Agents, that the success of the school was fairly established. He had applications from Kurunegala, from the Government Agent of Ratnapura, fromt he Assistant Agent of Kegalla, and from two other centres, and that fact witnessed to the usefulness of the instruction which was imparted. The chief object of the instructors hitherto had been the economic cultivation of paddy. There was no doubt from the reports he had received from the Government paddy cultivating areas of the island that the experiments that were conducted had been very successful. At the end of last year he received a long report from the Government Agent of the Eastern Province in which he conclusively showed that, comparing the two systems of cultivation —the improved system as taught by the instructors, and the old system as pursued by the ordinary village cultivators—the yield of the new system was incomparably superior. He thought the attention of the instructors might profitably be drawn to another form of cultivation, that was fruit cultivation. There was no doubt whatever that fruit cultivation so far as Colombo was concerned and the island generally, was more or less rudimentry; very little improvement had been made in that direction. A better growth of oranges, plantains, and mangoes might be obtained, and he had no doubt the Principal would turn his attention to that. One thing he was glad to note was the issue of leaflets by the Principal. These had no doubt been productive of mnch interest and much good amongst the people. He was informed by the Principal that the issue of leaflets now amounted to something like 6,000 per month. As regarded the dairying operations of the School he had that afternoon visited the farm and cattle buildings where there were about 16 or 18 cows, and the Superintendent of the dairy farm told him that he made a profit of something like 40 or 50 rupees. When one considered how very little was done in the way of dairying, it being almost impossible for one to get a glass of milk when travelling, although cows are swarming round about him, the new departure in the way of dairying seemed to be a great promise. He did not propose to detain them any longer, but he should like to bear this testimony to the work and energy displayed by the Principal during the past year. There was no doubt that whatever practical success especially the School had attained was due to Mr. Drieberg's successful tuition. He felt sure that all those who were interested in the welfare of the villagers generally as connected with agricultural operations would coincide in that opinion. (Applause.)

H. E. the Governor:—The pleasing duty of distributing the prizes is the next item on the programme and devolves upon me.

The prizes and certificates were then distributed by H. E. as follows:—

Seniors.—Theoretical Agriculture, Chemistry and Botany, E. M. Johannes; English, Mathematics, and Entomology, E. M. Johannes; Botany and Zoology; H. S. Dias; Practical Agriculture, S. S. Viramuttu. Special Prizes:—Mr. de Soysa's prize (R25) for Practical Chemistry, E. M. Johannes; Mr. Jno. Clovis de Silva's prize, (R10) for Practical Agriculture, S. S. Viramuttu; Mr. J. H. Barber's prize, (books) for Practical Agriculture, J. S. Salgado; Mr. A. M. Chittambalam's prize for Theoretical Agriculture (cheque R10), E. M. Johannes.

Juniors.—Theoretical Agriculture, H. B. G. Athapathu; Chemistry, R. Jayasiriwardene; Chemistry, H. B. G. Athapathu; Geology, T. B. Kehelpannala; Mathematics; F. Gunawardna, Botany, K. D. Romial; English, History and Geography, T. B. Kehelpannala; Histroy and Geography, Athapattu; Field Surveying, K, D. Romial. Special Prizes:—W. de Mel's prize (books) for Practical Agriculture, C. M. Abayasekera; Mr. Arnold Dias's Prize (books) for Practical Agriculture, S. Nallasully; Mr. S. T. Muttiah's prize for Field Surveying (R10), K. D. Romial.

Certificates were presented to the following students, who are leaving the College:—S. M. Johannes, H. H. Dias, S. S. Viramuttu, C. H. Perera, D. Amarawickrama and J. S. Salgado.

H. E. the Governor afterwards said:—Ladies and gentlemen, I am sure you have in common with me listened with profit and satisfaction to the very full report which had been read by the Superintendent of the Agricultural College, and the commentary upon it which we have heard from the Director of Public Instruction. I say for myself that I have listened to that report and these comments with profit, because I find that I have gained by them information which I certainly did not possess before of the object, history and progress of this institution. I have listened to these remarks with great satisfaction because they have put before us a very satisfactory history of the working af the Institution even after making allowance for a little very natural enthusiasm on the part of the Superintendent. It is difficult to exaggerate the importance of an institution of this kind in a country like Ceylon which is almost entirely dependent on the development of its agricultural sources, and I am particularly glad therefore to see so many visitors present to give their enccuragement to this particularly interesting and valuable institution. The syllabus that I hold in my hand of the intended work of this College is a very comprehensive one, comprising as it does a large number of theoretical and practical subjects of education, and when this syllabus is augmented, as we have been told it probably will be, by the teaching of more advanced veterinary science, and also possibly by the ingrafting upon it of some technical teaching, I think there will be very few educational institutions in Ceylon which will equal this College in importance and interest. (Hear, hear.) I was particularly interested by those passages in the report of the Superintendent which deal with the results of experiments in the improvement of paddy cultivation. It is pitiful to

hear of the results of the general run of paddy cultivation in this country. One sees an immense amount of time, labour, and patience expended in cultivating those fields, and the result, we are told, is very often of the very poorest description—far behind the result of the paddy cultivation in India or Burma. In certain portions of the colony in which I have ridden about I have made a point of trying to discover from those who were with me, what was the yield of the fields through which we have been passing. I have often seen fields most beautifully cultivated, there being most painstaking arrangements for irrigation, for damming water, for ploughing, and for every other possible item of cultivation, and I have been told that probably the results may be sixfold or fourfold. I have it on the authority of one of our Government Agents that in his province there are many of the fields which do not yield more than fivefold. The work of this institutian therefore in promoting the improvement of paddy cultivation is, I suppose, of all its various works, the most important and the most practical. For that reason I am particularly glad to hear of the satisfactory results that have been attained, and I can only hope that by every possible expedient, by the introduction of new forms of cultivation, and by the importation possibly of new kinds of paddy seed, the work of the College will profit the country. There is one other line of agriculture which I think was dwelt upon by the Director of Public Instruction, and in which I am also glad to hear that there has been considerable progress, and that is the improvement of cattle. I believe an immense deal can yet be done in this country in that way and without very much difficulty. Even in the neighbouring country of India, there are breeds of cattle which are far superior to ours, and without going further than that country, I think we can do a great deal by importing good stock. (Applause.) I notice the sun is getting low, and therefore I will not detain you with any further remarks. I would only say that I thank the Superintendent and the students of the College for their kind welcome to me today. I also express my sympathy with them in their work here, and my earnest hope that it will meet with increasing and well-sustained success. (Applause.)

Mr. H. W. Green, who was afterwards called upon to address the meeting, said he had hoped a little while ago that his days of speaking at prize-givings were over. It was always rather a pain and a trouble to find anything to say on these occasions when one had been at so many as he had, but this school having been started by him and being his special and favourite eldest child. (Applause.) while he was Director of Public Instruction, he felt it would be ungracious not to say anything. He then expressed his pleasure at learning from Mr. Cull's speech and from the report of the Superintendent that the work was really progressing. He had a very hard time of it indeed when he started the school. Various Government Agents told him that in advising the native cultivator he was trying to teach his grandmother how to suck eggs, and that his grandmother knew much more than he did. What did he know about paddy cultivation? He replied that in going about the world he had used his yes and thought he knew a little about it; but he told the Government in starting it that he did so at his own risk, and that if it was a failure he alone was to be condemned. He was glad to learn that it was not a failure, bnt he should like to see more than had been done. In a country like this we could not get on too fast. Like the English people at home the Sinhalese and Tamils were very conservative, the Sinhalese especially so, in regard to cultivation. The Governor had made a most kindly speech, and had shown, even more than in his speaking, a kindly deposition towards the work of the School, by allowing the grant for the new itinerating agricultural instructors, and he hoped that that would considerably aid in the progress of the work here. Itinerating teachers were most useful here, and the work of private students on leaving the School and going to their own places or the lands of private gentlemen and officials who employed them was also most useful; but the more help that could be got out of Government the better, because all there knew that the ordinary native did think a great deal of men paid by Government. His Excellency had remarked on the absurdly and lamentably low yield of paddy. It was absurd and it was lamentable. He had also remarked on the beautiful cultivation of the fields and irrigation lands. If it were not heresy, might he say that it was beautiful on the outside, that everything except the first step was beautifully done. It was like the house built on sand that we read about in a certain old book. The house might be beautiful, but there was no foundation. The Sinhalese cultivator and the Tamil cultivator in some districts—not in Jaffna and districts where water was scarce, but wherever water was plentiful,—was inclined to begin on the top withont the bottom. He forgot that however bountiful Nature might be in giving him rain or tanks or irrigation, he must prepare the soil for the water. He began to prepare the soil with the water on it. He said this method killed the weeds, and if he spoke the truth he would also say that it saved trouble; but he should plough the land when it was dry, turn the whole thing over and leave it to the baking of the sun for two or three months before the water and the beautiful cultivation came on. That was the one sole foundation fault of paddy cultivation in this country. Wherever the experiments taught at that School had been tried honestly—they had not always been honestly tried—it had been found that where the land had been thoroughly turned up and prepared, they had at least double the crop of their neighbours and often more than double. If the people would only work carefully there was no reason why we in Ceylon should not have the Burma yield, which was something like ninetyfold. The climate was all right, everything was all right, but they did not prepare the soil for the working of bountiful Providence. He should be very glad indeed to hear that the dairy farm was going on well, for it was a most important thing. It was very hard indeed to get good milk, and if anything could be done to increase the supply of good milk to the residents here, it would be a great thing. Still more would it be a great thing to improve the breed of cattle by which theploughing was done. The objection to all their new ploughs was that they were too heavy for the cattle. It was

not really that, but that the plough gripped into the ground which had to be turned over and thus made it heavy. For the new sort of plough they wanted good wholesome strong beasts with a good hump, that could hitch well on to the plough and pull it well. He thought there was a great deal to hope for in the breeding of improved cattle, and he was glad to see that attention was being paid to it. At the same time he pointed out that he thought the difficulty on that point was unnecessarily exaggerated in native newspapers; and really after all perhaps the general improvement of the cattle and above all the preservation of the cattle against the everlasting recurrence of disease and the loss of cattle by murrain, was more a matter for the veterinary department of the College than any other. Many cattle were lost every year by murrain, and how the supply was kept up was a mystery to him.

On Mr. GREEN's having resumed his seat,

H. E. the GOVERNOR said:—In every meeting in Ceylon in which Mr. Ferguson is present the company would be dissatisfied, and the object of the meeting would be incomplete unless Mr. Ferguson addressed the meeting. I must therefore ask Mr. Ferguson to address us.

Mr. A. M. FERGUSON, who was received with applause, then stepped to the front and said that at the invitation of his friend Mr. Drieberg he felt honoured and pleased to come there, and doubly so after the very kind remarks which His Excellency had addressed to him in calling upon him to offer some observations. The meeting and the institution with which it was connected were exceedingly interesting, as they might imagine, to one whose memory went back to a period when education in its most elementary forms was comparatively in its infant stage—when the instruction by which education was gained—a knowledge of reading and writing was in its infancy. Here they had young men receiving a really practical education for the business of life, and going forth into the various parts of the country carrying their knowledge with them and disseminating it wherever they went: to their own farms or to private employment, or still better as agricultural instructors in the service of Government, alwas imparting knowledge of immense consequence and great value to the people if the people would only receive instruction from them. The Rembrandt-like picture which His Excellency drew of paddy cultivation in this country was, alas too true; and sometimes the idea had been thrown out that the soil was so essentially poor that it could not be improved. He felt greatly relieved that he had been preceded by Mr. Green, who had put the matter very largely in its true light. The experiments showed that the yield of paddy could be doubled, and tripled, and quadrupled even, by careful cultivation; and one of the great lessons which the agricultural instructors would have to impress upon the people was steady, regular, untiring industry. At present there was a great spurt and then a collapse; the Sinhalese would work day and night for a time in order that they might lie by in a state of torpidity for the rest of the year, and the duty should be impressed upon them of regular industry and attention to their land. As Mr. Green showed there was too much left to be done by water which was an excellent thing in its proper place, but which, as Mr. Drieberg had shown in his report, when it waterlogged the land was sterilizing and beyond that insanitary. There was much that the people could be taught not only in paddy growing but in other branches. The Director of Public Instruction had requested him to deal with the value and importance of horticulture. Humboldt calculated that an acre of well-cultivated plantains would yield as much nutriment as forty acres of wheat, and he need not dwell on the vast possibilities thus presented. Here we had as fine oranges as any in the world, if only justice were done to them, and they were allowed to ripen on the tree. Dr. Bonavia came over here, got some ripe oranges, kept them for a month, took them over to India and they turned out as fine oranges as any in the world. Grafting of oranges and mangoes were almost unknown here, but any person travelling through India would find that a great propotion of the wealth of the people consisted in mango groves, every tree being carefully grafted, and if the Director of this institution could instruct his pupils how to improve horticulture by pruning and grafting, and the pupils carried that knowledge into the villages, the people would have when in a bad year through floods or some cause that could not be helped, the paddy crop failed, something else to fall back upon. (Applause.) Allusion had been made to itinerating students, and that reminded him that in the agricultural papers of which he received many from all parts of the world, he constantly saw most interesting references to itinerating dairies. He hoped the day would come when such a thing as an itinerating dairy would be possible here; when they would have instructors going about with superior cows and superior utensils, and at various centres, instructing the people to make the best use of what was now grossly neglected. More than 50 years ago he lived in Uva in the house of a native headman who had probably 00 cattle, and he could not get a drop of milk. The Sinhalese made very little use of what ought to be a great and wholesome and nutritous article of food—the produce of the dairy, and he hoped there might be an improvement in that respect. With regard to the cattle the duty of the instructors would be to press on the people the lesson that a few good cattle were better than a large number of skeletons such as one so often saw. They allowed the cattle to breed, and they did not ask whether they had sufficient for them in the shape of grass and fodder. That reminded him to suggest to H. E. that it might be profitable in some cases to use the irrigation water in the cultivation of meadow grass for the cattle. When he had the honor of speaking last in connection with this institution he mentioned Java, which was in the same latitude south as Ceylon was north of the equator; and there they had most splendid ponies and not only so but horses of the very finest description. He thought attention might well be directed to the breeding of horses here as well as cattle. (Applause.) In conclusion he said he felt exceedingly glad he had been spared to see such an institution as this in Ceylon and the prospect of a technical institute and other

educational advantages which would enable the people to fight the battle of life with advantages of which their predecessors knew nothing. This and similar institutions had all his sympathy; and if through the press or otherwise he could do anything to advance what Mr. Drieberg and Mr. Cull and the Educational Department generally had at heart he should only be too glad. (Applause.)

The Hon. A. DE A. SENEVIRATNE afterwards addressed the meeting, stating that he had been asked to make a few remarks from a visitor's point of view. Well, the institution had been doing excellent work, and everybody ought to feel thankful to Government for starting it, to the past Director for carrying it on so nobly, and to the present Director for making up his mind to effect further improvements. The duty lay upon those who had got certificates and were going out into the world to shew that the institution was profitable to the country. It was not by winning prizes there that the thing was to be done, but by going amongst the villagers and inducing them to adopt the improved methods of cultivation. Referring to the observations of Mr. Green he said this place could show grandmothers a better way of sucking eggs. (Laughter and applause.) Everybody could bear testimony to the fact that the cultivation of fruit was very much neglected, but he did not think it would be quite fair to the Sinhalese to say that they entirely ignored the use of milk. He had been in villages where there was hardly a family owning cattle who did not use the milk for family purposes, especially buffalo milk. The ordinary cattle did not produce sufficient milk, but the buffaloes produced plenty. As to improving the breed of cattle he thought they must not forget that there was a very good breed of cattle, for which thanks were due to the late Mr. De Soysa, and he trusted that members of his family would follow up the work of their father and keep up and improve the breed of cattle. He thought they must have heard before of the great work that Mr. De Soysa performed in removing from destitute villages a large number of villagers and supplping them with the means of living and cultivation, and he trusted his successors would follow that example. In conclusion, he said he felt it his duty to say that all felt thankful to His Excellency, Mr. Green and the Principal of the institution. (Applause.)

H. E. the GOVERNOR :—It now remains for me, the programme having been brought to a close, to break up the meeting, which I am sure has been highly agreeable and interesting to us all.

The meeting then separated, the students giving cheers for His Excellency and the other gentlemen as they left the room.

After the ceremony the company adjourned to the playground, where light refreshments were served, and the time was pleasantly passed with music supplied by the band of the 1st Gordon Highlanders.

OCCASIONAL NOTES.

In another column will be found the report read and speeches delivered on prize day. The good feeling displayed by all the speakers from His Excellency the Governor downwards helped to make the time pass very pleasantly. We greatly missed Mr. George Wall on the occasion when he was to have spoken, but was prevented owing to a sudden call upcountry on business. A notable feature in the proceedings was the large number of prizes offered by those interested in the School, and our thanks are due to Messrs J. W. C. de Soysa, Jacob de Mel, S. T. Muttiah, A. M. Chittambalam, J. Clovis de Silva, J. H. Barber, and Mrs. Arnold Dias, for the cheques and books they presented.

We offer our best thanks to Mr. J. P. Williams, seedsman at Henaratgoda, the enormous extent of whose business is little known, for the gift of the following plants to the School:— 4 plants each of Malta lemon, Begori lime, Coornul lemon, and Lisbon lime, 6 of bassia latifolia, 6 giant loquat, 6 red toon, and 6 saul tree (shorea robusta). The last is valuable both for its timber (which is considered only second to teak) as well as for its resinous oil.

"Would it not be a most important service," writes Miss Ormerod, "if you could induce your pupils and other correspondents in connection with your School of Agriculture to note down the habits of your most injurious insect pests, and for you to form these year by year into a report with a figure as well as correct scientific and popular name of the insect? Perhaps you do this already, but if not, you would do immense good if you could bring it about." The fact is we have made an effort to do what Miss Ormerod wisely urges on us, but since we have no opportunity of moving about and collecting specimens of insects where they are pests, we can only depend upon others to send them to us. One or two of our Agricultural Instructors have been good enough to supply us with a few of these specimens, but in order that these may reach us in a condition in which they will be of use for identification, they (the Instructors) would need to be supplied into alcohol, bottles and cases for the purposes. There are some, however, who have an idea that there is no need of seeing, much less of identifying an insect in order to suggest a remedy, and with such people, who should know better, it is difficult to deal with. Will Miss Ormerod's advice have any effect upon them?

The following is a letter from Mr. P. Samaranayaka, Agricultural Instructor, to the Director of Public Instruction :—

Akmimane, 5th September 1891.

Sir,—I beg to submit the annexed results of the 16 acres of paddy land cultivated by me for the "Yala" season 1891 according to the improved system, and a comparison of the same with two of my neighbours' results. 3 acres planted out with seedlings raised from $\frac{3}{4}$ bushel of seed paddy yielded a crop of $79\frac{1}{2}$ bushels. 13 acres were sown broadcast with 19 bushels of four and five months' seed paddy, obtained a crop of 278 bushels, and had an average yield of $21\frac{7}{13}$ bushels per acre. The neighbouring cultivators who cultivated according to their method had obtained 21 bushels from $1\frac{1}{2}$ acres with 3 bushels of seed paddy and $25\frac{1}{2}$ bushels from 2 acres by using 4 bushels of seed paddy. The total yield of the 3 and 13 acres

is valued at R446·87½, and deducting expenditure and grain-tax R205·12½, there is a profit of R241·74½.—I beg to remain, Sir, Your most Obedient Servant,

(Signed) P. SAMARANAYAKA,
Agricultural Instructor.

To J. B. CULL, Esq., Director of Public Instruction, Colombo.

The results of the 16 acres of paddy land cultivated for the Yala 1891 at Akmimana.

	Extent sowed.	How much seed used.	Cost of Cultivation.	Crop.	Bushels per acre.	Amount of sale.	Profit.
		Bu.	R. c.	Bu.		R. c.	R. c.
Instructor:							
Planted out	3	¾	175 12½	79½	26½	446 87½	241 74½
Broadcast	13	19		278	24 1⅗		
Neighbours:							
Broadcast.	2	4	15 50	25½	12¾	31 87½	16 37½
	1½	3	11 30	21	14	26 25	14 95

Remarks.—Grain Tax R30 is subtracted.

Mr. Samaranayake also states he did not use any kind of manure, and gives further details regarding cost of cultivation as follows:—

	R.	c.
Preliminary works and ploughing the whole extent of 16 acres.. ..	27	50
Cross ploughing and clearing dams ..	18	30
Preparing land for sowing 13 acres ..	16	15
Levelling and planting out 3 acres ..	7	00
Seed paddy 20¼ bushels	28	12½
Reaping, threshing, winnowing paddy of 3 acres	15	05
Do do do 13 acres	63	00
	175	12½

We are glad to be able to state that some of our benefactors have offered us help in order that we may open out the new block of land granted to the School, and our thanks are due to Mr. J. W. C. de Soysa who has succeeded his most estimable father as a kind supporter of this institution, for a donation of fifty rupees.

Professor Primrose McConnel, the well-known author of the Agricultural Handbook, writing from Oregon, Essex, where he is farming, says:—"The University Commission proposed to abolish the B. Sc. in agriculture at Edinburgh, but I understand that wiser councils prevailed, and it is to be allowed to stand. Nobody knows definitely yet, however, and Wallace (the Professor) is in Egypt at the present time. Both Oxford and Cambridge are proposing to institute a proper curriculum of agricultural teaching, but up to the present time the matter has got no further than the making of propositions and passing of resolutions, with adjournments for further consideration. I am hoping that something definite will be done by both of these Universities during the coming winter. The various County Councils are developing systems of 'extension' lecturing or peripetetic teaching."

The small parcel of lathyrus sylvestris seed which was expected at the School for experiment, arrived from Italy, but we regret to say that the germinating power was very low. It is, however, gratifying to be able to say that we have some specimens of this world-renowned fodder plant at the School. It yet remains to be seen whether cultivation on a large scale will be a success, and whether all the qualities claimed for it will appear in the plant as cultivated in Ceylon. The seeds do not germinate very readily, but when they do, a stem of some length is produced before the appearance of the leaves, which being at first enclosed within two comparatively large stipules, come out in pairs.

Mr. J. P. Manchanayake, now employed in Kwala Lumpar, under the Straits Settlements Government, where he is keeping up his agriculture, has most thoughtfully sent us a parcel of seeds of the fruits commonly cultivated in the country, such as Chinese apple, Malayan breadfruit, pomelo, plum, &c.

S. Mahawalatenne Ratemahatmaya of Atakalan, who has helped us in circulating the agricultural information leaflet, has offered to give a trial to any plants and seeds new to the Island or his district, on his extensive lands.

The School of Agriculture closed for the Christmas vacation on the 31st November. We draw attention to a notification by the Director of Public Instruction that a new batch of students will be admitted next term. The school re-opens on the 16th of January 1892.

INDIGENOUS FOOD PRODUCTS: CULTIVATED AND WILD.

By W. A. DE SILVA.

Asclepiadeae.

56. *Hemidesmus Indicus*, Brown.

This plant is known as *Iramusu* in Sinhalese and *Nannari* in Tamil. It is a perennial with a thin woody creeping stem, and small lanceolate leaves of a pale green colour. Along the midribs the leaves have a whitish appearance. This plant is found growing in the warmer regions of the Island both in cultivated and uncultivated places, and comes up with great luxuriance in new chena clearings.

Just inside the epidermis or the outer surface of the roots and stems of this plant a fleshy covering is met with. This substance is of a whitish colour, has a flowery texture and a pleasant though a peculiar taste.

The whole plant is pounded and a congee is made by adding a little rice. This preparation is considered to possess healing properties, and is especially recommended as a purifier of blood. The leaves are sometimes dried and an infusion made which resembles tea in many respects. The infusion has a pleasant taste, but unlike tea contains no tannin. Hemidesmus tea is a favourite beverage among some of the natives of the island. The root is much used in medicine, and is often called Indian Sarsaparilla. It is prescribed by native medical practitioners to purify the blood, promote appetite, and to cure skin diseases.

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COLONIZATION OF LANDS CONNECTED WITH RESTORED IRRIGATION WORKS.

THERE is a paper published once a fortnight at Jaffna, called "The Hindu Organ," and in a number of this paper which reached us some time ago we saw notice of a colonization scheme which Mr. Ievers, Government Agent of the North-Central Province was said to have formulated and which received favourable appreciation. We applied to the Colonial Secretary's Office for a copy of Mr. Ievers' scheme, but nothing was known of it there. Application to the publishers of the "Hindu Organ" was then made, and the result is that we have been courteously furnished with a copy of the issue of October 14th of this year, in which appears Mr. Ievers' letter, dated October 31st, 1890,(?) which will be found on page 526. It will be seen that Mr. Ievers' wrote in response to queries from an influential member of the Tamil community at Jaffna, and if the date at the top of the communication is correct it seems strange that the recipient of information so important should not have made it public until it was a year old The next point which seems to require explanation is the expression of the editor's belief that Mr. Ievers' scheme had been sanctioned by Government. Were this really the case, we think some public indication of the fact would have been made. But perhaps this and much more of a like nature is awaiting the decision of the Secretary of State on the policy which Sir Arthur Havelock is understood to have pressed on His Lordship for adoption. That policy, we know, from His Excellency's utterances, involves the abolition of the paddy tithes (which are in a vast proportion of cases the commutation of feudal services), while the import duties on grain are retained. We need not repeat our well-known conviction that even if any Government ventured to try the experiment (which Mr. Potter, to his lasting disgrace, has favoured) the duties on Indian grain, which would then become directly hostile to our poor fellow-subjects across the strait, would not survive a year. And if the local tithes are abolished, where is the money to be found for a continuance of the irrigation policy which the home Government specially favours? How are liberal schemes, such as Lord Knutsford suggested with reference to lands "under" Kantalay tank; and how are still more liberal colonization schemes such as the enterprising and practical Government Agent of the North-Central Province has formulated to be carried out, how, above all, is there the slightest chance of the irrigation regions being effectually opened up for settlement and cultivation by the agency of the railway, if we sacrifice the revenue of a million of rupees from local tithes and the more than two millions of import duties on grain which would inevitably follow? The substitution of a land tax would be a Rehoboam-like policy which the goyiyas, who all possess uplands cultivated with fruits, roots, and vegetables, would be the first to groan under and resent, perhaps after the fashion of the last argument which "dumb driven" cattle resort to.

One thing seems certain, that the natives of Ceylon (the Moormen, and, perhaps some Tamils excepted) are more immobile, less courageous and less enterprising even than the Hindus of the opposite Continent, where some districts, like Bengal, suffer from population unnaturally congested, while vast expanses of waste land wait, as they have waited for thirty centuries, the axe of the forest clearer and the hoe and plough of the tiller of the soil. It is difficult for us, with our British notions of enterprise and self-dependence, to regard with patience and treat with pitiful forbearance people who, when Government have provided irrigation water, which, with land, low and high, they offer on terms which ought to be easy to men ordinarily industrious, insist that Government must go further and provide them with money capital and seed for cultivation and also with food until the land cultivated commences to give full returns. But it is the necessity of Government's adapting itself to oriental exigencies and adopting a policy so absolutely paternal and even maternal ("Your honour is my father and my mother") which Mr. Ievers recognizes in his elaborate scheme. We really hope the Government will—taking all the risk of loss from insalubrity of climate and failure of colonists to fulfil their obligations—authorize Mr. Ievers to try on a moderate scale the experiment of the success of which, granted normal seasons, he seems so confident. A vote of some R10,000 or so would be well bestowed in testing the success of the ultra oriental and paternal policy recommended. We are, however, beyond measure surprised at the different results, in the shape of crop which Mr. Ievers anticipates from three different products, all grown in virgin soil. Why should rice yield, even when irrigated only 30-fold,—that is 30 bushels in return for one bushel sown,—while kuakkan and gingelli return from 300- to 450-fold? If Mr. Green's statement that over 500-fold had been obtained from a piece of rice land connected with

the Agricultural College, was received with natural scepticism, are we to be expected to believe that from the rich virgin lands of the North-Central Province tank regions, only 30-fold can be expected, even with ordinary cultivation! If so we are inclined to throw up the sponge as regards rice cultivation in Ceylon, and to plead for railway extension northwards, not to aid Ceylon rice growers in a competition so hopeless, but, by means of connection with the Indian railway system, to facilitate the introduction of the cheap and plentiful food grains of India. Kurakkan is reckoned an inferior food to rice, while gingeli, although an interesting and valuable crop, is, like crops of all oil-yielding seeds, especially exhaustive of the soil. It is but poor comfort, therefore, to learn that from virgin soil 450 fold of these "dry" crops can be obtained, if the maximum or even the average we can hope for from the same virgin soil even when irrigated is for one bushel of paddy sown, 30-fold in paddy or 15 bushels when husked and converted into rice. It is difficult to see how native-grown rice can compete with Indian, even with means of communication by the Pamban-Mannar route such as they are. But if once unbroken railway communication between India and Ceylon, via Mannar, is established, it is difficult to see how the local cultivation can pay, except for consumption close to where it is grown, in isolated places remote from roads and railways and central markets.

On a non-political question like this, or which, if political, has reference only to the abstract doctrines of political economy, Government, we feel sure, would not object to Mr. Ievers or any other Civil Servant giving his views to the public through "the papers." In any case we should be glad if he or any other correspondent qualified for the task, by experience and observation, will deal with our difficulties. We can understand a 30-fold return of paddy paying the cultivator at present; but if the introduction of rice from India and its competition with that locally-grown are facilitated by railways in addition to the steamers and sailing vessels employed at present, can the local product hold its own? Be it noted that vast quantities of rice are produced in the alluvials of Tinnevelly, Madura, Tanjore and Trichinopoly, within a short distance from Ceylon, so that the cost of railway carriage to the northern portions of our island, at least, is not likely to be great.

CONTROL OF BUFFALOES.—Under this heading an order in Council has been issued by the Government of Perak which seems to show that buffaloes in that State must constitute a danger as well as a nuisance:—

Whereas it is expedient to provide for the more efficient control of buffaloes throughout the State, it is hereby enacted as follows:—1. No buffalo shall be led or driven along any road, path, or track unless controlled by a nose-ring and rope in the hands of the driver. 2. Every buffalo shall have affixed to its horns a guard of hard wood of not less than 1½ inches in thickness, which shall not be more than 1 inch below the tips of the horns, or else the horns must be cut down as near the quick as possible. 3. Every savage buffalo (kerbau benkin) must be destroyed, and the owner will be responsible for any damage done by failure to obey this Order. 4. Every buffalo which shall, after the date of this Order, be found without the means of control herein provided shall be liable to be impounded or shot. 5. Every owner or driver of a buffalo who shall be convicted of non-compliance with any part of this Order shall be liable to a fine not exceeding $50 or, in the alternative, to a term of simple imprisonment not exceeding three months. Exception.—Nothing in this Order in Council shall apply to any buffalo calf not being more than half grown.

COLONIZATION UNDER RESTORED IRRIGATION WORKS.

We ["Hindu Organ"] publish below at the request of a gentleman in Jaffna who takes a warm interest in the welfare of his countrymen, the report of Mr. Ievers, the energetic, intelligent, and public-spirited Government Agent of the North-Central Province, on the Colonization of Kalawewa. We understand that the scheme propounded in the report has been sanctioned by Government. The Report speaks for itself, and we commend it to the special attention of our readers.

Anuradhapura Kachcheri, 31st October, 1890.

Sir,—I have the honor to submit my replies to your queries on the above subject.

2. It is a matter which has engaged my attention for several years and in which I take the greatest interest. In 1886 (when 2nd Assistant to the Colonial Secretary) I submitted a Memorandum based on the example of the action of the Dutch regarding the transfer of persons from the congested districts to those where land and water were available. I again mentioned the matter in my administration report for 1886, (page 1st A part I.)

3. In reply to the query in the 1st paragraph regarding capitalists or "people in poor circumstances," my recommendation had regard to the latter. In case of "capitalists" I consider that an application from a pioneer capitalist should be dealt with on its merits and by special agreement with Government. Such agreement ought to allow favourable terms to the capitalist who takes the risk. If his experiment is found to be successful I would recommend that subsequent speculators should only obtain the land under the conditions now allowed by Sir Henry Ward's minute. It would be a great matter to secure a nucleus of cultivation independent of Government aid as it would encourage other settlers and I regret that former offers for the taking up of land under Kalawewa were not favourably received. In the case of capitalists I expect that the owner would import his labour from some other districts. In the case of the lands sold at Anuradhapura the purchasers have imported Tamil labourers chiefly and settled them on the higher portions of the lands where they have made flourishing gardens of coconuts and plantains, yams &c.

4. In reply to the query in the 3rd paragraph of your letter I submit what I consider is a fair estimate of the cost of colonization by persons who, if not absolutely paupers, have not the means of subsistence in a strange country for such time as may allow of their being fed by their own labour. I consider such colonists in the light of labourers taken on and supported by Government as landlord, in the same manner as might be done by a planter, only on more favourable terms to the labourer. The Government Agent may be taken to be the Manager of the property.

5. I now proceed to discuss the cost of bringing a given block of land into cultivation under the proposed conditions.

6. Ten men working all day will clear an acre of undergrowth. The same number working for two days will fell the trees. Therefore 30 men will fell an acre in one day or 30 acres in the month. I take this extent as a basis of cultivation. This 30 acres I would, to commence with, divide into 15 acres of high land and 15 acres of low land. I allow 15 acres of high land in order to produce an early crop and render the cultivator independent of aid.

7. Operations of housing the colony should commence in the beginning of May and the felling and clearing should proceed in May-June. Burning takes place in the end of August and after second burning and fencing, sowing begins with the September-October rains. Kurakkan should be sown on the high land and paddy in what is called a paddy chena (Vi-hena) or the irrigable land. These seeds grow from rainfall but if the Vi-hena can be irrigated when half grown it will be all the more successful. Kurakkan is reaped in January and Vi-hena in February.

. As to the expenditure—The cultivators must be supported from May to January, say eight months; seed must be supplied for 30 acres.

SEED-KURAKKAN for 15 acres at 3 seers to the acre=45 seers; value at 4 cents per seer=R1·80.

SEED-PADDY for 15 acres = 15 bushels which at R1·00 per bushel, R15·00.

Even if paddy be slightly higher in price the expe - diture will be under R20·00.

9.—As to the return which the cultivators might reasonably expect;—

IN VI-HENA the average yield is 30 fold.

In Kurakkan it is at least 300 fold in forest land such as we are dealing with. Consequently the average yield of 15 acres of Vi-hena = 450 bushels of paddy or 225 of rice and of Kurakkan the yield would be also 450 bushels. This is the usual yield, enormous as it may seem.

10.—After the Maha harvest a crop of gingeli should be raised for yala. This is a most profitable crop. It is sown at the end of March but only on high ground and could be sown on the 15 acres from which the Kurakkan was reaped. One seer of gingeli (at 8 cents per seer) will sow an acre. Therefore the 15 acres could be sown at a cost of R1·20. Gingeli gives a return of from 300 to 450 fold: on forest land the latter might be expected. The yield of the 15 acres may be taken to be reasonably 195 bushels. Gingeli sells from R2·00 to R3·00 per bushel. thus giving a return of from R390·00 to R585·50 according to the price.

11. Presuming that water is available for the other 15 acres of low land, hineti paddy should be sown in April for Yala harvest while the highland is in gingeli. Cost of seed for 15 acres of hineti=R15·00.

Therefore the total expenditure for seed would be:—say R33·00.

Maha, Vihena ...	...	...	R15 00
do Kurakkan	...	...	1 80
Yala, gingeli ...	...	...	1 20
do Hineti ...	...	...	15 00
			R33 00

12. This covers the time from the clearing in the middle of May in one year to the reaping of gingeli in the end of June in the next year. I assume that the cultivators require support up to the reaping of the Kurakkan in January, *i.e.*, for eight months. I assume also that for each "able bodied labourer" there is a family of a man, a woman and two children. I consider that two bushels of rice a month and R3 for sundries, dryfish, currystuffs, cloth, &c., is an ample allowance=R10. 30 families at R10=R30 and this for eight months gives a total of R2,400. If to this be added the value of the seed the total=R2,433 —say R2,500.

13. But it must be noted that I have only calculated for one month's clearing in May-June. There is no reason to prevent the cultivators from clearing 300 acres of irrigable land in June-July. Consequently we would have under crop 45 acres of mud land and 15 acres of high land. For this additional 30 acres we may allow R30·00 for seed for maha, and adding this to the previous total we have an expenditure of R250·00 to bring into cultivation 45 acres of mud land. The 15 acres of high land might be planted up for gardens or used as a site for a village, &c.

14. I am quite prepared to undertake operations under these conditions of expenditure if they are approved by Government. But I must point out that the persons whom I desire to have as colonists must not be selected from a town population. I wish to have peasants who already have a knowledge of cultivation and I would prefer Sinhalese though I have no objection to Tamils. I could carefully separate the different races; and this could easily be done. I have at present both Sinhalese and Muhammadans cultivating under Kalawewa.

15. I would undertake to supply the rice and allow a credit of R3 to each family at a store which I would establish for the purpose and I would make no money by the cultivator.

16. In the foregoing observations I have chiefly had in view the case of Kalawewa where I think a colony of the nature indicated could be placed. It would be necessary to house the people in an elevated position until they became acclimatized; and the services of one of the medical officers should be available. Native medical treatment is useless for malarial fever. If it were an unhealthy season in the commencement the experiment would run a great risk of failure and of becoming another Lemesuriagama, which I would desire to avoid. I consider the only serious objection to my scheme is the possibility of sickness and mortality frightening away the cultivators. This I could not guard against, though I would take every precaution that experience affords.

The expenditure for houses in the commencement would be nil as timber is available and straw could be procured free from the Yoda Ela villages; while I presume Government would lend axes and mamoties for the first year.

17. I would allow no borrowing from usurers and I see no need for any under the conditions of my scheme. If it were publicly known (as I would take care it should be) that the Gansabhawa courts would unfavourably regard any action for money or paddy lent during two years from the start of the colony there would be no borrowing or lending. This would be I am sure the case in this Province at least. As a rule the peasantry of the North-Central Province are not in debt or in the power of usurers. Many persons to my knowledge denied from hearing cases judicially lend seed paddy and money without claim for interest. But even where such claim is made by Moors, Tamils, Afghans and others, it does not appear that the people are to any great extent indebted. I could not allow the land to be given in any Province as security in case of borrowing. It should be set forth under the condition that until the land was finally paid for, it remained the property of the Crown, the occupier being merely a tenant with the Crown as landlord.

18. As to the repayment it may be observed that each man's liability would amount to R80·00 for subsistence and R2·25 for seed paddy=R82·25. I presume the latter would be given free. R80·00 is not a very heavy item of debt, and I recommend that it be recovered in the fifth and subsequent years of occupation by sale (under the original conditions) of ¼ of the crop; any balance of proceeds above the amount due might be refunded to the cultivator.

19. Persons who desire to accept the liberal terms proposed in the Government Agent's recommendations without subsistence might, of course be granted small lots of one or two acres, apart from the block taken up by what I term "the colony."

20. I think I have replied to all the queries under reference and I have only to add further that if Government desires the experiment of colonization to be made either under the conditions proposed by me or any other that may be determined on, I shall spare no efforts to make it a success.—I am, &c.,

(Signed) R. W. IEVERS, Govt. Agent.

A RELIABLE INSECTICIDE.—Mr. W. B. Gardner, of Fort Meade, kindly furnishes the following results:—Four pounds of salt dissolved in twelve quarts of water, then add thirty-two pounds of finely sifted sulphur; have the sulphur well stirred. Then take thirty-two pounds of queen rock potash, breaking any hard lumps, put in an iron vessel, add to the potash four quarts of water and let it stand say three minutes, then pour the potash into the sulphur. The mixture will boil with great violence. As soon as it is cold, put into a fifty gallon barrel and fill with water. Four quarts of this solution in fifty gallons of water is said to be sure death to the red spider. Two quarts to the barrel is strong enough for rust mite. It will not hurt the tenderest bud or leaf and can be kept for months. The residuum should not, when properly prepared, exceed one-half pint.—*Florida Agriculturist*, Nov. 4th.

DRUGS FROM THE GERMAN COLONIES.

The *Pharmaceutische Zeitung* publishes the first of what promises to be a series of exceedingly interesting articles on the progress which has already been made in the cultivation of drugs and other Colonial produce in the German colonies, and on the outlook for the further successful propagation of such articles. Much of the information has been supplied by the Ost Afrikanische Gesellschaft, which is the equivalent of our own British East Africa Company, and the territories of which adjoin the country under British influence on the African East Coast. Particulars have also been given by Dr. Hindorf, who has been acting for some time as the German expert in matters of produce-growing in East Africa, but who has had to resign on account of failing health, and is now in Germany.

TRADE INCREASING.

The unfavourable reaction upon the trade of German East Africa caused by the recent disturbances in the interior has been partly allayed; the German trading establishments in Tanga, Pangana, Bagamoyo, Dar-es-Salaam, Kilwa, and Lindi, are again receiving a considerable amount of trade from the interior, and it is expected that at the end of this year the exports from German East African will show a very large increase. This, of course, it should be understood is the official view of the German company, and it is permissible to assume that it is to some extent at least exaggerated. Whatever increase may occur in the exports from German East Africa will in the first place benefit British India trade, as Bombay remains, as it has long been, the chief outlet for all goods from the East African Coast. In fact, the German company in their last report, just published, lay stress upon this fact themselves, and appear to acknowledge that they can only advance the benefit of their territories by increasing the facilities of communication with Bombay. The principal plantation in German East Africa is that at Lewa, where the German East African Plantation Company are growing tobacco. Lewa has a good soil and a sufficiency of running water, which secures the necessary amount of moisture all the year round.

TOBACCO AND VANILLA.

The first crop of regularly harvested tobacco from this plantation will be placed on the market this year. It will be large enough to give a fair test of the capabilities of this plantation. Another plantation company owns a similar tobacco-plantation at Amboni, situated about one hour from Tanga. Amboni is a much-frequented market place and very favourably situated. An area of 42 acres has already been cleared here and is mostly under crops. The harvest prospects are described as exceedingly satisfactory. Quite close to Tanga, Mr. St. Paul Illaire has commenced a vanilla plantation. The possibility of the successful cultivation of vanilla in a climate such as East Africa is shown by the excellent results which have been obtained in the Island of Réunion. In German East Africa itself, at the French mission in Bagamoyo, vanilla has already been produced of which two shipments have thus far been sent to Europe. These two shipments, however, have not been sufficient to indicate with certainty the prospects of success of this exceedingly sensitive crop. The beans of the first shipment are described as being of excellent aroma, but too small in size; those of the second, as having been sunburnt and deficient in aroma. It is hoped that better results will be obtained in more sheltered positions.

The requirements for a successful propagation of this plant are principally a constant, hot temperature, and the existence of abundant shade.

COTTON, AND BOTANIC GARDENS.

There is a cotton-plantation at Kikogwe, opposite Pangani, which is the property of the German East African Company; it had to be abandoned when the late disturbances broke out, but has now been taken up again and considerably enlarged. It is under the management of an experienced Mexican planter, who holds out expectations of a fine first crop in the near future. If this first effort is successful, special attention will be paid to the propagation of various kinds of cotton in the colony, with the view of determining which is most suitable to the soil. It will be necessary to make the cotton-crop in the first place one for cultivation by the natives rather than by European settlers. The French mission in Bagamoyo are also growing this useful plant. The German Government have given a considerable sum of money for the establishment of an experimental garden near the governor's house in Dar-es-Salaam. Governor von Soden is said to take quite an exceptional interest in the growth of economic products. But the principal plantation of all is that of Derema, which was established in August of last year by Dr. Hindorf, and upon which the highest expectations of success are placed. It is situated at an average altitude of 3,200 feet; the soil is rich in humus and possesses the physical qualities of a good loam soil. The plantation has been established on a clearing in the virgin forest, and possesses an abundance of running water, which at the same time provides the power for working all the necessary machinery. There are about 280 natives in constant occupation on this estate. The principal cultures here consist of

TEA, COFFEE, AND COCOA.

Tea is to be cultivated on the highest part of the plantation, as the plants are believed to obtain a finer aroma there than in lower soil, and as, moreover, they are the hardiest of any cultivated. The seed for these tea-plants has been obtained from Ceylon, and consists of China as well as Assam varieties. The authorities do not appear to be very sanguine as to the success of tea-cultivation upon their plantations specially as they work at greater cost than the Ceylon planters. The coffee-seed has been obtained from Sumatra, where the coffee is less subject to attacks of the *Hemileia vastatrix* than in Ceylon.* The coffee-plantations are next in altitude to the tea-plantations. The first crop cannot be expected until after four years. Coffee-growing in the present condition of the market could hardly fail to be satisfactory from a financial point of view, but it is doubtful whether the same favourable conditions will prevail later. The planting of cocoa has given rise to a great deal of trouble, as it was found that the seeds had lost their vitality upon arrival. Experiments have been made to import the cocoa-beans in cases between layers of powdered charcoal slightly pressed, and also to import seedlings in Wardian cases. The latter method has proved the more successful, although it is exceedingly expensive. Cocoa seed has also been obtained from Ceylon and much is expected from this cultivation, as the demand for the article is said to be greatly on the increase, and less labour is required for this crop than for coffee. This list exhausts the number of staple products. Among the articles which it is intended to cultivate in the first place only in an experimental way is

CINCHONA,

for which a small garden is now being laid out; but although it is intended to raise a few hundred trees, there is no idea at present of endeavouring to enter into serious competition upon the already overcrowded markets. A rather experimental cultivation is india-rubber. The plans of the *Heva Braziliensis*, which yields the so-called Pará rubber, as well as of *Manihot Glaziovii*, from which the Ceara rubber is obtained, are now being raised. The rubber hitherto exported from East Africa, which last year shipped about 200 tons, is exclusively produced by the wild *Landolphia* varieties; it realises a good price in the wholesale market, and is superior to the West African rubber by reason of its less pronounced odour. But quite lately there has been a great deal of complaint of the increase of adulteration in this product. By Government order, however, issued last year, the trade in evidently adulterated rubber has been prohibited under heavy penalties.

FRUIT, SPICES, AND DRUGS.

Fruit-plantations are also being established, though,

* As coffee abounds in the central African forests, where leaf disease has never appeared, it was surely great mistake to send to Sumatra, where the disease certainly exists, for seed.—ED. *T. A.*

if successful, it is not intended to enter into competition upon the European market, but rather to export to Aden for the use of ships passing that port. As soon as time permits, experiments are likely to be made in the cultivation of spices, especially cloves, nutmegs, and pepper (the latter near the coast region), as well as with gambier. The oil-palm does not seem to take kindly to the soil of German East Africa, though, if it should be found that its cultivation is possible there, the erection of suitable modern oil-mills will become a matter of interest. The plant yielding the columba of commerce (*Jateorrhiza columba*) occurs only sporadically in German East Africa, and as the demand for it is subject to great fluctuations, and is inconsiderable at the best, its propogation does not hold out any inducements. Tamarind trees do occur, but hitherto their fruit has not been gathered for export purposes. Areca-nuts have been exported from Tanga and Pangani in small quantities only, and beeswax has, up to the present, been scarcely a commercial article. Among other articles of vegetable origin, copal takes the first place; it is traded in excellent quality, especially in Kilwa and Lindi. Gum arabic occurs in the various kinds, but mostly of very inferior quality, in the Arusha region of the Kilimanjaro mountain. Two bales have recently been received in Germany from the colony, but they show an altogether insoluble gum, the viscosity of which was such that one part of gum to three parts of water produced a jelly-like mass. On the other hand, a sample received from the Arusha district showed an almost soluble drug. There is, therefore, some hope that a suitable gum may be obtained as the result of closer investigation. The main difficulty in the way of successful plantation in German East Africa is the one of cheap labour. Hence only the cultivation of high-priced articles holds out hopes of success. The system of forced cultures (which, for instance, still obtains to some extent in the Dutch colonies) has been frequently recommended as suitable for the production of large staple articles; but the trouble is that it is impossible to force the natives by means of fines, as they possess nothing, whereas physical force could hardly be employed. Some time ago an attempt was made to place a tax upon palm-trees, but its only result was that the natives partly cut down their trees, and one and all refused to extend their plantations. Attempts have been made to induce the natives to cultivate sesame-seed* to a greater extent than they do now by giving them free supplies of seed, but these have not been very successful.—*Chemist and Druggist.*

BRITISH NORTH BORNEO DEVELOPMENT CORPORATION, LIMITED.

A company under the above title has been registered with a capital of £300,000 in 500 founders' and 299,500 ordinary shares of £1 each respectively. The objects of the company are the acquisition of lands, timber, mines, furnaces, factories, businesses, or other real or personal property whatsoever, situate in the island of Borneo or elsewhere, and, with a view thereto, to carry into effect two agreements, the first expressed to be made between the British North Borneo Company of the one part and this company of the other part; the second, made Sept. 21st, 1891, between J. W. Colmer of the one part and J. G. T. Hassell, on behalf of this company, of the other part; to navigate and carry on trade along the river of Borneo or elsewhere, and to develop the resources of and turn to account the lands, buildings, and rights for the time being of the company, in such manner as the company may think fit, in particular by clearing, reclaiming from the sea, draining, irrigating, fencing, planting, building upon, farming, mining, &c.; also as miners and melters, engineers, merchants, bankers, exporters, and importers, &c. The first subscribers, who take one share each, are:—Lord Waterpark, Doveridge, Derby; W. P. Pryer, 11, Harrington Road, L.W.; Sir R. S. Meade, 65, Queen's Gate, S.W.; A. W. Jarvis, M.P., 120, Mount Street, W.; W. G. Brodie, Elmbourne, Upper Tooting; C. Ince, 102, Alexandra Road, South Hampstead; and J. A. Gedge, 14, Abbeville, Road South, Clapham Park. There shall not be less than three nor more than nine directors. The first are the Right Hon. Lord Waterpark, W. G. Brodie, A. W. Jarvis, M.P., Rear-Admiral R.C. Mayne, C.B., M.P., and General Sir Richard Meade, K.C.S.I., C.I.E. Qualification, £300. Remuneration: Chairman, £400; ordinary directors, £200 per annum each, with an additional 10 per cent. on the net profits of the company after payment of 15 per cent. dividend, such latter remuneration to be divisible.—*H. and C. Mail.*

* Gingeli.—ED. *T. A.*

HORSE-POWER IN LIEU OF BULLOCK-POWER IN INDIAN AGRICULTURE, &c.

We copy from the *Times of India* a paper advocating the supersession of bullocks and buffaloes by horses and especially mares in agricultural operations. If there is any force in the arguments used as regards India, they apply even more strongly to Ceylon, where the great difficulty in the use of improved ploughs and other agricultural implements, is the small size and weakness of the native bullock. The remedy usually proposed is the use of the larger and stronger Indian cattle, but the first cost of such animals is high and the expense of their upkeep is in proportion. If we had an abundant supply of country-bred horses (and surely horses *can* be bred in Ceylon) we should not have proposals made to use bullock power even for street tramways. As civilization advances so will the use of meat as food in Ceylon; and it goes without saying that the beef from animals which have worked hard for many years must be far inferior to that of cattle bred specially for milk-giving, manure and the butcher. One great difficulty, no doubt, here, even more than in India, would be to get the cultivators to manage horses. As regards the Sinhalese, it is the rarest possible thing to find a Sinhalese horsekeeper. But this may be due mainly to the fact that the position of a horsekeeper is socially low, just as, in the eyes of the Sinhalese, is that of an ordinary cooly. All agricultural work, however, is deemed honourable, and it does not seem doubtful that in time Sinhalese would adapt themselves to the care and employment of the horse in their farming operations. An experiment might be tried in the grounds attached to the Agricultural College. Mr. Hallen mentions what are rarely seen or mentioned in Ceylon—mules. We have never heard of one of these hybrids being bred in Ceylon, and it is surely curious that while mules were employed in all the carrying work of plantations in the West Indies, they have never been so employed in this island. The bullock has been always our stand-by in Ceylon.

The question is whether at least a partial change might not be advantageously made by the use of the horse?

NOTES FROM OUR LONDON LETTER.

PALAIS INDIEN COMPANY AND MR. LOUGH—TEAS IN LEAD PACKETS—THE ANDES EXPEDITION—CELLULOSE OF COCONUT.

LONDON, Dec 4

A mail or two back my letter referred to the seemingly extraordinary course pursued by Mr. Lough at the meeting of the *Palais Indien* Company, by which he seemed to endorse the desire of some of the shareholders that the sales of tea by that company should be confined entirely to the teas of Indian growth. It seemed to me that support given by Mr. Lough to such proposals was quite inconsistent with the obligation he had incurred in accepting the position of your Agent

for Ceylon teas in Paris. In accordance with the intention expressed to you no time was lost by me in calling the attention of the Ceylon Association in London to the subject, and the Tea Committee of that body held a meeting to discuss and consider the matter. As the result, Mr. Lough was asked to explain, and in reply he stated that the wishes expressed to the meeting which he had supported referred in no way to Ceylon tea, but only to those of Chinese growth or character.

However, the reference to the *Palais Indien* Company did not end here. We suppose that, owing the position Mr. Lough was placed in by his very enigmatical utterances, the directors of that company deemed it desirable to approach the Tea Committee of the Ceylon Association in London with a proposal that there should be a fusion of interests, and that steps should be considered whereby the sale of Indian and Ceylon teas, in their present shops in Paris should proceed simultaneously and without establishing competition between the two varieties. A letter to this effect is to be considered by a specially appointed Sub-Committee consisting of Messrs. Rutherford, Thomas Dickson; J. L. Shand, and Whittall, though it is doubtful if the latter will be able to serve, he being, unfortunately, ill with influenza. This Sub-Committee was to have its first interview with the *Palais Indien* representatives yesterday afternoon, and nothing has as yet transpired of what passed at the interview.

With this you will receive a copy of the prospectus of the company now negotiating the above stated matter. You will see that the articles of association under which this company was registered do not in any way limit the sales of tea to any particular variety, though no doubt the real object was to press into prominence the Indian teas in which the promoters were then chiefly interested. Still all tastes of the Parisians must be consulted, and some palates might prefer Indian, others Ceylon, and others again China. So to impart a taste for tea-drinking, every individual predilection must be gratified. It is dependent upon what is the primary object of the company, whether to foster a taste for tea-drinking in France, leaving it to time to establish preference for particular varieties, or whether it was simply and solely to bring Indian teas into a selfish prominence before the field could be occupied by others.

It was recently mentioned to me by an acquaintance that he had seen a placard in a grocer's window, cautioning people against purchasing teas sold in lead packets, and describing the effect of the lead as most pernicious to health. From conversation had by me with a doctor, the conclusion seemed evident that where tea has been so packed for any great length of time it may be that it takes up some of the injurious qualities of the wrapping. Many years ago it chanced to me to be acquainted with the Rev. Joseph Sortain of Brighton, a very popular preacher there in those days, and brother to the late Dr. Sortain of Batticaloa. From some unexplained cause his health failed most seriously, and none of the doctors who attended him could trace a reason for it. At length his habit of profuse snuff-taking attracted attention, and it was found that he always purchased his favorite mixture in lead packets. As the symptom of his illness were akin to those produced by lead poisoning, Mr. Sortain was recommended to obtain snuff which had not been so packed, and a change for the better commenced directly he followed this advice, subsequently recovering altogether. This incident leads me to think the advice above referred to as to tea may not be without pertinence, though we have never seen cited any cases of illness which could be attributed to the action of lead on tea. It has been so packed in the chests for very many years without attention being directed to any deleterious effect; but, of course, the smaller bulk of tea in a packet of say a quarter pound weight, it is conceivable, absorb a larger proportion of the lead poison, and it will not surprise me to find the subject taken up some day as a topic of discussion in the newspapers, the editors of the some of which are always on the lookout for some stirring matter of the kind to pad their columns with.

Mr. J. L. Shand tells me that, seeing Sir Alfred Dent recently, he heard from him of most satisfactory reports being received from his Andes expedition. Soil and climate in the territory to be ceded seems admirably adapted to the cultivation both of coffee and tea; but even when this fact is allowed for it will not necessarily mean that money will be forthcoming to undertake planting on a large scale. Recent events in South America have made capitalists here less inclined than ever to invest money in any of the South American republics, and it is a question if the Peruvian bondholders themselves, who have lost so much money in their former investments, will care to personally put their hands in their pockets to throw good money after bad. They certainly are not likely to obtain much aid from outsiders not interested like themselves.

Experiments are now being conducted by the Admiralty, which, if they should have the success anticipated by the promoters, may go far towards securing for your coconut planters more favourable returns. Here experiments are being made with what is termed cellulose of coconut. We understand this to be some preparation of the fibre, and it is said that it has the property of absorbing eight times its weight of water. As far as we understand, the experiments now proceeding at Portsmouth are being made with slabs of this material which are affixed inside the iron plates, and the advantage claimed is that in the event of a shot hole, the cellulose absorbs the inrush of water, swells and closes the shot hole. The slabs themselves are also said to be extremely difficult to penetrate, and they would therefore aid towards keeping out any shot or fragment which might pierce the plates to which they afford a backing. If this should prove to be the case, it is probable that a large demand will arise for the material, both for vessels of war and for those having only a commercial character.—London *Cor.*

SCIENCE IN THE TEA GARDEN.

About a year ago we noticed in our columns that an investigation on scientific lines into the cultivation and manufacture of Tea had been taken in hand by a Committee, representing the India Tea Association and the Agri-Horticultural Society of India, and that an agricultural chemist had been especially retained from England, to conduct the inquiry. We have now received an early copy of the first Progress Report, made by Mr. Bamber, the agricultural chemist referred to, showing the work done during the last twelve months. The Report points out that the inquiry resolves itself into two divisions, viz., the growth and cultivation of Tea, and its manufacture. The work done during the past year is confined to the first division, and although sufficient time has not elapsed for definite and final opinions to be given on the many difficult questions involved, we can congratulate the Commitee on the progress which has been made. Short though the report is, it is full of food for reflection, and will repay the close study of all connected with the ndustry. We do not think it is too much to say tha

the Report foreshadows changes which will mark an era in the industry. The Report is divided into four parts,—Introduction, growth, and cultivation, general suggestions and general remarks.

To show the manner in which the subjects have been handled, we give the heads under which growth and cultivation are dealt with:—"(*a*) Chemical composition and physical properties of the soil; (*b*) chemical composition of the Tea-bush (wood and leaves); (*c*) chemical composition, and value of manures used; (*d*) chemical composition, amount, and distribution of rain-fall." Each of the subjects are sub-divided into sub-heads, and are concisely but clearly dealt with. We will content ourselves with two extracts; The first is from General Suggestions and lays down the *object of manuring*:—"The object of manuring is to return to the soil certain constituents of plant-food in which it is deficient, and which were either almost entirely absent from the soil in the first instance, or have been removed by continued cropping, or lost by drainage. Most soils contain nearly all the elements of the plant in abundance, with the exception of one or two of the more important constituents and it is these which must be returned or added to the soil to enable the plant to grow." The second extract is also from the general suggestions under the head "Economy of Using Suitable Manures":—"As mentioned in a previous part of this paper, tea soils differ considerably in chemical composition, some being deficient in only one or two plant constituents, while others are poor in all; consequently, a general manure cannot be economically applied in every case for in the first instance, where only one or two of the plant constituents are deficient, the application of these alone would be as beneficial as the application of all, and at a much lower cost; whereas, in the second case, where the soil is poor in all, the application of one or two only would have little or no effect, until the others, which are also deficient, have been supplied."

The laws laid down here are not in themselves new, it is only that their application to Tea has apparently been lost sight of. At any rate, the replacing of the constituents of the soil used up by Tea in a scientific manner has not, we believe, been attempted practically. Should the Committee not prosecute the researches further, they have already done enough to convince practical agriculturists that money would be well spent in obtaining a full analysis of the soil of any portion of a Tea garden which it is proposed to manure, and in getting the advice of an expert on the kind and quantity of manure required. We hope that the inquiry will be continued, and that light may be thrown on the chemical changes which take place in the tea leaf during the process of manufacture. In these days of close competition, planters can no longer afford to continue manufacturing in ignorance of the laws and causes of the changes which go on under their eyes. It is curious to think that where so much capital and enterprise have been expended, the present is the first serious attempt to gain a scientific insight into the process of manufacture.—*Englishman.*

AGRICULTURAL WORK BY HORSE AND MARE POWER.

A LECTURE BY MR. J. H. B. HALLEN.

POONA, Dec. 10th.

Mr. J. H. B Hallen, General Superintendent of Horse-Breeding Operations in India, delivered a highly interesting lecture yesterday evening at the Albert Edward Institute, Poona, on the subject of "Water-Lifting and Agricultural Work By Horse and Mare Power." Khan Bahadur Kazi Shahabudin, C.I.E., presided on the occasion, and there was a large attendance. Mr. Hallen having been introduced to the audience by the chairman proceeded with his lecture. He said:—In India bullocks are used for agricultural work, such as ploughing, harrowing, and raising water for irrigation purposes. They are found satisfactry workers, but their pace is slow—about one mile per hour in the plough and about two miles in carts on roads. The price of bullocks for agricultural work vary from R15 to R50 each. For submerged and morass land buffaloes are better adapted. The price of a buffalo for such works is from R15 to R35 each. Their pace at plough is about one mile or less per hour. The cost of the keep of a bullock or buffalo varies from R2½ to R5 per mensem. In England for many years past only horses have been employed in ordinary farm work, as they are found able to do work at a faster pace, both at plough and ordinary cart work, and thus economy of time and saving of money results. Moreover, the horse power employed is chiefly mare-power, as mares do all work quite as well as stallions and geldings. Mares are allowed to breed on the farm, so that the farmer has the benefit of selling the produce thus obtained, if not required in the farm, and the money realised by the sale of the young horse stock, bred and reared on the farm, contributes to paying the rent of the farm, and very often the greater portion of it. The period of gestation in a mare is about eleven months, she can be used at slow agricultural work up to within a fortnight before the time of foaling, and again twelve or fourteen days after foaling, so that a brood farm mare can work for eleven months in the year. And she is in better health for having work, slow work and thereby becomes the more sure foal-producer; and her foal always is, as a rule, a stronger and more valuable animal. As in Europe, it may be accepted that horses will be found likewise in India more satisfactory working animals on a farm. Horse do not cost more for keep than bullocks, for it may be safely assumed that a horse or mare will do well on a diet that will not cost more than what a well-fed bullock gets. Horse-power is used generally throughout India for draught as well as saddle work. We see horses doing excellent work in carriages, dak gharries, tongas, ekkas, &c., and it is acknowledged that they can work well in saddle and in draught even under the tropical sun of India. It therefore seems strange that horses have not been used for agricultural purposes. Granted that the pace of a bullock is perhaps better adapted for the physical power of a native ploughman, but the latter has been found quite equal to working a plough with horses if given better wages and thereby having better food. A few years ago when at the Remount Farm at Hosur, near Bangalore, I found that horses were always used for ploughing and other agricultural work in the farm, and I had the opportunity of seeing that they did their work in a most satisfactory manner. Shortly afterwards I had the chance of employing horse-power on the Government Farm in charge of the Horse-Breeding Department at Babugarh, near Meerut. Up to the time of my receiving charge of that farm bullock-power only had been used for the farm work. I suggested to Government that the bullocks should be disposed of and horse-power employed, and in order to prevent unnecessary expenditure in purchasing horses I asked that fifty pony mares, of a large number belonging to the Transport Department and no longer required at the expiration of the last Afghan Campaign, might be handed over to me to carry out the farm work. Sanction was accorded, and fifty pony mares arrived at the Depot Farm. These were animals of a very ordinary class, from 13 to 13·2 in height, probably worth in the market from R25 to 50 each, and most of them had never been employed for brood purposes. The pony mares were soon broken into plough and harrow. The harness employed on the pair when at plough was similar to ordinary tonga harness, made in the bazaar by ordinary *moochies* at a cost of from R3½ to R4½ for the pair. With this harness the ponies pulled from their back—the best style of draught. The harness was found to answer, and by offering prizes for the best ploughing with the pony mares I was gratified to find that in three months' time several ploughmen able to do in a day with a pair of ponies much more than could be done by a pair of bullocks, and after a year or two the men were able to do half as much more ploughing in a day than

is done by ordinary bullocks. These pony mares were also employed in Persian wheels for lifting water from wells to irrigate fields in which lucerne guinea grass, dubs, carrots, &c., were grown. Likewise I had some of the mares used for raising water by the chursa or leather mashak. As I found some of the heavy work of the farm, such as pulling timber and ploughing very stiff land, was rather too much for the small pony mares, I was allowed to have twelve larger mares, from 14-2 to 15 hands, cast from regiments and batteries, and with these and the pony mares all the work in the farm, and the carrying of grain and forage in carts about the farm, and bringing bran, &c., from a railway station 24 miles off was duly performed. These mares were not groomed; when not at work they were allowed to graze in the fields, and they also had a small quantity of grain diet according to the work they performed—about 3 lb. daily. Each ploughman had to attend and care for two pairs of ponies. The mares, as they came in season, were mated with donkey stallions and the mule produce so obtained were highly satisfactory. The mules born were found to be hardy and easily reared. The cost of rearing was calculated at R1½ per month, and at the age of three years the mules were worth from R150 to R250 each. Mule-breeding is therefore a paying industry. But my present wishes are to induce the public to look upon the horse as an animal as useful as a bullock on a farm, and if mares are employed, then the profit, arising from using them as horse or mule breeders, is apparent. If the agricultural community will use horses for farm work, the horse-breeding industry will become extended, and the requirements of the public and State, as regards horses, will be secured in the local markets. At present horse and mule breeding are limited in extent; hence why importers bring horses and mules from distant countries—Australia, Persia, Arabia and the Cape of Good Hope, to supply the wants of the State and public. The large amount of money required to pay for these foreign horses and mules is given for the benefit of other countries, not for India. But India, with its congenial climate, in districts away from the lowlands of the coast, especially in Northern India, is particularly well suited for horse and mule breeding; and surely it will be good policy for breeders, in suitable districts, to follow horse and mule breeding as a part of agricultural work, and thus in time provide all horses and mules required in India, and the money now sent to foreign countries will be distributed amongst breeders of Indian horse and mule stock. I have to earnestly recommend that the native gentlemen I have the pleasure of addressing may explain to farmers and others what I have described in my address, and I would solicit their kind co-operation in inducing every employer of bullocks to use mares instead, and thus have the profit obtainable from the mares as breeders. I would ask you to accept all I have said as the result of practical experience, and as that practical experience has convinced me of the pecuniary advantage derivable from using horse and mare power, so do I deem it my duty to inform the public of India, with a view of allowing farmers and other bullock-keepers to become aware of the satisfactory results from employing mares instead of bullocks.

In conclusion, Mr. Hallen gave a few statistics which went to show that more water could be raised by the "chain pump" in a given time, and with a similar amount of power, than with the chursa or Persian wheel, and he assured all who cared to visit the farm at Babugarh of a hearty welcome. A course of technical instruction would be given at that farm to all who cared to learn the management of a farm and all its details.

The Chairman said that with the co-operation of a few of his friends he would address Government on the subject of Mr. Hallen's scheme, for he felt sure that the only way to get the public to take the matter up was through the Government.

In acknowledging the vote of thanks which was passed to him, Mr. Hallen said he was anxious that such steps should be taken in the matter of horse and mule breeding as would make India independent of foreign sources. The improved indigenous horse was far better than the Australian. In India we had the basis, in the Asiatic animal, of the best horse for ordinary public services, and the best war horse. The best definition of a war horse was a horse that would go the longest distance, and perform hard work on the shortest commons.—*Times of India.*

CEYLON TEA IN SYDNEY.—A Sydney paper contains the following advertisement:—

THE MELBOURNE CUP IS PAST.
Latest Tip for Ceylon Cup:
Golden Tip.

The increasing production of Ceylon Teas, and excellence of Teas grown in the island, have induced us to offer selections from the leading estates, superseding everything hitherto offered at the price; no outrageous names, but Ceylon pure and simple. No. 7, Choice Ceylon Pekoe Souchong, handsome leaf, thick, rich, mellow, fine flavour, 2s per lb. No. 5, Choicest Ceylon small leaf Pekoe, with delicious flavour and superb quality, 2s 6d per lb. No. 6, Extra Choice Ceylon Golden Orange Pekoe, a mass of golden tip, absolutely matchless in liquor, 3s. In families where a quantity of tea is consumed a large monetary saving will be effected by ordering this tea. Address, E. H. Harris & Co., Ceylon Tea Stores, 18 Royal Arcade, Sydney.

"THE TALLOW TREE" (*Sapium sebriferum*) AS A FUEL PLANT.—From Pussellawa a correspondent writes:—

"I am sending you a few seeds of the tallow tree, which is a strikingly handsome plant and an exceeding quick grower. The leaf is in shape something like the Bo, and here and there a leaf turns crimson like the maple. The seed case is round ♂ and bright purple bearing each two seeds. I thought that as it grows so very fast, it might be thought worth cultivating for fuel trees, and I send you an extract of what Dr. Trimen says about it."

From the extract sent, it appears that the tree was introduced to Ceylon about 70 years ago and has long since been naturalized in some of the hill districts. Candles are largely made in China from the fatty matter round the seeds. The wood is hard and would make good fuel. Our correspondent speaks of a tree growing most luxuriantly at an elevation of about 3,060 feet, the tree being fully 20 feet high at not 3 years old, making the quickest growth of any tree planted in the locality except the *Albizzia* known in Assam as the *Sau.*

ACCORDING to a recent writer in *Gartenflora* the so-called Century-plant (*Agave Americana*) was introduced into Europe during first century after the discovery of the New World. The blooming of one specimen is recorded as occurring at Avignon in 1599, and of another at Montpelier in 1647, while even as far north as Wurtemberg a specimen was seen in the latter years of the sixteenth century, the flower-stalk of which measured over twenty-four feet in height and more than two feet in diameter. A story is told of one which, in some town of Languedoc, under the eyes of Louis XIII. and Cardinal Richelieu, threw up a flower-stem twenty-eight "hand-lengths" in height during the space of thirty-six hours, so greatly to the astonishment of the king that he decreed the "bewildering stem" should be painted by "some admirable painter." The first illustration of *Agave Americana* was published by Lobelius, who died in the same year as Shakespeare. One does not often realize, perhaps, that in the far-off days of Good Queen Bess American plants were already known in England as well as on the Continent, some of them being almost familiar objects, while as yet there were very few Americans except such as wore red skins.—*Garden and Forest.*

CEYLON TEA IN PARIS.

No doubt our readers will, equally with ourselves, have shared in the surprise expressed by our London correspondent (page 29) that Mr. Lough should, after having sought and obtained the agency for Ceylon teas in Paris, have seemed not only to coincide in, but to fully endorse, the wish of some of the shareholders of the *Palais Indien* Tea Houses Company that their sales should be confined exclusively to Indian growths. This matter appears to have been promptly taken up by the Tea Committee of the Ceylon Association in London. At first sight, there could seem to be no doubt that Mr. Lough had been guilty of a breach of faith in the statement he had made, and the Committee was not slow in calling him to account for it. We know that very grave objection was taken to the selection of Mr. Lough for the Paris agency, and that a very unpleasant correspondence between our local Association and that of London resulted. Had the matter remained unexplained, we must have held that the objections raised were most fully justified. But Mr. Lough, in replying to the questioning addressed to him by the London Association Committee, has stated that his remarks at his Company's meeting were not in any way intended to apply to Ceylon tea. What it was desired, he informed the Committee, was to exclude from such sale the teas of China, Japan, Java, and other similar teas of Far Eastern growth. We must, of course, accept this explanation, but can only express our regret that Mr. Lough, when speaking as he did at the meeting of the *Palais Indien* Company, had not been more explicit. Had he been so, and in accordance with the intention he has now expressed, he would have saved himself from a most unpleasant and by no means groundless suspicion of having contemplated a most unfair procedure. From the prospectus of the *Palais Indien* Company forwarded to us, we learn that the object of the formation of the company was "to promote and develop the use and sale, knowledge and appreciation, of Indian, Ceylon, and other teas, in Paris and other places on the Continent of Europe, and in the United States of America, Canada, and other parts of the World." This is a far-reaching project enough; and it is only fair to point out that the professed object did not limit the sale of teas to Indian varieties only. In deciding to restrict their sales to Indian teas alone as expressed at the meeting referred to, it would seem to us that the Company so far departed from the conditions under which it was registered, that it would have been feasible to have called in question the legality of its further operations as a registered concern. But it is needless for us to pursue further such an argument. The Company —in consequence, it may be presumed, of the objections raised by the London Ceylon Committee,— has approached the latter body with proposals to obtain the co-operation with it of our local Tea Fund Committee. We should say that, should such fusion be determined upon, a company must be registered upon a new basis, and possibly with largely increased capital. We can imagine many among us entertaining a doubt whether, in the event of a joint enterprise of the kind being undertaken, Ceylon, as the lesser vessel, may not run a chance of being pushed to the wall. However, we think we may safely leave the arrangements which should render us safe against such injustice to the skill and care of the gentlemen who are negotiating with the *Palais Indien* Company on behalf of the Ceylon Association in London. The names of those gentlemen as given in our London letter should form a sufficient guarantee that our interests will be well looked after and secured. Knowing as we do, how good a footing the Indian Company has already secured in Paris, it is evident to us that, if it can be done, it will be best to work in co-operation with it, if possible, rather than to start a new and seperate venture on our own account. We by no means overlook the possible difficulties that may have to be faced in securing that Ceylon teas shall enjoy their full and due share of attention. If Mr. Lough, as the Superintendent of the Paris Tea House, carries out faithfully the engagements he has entered into in accepting the position of our recognised agent, there should exist no doubt that this would be secured; but as man is but fallible, it will certainly be necessary that our London Tea Committee should closely scrutinize all the operations, and insist, *ab initio*, that the teas of both India and Ceylon should be offered to customers in certain defined proportions. Of course such customers may have, and may express, their preference for one or other of the two varieties, and their taste in this respect will have to be consulted and deferred to. But apart from this, there should be no favouritism shown by Mr. Lough to either kind of tea. Let each stand or fall by its merits, and we have no fear that Ceylon will not take its proper place. It is on this account that, notwithstanding the difficulties we can foresee, we hope that the arrangements now under discussion may result in a consequent working advantageous to the growers both of India and Ceylon. But the leaders of the Tea Fund and of the Planters' Association will rightly claim a voice in any decision that may be arrived at.

COFFEE GROWING IN BRAZIL: ITS BRIGHT PRESENT AND DOUBTFUL FUTURE.

Mr. Scott Blacklaw's latest instalment of the elaborate and deeply interesting notes on the progress of railways and agriculture in Brazil, with which for years back he has enriched our columns, will be well received by all intelligent readers, while it will be difficult for many of our planters who spent the best parts of their lives in the culture of coffee, to repress some feeling of envy as they read of the prosperous extensions of that culture in virgin soil, where three-quarters of a ton per acre are yielded, where railway facilities are present with a sufficiency of labour, and where leaf fungus (of the fatal kind) is unknown. There seem to be scarcely any bounds in Brazil to the area of suitable land in a suitable climate, while, hitherto, capital for railways and to enable the planters to procure and pay for labour has been readily available. But alas! Brazil, which under monarchical government enjoyed peace and order, must needs follow the example of other South American States, and submit to a dictatorship under the specious guise of a republic. The parallel is complete in anarchy and loss of credit, intrigue and civil strife. Mr. Blacklaw, of course, being a stranger in the land, says nothing of all this. But, his valuable communications are continued, we fear his next instalment of notes will bear a different aspect to the sunshine of the present,—the picture being marked by the shades of the arrest and decadence of enterprise, from the absence of capital and the labour which capital alone can command. There is no doubt a certain amount of capital in the country itself; but its possessors will be just as unwilling to incur risk, in the present unsettled state of government and politics, as the

English capitalists on whom enterprize in Brazil has been and is so largely dependent. Of course matters may soon settle down, and a strong government may re-establish peace and order. But we confess our fears preponderate over our hopes; and we suspect that the world must look beyond Brazil for much of its supplies of coffee.

THE DUTCH MARKET.

AMSTERDAM, Nov. 27TH.

The cinchona auctions to be held in Amsterdam on December 17th, 1891, will consist of 5,752 packages (5,365 bales and 387 cases), about 498 tons, divided as follows: from Government plantations, 290 bales 75 cases, about 28 tons; from private plantations, 5,075 bales 312 cases, about 470 tons. This quantity contains of *Druggist's bark*—Succirubra quills, 2 bales 281 cases; broken quills and chips, 95 bales 15 cases; root, 75 bales. *Manufacturing bark*—Officinalis quills, 52 cases; broken quills and chips, 83 bales; root 31 bales. Ledgeriana quills, 11 bales 39 cases; broken quills and chips, 3,719 bales; root, 1,027 bales. Hybrid broken quills and chips, 255 bales; root, 67 bales. Total, 5,365 bales 387 cases. The dates of the Amsterdam cinchona sales in 1892 have been fixed as follows:—January 21st, February 25th, March 31st, May 5th, June 9th, July 14th, August 25th, September 29th, November 3rd, December 8th.—*Chemist and Druggist.*

TEA PLANTING IN THE WYNAAD.

We have been favoured with some particulars of tea planting in the Wynaad which promise well for the development of a future tea industry in that district, where a good deal of tea has been planted during the past two years. The plants thrive well, and the variety that has been selected for cultivation is highly spoken of. The following is a report and valuation by a Colombo broker on tea grown on the Richmond estate at Pundalur, in the Wynaad, planted in 1889, and forwarded 20 miles to the Neddivuttum tea factory for manufacture:—

ORANGE PEKOE.—Black bright golden tips, good style and appearance, wiry, well twisted leaf. London value, 1s 8d to 2s.

BROKEN PEKOE.—Black flakey fannings; style, tippy good appearance. London value 9d.

PEKOE.—Black, rather bold, rather even, wiry, well twisted leaf, tippy, good appearance. London value 9d.

PEKOE SOUCHONG.—Blackish, greyish, rather open little flattish leaf, little wiry, some ends. London valued 8d to 9d.

DUST.—Black brownish flakey tippy fannings. London value 7d to 8d.

FERMENTATION, bright, even, coppery.

LIQUOR.—Strong full pungent.

These teas are very well made, and bright infusions. Fermentation very nice.

(Signed) A. M. GEPP.

Colombo, November 30th.

A Ceylon planter gives the following opinion on these teas:—"I have examined and tasted your 'Richmond' samples. They are fine teas, good strength and flavoury, though the latter is quite different to any flavoury teas I have tasted grown in Ceylon: they taste more like Darjeeling teas. If you can make such teas in Wynaad it is a good look-out. The appearance of the leaf is not first-class, the leaf being too grey. The Orange Pekoe is, however, handsome; the B. P. is very broken and flakey. Recently the market has wanted more leafy and less Broken Pekoe. The fermentation is first rate, and I shall be very interested to know what these teas fetch in London. I could not value them unless I know something of the size of the break, but they should average 1s 3d to 1s 4d per lb. if the proportions of Orange Pekoe and Broken Pekoe are right. In fact, I think this a low valuation."

Mr. W. M. Standen, who manufactured these teas, has expressed himself about them in the following terms:—"With adequate machinery, anything over 7d per lb. means profit, and 4d per lb profit on a yield of only 450 lb. per acre means £7 10 per acre per annum. I do not believe any amount of over production will hurt the growers of this class of tea, for long before they could suffer an appreciative reduction in value, half the estates in India and Ceylon would be ruined. I firmly believe that there is a great future for tea in the Wynaad. Tea of good *jat* still affords an excellent investment." We may mention that the average value of Indian and Ceylon tea is about 9d.—*M. Mail.*

[The bunkum about half the estates in India and Ceylon being ruined, before such teas as Mr. Standen has manufactured being over-produced, simply proves the man's own silly egotism.—ED. *T. A.*]

MR. A. SCOTT BLACKLAW ON AGRICULTURAL ENTERPRISE AND CONNECTED TOPICS IN BRAZIL.

COFFEE AND OTHER CULTIVATION IN RIBEIRÃO PRETO—ILEX PARAGUAIENSIS—RAILWAY EXTENSIONS—EUROPEAN IMMIGRATION—DESCRIPTION OF THE COUNTRY AROUND.

Rio, Oct. 15.

Ribeirão Preto.—I mentioned before that coffee planting was begun here some twelve years ago.

Our late lamented friend G. A. Crüwell and the writer passed through parts of this same district in 1876. At that time there was very little talk of land being bought here for planting coffee, and there was not such a town as the now important "Ribeirão Preto" which numbers at present some 8,000 inhabitants in existence.

We noted at the time of our visit (1876) some very nice coffee patches near some of the native huts, and we observed that the soil was of superior quality. It was very forcibly impressed on our mind, that what was called virgin forest was of a low short kind, with very few of the great giants, unless of the fig-tree species, which grows very fast.

The district at that time had the name of being feverish, and the climate was thought too cold for coffee. Some plantations had been opened on a small scale in the sixties, but the great frost of 1871 had killed all the trees, and thus damped the prospect of future pioneers. At the time we passed this any quantity of land could have been brought for very little money.

The lands were in possession of people who had decended from the great highlands of Brazil, in the Province of Minas Geraes some years before. Originally the lands were granted to leading half-caste—mixed desendants of Portuguese and Indian—families by the Portuguese Government before the independence. The blocks were given and the area counted in so many square leagues, and called "Seismarias." The seismeia, as the grantee was called, was by his title obliged to have a house on, and cultivate a certain quantity of the land and houses were thus few and far between. It was from these first settlers, that the invading "mineiro" from the north obtained these large blocks.

These pieces of land were not *always* bought, and if a sale were made at all, it was of only a small piece, and the occupier of the small piece encroached on his neighbour's land.

> "The good old rule sufficed them, the simple plan
> That they should take who had the power,
> And they should keep who can."

Some good honest men did however pay for their land, and one family in particular to whom the writer was afterwards introduced, consisting of a widow and some three or four stalwart sons, were living—at the time we allude to (1876)—on 360,000

acres of land for which the late husband of the former, and father of the latter, paid three thousand pounds sterling (or 30,000$000 in Brazilian currency).

The mineiro's mode of farming was a peculiar one, and not at all likely to improve the land or make it what we could call first class for coffee growing afterwards.

His system was to fell the finest virgin forest, clear the land, by burning the withered branches, and plant the clearing with Indian corn, with a fair sprinkling of pumpkin seeds. Virgin forest has no weeds, and consequently no work was required until the corn was ripe; only what was needed for home consumption was picked, then a drove of pigs were turned into the corn fields to fatten. These porkers grew to a good size and put on a large quantity of fat. The mode of preparing the pork for the market was thus. After the pig was killed a heap of corn straw was piled on the top of the carcass, this was set fire to, and the burnt hair, and flakes of outside skin came easily off, the pig was then cut in two longitudinally, the bones carefully taken out, deep cuts, three inches apart, were made across in the inside, these cuts were filled with salt. Each half carcass was made into a roll, and put in a rough bambu basket, made the size. It was then ready for the market. If the farmer had a troop of mules himself, he would take these baskets with their contents loaded on pack saddles to sell, sometimes going as far as the capital to find a market for this class of goods which got the name of *toucinho*. There was also no want of local agents, owners of troops of mules, who would buy toucinho at so much an arroba of 15 kilos. and send it to the best paying market.

Many of the more industrious of the farmers grow tobacco: the leaves were half dried, twisted like a rope of many strands with a "thraw crook," and the rope rolled on a stick. The ends of this stick projected, the rolls were put on end, leaning against a wall or a fence rail. The black juice would ooze out and drain towards the lower end, and when this was noticed the roll would be turned end for end. This fermenting process was continued for some days until the sweating ceased. Some farmers had a famous reputation for curing tobacco, and tobacco from some special districts was considered extra fine, and sold at a high price. The same system of curing in Minas and S. Paul's tobacco still continues. In the consuming of the weed the country people cut their tobacco from a piece of the roll which they carry in their pocket, and make cigarettes with fine maize straw, every time they smoke. But in towns tobacconists have machines for cutting it up like "bird's eye" for sale or for making cigarettes. There is a large consumption of cigarettes all over South America, made from both paper and Indian corn straw. The Brazilian prefers the latter. The habit of smoking is common both amongst males and females. It is noticeable amongst the lower classes that the female always smokes a *pipe*, with a clay bowl, and a stick for a shank. The stick is got from the branch of a particular bush which in place of pith has a small perforation down the centre. The males both of the upper and lower classes nearly always smoke cigarettes. I have noticed that in some parts of the littoral of the Province of Rio de Janeiro the smoker carries a bundle of leaves in his pockets, makes his own cigar and smokes it in one's presence, generally offering at the same time the cigar to the person with whom he may be conversing.

Small patches of cane were also grown, and the product after supplying the needs of the family was made into brickettes, rolled in banana or corn leaves, something like your jaggary—but called here *rapadura*. The cane crushing was done with wooden vertical rollers with bullocks, and the concentrating of the juice was effected in a large copper boiler. Query has the word "sugar" come from "jaggery" or "jaggery" from "sugar"? You orientals ought to know if the latter word or the Tamil "sakara"—was in use before Vasco da Gama made his famous voyage!*

The very poor people in these parts use the pure juice of the cane instead of water and sugar in the preparing of the cheering but not intoxicating liquors made from coffee, mate and the congonha. The former two we were all well acquainted with, but I myself did not know of the latter at least by name. It was only on my recent visit to Minas that my attention was called to it. Congonha in my opinion is a kind of mate, *Ilex Paraguaiensis*.—There are two kinds of it in Minas, one congonha *de matto* (forest), the other congonha *de campo* (patana). The leaves are used green as they are taken from the bush. They are dried hastily in an oven or at the open fire, then put into the tea-pot along with a few small pieces of burning charcoal and well shaken together, water is then added, and the charcoal skimmed off the top of the liquid which after a few minutes is ready for drinking. Its refreshing effects are similar to those of tea or coffee.

I mentioned before that in these parts the people produced the raw material which they made into cloth for clothing which was not confined entirely to cotton; woolen blankets and sometimes complete suits, could be seen of good "home spun."

Thus in their simple state lived the people in the West of the Province of São Paulo and South of Minas Geraes. What they required from outside their own homes was little.

But a mighty civilizing agency was at work in the east. The calm peacefulness of these regions was doomed to be intruded on, in a few years by that giant of colonial development—a railway.

At the time of G. A. C.'s visit along with the writer, 1876, the railway had been opened as far as Rioblars on the 5' 3" gauge, and to Mogymirim on the metre, these two places being the farthest west-ward that coffee planting extended. As soon as it began to be noticed that the Mogyana railway was to be a paying one, no time was lost in raising capital for its extension. The capital was supplied by wealthy capitalists, and planters in the country.

* In answer to this question we quote as follows from Yule's "Hobson Jobson":—

SUGAR, s. This familiar word is of Sanskrit origin. *Sarkara* originally signifies 'grit or gravel,' thence crystallized sugar, and through a Prakrit form *sakkara* gave the Persian *shakkar*, the Greek σάκχαρ and σάκχαρον, and the late Latin *saccharum*. The Arabic is *sukkar*, or with the article *as-sukkar*, and it is probable that our modern forms, It. *zucchero* and *succhero*, Fr. *sucre*, Germ, *Zucker*, Eng. *sugar*, came, as well as the Span. *azucar* and Port. *assucar*, from the Arabic direct, and not through Latin or Greek.* In fact the ancient knowledge of the product was slight and vague, and it was by the Arabs that the cultivation of the sugarcane was introduced into Egypt, Sicily, and Andalusia. It is possible indeed, and not improbable, that palm-sugar (see JAGGERY) is a much older product than that of the cane. The original habitat of the latter is not known; there is only a slight and doubtful statement of Loureiro, who, in speaking of Cochin-China, uses the words "habitat et colitur"—which may imply its existence in a wild state, as well as under cultivation, in that country. De Candolle assigns its earliest production to the country extending from Cochin-China to Bengal.

* The Russian is *sakhar*; Polish, *zukier*; Hung., *zukur*.

The extensions went from Mogymirim to Casa Branca, from Casa Branca to St. Simon, and lastly to Ribeirão Preto. The very idea that these extensions might be carried out sent people from the districts of Rio de Janeiro and São Paulo, where coffee was beginning to grow seedy, in search of new fields and these paid what the old land owners thought a good price, and very soon large tracts of forestland were levelled by the axes of the free natives of these parts. The apprehended scarcity of labour was met by the introduction of European colonists, on a system which I have formerly described in these notes. Colonists make money on young coffee plantations, for the reason that in addition to so much paid for each thousand trees (about 3 acres) for weeding, they were allowed to plant corn and beans between the rows of coffee until the latter covered the ground and these cereals after leaving abundance to supply the house and the piggery, they generally sell to good advantage.

The pioneers in the settling of European colonists on coffee lands (among whom the writer was amongst the first), had a great deal to suffer, in loss of patience and proprietors lost heavily by their running up large debit accounts and then leaving without paying advances, but now after an absence of some years from the Province of S. Paulo, and witnessing the system, now much improved by the Government paying the passage money, it must be pronounced a success, as regards the cultivation of coffee. But with the large number of European families, who have arrived here during the last eight years, there is still a scarcity of labourers, owing to the rapid extension of coffee planting.

The districts traversed by the Mogyana railway supply nearly three-fourths of the exports to foreign ports from Santos. The total crop shipped from that port may be put down at 2,000,000 bags, of 60 kilos each for 1889-90. Of this quantity the district of Ribeirão Preto alone supplies about 250,000 bags. We see then that the reason of increase of production is entirely due to the extension of the railway system.

These districts ever since they were opened to coffee cultivation were entirely independent of slave labour, they depended in their supply to the free labourers,—fairly abundant, but very unmanagable—and to European colonists, if not imported direct, taken from other estates—not altogether "crimped" as the debt on the estate they left was always paid.

Let us see what the official report gives of the current of European immigration for the last eight years applied to São Paulo alone :—

1882	...	2,743	or a total of 176,442
1883	...	4,912	immigrants.
1884	...	4,879	
1885	...	6,500	
1886	...	9,536	
1887	...	27,689	
1888	...	74,497	
1889	...	17,283	
1890	...	27,883	

I need not go over the figures of the production of coffee, which has gradually risen from 500,000 bags in 1874 to 2,000,000 bags, of 60 kilos in 1890; this is in round numbers and as the production will increase according to the quantity of labour available, the ruling powers are aiding the farmers liberally in their efforts to introduce European labours, we may conclude that the exports of coffee from Santos will continue to increase as long as these efforts continue.

The present digression is perhaps instructive, as showing how rapidly the state of agriculture advances in new countries as soon as *means o communication* are secured. We are now re-visiting the country after a few years absence: its state formerly is described above, and let us see it now.

I was as you may expect all anxiety to be on horseback, and after resting for a day in town and making a programme of how a run through these coffee covered hills could be effected, in the few days at my disposal, the equipment for the trip was arranged. Fortunately my friend although he lived at the hotel had a house for supplying machinery and iron-work of all kinds and knew the most of the fazendieros in the district, had little hestitation in combining business with pleasure, and was willing to accompany me for a few days.

Close to the town of Ribeirão Preto there are not many coffee fazendas, for the reason that it is situated in the valley formed by the Ribeirão (small river) and the nearest highlands on which coffee can be planted, so as to be free from the visitation of frost are distant from six to eight miles. The horse hirer who was more punctual than we generally find such individuals in the towns in the interior, had animals waiting for us at day-light which at the season of the year, end of March was about 5-30 a.m.

The road on leaving the town goes south-west for three miles and then west. The valley reminds one a good deal of the pasture lands in Europe. It is laid out in beautiful fields planted with the grazing grass of the country, of which there are several kinds, and surrounded by fences, some made of thorns (of a leguminaceous species, which throws out long shoots, these shoots are cut half through once a year and folded down, and as they continue to grow and send out secondaries form a formidable obstacle which domestic animals of a wild nature cannot break through) others of wirefencing (now greatly used here) while on farms belonging to those of little capital are found a five bar fence of bamboos. Little attention is paid to shade-trees and still less to shrubbery of an ornamental kind, although many beautiful flowering plants showing varied colours and delicious scents of all sizes up to the largest tree are to be found in the neighbouring woods.

A great many vendas are passed where the principal article sold is rum, and about five miles from town we came to a large store, where every thing that there is a demand for in the country is sold, and where they buy everything that the labourers of the country may grow for sale, and also what the latter may possess themselves of by doubtfully honest means. The place had all its standing space in every part occupied by Italians, men and women, and owing to so many speaking, shouting, and drinking healths in Italian wine (said to be manufactured at a large liquor factory in São Paulo) the beautiful musical language of Southern Europe was mixed with the jargon of the "Cabocolo." This is the name given to the mixture between the Brazilian Indian and the white; they are copper-coloured, but have straight black hair with a Mongolian looking face. Free day labourers here, in the west are mostly of these Cabocolo and the boisterous laugher of the African resembled the confusedly babbling noise which we read of as having been heard long years ago in the plain of Shinar.

My companion who had passed this way often was soon recognized by the owner. We were shown real English beer, Guinness's stout, and other genuine liquids of this class, but seeing it was not yet the sixth hour of the day nor even the third, we could not be tempted, but we were greatly refreshed by the usual cup of black coffee, which kept off the craving for breakfast which we were now beginning to feel.

Some miles farther on, we came to the fazenda of

the late John Gomes C. E., and where his widow lives. The land lies on a gentle slope, seems to have been large chena land, judging by the absence of characteristic tree stumps which are left protruding above the highest coffee trees if latter be planted in virgin soil. Coffee seems planted the regulation distance 16 by 16 palmas (11½ by 11½ feet), the older coffee covers the ground well and the younger is very equal in height. There is a saw mill, a vertical one, which we notice from the road sawing up huge logs which have been taken from a clump of virgin forest in low land which would be subject to frost. We rode for about a mile through the plantation ascending the hill all the time. From the top of the hill a nice view is got of the valley through which we have ridden. We see hills covered with green coffee trees, on the two sides of the valley. After passing through a piece of large chena on the top of the hill, we commence to descend on the other side, and soon we enter another coffee plantation. This one had been badly treated and but four years ago was purchased by its present owner for a small sum. The new owner cut down the first planted trees about a foot from the ground, and the result now is a beautiful field of dark green coffee bushes, with not much crop for coming season, but a flush of young wood for the coming blossoming season. Sept. and October.

The owner now asks £10,000—for what he paid £3,000.

We now descend gradually down the right side of another valley; the stream in the middle of it runs in a different direction, from that we have come and we find we are on a range of hills; which seems to be formed from the parent hill we have just crossed.

Through long geological ages they have been forming, for we find these ridges all run parallell with undulating hollows through which runs a stream. Almost every available piece of forest on the upper slopes is planted with coffee of ages from one to seven years and in many cases just newly cleared and planted. In the distance are seen further ranges of hills covered with coffee, or newly burnt clearings.

We rode along the side of this valley for a few miles and then we arrived at our headquarters for the day, the fazenda of "Larradas." This Fazenda forms one of a group of some four or five estates belonging to the Jorqueiro family the same to whom I have referred in these present notes as having been the holders of 360,000 acres in 1876. This group now forms the remnant of that large block. Beginning with the breaking up of the block in 1878, in three years it was all sold except what they now retain, and that is about 5,000 acres.

The proceeds of the sales—although receiving what would be called a small price per acre for coffee land—made them all (the members of the family) very rich. They were thus in a position to build houses for, and locate on their lands many European colonist families; consequently their coffee fields—from the time they were planted, unlike many others here have been kept in first rate order. The acrage under coffee of all ages in about 3,000 or 1,000,000 trees.

The rest of their land is pasture or forest under what we may call the *Frost line*.

It is in the hollows in the midst of artificially made pastures where are located the colonists' houses, nice looking white-washed tile covered buildings After partaking of a hearty breakfast which was one equal to any of the finest country hotel breakfasts, at the house of Senhor Joaquim Fermino de Andrade Junqueiro and enjoying a cigarette—made of some tobacco of his own growing (in which he prided himself as being equal to the best grown in these famous tobacco growing western lands)—and a cup of strong but full-flavoured black coffee—fresh horses were supplied to us, and we began in Visiting Agent style an inspection of these groups of estates.

I can scarcely express the pleasure this gave. The old Ceylon life came back to me, and but for the extra height of the trees, and the less accidental nature of the formation of the land, one could imagine one's self riding through the Hunasgiriya, Matale East, and Kelebokka districts in the days of old.

Our road at first was across the pasture, passing on the way a large village of Italian colonists. The contented look of the old people, and the healthy look of the children who were playing about as if they were in Southern Europe, the well filled corn house situated in the back yard, the piggery and the fowl house, the enclosure for the calf to keep it away from the cow, the open stable for a horse, and last but not least in the back yard the large dome, well clayed over which serves for an oven, all inclined to make us believe that whatever may be said to the contrary, these people have not only bettered their position, but are supplying a necessary want to the cultivation of coffee in this country.

A barbed wire fence divides the pasture from the coffee fields. The large regulation wooden gate, which takes the strength of a man on horseback to open, and being hung at an angle closes automatically with tremendous force, is generally held open by the first of a group of people who may pass through. Here we have a delightful sight, coffee six and seven years old so loaded with green fruit that the branches were bending down to the ground. The trees are about twelve feet high planted 16 × 16 palmas (11½ × 11½ feet,) not a weed was to be seen and not an open space, to get along; the labourers had to bend their bodies or almost crawl. I should say there was about 15 cwt. to the acre, the green berries were well filled and at this season (April) many were growing yellow. (The picking season extends over June, July, August, September and October.)

The roads are all made on straight lines, wide enough for cart traffic and they all run at right angles. In picking the coffee cherry is heaped at the side of the road and a cart comes and takes it away to the barbacue, where it is dried in the cherry. Owing to the style of picking—taking half ripe, full ripe and dried beans, which may be on the trees or on the ground, very little is done in the way of pulping. Very little rain falls during the picking season, from June to October, therefore the cherry lies outside on the barbacue until it is dry enough for storing without heating. Admirable machines are now in use for hulling, and this is done at any time during the year Coffee keeps its colour better in the dry cherry than when it is cleaned. So if the farmer wishes to wait for a high price later in the season, he keeps it in store unhulled. The rule however is that he tries to get it off to market as soon as he can.

Young coffee is treated similarly to what it is in your country but it is not topped. A great many plants with seed, that is to say four or five coffee beans are put into each hole and after two years all but two are pulled out. The leaving of two plants is a new custom for formerly all planting was done by coffee plants from a nursery large enough to be made into stumps ⅜ to ½ an inch in diameter and only one to each hole. The pulled out plants do well for supplying vacancies or for planting up new clearings, but they must be pulled when the soil is soft and moist after or during heavy rain; no damage is done to the roots of those

which remain. There is little wind, so no staking is required. Indian corn is grown between the rows of coffee until the latter nearly covers the ground, one crop of black beans a year is also taken off. This latter forms the principal ingredient, indeed the base of the food and is as necessary in Brazil as oatmeal is in Scotland.

The price here paid to colonist families for treating *i. e.*, cultivating coffee, each family receiving from 1,000 to 5,000 or more trees divided off for the year, or succession of years is, for—

Five weedings a year 50$000 (£5) per 1,000 trees (3 acres) per annum.

For picking the cherry and carrying it to the road 300 reis (7½d) per box of 50 litres (say 1¼ bushel).

The planter prepares it for, and sends it to the market. At this rate, although I have not time to go into the figures coffee pays well. *But* all depends on the supply of colonist labour. In Brazil as in every other place if cultivation or treatment (here reduced to only keeping it clean) be neglected coffee will not pay.

From this estate we passed on to another in charge of a brother in-law, then to those of other two brothers, all these occupying the block of 5,000 acres amongst them. Coffee was seen at all ages from 8 years downwards, On each division was a curing establishment, and a saw mill, a corn grinding mill, for colonists make bread of corn meal—mandioca preparing machines, chaff-cutters, &c. On each is also a store for supplying all the necessities of the colonists in the way of food, clothing, tools, luxuries &c. so that they have not to go to the town for anything but for amusement, or services of the church.

The price paid for opening new clearings and bringing coffee into bearing, that is for four years, is 400 reis (10d) per tree for the four years (1,000 trees to 3 acres). The farmer engages natives of the country to fell the forest; but charges this to the colonist. The farmer also gives a skilled man for lining free of cost. In addition to the 400 reis a tree for four years, the colonist has all the Indian corn, and beans he may plant between the rows of coffee and gather during that time, which is of considerable value. So much is the income to the colonist in the bringing of young coffee into its bearing state, prized by them, that they flock from long distances as soon as they hear of new clearings being opened in particular parts, and leave the older coffee where their income is for the price for weeding and picking only. We must recollect the colonist in any case has a piece of land in the valley for growing food supplies, and is allowed the use of the general pasture for cows or mules.

During my stay here I visited many coffee estates all more or less in condition similar to the above. This visit impressed me very favourably, as to the future of coffee planting in the São Paulo. It remains to be seen if the labour supply will be equal to the eager desire to extend the cultivation by men of capital.

A. SCOTT BLACKLAW.

REGULATION OF SUPPLIES.

To the Editor of the *Home and Colonial Mail*.

SIR,—When illustrating the difficulty of securing a combination to regulate sales, I said that those who imported tea brought in Calcutta (approximately one-third of the whole) could not be included.

As this is not a self-evident proposition, I will try to show that it is a true one, and to explain its bearing upon the question under discussion.

1. The objects and interests of Calcutta buyers are not identical with those of the producer. It is of primary importance to them that prices in London should quickly take a range based upon the relation of supply to demand; consequently, if prospects are not distinctly favourable to a *permanent upward movement*, they regard a temporary inflation of price as an element of danger, to be avoided, not to be encouraged.

2. Freedom to press sales in case of need is essential to them, if their operations are systematic, and continuously carried on.

3. Most of their transactions are financed on terms which limit their power to hold.

We are, therefore, in presence of a large section, compelled, by the nature of the case, to hold aloof from concerted action. To these must be added those actual producers whose financial arrangements make it inconvenient to them to hold, and it is found that fully one-half of the importing community cannot be brought into combination for this particular purpose. Now let us assume that the other half organise and agree in a policy of keeping back supplies; what happens? They simply make the market for the others, who get the full benefit of demand, and supply the buyers with what they want, leaving the holders over-stocked, running the risk of the unknown future, with the added disadvantage of extra charges, loss of freshness, &c.

This, sir, is no fancy sketch; I speak of what I know. It has happened before and will happen again when the conditions are not favourable to prices holding up on their merits. Mark the qualification, for I refer to *past* action, and am justifying the course which the great importing houses have taken, since its wisdom has been called in question. Under different circumstances a different policy might be pursued or attempted; it may, indeed, be that the time is very near when sellers will be in a much stronger position. If so, individual judgment and action will effect what is wanted It is a grave matter that those who hold a fiduciary position either as managing agents, directors, or brokers, should be publicly charged with mismanagement amounting to dereliction of duty.

But they need no justification. Facts must convince reasoning fail, and Mr. Shillington, with candour if doing him infinite credit, has quoted figures which put him and "Observer" out of court. What does he tell us? That although ten million pounds more have come from India not a pound more has been consumed in England. Larger consumption at any cost is, therefore, an absolute necessity to us; and we have *now* the satisfaction of seeing more being used than ever before. But would this be the case if supplies had been kept back, and the field left free to the sellers of China and Ceylon tea? I am really ashamed to re-state the elementary principles of economics; but it is the A. B. C. of trade that consumption expands when distributors hold stocks and shrinks when they do not, and the reason is obvious—they have become co-partners with the producer, directly interested in pushing the sale of his product.

What is to be the upshot of this correspondence? A fuller appreciation, it may be, of the complexity of the problems which face us; a check, I hope, to the passing of hasty and immature criticism upon others, but most certainly not any discouragement of co-operation among producers. That is most earnestly to be desired, but let its aim be something practical, fraught with substantial benefit to every individual man of them. The confinement of production within certain limits would be such an aim—but even that would be useless if the Ceylon planters refused to join hands with us; for if a reduction in India is to be the signal for an increase in Ceylon, we had far better fight for our own hand, and brace ourselves for the struggle which the prophets of evil say is inevitable. Remember, that when it was seen ten months ago that the Indian crop was short and the price rising, word was passed round Ceylon to make all the tea they could*—the object being, of course, to hasten

* There was no such combination; the large quantities of tea were made because under the influence of the weather the bushes flushed luxuriantly.—ED. *T. A.*

the displacement of Indian. It was done, and who can blame the Ceylon planters? But they smashed our market, and their own too, and created the position in which we now jointly find ourselves—which, after all, is not so bad as it might be.—

Yours, &c. VIS UNITA FORTIOR.

THE LABOUR PROBLEM IN ASSAM.

More than one leading planter has written to us to point out the evils of the present system of recruiting labour for the Assam tea gardens. We do not doubt that the matter has the attention not only of Government but of the agency houses, and that all that is possible is being done to remedy the evil. It may strengthen their hands if we try to consider briefly where the trouble lies. Statistics seem to show that Assam absorbs every year from 30,000 to 50,000 immigrants. We have every reason to believe that he planters would gladly take an even larger supply if the districts of recruitment could furnish it. During the last five years the average number of adults sent to Assam was 29,775, and of children 9,302. In 1889, a year of exceptionally large exportation, no less than 37,548 adults and 18,110 children were sent to Assam. It seems to be admitted that the supply of useful coolies, suited to the conditions of tea garden life is failing. Planters go further afield, to Ganjam, Jubbulpore and other remote places, and presumbly have to pay more. Even these remoter sources of supply must fail in time, for the Indian ryot does not migrate so readily as the Irish peasant, and the most vigorous recruiting, the most lavish expenditure is not likely to make any very sensible impression upon the crowded population of the recruiting districts.

At the end of 1889 the total labour force of Assam was 390,468. During 1890, 36,000 coolies, nearly 10 per cent, were imported; 17,000 in round numbers entered into contracts in Assam, 7,000 were received from other gardens, 500 deserters were recaptured, 14,000 remained on the gardens after the expiry of their contracts, some 23,000 were "otherwise obtained," and there were 10,000 births. Altogether the additions to the present or prospective labour force came to about 107,500 souls. This would have been an ample if it had been a real increase. It is instructive to balance against this the deductions: 4,500 coolies were transferred to other gardens (a number curiously less than the number received from other gardens), 50,600 left with permission, 14,000 died, 13,000 deserted, 7,500 labourers already working on gardens were put under contract, and about 400 coolies had their contracts cancelled for various reasons. Altogether there are about 90,000 souls to be written off. The net increase, therefore, was only about 17,500 and this in spite of 10,000 births and 36,000 new immigrants. Assuming that all the coolies who entered into contracts locally (17,000) and all the coolies "otherwise obtained" (23,000) were all old hands who re-engaged themselves, there was still a substantive and actual increase of 46,000 souls to the garden population. That the net increase was only 17,600 shows that the losses are heavy. Now it must be remembered that the cost of importing 36,000 new coolies was probably not less, at a very moderate computation, than two millions of rupees. This is the actual cost to the employer of landing 36,000 new, raw and, for a long time, perfectly useless hands in Assam. Many of these are bad bargains and represent a dead loss. As competition increases, the number of bad bargains increases, and there is an increasing tendency on the part of contractors to send up men from parts of India, the climatic and other conditions of which do not fit them for garden labour. The actual cost of really good working hands is therefore greater than our estimate. On the other hand, the labour laws enable employers to pay coolies a less rate of wage than would be possible under a system of free competition in labour, and accordingly a portion of the initial expenditure is recouped in this way. But it is obviously inadvisable that employers of labour should be tempted in times of pressure, and on gardens which do not pay, to reduce wages to a minimum. One of the most important tasks which fall to the lot of an inspector of labourers is to satisfy himself that wages are adequate for healthy existence. But he is compelled to rely on averages; and some coolies, especially in the working season earn such good wages that many coolies may earn very poor wages without greatly affecting the average. Obviously wages are a very important item in dealing with the labour question and especially when it is remembered that the problem of increasing the area of exterior supply seems impossible of solution.

The way of deliverance seems to lie in conserving the existing labour force. What can be done in this direction? A high death-rate as compared with that of the ordinary rustic population is perhaps inevitable, especially on newly cleared gardens. Looking to the conditions of tea garden life, to the fact that the women work out of doors as well as the men, that many of the coolies are unacclimatised new importations, it is perhaps surprising that the birth-rate does not fall extremely far behind the death-rate. But it is clear that of the 50,000 coolies who refused to renew their agreements and the 13 000 deserters, a very large proportion were lost to Assam, or at all events to the tea gardens. Some may have settled in the province as ordinary peasants, but the majority would seem to have disappeared. This is a very serious evil, when the cost of procuring new labour and the admitted evils of the present system of recruiting are remembered. Something may possibly be done in the way of reducing the death-late, and the Government of India have very properly ordered stern measures to be taken with gardens which persistently show a high mortality. But from the employer's point of view the most disheartening thing is the loss of able-bodied labour by other causes than death. That 13,000 coolies should have deserted in a single year is a serious matter when coolies are so expensive. We are not sufficiently acquainted with the details of tea-garden management to know whether many of these deserters engaged themselves on other gardens. The net deficit would seem to show that this is not the case.

The conclusion to which we are driven is that a great part of the labour force of Assam is kept in the province by the artificial means of the labour law. This law can be defended on the ground that labourers who have cost so much to import may righteously be deprived of their liberty for a while, and may be bound to labour for a term of years at a fixed rate of wages. But it seems clear that labour under these conditions is not really popular. The planting industry of Assam has been in full force and vigour for many years. Its conditions must be well-known by this time in the parts of India from which coolies are chiefly recruited. Yet the net increase last year, deducting the 10,000 births of children who, at present at all events, are not available for work, was under 8,000, though at least 36,000 souls were actually, and at enormous expense, imported.

We hope the suggestion we have to make may not be regarded as a truism. There are many obvious truths which are not always applied to practical life. Surely the remedy for the exorbitant expense of importation lies in the more careful conversation of the coolies who have found their way to Assam. At present coolies are kept on the gardens chiefly, as we have said, by the artificial means of the labour law, and by mere *inertia*. Some districts—and, judging by the last Immigration Report of the Assam Government, Sylhet seems to be one of them—have a sufficient supply of labour. Probably in such districts local conditions favour the labourer, and especially tend to make his wages sufficient for his comfort, health and happiness. These, it is noticeable, are the very districts in which importation is cheap; they

possess a comparatively large indigenous population, which supplies rice and other food stuff to the coolies. Apparently the average rate of wages in less popular districts ought to be much higher than in districts where food is cheaper and easier to be had. This may seem a hard saying to the planters, who may object that it is in these very districts that the expense and difficulty of importation become a crushing charge. "Whence," he may not unreasonably ask, "am I to recoup myself for the expense of importing fresh supplies?" Perhaps the best reply is to turn to the Immigration Report for concrete instances. We look up the wage lists at page 17, and confine ourselves, for simplicity, to men's wages alone. In the Surma Valley the average wages of men under the Act, taking five sub-divisions from west to east (the gardens furthest east being more remote and probably less popular) is as follows:—R4-3-1, R6-10-7, R3-14-10, R3-12-1, and finally in Cachar R4-8-6. But these figures are not so interesting as those of the Assam Valley proper, where the local conditions vary far more widely in different districts, and where, in Upper Assam, the coolie population bears a far larger proportion to the indigenous people. Lakhimpur, at the head of the Valley, has an immigrant population of over 70,000 out of a total of about 300,000. The average wage in this valley, going again from west to east, is—Kamrup, R3-15-2; Darrong, R5-8-8; Nowgong, R4-13-5; Sibsagar, R4-14-4; and Lakhimpur R5 4-4. It is plain on the face of it that wages do not increase by leaps and bounds as we travel into districts where the coolie is expensive to get and hard to keep.

But the figures hardly show how equal the wages are throughout the Valley. In the districts of Upper Assam the average is plainly kept up by the high wages paid to exceptionally useful coolies. While in Lower and Central Assam the highest wages paid to any Act coolie did not exceed R8 in Sibsagar so much as R15-4 and in Lakhimpur so much as R13-1-6 was earned by exceptionally good men. It may be taken roughly that the average rate of wage is about R5 some coolies earning two or three times as much, the majority earning less. Now in 1890, the district of Lakhimpur imported 7,668 adult coolies (a much smaller number than that of the previous year). This probably represented an expenditure of not less than R3,83,400, much of it spent on useless and unsatisfactory coolies. Now the annual strength of Act and non-Act adults and children in that district in 1890, was 72,128 souls. Assuming that each and all of these earned an average of R5 a month, the total expenditure only comes to R3,60,640. In other words the wages of all the existing labour force for a month are less, and probably much less, than the cost of importing the year's supply of new coolies. And we must bear in mind that old and seasoned coolies are infinitely better worth paying than raw and unhealthy new-comers. This is proved by the extremely high wages paid in individual cases. It can hardly be denied that the effect of the labour law is to keep down wages. Not only are coolies not under the Act better paid as a rule, but the Act by reducing competition has a tendency to keep down the wages of even free men. Is the advantage so obtained compensated for by the tremendous drain on the labour force, which would probably be enormously lessened if more money were spent on the coolies who are already on the gardens. The question is perhaps one which can only be authoritatively settled by professional planters, but the suggestion is one which we think it behoves them to consider. We suggest that the ultimate effect of the labour law is to increase the expense of importation, and that the money would be better spent in conserving the coolies who are now in Assam than in paying *arkatis* and contractors in Madras, the North-Western Provinces and Chota Nagpur for looking for fresh labour. We are aware that large sums of money are spent on lines, wells, hospitals. But what the coolie likes is good wages To higher wages Assam must come at last: even rail. way communication will not avert that necessity. At present enormous sums are spent on importing labour, and other sums of which we have no account are spent on maintaining useless and unprofitable hands. Could not a portion of this be diverted to stop the drain of seasoned and time-expired labour? We have not gone into details: we have drawn our figures from the published official reports, our arguments from an impartial and uninterested consideration of the Government statistic. Planters will be able to supply detailed criticism of our conclusions.—*Pioneer.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, Dec. 9.

QUININE.—No further transaction are reported today At the auctions 3,000 oz. Brunswick quinine in tins were offered. No one was heard to bid, except the broker himself. He declared loudly, amid some laughter, that the lot was sold at 9d per oz.

London, Dec. 10.

QUININE.—Remains in an exceedingly dull condition. For German brands in bulk 9d per oz is still the nearest quotation, and we hear of small sales (about 2,000 oz.) at that figure this week. "It may interest you to know," writes a New York correspondent, "that quinine is in a very bad way here. A well-known London dealer has been sending one of the German brands here on consignment (40,000 oz), and is selling it for any price it will bring. Nobody appears to know what his object is, but we think that he wants to get rid of the stuff at any price, as the market is going lower, and he cannot sell it in London. The price he is selling at today nets him the parity of 8¼d, less 5 per cent in London. That is, if we bought at 8¼d, less 5 per cent f.o.b. London, and sold here at 18c, less 1 per cent usual New York terms, we would come out even

THE PERUVIAN MINING INDUSTRY is likely to receive a filip by the important discovery made by Don Pedro Felix Remy, an eminent mineralogist of Lima, and Mr. H. Guillaume, the Consul-General for Peru at Southampton, has done well in calling attention to the same in the English papers. A large number of silver mines in Peru have hitherto been unproductive by reason of the silver ores being mixed with zinc, known as the "blende," but Dr. Remy has discovered a method by which the silver can be extracted from these ores, with the result that mines which have hitherto been looked upon as worthless are now likely to turn out most valuable proverties.—*Colonies and India.*

COCA-PRODUCTION IN JAVA.—According to a recent report of the director of the Botanical Gardens at Buitenzorg the experimental cultivation of *Erythroxylon bolivianum* has been entirely abandoned there. The influence of light, of manuring and of trimming upon the cocaine percentage of the leaves is now being studied at the gardens, but the experiments are not yet sufficiently advanced to enable conclusions to be drawn from them. So far it can only be stated that the experience at Buitenzorg fully corroborates the conclusion arrived at by Messrs. Zimmer & Co., of Frankfort, that the new leaves, just developed, are far richer in cocaine than the older leaves. According to Van Romburg the percentage is from 2·3 to 2·4 in the former and from 0·7 to 1·75 in the latter. But *Erythroxylon bolivianum* only contains 0·55 per cent cocaine. Investigations (fruitless so far) are also being made to find a simple method for the preparation of cocaine.—*Chemist and Druggist*, Dec. 12th

HOW TO SEND FOLWERS BY MAIL.—Cut them early in the morning and let them stand in water some hours before packing, so as to absorb moisture enough to prevent them withering, in which case they will not need to be sprinkled after they are in the box. Pack in a light wooden box lined with cotton batting and covered with tissue paper. Lay the flowers not on top of each other, but in rows side by side, the blossoms of each row on the stems of their neighbours and as close as possible; cover with paper and cotton; see that the lid of the box is secure fastened, and remember to write on one corner "Cut Flowers," as that will insure the package being carefully and quickly handled.—*Harper's Young People.*

CONSUMPTION OF TEA AND COFFEE IN THE UNITED STATES.

There would seem to be little doubt that the proximity to the United States of the greatest coffee-producing country in the world, Brazil, must have strongly influenced the national taste, which leads to a consumption of the berry in the States represented by figures equal to over 7-fold those which stand for tea. The consumption *per capita* of tea was 1·39 lb. in 1880; it rose to 1·54 lb. in the following year, went down to 1·09 lb. in 1884, rose again to 1·49 lb. in 1887, and sank to 1·32 lb. in 1891. Tea has, in truth, risen only from an average consumption of about 75 millions of pounds in the first three years of the series to about 81 millions in the last three, in the face of a large increase of population. A taste for tea has, therefore, to be revived as well as created in the United States, and there may be, in favour of such efforts during the Chicago Exhibition, a deficient supply of coffee from Brazil in consequence of political troubles. As matters stand the history of coffee in the dozen years presents the most marked contrast to that of tea. The total consumption has risen from less than 440 millions to 511 millions of pounds. There have been fluctuations in the consumption per head as prices advanced or receded, from 8·78 lb. up to 9·61 lb. and down to 8·24 lb. The latter is the figure for 1891 against 1·32 lb. only, for tea, so that the consumption of coffee is now in the United States very nearly eight times that of tea, while of the tea consumed, only a mere fractional part is the growth of Ceylon. In the United States alone, therefore, apart from other portions of America, there is ample room for the exercise of all the energy which can be exercised by the representative of Ceylon and his assistants at the Chicago World's Fair.—The following are the figures we have been analysing:—

IMPORTS OF TEA.

Year.	Net imports. Pounds.	Value. Dollars.	Per capita populat'n. Pounds.
1880 ...	69,894,769	18,983,368	1 39
1881 ...	19,130,849	20,225,418	1.54
1882 ...	77,191,060	18,975,046	1.47
1883 ...	69,597,945	16,278,894	1.30
1884 ...	60,061,944	12,313,200	1.09
1885 ...	66,374,365	13,135,782	1.18
1886 ...	78,873,151	15,485,265	1.37
1887 ...	87,481,186	16,365,633	1.49
1888 ...	83,944,547	13,154,171	1.40
1889 ...	79,192,253	12,561,812	1.28
1890 ...	83,494,956	12,219,643	1.33
1891 ...	82,395,924	13,639.785	1.32

IMPORTS OF COFFEE

Year.	Net Imports. Pounds.	Value. Dollars.	Per Capita Populat'n.
1880... ...	440,128,838	59,416,196	8·78
1881... ...	423,276,472	52,388,833	8·25
1882... ...	435,579,289	42,815,027	8·30
1883... ...	478,502,125	38,155,251	8·91
1884... ...	508,632,863	46,955,394	9·26
1885... ...	539,264,356	43,389,270	9·61
1886... ...	537,211,781	40,145,304	9 36
1887... ...	500,819,587	53,416,200	8·53
1888... ...	408,562,775	58,670,737	6·81
1889... ...	561,132,100	72,139,897	9·16
1890... ...	490,161,900	76,750,979	7·83
1891... ...	511,041,459	94,612,119	8·24

DENDROCALAMUS GIGANTEUS.

One of the fine clumps of this noble bambu is now in flower on Abbotsford estate on the border of the Dimbuldandaoya at an elevation of 4,650 ft. The original stock was obtained from Peradeniya from old Mr. Thwaites in 1874, seventeen years ago, and the stems are now from 80 to 100 ft. high, and have for several years past supplied capital spouting, fencing, and roof tiles. The flowering clump is exactly opposite the new factory in course of erection, and this is considered to be an exceedingly lucky omen by the natives. So mote it be! *Floreat Cha*, not literally, but symbolically.

CEYLON TEA IN RUSSIA.

Planters' Association, Secretary's Office,
Kandy, 26th Dec. 1891.

SIR,—I beg to enclose copy of letter from Mr. M. Rogivue, Moscow, transmitting his report, together with accounts, with reference to his mission to Russia to make known and push the sale of Ceylon Tea in that Empire.—I am, sir, yours faithfully,

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

TEA FUND,
Moscow, 18/30th Nov. 1891.

A. Philip, Esq., Secretary to the Planters' Association, Kandy.

Dear Sir,—I have duly received your two favours of the 21st and 24th June last, the contents of which had my best attention, with my sincere thanks to the Tea Fund Committee for their last grant of £250 which I received in order through Mr. Wm. Martin Leake in London.

By this opportunity I have now the pleasure to hand you my report of operations in Russia with account up to 31st October last, showing receipts and expenditure in connection with my work; also extracts of letters and publications referring to Ceylon Tea.

I also beg to advise the despatch by this same post of a packet addressed to you "Registered" containing 8 photos of my provinces, placards and other papers which may prove of some interest to the members of the Tea Fund.

Would you perhaps kindly recommend to your Committee that one of the Overland Ceylon newspapers should be sent regularly to me, the receipt of which would prove sometimes of the greatest interest to my clients interested in Ceylon matters, and at any rate very agreeable to me.

Apologizing to your Committee for the delay in sending report and accounts,—I remain, dear sir, yours faithfully, (Signed) M. ROGIVUE.

Moscow, November 1891.
Maroseika, House Lebedieff.

Report to the Ceylon Planters' Association "Tea Fund."

Introduction of Ceylon Tea into Russia.

Gentlemen of the Tea Fund Committee,—Since my last report of the 13/35th April, my occupations have been so numerous and my work so absorbing, that I could not possibly sooner find time to give it a continuation.

Up to that date, I already had sold in Moscow and the Province:—

220 f. ½ Russian lb. of tea in retail (packets only) and
3,500 do do wholesale (packets and cases).

I have since imported to Odessa on firm orders 80 chests (about 8,500 Russian lb, (of an ordinary Pekoe Souchong, which quality is likely to take well amongst the common classes in the Caucasus and the Astrakan Governments, and up to 31st October I sold from my Moscow stock, renewed almost monthly:—

9,142 Russian lb. of tea in retail (packets only) and
11,257 do do wholesale (packets and cases) of which 5,500 Russian lb. in Nijini-Novgorod alone, when I had a Magazine during the whole time of the fair (from the 20th July to 10th September) and the rest in Moscow and the Province, the latter extending to the Orel, Witebsk, Woronesk, Tambof, Hursk, Kief, Karkoff, Riazan, Saratoff,

Riga, etc. Governments where this tea is now mostly known, drunk pure and appreciated by thousands of people.

I have agents in all the abovenamed Governmen's, and Depôts for the sale of Ceylon Tea—on commission or otherwise—are permanently opened in everyone of their principal towns. In Nijini-Novgorod, after the fair at the special request of the general public, I have also opened, on my own account, a retail-wholesale Magazine where I have sold from the 12th September up to 31st October an average of 250 lb per week, which I consider as being a very good beginning, very encouraging for the future, making me hopeful of doing there before long a considerable business, this Government being the centre of tea operations and the very one from and for in which a new article has to be introduced into Russia.

A fact, however, worthy of notice is that St. Petersburg and its Government has been, up to date, rather-more difficult to convince; the public seems to be there more conservative as regards their taste for tea, and this field would thus require to be especially worked with extensive reclaim and large sacrifices.

Out of the 42,000lb. of tea I have imported into Russia up to date, the quantity sold in retail (packets) as shown above, since the opening of my business was all for the general consumption, viz: the sorts from Rb. 1-60 to Rb. 3. to the better public and the tea from Rb 1-20 to Rb 1-50 to the lower classes, workmen, peasants, etc. The wholesales (part in packets and part in cases) about 15,000 lb. were made mostly to dealers and Tractirs (Public houses).

The Moscow wholesale and retail merchants, large firms like Wogau & Co., K. and S. Popoff & Co., Goubkine, Rastargonieff, Bobkine, etc., have, I am sorry to notice, not begun yet to buy from me, and this for the only reason that they are all against me on account of my having opened magazines for the sale in retail of pure Ceylon Tea, thus setting in competition with them against their rubbish "Chinese" and for mixtures of "Ceylon and Chinese," but now they import largely Ceylon kinds from London,* used here for blending purposes, and it is an indispuable fact, the accompanying extracts of a letter from Mr. Seaton, ex-Assam tea planter, who interested himself so much in the welfare of the introduction of Ceylon and Indian Teas in Russia and who was here, last year with me, will testify it, that since I am here the export of "Ceylon tea" from London to Russia has considerably increased. I wish I could furnish statistics of import in Russia, but these are very difficult to procure here; it would be easier to get statistics in London of the exports to Russia.

Smaller houses have often bought my tea in quantities of 10 to 15 cases at a time; also for the blending of Chinese. This is done now so largely and in such proportions for "Ceylon" that all these firms are damaging their names as well as their marks for good Chinese, thus likely without seeing it, accustoming by degree the Russian public to the taste of "Ceylon" and therefore helping me greatly and serving considerably our cause and interests. This also will be testified by the letter (translation attached) of a Karkoff Russian merchant, who takes the greatest interest in the Ceylon staple.

REGARDING PRICES.—Six months ago, when the sterling exchange was at Rb. 8·50 per £ st. and the gold agio (duty is always paid in gold) relatively low about 35 o/o, a tea costing in London 10d. could be laid down in Moscow at Rb. 1·10 kop. Russian lb. duty paid, now that the exchange has gone to over Rb. 10·50 per £ st. and the agio is fluctuating up to 73 o/o, the very same tea turns up to Rb. 1·50 kop., duty paid, in Moscow, a difference of fully 40 o/o. The above prices for "Ceylon" compared with the prices for "Chinese" are in favour of the former, because notwithstanding their purity and economy, it is now ascertained by many that a Ceylon Tea sold here at say Rb. 2 per lb. is of far better quality than any mixture of Chinese and Ceylon sold at same price; I have been often told that my pure Ceylon at say Rb. 160 per lb. is of much better quality than tea at Rb. 2 from Popoff, Tillippoff or other retailers.

RECLAME.—This, as I have already pointed out, is the "key" to the success, the "main hinge" in the enterprise. To push an article, to introduce a new product, reclame and advertisements are absolutely necessary; it is the same in every country of the world; and in Russia when, I may say, this is carried by all on a very large and extensive scale—perfectly well understood enormous sums being given away for this purpose—it ought certainly to be done especially when the object in question is to change the taste of thousands of people accustomed to an article solely known by them which never had a like one to compete with. For Ceylon tea it is not thousands, but many thousands of Roubles which ought to be spent now—after its introduction—for its extension all over this country, and I wish I could do as much as the enterprising American mer- chant who is now spending a sum of 40,000 Dollars in the reclame for Ceylon tea in the United States, as will be shown by the interesting article published recently in the "Pycckoe Odozpirine"* Russian Review, of which I attach herewith a translation.

I annex accounts showing first expenditure made in trying to attain these ends, and I will draw again the attention of your Committee on the necessity of much more funds to be sacrificed in order to continue the work and obtain the desired results, as it must be well understood that although some progress has evidently been made, much more remains to be done before Russia gets its tea supplies direct and regularly from Ceylon.

After having preliminarily advertised in newspapers and by other different means, my reclame began with the opening of my magazine (Maroseika, House Lebledieff) of which the accompanying photos perhaps will prove of some interest in Ceylon, in order to give the public the possibility of buying this tea in packets and drink it pure. Placards, price-currents, fly-bills, reclame, books, etc. (as per accompanying specimen) have been printed and distributed abundantly all over the country and especially in the Kiosk opened at the French Exhibition in Moscow where tea in packets and in cup was sold and presented to the public during five months.

In a commercial point of view this Kiosk was a complete failure, Rb. 2,000 and more have been dropped, but it was and is still very noticeable that it did a great deal of good as well in Moscow as in the province, the sale having thus much increased. Another reclame of great weight was the Nijini Novgorod Fair about which I have already written above; there I may say, selling tea in packets of ¼lb. ½lb. ¼lb and 1lb. I have given to many thousands of people of all classes and of almost all parts of the country, the means of tasting the pure and genuine article and I do not think it is boisterous† of myself to predict for the next Fair there, a very considerable business, if I am in a position to bring on that market the necessary quantity of tea to do it. If calculate that about 50,000 lb. could easily be sold there (retail and wholesale) during the forty days the Fair lasts.

PAID AGENTS were also engaged by me to visit Moscow and the Province, offering my tea in private houses, restaurants, hotels, tractirs, etc. in fact in every place where tea is drunk, and, the result was that many of these have been gained to the cause of Ceylon tea and became my regular customers, as they very soon found out the great and indisputable economy in using it. Many, however, are still reluctant to its peculiar taste compared with "Chinese" and it will require a great deal more work of per-

* Which the figures for exports from Britain to Russia do not seem to bear out.—ED. *T. A.*

* Mr. Rogivue evidently wrote the name in Russian. "Pycckoe" should be "Russky." "Odozpirine" is beyond us.—ED. *T. A.*

† Mr. Rogivue meant to say "boastful,"—ED. *T. A.*

suasion to convince them that this beverage is drinkable!

ADVERTISEMENTS in the press has also been used by me on a moderate scale and proportioned to my means as the medium of reclame. This is no doubt a very expensive item when done properly, but would be of great help for our success, and if I could, by some intelligent sacrifices, present generous entertainments, liberalities of champagne such like extravangancies gain the hearts of the reduction of our best newspapers and induce them to write now and then some favourable articles on Ceylon and Ceylon products, Tea especially. We would undoubtedly carry the cause before long. There are many other ways of doing good reclame, but even when done judiciously it requires much larger sacrifices of money than I can afford.

REGARDING BUSINESS IN GENERAL.—As your Committee is aware I, backed up by a firm in London have established myself in Moscow as part proprietor and manager of the "Ceylon Tea and Produce Agency of Russia," selling in my Magazine Tea, Coffee, and Cinnamon, also Cocoa, of which I have small stocks, and other articles (only Ceylon) on commission. The business so far, proportioned to my modest capital about £st. 2,000 has shown pretty well satisfactory to enable me, with the aid of your funds, to cover expenses and to get now convinced that if it were done on a more important scale, with a larger capital sufficient to conduct a well ordained reclame and to permit the import of larger invoices of tea leaving ready money at disposal for the clearance of duty whenever required, such a business would prove before long a well paying and lucrative concern. My capital is evidently not large enough to give the enterprise the desired rapid and noticeable progress or extension; I missed the sales—on this and the Nijini-markets—of many hundred chests of tea for the want of above-mentioned conveniences and this, I must say, rather impressed against me the public who at first expected to find in the Commissioner of the Ceylon P. A. Tea Fund for Russia representative of a large commercial company able and prepared to invest millions in such an important enterprise.

IN RUSSIA most of the business are done on credit allowing to purchasers up to 9 and even 12 months' terms; my retail sales are all for ready money. At the opening of my business, I have, however been obliged to give also credit to some extent in order to facilitate the introduction of our tea, but, although I have been lucky enough not to lose anything of importance, now that the circumstances are getting so critical and business so difficult by bad crops, famine, etc. all over Russia. I have established my business on the safe basis of the strictest cash conditions which were, of course, somewhat troublesome at the beginning, but to which the amateurs of pure Ceylon tea must now submit.

Resuming the foregoing, I may safely say that Ceylon tea is now partly introduced into Russia, sold, drunk and appreciated as pure to and by a great number of people of all classes and that it only requires for the extension, the development of its import and sale all over the country, a well established enterprise, with a sufficient capital capable of importing large quantities to be distributed on the principal Russian markets, of clearing duty on whatever quantity required at a time, of opening magazines for the sale of tea in retail and wholesale in all the principal towns of this great Empire and of advertising on an extensive scale and well conducted manner, especially through the press.

From the above figures it will be seen that out of the 42,000 lb. Ceylon tea I have up to date imported to Russia, 34,000 lb. have been already sold with an increase of about 3,400 lb. per month for the last six months from 1st of May to 31st October. As pointed out I could have much exceeded there figures, and it is my firm belief that out of the about 70 millions of tea yearly consumed in Russia one-fourth could why not?—become Ceylon tea before five years ha elapsed, if its import were properly pushed forwa the more when considering that Chinese qualiti are visibly decreasing gradually.

I still would strongly impress upon all the Ceylon planters the necessity of their tea packages being of better make and in stronger condition; also more evenly tared in order to prevent further complaints on these respects.

And should the business take the desired and expected proportions, I would recommend as an important and indispensable factor the establishment of a purchasing forwarding agency with blending store in Colombo.

It remains to me, gentlemen, in submitting the accompanying accounts to the examination of your Committee to beg for the continuation of their support in the welfare of an enterprise, which has now so entirely taken possession of me, that it is my sole object to bring it to an end,* and trusting your Committee will understand that my not having furnished sooner and more frequently reports of my doings was only due to want of time.—I beg to remain, gentlemen, &c.,

(Signed) M. ROGIVUE.

(Appendix to Mr. Rogivue's Report.)

TRANSLATION.

Mr. M. Rogivue, Moscow.

Dear Sir,—After having bought from you a small lot of Ceylon Tea, I sold it with the greatest care directly to consumers whereby I had the opportunity to get the opinion of several and to convince myself of its superiority over China Tea.

The consumers immediately appreciated the strength of its infusion and its fine colour and generally praised the agreeable, though perhaps somewhat peculiar state to which they however soon get accustomed.

Lately many large firms began to mix Ceylon Tea to China, therewith accustoming the public by degrees to the taste of Ceylon Tea. For this reason the consumers buy willingly pure Ceylon Tea with preference to Chinese on account of its economy and strength.

For the extension of this article it is necessary to open here a special magazine under your own firm. I am thoroughly convinced that the sale of Ceylon Tea would be successful as well in retail as by wholesale if you would give the buyers convenient discount and credit. With energetic work and good management of the business it would be easy to gain in a short time a great many purchasers.

Many people who bought from me your Ceylon tea now refuse to return to Chinese and this is a guarantee to me that by proper dealing in this special business this article would soon make its way amongst the public. According to above mentioned advantages I would propose the opening here of a nicely put up, well fitted small magazine which management I am willing to take under certain conditions.

Karkoff, the centre of business for the South of Russia, has six yearly fairs visited by numerous merchants which makes this place the most favourable for the introduction of this article.

All the important tea firms like K. S. Popoff, Kostorgujew Khinonchine, Wogan etc. have here large stores and magazines.

If you are willing to give me for some years the management of this business, within a limited radius, I would be ready to come over to Moscow in order to arrange matters with you.—Waiting your reply, I remain etc.

(Sign.) F. ASSMAN,

Karkoff, Oct. 24th.

Extract of an article in the *Pycckoe Odozpenie* (*Russian Revue.*)

The Ceylon tea, worthy of the highest praise for all its good and predominent qualities, is now exported in considerable quantity to England. As a proof of the progress it is making in the trade we give the following figures:—

Export from	1st Oct.	83	to	13th	June	84—	263,464 lb.
do	do	1st do	84	to 13th	do	85—	461,559 „
do	do	1st do	85	to 13th	do	86—106,2302 „	
do	do	1st do	86	to 13th	do	87—188,4307 „	

which show that during these four years the export of this article increased eightfold. Stimulated by these rapid progress, the Ceylon Planters decided to avail themselves of the American markets and lately made a first attempt by shipping to the United States 6,000 lb. of Ceylon tea. For its Reclame alone an enterprising yankee had the boldness to spend 40,000 dollars.

CEYLON TEA FUND.

Expenses connected with the Introduction of Ceylon Tea in Russia.

1890. General Expenses	£	s.	d.	Rbs.	
June-July—Album and box for Ceylon photos	1	10	0		
From Lausanne to London ..	6	0	0		
A fortnight's stay in London (hotle carriage &c.) ..	12	0	0		
Second class Cook, ticket from London to St. Petersburg (with luggage &c.) ..	14	0	0		
Stay in Berlin and Kenigsberg, carriage &c.	4	0	0		
Printing of circulars, tea labels business cards, paper for packing, tea samples &c.	5	0	0		
Messrs. Malcolm, Kearton & Co., London, invoice for tea samples	43	4	0		
				728	50
	85	14	0		
Duty on 740 Russ. tea samples, customs and charges .. .. } Exchange Rbs. 588				684	50
Rent of a small godown in St. Petersburg for storing and packing tea				17	00
Expenses in St. Petersburg (services), hotel, interpreter, entertaining, advertising, printing, tips, telegrams, postages ..				165	00
July-Sept.—From St. Petersburg to Moscow with luggage and samples				36	35
36 days in Moscow, hotel, carriages, tips, entertaining, interpreter, advertising, newspapers, telegrams, postages, &c.				510	00
Trip to Nijni Novgorod (yearly fair)				110	00
From Moscow to St. Petersburg				31	00
7 days' stay in St. Petersburg, carriages &c.				75	00
From St. Petersburg to Hull and London	9	10	0		
Fortnight's stay in London, making arrangements for returning back to Russia	15	0	0		
Oct.—From London to St. Petersburg	15	0	0	335	75
Nov.—Six days' stay in St. Petersburg, hotel, carriages, interpreter, &c. ...				52	00
From St. Petersburg to Moscow				30	00
In Moscow from 6th Nov. 1890 to 13th Jan. 1891 making arrangements for estatablishing business, hotel interpreter, advertisement, printing, newspapers, entertaining, tips, carriages, &c.				630	00
			Rbs...	3,405	10

Started business in Moscow on the 13-16th Jan. 1891.

Opening of my business on the 14-26th Jan. 1891.

Part of Tea Fund money taken in the business.

1891,	Rbs.	
Jan.—Rent of an office, store, magazine at 1,200 Rbs. a year 4 months in advance	400	00
Guilde (License), Police taxes and sundry charges connected with the opening, signboard, carriage, &c.	715	00
Office and Magazine furniture... ...	1,255	63
Jan.-Aug.—4 months' wages to tea packers and clerks	300	00
Sundry charges (for 4 months Jan.-April)	750	00
Opening advertisements in 5 newspapers	40	00
Forwarding of 500 circulars	55	00
Rbs...	3,515	63

Part of the Tea Fund say Rbs. 1,700.

TRAVELLING ACCOUNTS.

1891.		
Jan.—Trip to Tvanova Wosnesenske ...	48	00
Feb. 2nd.—Second trip to do ...	35	00
April,—Trip to Nijni Novgorod preparing for the fair	64	00
June.—Trip to Kursk-Kief Odessa ...	215	00
Trip of an assistant to Nijni Novgorod, return by Kostroma and Yaroslav...	56	00
Rbs....	418	00

1891— RECLAME.		
Jan.-Oct.—Subscription to an advertisement in the Asiatic Exhibition catalogue	23	00
Advertisement in St. Petersburg Official *Gazette* 6 times at Rbs. 8 ...	48	00
Printing and distribution of 10,000 fly bills	55	00
Mr. Shabert's bill for advertisements for one month in 5 newspapers ...	97	35
Printing of tea price currents 5,000 at Rbs. 15	75	00
Advertisements in the Moscow Police *Gazette*	10	00
Bill Rochette for advertisements in hotels and restaurants ...	25	0
15,000 tea books with and without price currents at Rbs. 15 ...	225	00
3,000 business cards at Rbs. 8 ...	24	00
Signboards and gold letters to Zenootch, Paker & Co. (Tea Depôt) ...	26	00
Signboard for Tvanova Werneseske (Tea Depôt)	15	00
2nd bill Shabert for advertisements for one month in 5 newspapers (Moscow and the Province) ...	97	35
Expenses and wages to running agents in Moscow visiting teachers (public houses) restaurants and to province agents	315	00
500 placards	350	00
200 placards price currents ...	20	00
Almanach Reclame (30,000 copies given away in all Russia ...	75	00
Tracties Reclame (Permission to hang up placards in 50 tracties ...	35	00
Advertising in the Keroker's gratis edition in the form of a book to be distributed all over Russia to over 125,000 subscribers ...	40	00
Rbs...	1,555	70

ACCOUNT KIOSK AT THE FRENCH EXHIBITION IN MOSCOW.

1891—		
May-Sept.		
Rent of the Kiosk	1,500	00
Decorating, painting &c. ...	30	00
Permission, police, reclame, tips &c. ...	45	00
Wages to a lady for selling tea (5 months at Rbs. 50)	250	00
Wages to a boy 5 months at Rbs. 10 ...	50	00
Transport of tea, carriage and sundry expenses	75	00
Samovar expenses and tea samples given away	60	00
Rbs...	2,010	00

NIJNI NOVGOROD FAIR.

1891.		
July-Sept.—Rent of a Magazine ..	300	00
Furniture and putting up ...	65	60
Signboards	35	00
Electric light	15	00
Guilde (License) Police taxes &c. ...	72	00
Advertisement in Newspapers, Fly bills, Printing and distribution ...	115	00
Mr. Milavidoff, assistant ...	250	00
Interpreter. 5 times at Rbs. 10 ...	50	00
2 men for magazine, (2 months their trips there and back, their messing and sundry charges... ...	275	00
A Watcher (artelchek) for two months...	40	00
Running Agents, and tea samples to sundries	150	00
M. R.'s 5 trips there and back, Hotel carriages &c.	300	00
Rbs....	1,667	00
½ share for the Tea Fund, say Rbs....	130	00

MONEY RECEIVED FROM TEA FUND.

1890-91	£	s	p.
Received in Colombo from Mr. Philip...	33	6	8
Received in London from Mr. Leake...	33	6	8
Received in St. Petersburg from Mr. Leake through Messrs. Macolm, Kearton & Co.	33	6	8
Mr. Leake's payment to Messrs. Malcolm, Kearton & Co. for Tea samples (part value) as per special grant of the Tea Fund	30	00	0
My cheque from Moscow account Zanker & Co. on Mr. Leake ...	10	00	0
My cheque from St. Petersburg account Em. Meyer & Co. on Mr. Leake	10	00	0
Cash in London from Mr. Leake ...	10	00	0
do do do ...	50	00	0
do do do ... circular notes	50	00	0
Mr. Leake's payment to Messrs. Malcolm, Kearton & Co.	25	00	0
Received in Moscow from Mr. Leake draft on N. O. B. C. negotiated with Lonned & Co. at 85 30 1600·93			
Less Telegram to London 1·85	187	13	8
Received from Mr. Leake through Messrs. Spence, Wallis & Co. London...	250		
At average exchange Rbs. 85 6567·80	£ 772	13	8

RECAPITULATION OF ACCOUNTS.

Account	R
I.—General Expenses ...	3,405·10
II.—Opening of Business (½ share)	1,700·00
III.—Travelling account ...	418·00
IV.—Reclaim ...	1,555·70
V.—French Exhibition Kiosk...	2,010·00
VI.—Nijni Novgorod Fair ½ share	830·00
Rbs.	9,918 80
Amount received as per statement No. VII. £772 13s 8d	6,567 80
Over Expenditure Rbs.	3,351 00

NOTES ON PRODUCE AND FINANCE.

LAST WEEK'S TEA SALES.—Importers have shown less disposition to over-supply the market with Indian tea, and consequently the quantity brought forwad has been smaller than of late, says the *Produce Markets Review*. Now that there are indications of a falling-off in the demand, owners will best study their interest by not forcing their tea on unwilling buyers for the next few weeks. Although the enquiry has not been so active, a fair business has been transacted at generally steady prices. The figures for the past month, compared with those of last ear, are on the whole satisfactory. The imports show an increase of upwards of 400,000 lb., namely 18,870,000 lb. against 14,526,000 lb., and the delivery 10,051,000 lb., as compared with 9,606,000 lb. The stock shows a considerable augmentation, being 4,360,000 lb., against 30,977,000 lb. last year, and his is attributable to the heavier imports, which have reached the large total of 62,300,000 lb. for the past five months, against 53,100,000 lb. in the same period in 1890. At the public sales 41,000 packages were offered, 4,000 of which were withdrawn. In Ceylon teas an unimportant increase in the quantity of tea offered has been followed by a very slight fall in the price of common descriptions. Good teas, however, whether leafy or broken, have firmly maintained the late rise in value, and a few breaks of extra quality fetched very high rates. The general demand continues good. The most striking fact connected with the London stock returns for the past month, says the *Grocer*, is that the landings of Indian tea have reached 18,870,000 lb. which supply was 4,343,500 lb. heavier than in the same period last year. It was therefore a matter of comparatively little importance that the deliveries during Nov. were 10,042,000 lb., or 434,850 lb. larger than in 1890, as the addition to the quantity on hand was naturally very considerable, and the amount held in the bonded warehouses on the 30th ult. embraced 40,362,300 lb., or 9,384,750 lb. more than at that date in the previous year. In the quantity pressing forward by auction little curtailment has been noticed, the week's assortment having presented a total of 40,420 packages, which have again greatly tried the capabilities of the trade in tasting and valuing, to say nothing of the exhausting efforts of bidding and recording bids in the public sale-room, and as a larger proportion of these supplies than ever seems to consist of low, common and medium qualities, they have gone off at very cheap rates, especially for teas under 9d per lb., so that many persons are beginning to ask themselves whether the lowest point of the season has not been reached. On most grades there is a decline of 2d per lb. from the best rates of about two months ago, and should the eagerness to realise abate such teas as the above would probably be soon snapped up at a smart reaction. For other and the finer kinds the demand has been steady without being particularly active, and the market at the close has a healthy, though rather quiet, aspect.

THE MANUFACTURE OF IMITATION COFFEE.—According to a paper by G. L. Spencer and E. E. Ewell, of the American Association, wheaten flour and bran mixed with molasses seem to be the favourite materials for the manufacture of imitation coffees. The manufacturer never selects a good quality of flour, since a bad or damaged article answers equally well, besides being cheaper. Refuse biscuits and the waste products of bakeries also supply a portion of the material employed. A factory was recently seized in France, when it was discovered that "coffee" was being made out of a mixture consisting of 500 parts of sulphate of iron, 15,000 parts of chicory, and 35,000 parts of flour. Such a mixture as this cannot but be detrimental to the health of the consumer. But most of the artificial "coffees" consist of less harmful ingredients, which, however, if they do not affect the health specially, affect the purse of the purchaser.

BILLS OF LADING AND THE EASTERN TRADE.—In a letter signed by Messrs. Henderson Bros., for Anchor Line; Messrs. Robert Alexander & Co., for Hall Line; and Messrs. Cayzer, Irvine, & Co., for Clan Line, the writer say:—"Referring to the remarks that have appeared in your paper, in connection with a clause in some bills of lading giving the shipowner a lien on the goods for freights, charges, debts, &c, other than those properly appertaining to the goods mentioned therein, we beg to inform you that the bill of lading in use by our respective firms in the eastern trade was agreed with the Manchester Chamber of Commerce in 1887, and does not contain the objectionable clause referred to. Owing to the numerous letters we have received on the subject we will thank you to give the necessary publicity to this letter."

IN BOND.—According to the B Bill of Entry, the quantity of tea remaining in the Customs and Excise warehouses of the United Kingdom on Nov. 30 was 100,685,155 lb., against 91,642,845 lb. a year ago, and 105,894,016 lb. at end of November, 1889; the stock of coffee being 104,247 cwt., against 163,350 and 291,715 cwt.; of cocoa, 11,625,889 lb., against 10,146,099 and 10,923,709 lb.—*H. and C. Mail*, Dec. 11th.

CATTLE KEEPING AND DAIRYING IN INDIA.

"Cow-keeping in India"* is truthfully described on the title-page as a simple and practical book. The author of the work is ISA TWEED, who having undertaken the management of milch cows for no less than eighteen years, and the medical treatment of cattle for a considerable period, embodies the results of the experience thus obtained in a volume which is a valuable contribution to agricultural literature of the East.

In a preface to the book the author states that personal care and supervision, and the strictest attention to details are absolutely essential in the successful management of cattle; and it cannot be denied that whatever the excellencies of the natives of Ceylon they can as little be trusted to faithfully carrying out the details of a system based on sound sanitary and economic principles as their brethren on the neighbouring continent.

The following are the headings of the chapters into which Book 1 is divided:—Advantages of Keeping Cows; Breeds of Cattle; Buying Cows; Points in a Good Cow; Food; House and Utensils; Attendants; Washing, Grooming, and Exercise; Breeding; Bulls; Bullocks; Dry Cows; Management of Cows when Calving; Calves, their Value, Management and House; Points in a Good Calf; Castrating Calves; Taking the Bull; Barren Cows; Age of Cattle; Price of Cattle; Milk; Cream; Butter; Ghee; Curd and Tyer; Lice, Ticks, Flies &c.; the Seasons of the Year; Cattle-dung; and Grass-lands. Cow-keeping is called "a profitable pastime," the profits arising from the sale not only of milk, butter and ghee, but also of calves and dung. At the outset we are advised to select good specimens from good breeds, as being more satisfactory and more profitable to keep. The breeds given as the five principal ones in India are the Hansi or Hissar, Nagouri, Nellore, Guzerati and Googaira, but other less distinct and important families are also referred to. Though English cattle do fairly well in cool climates in the East, they are as a whole put down as "troublesome and costly business." It is recommended that for milk thoroughbred Hissar, Nellore, Guzerati or Goozaira cows should be kept, or else good crossbreds of the second crossing between the cows of the country and the bulls of pure blood.

On the subject of improving the breed of cattle of a district the author thinks that the Government should take up the matter, and import good Hissar bulls into every district. Every village or group of villages should be induced to purchase and keep a bull, and the people should be encouraged to improve their cattle by the offer of prizes for the best specimens, bred by them and by the holding of cattle shows. It is also suggested that the villagers should be made to pay something towards the purchase and keep of the bull, as they will then take a greater interest in the animal, and will take care of it. The bull should be put in the care of the headman of the village, and he should be responsible to the magistrate for its proper treatment. "If this plan be adopted throughout Bengal," says the writer, "in five years there would be very marked improvement in the cattle." This is a scheme which with very few alterations might well be adopted in Ceylon; and to judge from the steps taken by the School of Agriculture, and the utterances of His Excellency the Governor in November last, it is not improbable that the Government contemplates taking active measures for the improvement of our native breed of cattle.

Our author classes milk under three headings:—(1) Yellow creamy milk which contains a large proportion of fatty substance necessary for butter; (2) Thick heavy white milk which contains a great deal of case in suitable for cheese, junkets, curds, &c.; (3) Thin bluish milk which is sweet and nice but does not produce much butter, cream or curd. The last, which is the most common kind of milk produced by Indian cows, is said to be the best for children and invalids. The lactometer is justly condemned as unreliable since it does not furnish any absolute standard of purity. The solids of milk are heavier than water, but the fat (butter) is lighter, and very rich milk may rank lower, as shown by the lactometer test, than milk; that is really poor in quality. If sugar is added to watered milk the lactometer will show it as pure milk; and again the pure thin bluish milk will by the same test rank as watered milk. It will be well for housewives and stewards of hospitals, asylums and such institutions to ponder over this explanation, as milkmen even in Ceylon are up to the trick of doctoring milk for the lactometer test. In Colombo buffalo milk, coconut "milk," sugar and water are all used to bring up milk (supplied to Government institutions forsooth) to the required standard. For keeping milk good the best kind of vessels are said to be well tinned copper pans and vessels made of zinc, bell metal, or wood. China crockery is objected to as retaining heat, and silver or metal vessels and spoons are also to be avoided. Vanilla is said to have a wonderful effect in keeping milk sweet; a drop of its essence being of great help in keeping it good.

With regard to foods we are told that kullai, gram, barley and wheat are the only grains that should be given to milch cows—rice not being particularly nutritious and Indian corn tending to fatten but not to increase the milk yield; green grass is very essential and gives colour and richness to the milk and butter; cotton seed produces rich milk but should be given in moderation; oil cake (gingelly, linseed and coconut) helps to produce milk and butter; bran helps digestion and produces milk. Different mixtures of these ingredients are given as guides to feeding and to each mixture is added a small quantity of salt and sulphur, which are said to be purifiers, peeping the bowels in proper condition and acting as preventatives against many diseases. It will be remembered that the cattle commission appointed some years ago also recommended salt and sulphur as preventatives.

With regard to the amount of land needed for cattle the author comes to the conclusion that good cows cannot thrive on less than one acre. Of this extent four-sevenths should be left in grass, and kullai, gram, or wheat, grown on the remaining three-sevenths. It is insisted that every five years this grass land should be thoroughly ploughed up and cleaned, while manuring should be done at short intervals. The subjects of housing and utensils are carefully explained by the aid of diagrams, and the plans for cattle sheds might well be adopted by those who go in for dairying in Ceylon. The greatest cleanliness is of

* Published by Messrs. Thacker Spink & Co. Calcutta.

course urged. "Keeping the floor clean," says the author, "is an indespensible necessity. It must not only be swept clean morning and evening but be thoroughly scrubed and washed in the morning and swept every time it is soiled, while the droppings must not be allowed to remain on the floor, or drain, any length of time. The house be kept clean and sweet, and perfectly dry, and phenyle and water or carbolic powder should be sprinkled on the floor every day." This is certainly a very thorough and businesslike way of doing work, but if disease of cattle and through them human beings is to be prevented, such sanitary methods (substituting perhaps some commoner and cheaper means of disinfection) might with advantage be insisted upon by the present Sanitary Department till the contemplated Veterinary Department is founded. For the proper carrying out of such measures as above described it is calculated that six cows—or better, four—should be under the care of one man.

The second part of this useful work deals with diseases of cattle, goats and sheep—common complaints, dangerous but not serious diseases, contagious and fatal disorders. At the outset a list of preliminary rules for the care of animals is given. In a review such as this it is not possible to do more than refer to a few of the useful hints with which the work teems, and cow-keepers in Ceylon —whether they keep cattle for convenience or profit, on a small or a large scale—will not regret the purchase and perusal of Isa Tweed's simple and practical manual, which fully meets their own requirements. The reference to rinderpest (with which our cattle commissioners identified the disease commonly known amongst us as "murrain"), from the fact that it gives, in addition to the ordinary preventative measures as regards diet, disinfection and general management, distinct curative treatment is worthy of quotation:—

In India, treatment is often successful, and this may be attributed to the disease very often appearing in a mild form. Rinderpest belongs to a class of diseases which must run its course; that is, the poisonous material contained in the system must gain exit to allow of the patient recovering. The grand aim of the treatment should be to aid nature in ridding the system of the poisonous matter, and to support the strength of the animal by food ease, nursing and proper diet.

ORDINARY TREATMENT. — Immediately the first symptoms appear gives the animal 2 chittacks of Eno's Fruit Salt or 4 chittacks of Epsom or half seer of common salt in warm water, and repeat the dose every hour until the bowels are relieved.

When purging and passing of blood and mucus continues for more than twenty-four hours, give the following draft, which has proved successful in Mr. Thacker's hands:—

Camphors	½	tolah
Nitre	½	tolah
Datura seeds...	¼	Kancha
Chiretta	½	tolah
Arrack	2	chittacks

But when the diarrhœa has existed above twenty-four hours, the following, finely powdered, may be added to the preceding prescription:—Gall nut ½ tolah. This should be repeated every 12 hours until the purging ceases. For sheep and goats one-sixth of the above dose should be given.

NATIVE TREATMENT.—Fresh roots of the chichery plant, 4 tolahs fresh roots of the Jokka plant, 4 tolahs; thorns of the shimul tree, four tolahs. Have the whole pounded or ground together fine give a dose of twenty grains of this medicine every morning for three days. Ten grains for a dose to a calf, and five grains to a goat or sheep. All natives know the first and last named plant and tree, but jokka is the Santali name for a plant that grows wild in their district.

HOMŒOPATHIC TREATMENT.—As soon as the symptoms are seen, give aconitum nay. lx. and arsenicum alb. lx. ten drops alternately, every three hours; when the eruption appears give antimonium part lx. one grain every three hours. If the eruption is driven in give spirits of camphor ten to twenty drop doses every ten or fifteen minutes, until the skin gets warm and the eruption reappears. Sulphur is very good when the eruption is disappearing and there is great itching &c. . . . When the disease is prevailing in the district, give all your cattle a dose of the native remedy, or else a does of tincture of sulphur, 20 drops every morning for three days . . I have found the native and homœopathic treatment very effective.

CURE FOR HEMILEIA VASTATRIX.

In the struggle against *Hemileia vastatrix* 12 years ago, many heroic steps were taken by planters, but probably none so heroic as those which I myself adopted. Amongst others, one plan I tried was boring a hole right down the centre of the stem of the tree filling the hole with sulphur and plugging it up. The result was that, the first season afterwards, the trees all but died, but the following season they flushed splendidly, bore a remarkably good crop, and apparently showed no signs of leaf disease. What happened afterwards I do not know, as I sailed for England, home and beauty after that season, but the following cutting seems to support the idea which I appear to have originated, and I think it might be worth while trying it as a cure for bug on coffee:—

It has been frequently stated, says the weekly writer on practical gardening operations in the *Leader*, that insects and other fungus pest could be destroyed by boring holes in infested trees and filling them with sulphur. Reports to that effect are frequent in the United States, but there are few who believe in them. We have, however, had a well authenticated statement that an old settler tried the experiment with success on an apple tree badly infested with wooly blight, which presently disappeared and was not seen again, and when, many years after, the tree was cut down a very small portion of the sulphur remained. We do not see why the practice should be laughed at and the benefical action of the sulphur denied. It being a fact that gases exist in all parts of a tree or other plant, why should nor sulphurous acid gas be generated and circulate through every part of a tree in such volume as to poison any insect or fungus that subsisted on the sap?

One would have thought that the sorrows of cinchona growers had got to the lowest stage of depression, but there would appear to be a lower stage still, judging by the following paragraph:—

The Sunflower.—A Russian physician, Dr. Flatoff, is endeavouring to induce the medical world to make a larger use of the sunflower as a drug. It can, he asserts, be advantageously used in place of quinine without having the drawbacks of this excellent medicine. The sunflower is already much used in Turkey and Southern Russia in cases of fever by the common people, who find quinine too expensive.

THE BURMA RICE CROP.—Sixteen annas, the equivalent of a rupee, representing an average crop, a memorandum from the Revenue and Agricultural Department of India, dated Calcutta, the 15th Dec. 1891, gives the estimates for various districts, thus:—

Akyab eighteen annas, Bassein, Thongwa, Amherst, and Shwegyin sixteen annas, Hanthawaddy fifteen annas, Pegu Tharrawaddy, and Prome fourteen annas, Henzada twelve annas. It is estimated that there will be available for export 1,210,000 tons of cargo rice equivalent to 20,508,500 cwt. of cleaned rice, including what is required for Upper Burma.

DECAY SPOTS UPON LEAVES.—Plants with large leaves are often much disfigured by blotches that appear at any place upon the foliage. The cause of these spots is sometimes not easy to determine. An otherwise perfectly healthy Calla-leaf may have a brown spot an inch long and a half-inch wide near its centre, and with no apparent reason for its existence. The probabilities are, however, that some days before a withered blossom of a plant above it fell upon the leaf, and, remaining there for a time, began to decay. Soon after, the force of the water from the hose drove the blossom off, but not until it had left the seeds of decay in the leaf. In other words, the fungus, usually a species of Botrytis, while flourishing upon the rich succulent substance of the blossom, sent its threads into the leaf below and began the decay that finally ruined the leaf. The Botrytis fungus is not usually accused of making its attacks in a direct manner upon living tissue, but it does not hesitate to pass from the dead to the living when conditions favor it. In other words, the Calla-leaf is safe against the attack of the spores of the Botrytis, but when the vigorous filaments of well established plants present themselves the resisting power is not sufficient to overcome them. If we had found the remains of the blossom in the centre of the dead blotch it would have been natural to ascribe the cause to the flower or the fungus it harbored, but in many instances the leaf blackens without any apparent cause. Nevertheless the cause remains the same, for the source of contamination had been removed before the decay in the leaf had become perceptible. The practical conclusion is, that no opportunity be given these half-way parasitic fungi to gain an entrance to healthy plants. The gardener knows how important it is to keep all dead leaves and decaying blossoms from contact with the healthy parts. Neatness as well as health demands that the living be kept part from the dead.—*Garden and Forest.*

TAKING TEA WITH A LAMA IN MONGOLIA.—forms the subject of a half-page illustration in the "Illustrated London News" of 12th Dec., by its special artist, Mr. Julius M. Price, who thus describes the ordeal :—

At one of the places where we halted, I had a rather curious experience of the Mongolian style of taking tea. Accompanied by one of the Cossacks, who spoke the language of this country, I visited a Mongol who was rather a swell in his way, for his "yourt," which I had been anxious to see, was fitted up with some pretensions to style. We seated ourselves in the usual manner on the ground, and our host, after a few minutes, of course offered us the inevitable tea. This was what I wanted particularly to avoid; but there was no getting out of it this time. A particularly unwholesome, old-looking hag then dived into the gloomy recesses of a sort of cupboard, and produced three wooden bowls, containing some greasy-looking compound, which she forthwith proceeded to clean out with her grimy fingers, finishing up by polishing vigorously with the tail-end of her gown. These tasty receptacles were then placed before us on the ground and were filled with some vile liquid, which bore no resemblance to the "cup that cheers but not inebriates." However, it would have been an insult to the man to have refused his hospitality; so for the next five minutes I was racking my brain how to get out of even sipping his awful stuff. My companion, who was used to Mongolian customs, was not so delicate in his tastes, and managed to get through his bowl all right, at the same time advising me to try and do likewise with mine, so as not to offend the man. Providentially, however, at this moment someone came to the door of the "yourt" to speak to our host, and we all got up. I immediately took advantage of the opportunity quietly to empty the contents of my bowl into a dark corner near me. We shortly after took our leave, in spite of the old Mongol's pressing invitation to stay and have a drop more tea. When we got outside the "yourt," my companion, who had not noticed my manœuvre but had observed the empty bowl, remarked that he knew I would like Mongolian tea if I once tried it!

SOME time last year a native gentleman in Mysore sent Mr. D. Hooper, the Government Quinologist, a sample of prepared tea made from the leaves of of a kind of *jumbal* for examination and opinion as to its effects if used constantly as a beverage. The leaves were identified by Mr. Lawson, the Government Botanist, as those of *Eugenia caryophlæa*, a myrtaceous shrub, which contained a little tannin and gallic acids, colouring matter, essential oil and ash, but no stimulating constituent, such as the alkaloid caffeine found in tea and coffee. Mr. Hooper thinks the beverage would be an innocent one, and not likely to affect the system either in health or disease.—*Madras Mail*, Dec. 30.

PRESERVED PINEAPPLES.—We recently quoted a paragraph from the *Straits Times* stating that the pineapple preserving industry in Singapore has been so much developed and the demand from Europe is so great that the price for fresh pineapples has risen to $4 (about 16s.) per hundred, and that even at this enchanced rate the local demand cannot be supplied, and those engaged in the industry find it necessary to scour the adjacent islands and territories in order to keep their factories going. Is there any reason why the industry of preserving pineapples should not be equally successful in Ceylon as in Singapore? It may be that the presence of Chinese gardeners in Singapore makes all the difference.

ORANGE CULTIVATION IN NORTH-WESTERN INDIA is receiving much attention, as the following extract from the Report on the Saharunpore Gardens, will prove :—

Oranges.—The plantation of these made in the year 1887 is in a healthy and thriving condition, and several of the new varieties fruited last season for the first time. One of the best of these new kinds was a variety received from China in 1887, under the name of Sz-in-Kom. The fruit was something like the common mandarine orange in outward appearance, but it was more juicy and of richer flavour. The variety is a desirable one, and is being extensively propagated for distribution. Seedlings of a variety called the Butwal orange of Nepal received in 1886 from Dr. Bonavia, late of Etáwah, also fruited for the first time. The fruit of this kind was very like that of the common cintra or suntra, only smaller, but the flavour was the same. I should say this is simply a variety of the cintra, and not sufficiently distinct to claim another name. A seedling Malta orange raised from seed grown in this garden and sown in 1885 also fruited. The outward appearance of the fruit was very like that of the common Malta, but when cut it showed a thicker skin, and the pulp, instead of being sweet, was intensely bitter. The seed was undoubtedly taken from a sweet fruited variety of Malta orange : therefore, this is an authentic case of a seed from a sweet form of orange having produced a form with bitter fruit. In the same row there are ten more trees raised from the same batch of seed, but these have not fruited yet. When they do, it will be interesting to note whether any more bitter varieties appear among them. The following varieties of oranges were kindly presented to the garden by Mr. R. D. Hoyte, Bay View, Nurseries, Florida, United States, America. The collection as despatched numbered eighteen varieties, but eight perished in transit :—Hart's Late, Star Calyx, China Madarine, Satsuma, Malta Oval, Spici Tangerine, Mediterranean Sweet, Lahita, Queen and Washington Navel. Five plants of each of the following varieties were imported from Japan :—Finger, Satsuma and King-Kam. All five plants of the "Finger" variety arrived in excellent condition and are doing well; two plants of the "Satsuma" survived the journey and promise to grow; but all the plants of the "King-Kam" perished in transit. In addition to the above oranges from foreign countries, one variety was obtained from Nagpore, eight varieties from Poona, ten from Lahore, and twelve from Lucknow. These together with the foreign sorts, have consideralby increased our collection.

NOTES FROM OUR LONDON LETTERS

MR. ROGIVUE'S MISSION—A SEPARATE ROOM FOR THE SALE OF CEYLON TEA IN MINCING LANE —PALAIS INDIEN CO. AND CEYLON TEA FUND —MR. LOUGH AND CEYLON TEA—CELLULOSE OF COCONUT FIBRE—JOKAI AND JHANSZIE COMPANIES.

LONDON, Dec. 11th.

Before you can receive this will doubtless have had sent you for publication Mr. Rogivue's lengthy report to your Planters' Association on what he has done in introducing Ceylon tea into Russia. He sent a copy of his very voluminous report to the Ceylon Association, but the copy (on copying paper) is almost illegible. We gather, however, that, up to date of his reporting Mr. Rogivue had received about 40,000 lb. of Ceylon tea, of which quantity he had disposed of about 35,000 lb. This does not appear to us a very large amount considering the time his agency has been working; but it would be unfair for us to judge of this without a full reading of what he has written direct to Ceylon.

The question of finding a remedy for the difficulty about the sales of Ceylon tea in Mincing Lane appears likely to find a solution by the beginning of the new year. The brokers are now arranging among themselves and with the proprietors of the sale-rooms to conduct Ceylon sales throughout the whole of Thursdays in a room distinct from that in which the sales of Indian are carried on. If this arrangement can be fully carried out, it will no doubt afford a large measure of relief, though competent opinion informs me that it will not be likely to suffice for your full needs for more than two years at the outside. Meanwhile the brokers have further bestirred themselves to bring their samples into the rooms at an earlier time, so that we do not now hear of the complaints lately made that it was impossible to duly test their quality. It is not known to me whether to effect their earlier showing it has been found to be necessary to somewhat defer sales; but even if this be the case we feel very sure the sellers will find their balance of advantage in the arrangement, and since the more time has been given it is undoubtedly the fact that Ceylon teas have been fetching better relative prices than those of India.

The Sub-Committee that I wrote you had been appointed to negotiate with the directors of the *Palais Indien* Company having had a conference, have submitted a resolution to the effect that it does not think it possible to frame any scheme of co-operation which would be likely to meet with the approval of the Ceylon Tea Fund. They found upon inquiry that the financial position of the company is not without its embarrassments, and the fact would prevent the Tea Fund from subscribing the additional capital which the *Palais Indien* directors desire to raise. Meanwhile, the Sub-Committee report that they consider that company to have done, and to be doing, good work.

In this connection I must tell you that I seem to have somewhat misunderstood Mr. Lough's position with regard to the agency for the disposal of your tea in Paris. It was always my impression that he had accepted that agency quite independently of his association with the *Palais Indien* Company. It has now been pointed out to me that his acceptance of the agency was contingent upon Ceylon subscribing towards the capital of that company. As this is not now likely to be done, all relations between Mr. Lough and the Ceylon Association in London have closed, and if he sells Ceylon tea in his Paris kiosks it will be only because he finds it is to the taste of his customers, and not in pursuance of any obligation he had contracted with the Association and with your own local bodies. As, however, this latter fact has only just now been established, anything that has been previously written by me with respect to what Mr. Lough said at the meeting of his company would still hold good, as at that time he was certainly recognized as the authorized agent, although the terms of his acceptance of that office had not then been decied upon.

My last letter referred to experiments proceeding at Portsmouth by the Admiralty to test the alleged qualities of cellulose of coconut. Apparently they have gone beyond us in this respect in America, for we see a paragraph in the *Engineer*, which informs us that a large factory, with extensive plant, is being erected in Philadelphia for the manufacture of the article. That journal gives us the additional information that it is exceedingly difficult to make a hole of any kind through this cellulose, and we presume this to mean that on the withdrawal of any piercing or boring tool, the fibre of the cellulose at once closes the hole made. This would certainly be a most valuable quality for the lining of ships, and we hope soon to hear more about this material and how it is prepared, whether from the nut itself or from the fibrous husk. We should naturally assume that it must be from the latter.

The directors of the Jokai (Assam) Tea Company (Limited) have declared the usual interim dividend of 5 per cent per annum on account of the working of season 1891, being 10s per per share payable on the 10th instant. Similarly the managing agents of the Jhanzie Tea Association state that the customary interim dividend of 4 per cent per annum, being 4 shillings per share will be paid on account of the 1891 crops on the 10th instant.

CEYLON TEA PLANTATIONS COMPANY AND THE PROPOSED CULTIVATION OF COFFEE IN THE MALAY PENINSULA—THE "GROCER" ON CEYLON TEA.

LONDON, Dec. 18.

The Ceylon Tea Plantations Company is, we hear, intending to commence coffee cultivation in the Malay Peninsula. You will be aware that the Company's manager in Ceylon, Mr. G. A. Talbot, visited the Peninsula as late as last October, in order to report on the prospects that would lie before such an enterprise. Consequent upon that gentleman's report, the directors of the Ceylon Tea Plantations Company have sent round a circular to its shareholders, convening a meeting for the 6th January next, "to explain fully the reasons which influence them in extending their interests to the Malay Peninsula." Mr. Talbot has reported that during his visit he saw much of the country and visited many of the coffee estates in Perak and Selangor. After mature consideration, he reports that the cultivation of coffee yields results which would warrant his Company in extending its operations into the Straits Settlements, and that the results would materially add to the Company's prosperity. The circular above referred to states that the Company has a force in Ceylon of 6,000 coolies, and a number of superintendents who are well versed in coffee cultivation and are in touch with the labour supply of Southern India; and as the want of labour appears to be the only difficulty felt by the coffee planters of the Straits, the Company would be able to work without experiencing

this disability to any very great extent. The Straits Government, it is added, would be willing to give every aid in the acquirement of land as well as in every other way. Careful experiments are to be begun on a small scale before committing the shareholders to any large expenditure. I confess that for myself, having in memory how Ceylon suffered in reputation owing to the Ceylon Company having had connexion with the Mauritius, I view with some dislike the notion of the "Ceylon Tea Plantations Company" commencing enterprise in another colony without some modification of the name by which it is so generally known.

The *Grocer* of the 12th inst. had a long article on "Ceylon Tea." The first part of it dealt with figures illustrative of the progress it has made in the home market as compared with Chinese and Indian teas. It estimates the shipments to reach the United Kingdom this year at 64 millions lb. The article reiterates the complaint "that among the importations of Ceylon tea this year there have been numerous samples of complete rubbish, which would not have been received by the trade as tea in the smallest sense, if they had been offered as invoices or breaks of Indian or China, and it is the magical name of Ceylon alone that has enabled importers to dispose of the said tea." It finds an explanation of these miserable imports in the continued rains experienced in Ceylon this year. Expectations are entertained, according to the writer, that this cause will not again often operate. Stocks are stated to be excessive, and the view is expressed that until these are worked down "quotations generally may be reckoned to rule as much as ever in favour of both retailers and consumers."

At the half-yearly meeting of the British North Borneo Company held this week, it was announced that Sir Rutherford Alcock, in consequence of his declining strength and advanced age, had decided upon retiring from his more active management of the Company's affairs. The news received from Borneo was declared to be tolerably satisfactory; but the land sales had almost ceased, partly owing to general financial depression, but mainly to the crisis which had overtaken the tobacco trade of the East. The production of this article in Sumatra alone has risen from 690 bales in 1868 to 236,323 bales sold this year, and the price had fallen to 72½ cents per half-kilo, or about one pound. Two important companies in connexion with Borneo had to liquidate, and the island generally had suffered much from the late bad times. The President made the following allusion to the capacity of their lands for coffee cultivation, observing that "coffee planting was increasing, and an expert who had had considerable experience in Ceylon, was about to visit and report upon the company's territory with a view of drawing attention to the capabilities of the soil for coffee, cacao, and tea."

Several of the Indian Tea Companies have declared their interim dividends during the week. Thus the Brahmaputra Tea Company declares such a dividend of 8 per cent for the half year at the rate of 16 per cent per annum. The Jorehaut Tea Company announces that the crop of 1891 has amounted to 1,612,000 lb. of packed tea, being an increase of 150,000 lb. over that of 1890, and that 100,000 lb. have been sold at an average price of 90½d per lb., or about ½d per lb. over last year for a similar quantity. The directors of the Assam Company also recommend an interim dividend of 2½ per cent, or 10s per share, payable on January 1, and the Majuli Tea and Attaree Khat Tea Companies (Limited) have declared interim dividends of 2½ per cent on the working of current season, both payable forthwith.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Dec. 5th.

CINCHONA.—Tuesday's bark auctions were of fair size as regards the number of packages offered; but the total weight of bark was not considerable, many of the packages being below average weight. The catalogues comprised:—

	Packages.	Packages.
Ceylon... ...	826 of which	731 were sold
East Indian ...	235 "	228 "
Java	238 "	238 "
South American	353 "	246 "
African ...	169 "	169 "
	1,871	1,612

Holders seemed rather anxious to sell, and there was no very lively competion among the buyers, two or three agents only participating seriously. The average quantity of the barks was fairly good, and the samples shown comprised several nice lots of Succirubras and a fair proportion of good grey bark. Yellow barks of eastern growth were scarce, but South American Calisayas were well represented. A parcel of 472 packages Neilgherry bark, which would have added greatly to the interest of the auctions, was withdrawn at the last moment. The result of the auctions was hardly satisfactory, and prices must be pronounced slightly easier, the average unit being barely 1 1-16ths d. per lb.

The following are the approximate quantities purchased by the principal buyers:—

	Lb.
Agents for the Mannheim and Amsterdam works...	141,637
Messrs. Howards & Sons	13,071
Agents for the Italian and American works ...	37,366
" French works	31,505
" Auerbach works	21,145
" Frankfort o/M and Stuttgart works	10,670
" Brunswick works	7,660
Sundry druggists..	46,810
Total quantity of bark sold	309,864
Bought in or withdrawn...	60,270
Total quantity of bark offered	370,134

CINNAMON.—The last periodical auctions of the year were held on Monday, when 3,070 bales Ceylon cinnamon were offered, including an unusually large proportion of good and fine qualities. The demand was a fairly good one, over four-fifths of the supply finding buyers at steady prices for ordinary and medium grades, while good and fine varieties declined in value from 1d to 2d per lb., as compared with the previous auctions. The following prices were paid:—Fine to superior firsts 9d to 1s 3d; common to good ditto 6½d to 8½d per lb; seconds, ordinary to superior 6½d to 1s per lb; thirds, ordinary to superior 5½d to 11d per lb; fourths, common to superior 5½d to 10d per lb. A quantity of unworked cinnamon sold at 5d to 7d per lb., broken at 6d to 6½d per lb., and about 200 bags quillings and cuttings at 4d to 6½d per lb.

QUININE.—On Friday a second-hand holder accepted 9d per oz for a 10,000-oz parcel of German bulk, thus reducing the price ¼d. per oz below the nominal quotation and bringing it down again to the "lowest on record" figure. Again, before the bark auctions, a fair quantity of second-hand German bulk quinine changed hands at 9d per oz. The total sales are estimated at 30,000 to 40,000 oz. Today it would not be so easy to buy at that figure.

COFFEE LAND, &C., IN PERAK.—From the report on Taiping District for October we quote as follows:—

During the month several planters from Ceylon, who were amongst the first ten applicants for the land offered on special terms in the Circular of the 22nd April 1891, visited the coffee estates in the district and inspected some of the land in the immediate neighbourhood of Kuala Kangsar, with a view to making selections here. They seemed best satisfied with the land at Kamuning, but appeared to think that most of it that was worth having was included in the Liberian coffee estate of Mr. Hill. I am informed, however, that Mr. Buchanan, who was amongst those that visited this district, has decided to take up a block along the road between Kamuning and Ipoh. The following day I accompanied the Collector and Magistrate to Tronok, which is now the principal of the Blanja mining villages. Although mining has only been commenced comparatively recently, there are already a large number of Chinese in the locality, and there appears to be every promise of its turning out an important mining district.

THE PERUVIAN CORPORATION AND THE PROSPECTS OF PERU BECOMING A GREAT COFFEE, CACAO, RUBBER AND VANILLA GROWING COUNTRY.

Calling on Sir Alfred Dent at his Old Broad Street office, I was very kindly received and told a good deal about the mission of Messrs. Ross and Sinclair and the object of the Peruvian Corporation. The full results of the mission cannot be known till the formal reports are sent in; but already enough is known to show there is no reason why Peru should not become a great exporter of coffee, cacao, rubber and vanilla—all four plants, as I understood, being reported to be growing well; while the soil is described as very rich, and the climate most delightful. There remain the two necessary elements of success—labour supply and means of transport. As regards the latter, there are admirable, even wonderful railway lines penetrating through much of the country to be occupied, and it is upon those lines that the Peruvian Corporation would wish to see the produce thrown, because of their own property in the railways. I mentioned how, from the eastern slopes and valleys of the Andes, probably the Amazon and its branches would offer a ready and cheap means of transport by steamers, and how successful the Amazon Steam Navigation Co. (under my friend Capt. Hudson) had been in developing trade in these regions. "We have no desire," said Sir Alfred Dent, "to throw Peruvian trade on to the Amazon; we should rather bring grist to our own mill as owners of the railway system; but the Corporation are, of course, ready and anxious to encourage planting settlers and to sell land to them, and if any of these, eastward of the Andes, preferred to use the Amazon steamers rather than railways, there could be no objection." It is quite likely that Peru may attract some of our Ceylon planters, and of the capitalists] interested in coffee in the East; for in respect of our old staple, as well as cacao and rubber, there can be no question of the splendid market now offering, nor of the prospect of a steady demand; while no one would dream of going with money or planting experience to Brazil in these unsettled times. It is quite possible that we may see a falling-off, if not partial collapse of Brazilian exports, if the civil war, now threatening in several provinces, breaks out. In that case there would certainly be the greatest encouragement to go to Peru for coffee. If it be true that the shrub has run wild there and is freely encountered, a first step of the corporation, one would think, would be to establish an agency to buy all the coffee that can be made available by the Peruvians from existing gardens or from jungle patches. As respects labour supply, Sir Alfred Dent seemed to consider that as 2,000 to 3,000 "navvies" for railway work could readily be collected at any time in Peru, there could not be much difficulty in getting some to plant and pluck coffee. But I did not fail to point out the difference, more especially in what could be paid for railway men as compared with the wages for plantation labour. However, from another quarter I learn that Mr. Ross has no fear about suitable labour being available on the spot, so that there must be satisfactory work to be got of native-born Peruvians in some shape. I am promised an interview with Mr. Ollard, the manager of the Corporation, when all available papers up to date will be placed at my disposal: meantime on the chance that a copy of the full report of the Corporation directors presented to the shareholders at their meeting on the 3rd instant has not reached you, I send the copy handed to me by Sir Alfred Dent. It will be seen from this that "The Peruvian Corporation, Limited," hold about £4,197,713 of capital in the four principal railways in Peru (£1,102,187 of capital being held by other persons), that it is interested in other lines at present leased, and also in steamers which navigate Lake Titicaca and the river Desaguadero. Other schemes are on foot for railway extension into Bolivia. Then in "guano" so large is the interest of the Corporation that "a contract for the sale of 300,000 tons has recently been entered into on favourable terms with Messrs. Antony Gibbs & Sons," while there are claims on Chili and valuable mines' concessions among the assets. Altogether the capital raised and invested by the Corporation exceeds 17½ millions sterling! But I have yet to notice the part of the report, and operations of the Company, of most interest to Ceylon readers—that under the head of "Land." In the accounts the only item bearing on it is entered as "Land Exploration £2,492 18s 0d" which may be supposed to be the cost of the mission just completed, or it may refer to the earlier Spanish mission. In any case, you will want (if you have not done so already) to reprint the whole of the portion of the report referring to "Land." It is as follows:—

LAND.

The data collected and received by the Corporation in reference to the land in the interior of Peru, on the eastern side of the Andes, point to the Central district as being the most suitable for more immediate colonization.

By the Central district is meant the land laying between Oroya, on the Central Railway, and the river Ucayali, and by opening up this district it is thought that a large area could be brought into communication with the coast, and the produce of the interior collected and brought down by the Central Railway.

With the object of effecting a settlement in this district, a commission, including three Spaniards practically acquainted with agriculture, was sent to Peru, and they made an expedition into the Central district, visiting, besides other localities, the valley of Chanchamayo and the lands adjacent to the Rivers Eñe and Perene.

The following are extracts from their Reports a translated:

A careful examination of the cultivated lands from Chanchamayo to San Luis de Shuaro, shows the immense wealth of produce notwithstanding the want of labour, which is also a reason why other produce which might constitute immense wealth is not cultivated; because plants growing wild, as is the case in many parts of these regions, would produce much more if cultivated for instance, the indigo plant, the vanilla, cacao, cotton, caoutchouc tree, and many others, which can only be grown in these zones.

All these lands are broken, but very good plains are met with, and generally the lands are very healthy. The temperature is from 25 to 30 degrees centigrade (77 to 86 Fahrenheit), and elevation above the level of the sea is from 2,000 to 3,000 feet. There are no natural pastures, for which reason cattle cannot be raised on a large scale.

The products which constitute the actual wealth are as follows:—

SUGAR CANE.—The growth of this plant is extraordinary, and it is cut as often as twenty times. At present it is used for the manufacture of rum and alcohol, on account of their large consumption and good prices; each "arroba" (25 lb.) on the estate being worth 7 soles.

COFFEE.—The coffee plant grows with great rapidity and begins to give fruit in two years, and produces to its full in the third or fourth year. Each plant gives on an average from 8 to 10 pounds gross; the consumption is very large, and the produce is worth 18 or 20 soles the quintal. The plant bears for twenty or thirty years.

YUCA.—Multiplies in a prodigious manner, it is greatly appreciated, and is indispenable. It is gathered at the tenth month, and each plant generally gives an "arroba," worth 4 reals (say 1s 2d).

MAIZE.—Grows with credible rapidity, and three crops a year can be obtained. This plant constitutes the general fodder for all domestic animals. It yields abundantly, and two quintals are worth 5 to 6 soles.

FREJOLES (Beans).—Like maize grow rapidly, and the crop matures in 40 days. It is worth 4 soles per quintal.

RICE.—Is easily grown without irrigation; two crops a year are obtained, and it is the article in greatest demand. Its value is one sol per "arroba."

COCA produces very well. It is the article most appreciated in the whole of the mountain districts, and is worth 8 soles per "arroba."

To these must be added all classes of vegetables which grow well, such as various sorts of potatoes, cabbages, tomatoes, lettuce, mani (pea nut), came to (sweet potato), and the following fruit—melons, water melons, oranges, lemons, pines, plantain tree, "paltas" (Avocat pear tree), chirimoya (custard apple), papaya, guava trees, figs and grapes.

All these we saw as far as San Luis, up to which point the lands already under cultivation reach. None of these products require artificial irrigation, nature having done all that was wanted.

From San Luis de Shuaro to the River Eñenas and its confidence with the Perené, the greater part of the land is wooded, and is inhabited by Indians, Amuyses, and Campas tribes, although in small number. At times two or three leagues, may be covered without anyone being met. These Indians are docile and intelligent, and the Campas tribe is believed to be numerous. We believe that they cannot be prejudicial but, on the contrary, must be useful to a colony such as we contemplate.

These lands in our opinion offer to a colony a flattering future, by reason of the fertility of the soil, the many fine water-courses which intersect them in all directions, and, above all, on account of the climate. The temperature at Metraro is 22 degrees centigrade (72 Fahrenheit) and the elevation above the level to the sea is 4,000 feet.

The following is the description of these lands: Leaving San Luis on the right, and on the banks of the river Puiñas at about two or three leagues from that point, a fine pampa is met with of about two leagues in length, with small undulations declining to the south, and many water-courses having a sufficient quantity of water to work a factory. On this pampa are all classes of trees of the most exquisite wood, such as cedar, walnut, mahogany, gum tree, jacaranda, chonta, pucheri, cascarilla (Peruvian bark), oak of different classes, and above all the caoutchouc (india rubber), which if cultivated would bring immediate profit.

Here are found wild the indigo tree, vanilla, cotton, and vegetable ivory in great abundance; and it is believed that in these regions all classes of plants may be grown.

From this point and leaving Metraro for the river Eñenas large "pajonales" (grass plains) are met with, giving good and abundant pasturage for the rearing of sheep, cattle, and goats; and it may be believed that on these heights corn and other cereals can be produced, if not on a large scale, at least in sufficient quantity for the requirements of the Colony; and we may hope the same with regard to the vine.

Vegetation is so varied and abundant that only a visit to these places can give any idea of what they contain. Here are met with mines of salt, which some day may have great importance, and mines of very good iron and copper, not being worked at present.

Another expedition has been dispatched, consisting of Messrs. Ross and Sinclair, two well-known Ceylon planters. The primary object of this expedition is to ascertain if the cultivation of coffee, tea, and other tropical products could be undertaken on a commercial basis; but they will report generally on all the land they visit. Their report has not yet been received, but in the meantime it may be interesting to quote shortly from a letter written by one of them, his general view of the country. He writes: "One has to modify their preconceived notions of the tropics after a sojourn in this peculiar country I have hitherto, for instance thought that European emigrants—as labourers—were wholly unsuited for the tropics. This does not apply to Peru. Whatever difficulties may exist as regards transport or intercommunication, there can be no reasonable doubt that this vast region offers a field for colonization such as can be found in few other parts of the world. It is not merely the marvellous productiveness of the soil that calls for admiration, but the variety and healthfulness of the climate that seems so much to surpass that of any other country I have ever come across. In the pury tropical temperature, such as we experienced amids the moist luxuriance of the Perené Valley, it may be, and *is* possible, by unwonted exposure to contract fever, but taken as a whole, I do not believe there is a healthier climate under the sun than Peru, and it is impossible to think of any race of human beings who might not find a congenial home here, and whose chance of longevity might not be increased by a residence in one or other of the various localities."

Mr. P. D. G. Clarke, of the Government Gardens, Ceylon, accompanied this expedition to the banks of the Perené, and the information he brings confirms that received from Messrs. Ross and Sinclair, to the effect that the lands in that district are suitable for every kind of cultivation and that most of the valuable products, such as coffee, cocoa, vanilla and india rubber are found in a wild state.

The results of these investigations show, so far, that there is an immense field for planting and settlement, but that the want of railway communication is very seriously felt. The board has decided to take no definite action for the settlement of any part of this district until the Central Railway is opened to Orya and until the hereafter-mentioned survey through the district has been made. Meanwhile application has already been made to the Government for a grant of land in this district, and they have allocated 600,000 hectares out of which the Corporation is entitled to select 500,000 hectares (1,250,000 acres).

Under an agreement dated 28th January, 1890 with the Government of Peru, the Corporation has the right to build a Railway to one of the navigable rivers in the Amazonian Provinces, and is entitled to receive an allotment of 6,000 hectares (15,r00 acres) of unappropriated land for each kilometre of railway constructed. The Corporation in turn is obliged to send an expedition to locate the most suiable route for this Railway, but the building of the line is entirely optional. Instructions have been sent to Lima for the necessary expedition to be dispatched in the early part of next year, and, it being a matter of almost national importance to Peru to open up the whole of the Central district, the Corporation hopes that special inducements will be offered to them by the Peruvian Government to build this Railway.

It is to be hoped that the Corporation will not help in what threatens to be "the overproduction of tea" and I must try and put in a word to that end. In coffee and the other products mentioned, there is plenty of scope and great encouragement to cultivation. The report of the Spaniards evidentl carried little weight in "the City" or in England whereas that of "the Ceylon planters" is eagerly and trustfully anticipated. It is a great compliment, of course to Ceylon which is now more than ever recognized as the best nursery for tropical planters. I trust Messrs. Sinclair and Ross may arrive, as expected, about the 13th January in good health and spirits.

SUGAR CULTIVATION IN THE SANDWICH ISLANDS, encouraged by exceptional United States laws, has assumed such importance that seven pages of the Honolulu "Planters' Monthly" are occupied with a directory of persons employed on the plantations.

PROSPECTS OF COFFEE CULTIVATION IN THE MALAY PENINSULA.

Our readers will be interested in the information contained in the following article, the latest and most authentic which is available.

The cultivation of coffee at the present moment holds out such promises of substantial—not to say immense—returns as it has never done before, and without doubt is far and away the most profitable of all agricultural pursuits when carried on in a country where leaf disease and green bug are either altogether absent—or kept in checkby climate influences so as to have but little effect and on the permanent and regular production of crop. In Brazil the only flourishing coffee districts of any extent are now existent—but there are many influences at work in that country which will counteract all efforts to increase the production and export. The exports from the older districts are falling off rapidly in consequence of the abandonment of the estates, whilst the cultivation is extending in the newer districts of the interior. The emancipation of the slaves was a great blow to the cultivators of coffee ; the revolution which followed and the commercial crisis, which embarassed the relations between the planters and the banks, was an additional disaster ; and now that the country is fast drifting into a state of anarchy we may safely prognosticate a decline in the exports which cannot fail to leave its effect in a very marked degree on the European and American markets. Already we hear of a shrinkage of the present crop to the extent of a million or so of bags below the estimate—and an anticipated deficient crop for the following season. The extension of railways into the new coffee districts—as well as the extension of cultivation in the districts where railways already existed—has had the same effect in Brazil as it had in a small way in Ceylon when our railway was opened. The upcountry crops which in former years had reached Colombo by slow degrees in bullock carts, then came down by rail with such a rush that the Colombo stores were choked—and curing operations could not be carried out fast enough to meet the demands of the season. It has been the same in the Brazil,—and exaggerated estimates were formed of the total crops in consequence of so many thousand bags reaching the seaports in excess of the usual daily receipts.

But whether or no the crops of Brazil continue to be produced in the present—or even very largely increased—amount, all the better qualities of coffee, known as "East Indian," cannot fail for many years to command very high prices in the London market. Just now the market being almost bare of such coffees we find the first poor pickings of Ceylon crops fetching extreme rates and beings in great demand. For want of something better Liberian coffee, prepared in the way with which, we have always been accustomed to deal with Arabian, is also fetching good prices—and the cultivation in the Straits and other places is a very profitable one. But what is wanted is good washed and well cleaned Arabian coffee ; and the production of it in any appreciable quantity cannot fail to be extremely remunerative.

The administration of the protected States of Perak and Selangor is very wisely bestirring itself to secure the advantages accruing from an industry which holds out such promises as coffee does at the present day.

There is, however, a reluctance on the part of capitalists in London and elsewhere to venture their money in the neighbourhood of India, Ceylon, and Java where so many hundreds of thousands of pounds have been lost over coffee in recent years. This is only natural, but if they could only understand the difference in climate, and the effect of that difference on the pests which have destroyed the coffee in the countries named above there can be little doubt that their present diffidence would be largely dissipated—if not altogether overcome. Anyone who has been unfortunate enough to have had the opportunity of observing the attacks of leaf disease must have noticed that it is the extremes of climate which mostly favour its attacks upon the coffee bush. A long wet season—or a long dry season—seems equally to assist the spread of the fungus, and the occurrence of storms or the blast of a strong wind for a day or two, occasion a development of the disease which is often extremely virulent. As regards Perak especially—such extremes of climate are usually altogether unknown—there is no clearly defined dry and wet season, for the monsoons have generally but a moderate effect on the climate of Malaya. It so happens (most unfortunately for the extension of coffee cultivation in Perak) that the drought, which during the last year has affected all the region from China to Afghanistan, was also felt in an unprecedented degree in Perak—and has been followed very naturally by an equally unprecedented quantity of rain. There is only one plantation of Arabian coffee of any extent in Perak—and the Government has of late years abandoned the experimental gardens—in one at any rate of which the coffee was doing well. The coffee estate was planted by an old sea captain—a German—who probably knew no more of coffee cultivation than the writer of this knows of navigation—perhaps not so much. When he made up his mind to leave the country and retire to Australia the Government of Perak resumed possession of the estate, and when it was taken up by its present owners the coffee was grown up in lalang (iluk) grass and chena growth to such an extent that option was given the new proprietors to abandon it if they chose and go on with new land. Under the management—or want of management—of the late owner, the weeds had been allowed to destroy all the lower primaries of the trees—and four-fifths of the e are now "bayonet trees"—the only branches lem being on what has been at one time a sucker sprunft from the top of the stems of the trees, which origig nally seem to have been topped very high. As may easily be imagined by anyone who has worked on the old estates before the era of railways and abundant labour—these trees do not present any very graceful form at any time as no systematic method of pruning can be adopted. When the party of Ceylon men recently visited Perak the old coffee had not had time to recover from the effect of the drought—and consequent attack of leaf disease, which, added to a good crop and an insufficient supply of labour, had rendered the trees very "sticky" and naturally induced a bad impression on the minds of the visitors. The young coffee, at an elevation of over 2,000 feet, was however in beautiful trim—and taking it all round no better plants for their age have ever been seen in Ceylon or anywhere else. The progress made during the past eighteen months was everything that could be desired, and the coming blossoming season will produce a fine crop. The four year old field is very fine, but although the drought has had no effect whatever up at that high elevation, the labour difficulty had made itself apparent and the want of handling and pruning had induced a matted condition of the branches which told unfortunately against the appearance of the trees. The first coffee seen on entering the estate is the old illused field first planted, and it is the last through which the

visitor passes on leaving, so that he is apt to go away with the first and last impression on his mind that after all Arabian coffee is not the thing in which to invest his capital. The next place he sees is the only Liberian coffee estate of any extent in Perak some 3½ years old with younger fields. Here he finds everything flourishing, no sign of leaf disease, abundance of labour on the estate, and a very fine crop on the trees, in fact so much crop that it is a moot question whether it would not be advisable to remove some of it in case the trees may not be able to mature it all and may suffer irretrievably before it is picked. No wonder then that the visitor who has not seen either of the properties before, should incline to invest in Liberian rather than in Arabian coffee. Had he however visited the two estates eighteen months previously he would have found the conditions of each entirely reversed—the Arabian was flourishing, the Liberian suffering from want of labour, and looking very poor.

The position at the present time is in favour of the extension of Liberian cultivation, whilst the more valuable and the more easily manipulated Arabian is neglected. In regard to green bug, as far as may be judged from the very small amount of experience of it and the information available, the constant recurrence of moderate showers causes the insect to die and turn mouldy as happens during the wet weather in Ceylon. The bug has been seen on the Arabian coffee in its early stages, but disappeared within a few weeks without doing any damage. On the other hand in the hotter climate and poorer soil of a certain Liberian coffee estate in Johore, that effect of the green bug was very similar to the so widely experienced in Ceylon, and in the midst of a field of generally flourishing Liberian trees here and there some were to be found entirely denuded of leaf and crop. In Selangor again, on the older Liberian coffee, the bug was apparently causing considerable alarm to the proprietors some eighteen months ago as lime was being applied to the leaves by way of a remedy. It may be mentioned here that a very lively colony of green bug on a guava tree in the middle of the town of Penang disappeared almost entirely on the advent of a few heavy showers, the insects moulded away in a few days. Another reason why Liberian coffee is favoured in the Straits just now in preference to the other and more valuable variety, is that Messrs. Hill and Rathborne have allowed the Perak Government to publish the figures showing the returns of crop produced by their little estates—some of them hardly more than gardens in size—in Selangor and Sungei Ujong. These returns show very fine results—so much so that their correctness was challenged by someone whose experience had tended the other way, but were proved to be correct, with the admission that the extra yield had been brought about by the use of manure—though the trees were quite young. Now the figures for the production of Arabian coffee have not been given to the public, they are not published by the Perak Government as those for the Liberian coffee have, and consequently no one except those interested, or who have made the inquiry, know how remunerative the cultivation is, especially with the European market in its present state. It is to be hoped that statistics of the Arabian crops will be forthcoming for the information of the public, and in the meantime it is authoritatively stated that as much as 10 cwt. per acre has been gathered from the field of old coffee where in its prime. The appearance of the young coffee now warrants the confidence now felt in its bearing capabilities, and the sample is as good as any high-grown plantation grown in Ceylon, where by the way the "parchment" is sent from Perak to be cured and shipped. Another blow has been aimed at the extension of Arabian coffee cultivation in the Straits by (presumably) the Director of the Botanical Gardens in Singapore in the Agricultural Bulletin of the Malay Peninsula for April 1891. He says, "I do not think Arabian coffee can ever be successfully cultivated in the Straits Settlements." It seems very liable to produce "brush," that is to say abnormal flowers with minute green irregular sepals and petals, no stamens, and the pistils very small and apparently effete. I imagine this is due to the permanent dampness of the climate, and absence of any period of rest from growth." "Brush," instead of fertile productive blossom, is very well-known to all Ceylon planters, more especially occurring on the higher estates in wet seasons. This indictment against Arabian coffee is a very serious matter, coming as it does *ex cathedra*, and one that cannot be lightly disregarded. However, it may be in other parts of the Straits Settlements, and the Directors opinion may be presumed to include the protected native states, it is satisfactory to learn that the only planter of any experience in Perak regards the statement as by no means applying to Perak: in fact it is denounced as "absurd." He writes, "that Arabian coffee in this country (Perak) produces and will continue to produce as good crops as it did in Ceylon, is an established fact. The old coffee on this place has given its 10 cwt. an acre, so I think that goes a long way towards refuting Mr. Ridley's statement that blossom on coffee Arabica goes to brush instead of fructifying, owing to the permanent dampness of the climate." Our only risk here—as in Ceylon—is that a very heavy fall of rain may take place just when the blossom is fully out, and so destroy the pollen on the well developed flowers." In Ceylon such a catastrophe as is here alluded to was by no means an uncommon occurrence, as it is the rain, supervening on a long spell of hot weather, which usually brings out the blossoms, but such falls of rain are exceedingly unusual in Perak, and the attendant risk is small compared with that incurred by planters in the spicy island. The writer goes on to ask the pertinent question "what experience has the director of coffee blossoms in Perak—and from what data does he make the assertion—or rather found his opinion?" The result of his (the planter's) experience of the country is, that the statement about brush is "absurd" and "rubbish," and he hoped (the director) would be able to visit Perak in January and February and see the blossoms for himself.

All this tends to prove that coffee planting in Perak will succeeed as well as it formerly did in Ceylon—so far at any rate as any climatic influences are concerned; all agricultural pursuits are subject to risks—in more or less degree—in all parts of the world.

It may be as well to close this article with a rough estimate of profit on investment in Arabian coffee. It must be borne in mind that whether land is taken up on the system of an annual rental, or whether the land is purchased outright by the payment of what the Perak Government has chosen to call a "premium," no actual payment need be made for two years from commencement of the work, and indeed so anxious are the authorities that a beginning should be bona-fide made, and ample proof afforded of its being a profitable investment, that even greater facilities would be afforded to those who will at once take up land in the State.

Leaving ample margin for all contingencies and adding some 10 to 15 per cent to the current

estimates given by practical men of experience on the spot, Arabian coffee can be brought into bearing for about $200 per acre; but to make the matter absolutely certain, so far as such matters can be certain, make it £36 sterling. With ordinary luck the third year's crop should pay all its expenses, and from the fourth year with an annual crop of $6 per acre, at current rates for such coffee as would be produced at 2,000 to 3,000 feet elevation and costing £15 per annum for production, say 50s per cwt., there would remain a clear profit of £15 per acre, or nearly 50 per cent on the capital outlay. With crops on young coffee, 5 to 10 years of age of 8 to 10 cwt. an acre, the results would be immense, and there is no reason apparent at this time why coffee in Perak should not produce such crops as coffee in Ceylon, India and Java has already done. In four years Arabian coffee may be expected to cover the ground and to be in full bearing, producing a bean, which properly cured and shipped would fetch the extreme rates ruling in the markets of the world. Liberian coffee, on the other hand, takes seven to eight years to come into full bearing and to cover the ground, a large proportion of which in the meantime has to be kept clean and gives no return to the planter. The position of the estates in the hot steamy lowcountry naturally causes the weeds to grow up much faster than on the hills, and consequently the estate is more expensive to weed, and a larger extent of land has to be gone over for a lengthened period than in the cultivation of the other variety. Again the carriage of the cherry coffee on the heads of the coolies for considerable distances is always a matter giving trouble on coffee estates, and whereas 2½ bushels of Arabian cherry give one bushel of parchment, it requires no less than five bushels of Liberian cherry to turn out one of parchment, thus just doubling the weight that has to be carried about the estate—and doubling the trouble and expense of its transport. After all, when the coffee is put on the home markets, Liberian fetches some 15 to 20 shillings per cwt. less than the Arabian. The difference has of late not been so marked simply because there has been little or none of the East Indian coffee to compete with Liberian, the value of the latter of course being altogether abnormal. Liberian has seldom or never touched the round 100 shillings per cwt. whilst high grown Arabica has gone as high as 150s, and good ordinary has ruled 110s to 120s for months at a time. There is no getting out of the fact that the Arabian variety is the more valuable and more easily manipulated of the two varieties, and in Perak the numerous roads already made and the railways, completed and in course of construction, facilitate the opening up of the jungle. The labour supply just now is comparatively large, in consequence of the scarcity of food in India and the depression in the tobacco industry in Sumatra.

RETURNS FROM RICE CULTURE IN CEYLON.

As Sir Arthur Havelock, in his speech at the Agricultural College Prize-giving, expressed so pessimistic a view of the returns from paddy culture in this island, we would draw His Excellency's particular attention to the astounding statement made by a very competent authority elsewhere. So badly is paddy preserved (or so unripe is much of it when harvested) and so little attention is paid to the selection of seed generally, that out of one, two or three bushels sown, according to quality of soil, only one-fourth of a bushel, *as a maximum*, ever germinates and results in grain-bearing plants! When to seed so inferior as is thus indicated, careless and unscientific cultivation is added, we need not wonder at poor returns obtained, but we may well protest against impeachment on this account of our natural conditions of soil, irrigation water and climate. In all the rice culture we saw in Java the seeds were germinated in nurseries and planted out into the fields in regular rows. Here such a system is exceptional, while what is called ploughing is really the mere stirring of a few inches of water-saturated mud. The advantages of superior ploughs would be that the land could be ploughed and pulverised when dry—subsoil being stirred without being brought to the surface. This and careful selection of seed would prevent waste of grain, now so enormous, while waste of water would also be prevented, much to the improvement of the grain produced. The impression left on our mind by this latest contribution to the literature of paddy culture is, that where poor returns are the rule, it is not, in most cases soil and climate which are at fault, but perfunctory husbandry.

WASTE IN THE USE OF BUILDING MATERIAL.

Our attention has been directed to the unscientific way in which our native builders often dispose their material in the works of construction undertaken by them. Amongst the people of this colony the study of architecture, not alone as an art but as a practical matter, is, as yet, altogether unknown. It may be said, indeed, that as regards the first of these two aspects we have no architecture at all. The taste shown in the design of the ancient monuments left to us as the work of a bygone age no longer survives, and an art which must at one time have flourished in this island in a high degree no longer exists among us. But it is to the second aspect, that which most concerns us economically, that we would more specially direct attention. It cannot be said that in those ancient works to which we have referred there is evidence of such a disposition of material as would justify us in the assumption that the strength of its many varied forms had been the subject of intelligent consideration. The skill in architectural construction which distinguished the Arab builders, and which enabled them to so erect those light and graceful domes and the towering obelisks which form so essential a feature of Indian architecture, was apparently unknown to our own earlier designers. All their work, like that of the ancient Egyptians, was of so massive a character that they never cared, it would seem, to closely adapt their disposition of material to the exact requirements they had to provide for. Like the Egyptians, it may be said that most of their constructive work was monolithic. They wedged out huge masses of stone, and applied them indiscriminately to support both great and trifling weights. Much of this tendency remains to the present day, and we think that in our schools for technical education no branch of constructive art could better be studied than the adaptation of means to their ends, the study, in a word, both of the strength of materials and of the strains to which they become subject under the many different conditions of their application. It is from the want of this knowledge, we feel sure, that so much of the waste of building material that is observable in all modern works of native construction is due. Nor can we exempt altogether our own Public Works Department from sharing in some degree in the same charge. Many of the officers of that department, until re-

cently, at least, were untrained in the knowledge which would teach them how material may be most economically applied; and in many of our public structures there may, we are told, be observed instances of the misapplication of both masonry and timber work. Such remarks do not, of course, apply to our noble Museum and similar structures. But it is mainly to the ignorance on this subject shown by our native builders that we would desire to draw the attention of those who may hereafter be charged with tuition in our technical schools. We much fear that the tendency of these will be—as it was for many years in the schools at South Kensington and elsewhere at home—to confine instruction mainly to ornamental design. Now in an eastern country like this we can have no desire to see European art grafted upon the technicalities of Oriental design. Nothing can exceed the latter in beauty, and if any attempt be made to give the taste which seems naturally inherent in orientals a bend towards the ornamental designs of the European schools, the result will probably be only to produce a bastard effect which will be anything but pleasing. Far wiser will it be for the course of instruction to be in the direction of teaching our natives how to apply their material without waste: to learn how to proportion the support to the load. How constantly do we see the walls of houses made of undiminished thickness throughout, when the weight of the roofing these have to uphold is distributed over a few points only. Were it the custom to leave house walls in this country fully exposed to the sun or weather, there would not be so much to urge against this universal unnecessary thickness. In Europe such a method is followed to keep the interior of dwellings either warm or cool, to prevent the interiors becoming readily subject to exterior influence. But in the East nearly all house walls are sheltered by verandahs, and consequently nearly half the work put into our walls is wasted. Then, again, in the timber of our roofs and verandahs how constantly may we observe rafters either so slight as to bend under the strain of the tiles they carry, or else the employment of scantlings adequate to carry nearly three times the weight they are ever likely to be subject to. In the first case there is wasteful application because the life of such work must be short; and in the second there is equal waste because less than half the material would have sufficed. The instance cited will furnish the key to the matter to which we think the attention of those who may direct technical education in Ceylon should be specially directed. The A B C of such education must not be neglected by too exclusive a devotion to the cultivation of an artistic taste which may only result in spoiling the inborn disposition of Orientals to ornate design. Teaching which will enable its recipients to perform in the best possible manner the practical operations of every-day life in masonry, carpentry, turnery and engineering is what ought to be mainly imparted.

NOTES ON PRODUCE AND FINANCE

LAST WEEK'S TEA SALES.—Again there has been some abridgment from the excessively heavy supplies of Indian tea, says the *Grocer*, put forward during November, the total quantity brought to auction this week, though still large, not having more than equalled 36,230 packages which met a livelier demand than of late, and have nearly all been realised at full to rather better prices. Almost each day has witnessed an improvement somewhere in the tone of the public sales, and whilst the lower grades, which are 1½d. to 2d. per lb. cheaper than at this time last year, have been only slightly hardening up in value, the preferable and finer qualities above 10d. and 1s. per lb., forming the smaller proportion of the aggregate supply, have commanded a tangible advance on the irregular quotations recently current. The latest advices from Calcutta, to Nov. 18, report that on the 12th inst. 11,650 chests were sold by auction. Good qualities are still in demand, and occasionally show a slight advance in price, but thin sorts are steady at about last week's prices. The imports into London during the week have been, per Bengal, 1,634,300 lb., and Nubia, 416,600 lb. A revival of demand for Ceylon tea has taken place this week, and prices are firm. Finer grades have been wanted at extreme rates, and though some low figures were recorded for the common kinds, there were a few cases where better values were realised. It is probable that supplies will be increasing soon, and it depends much upon the quality how prices will rule. A few estates lately have sent forward teas of improved quality. Arrivals at this port have been limited, comprising only the Victoria, 336,500 lb., and the Bengal, 229,500 lb. There has been a further falling-off in the quantities of Indian tea offered, says the *Produce Markets Review* and a much firmer tendency has developed in most gardes. The demand generally continues extremely good for his period of the year, which is entirely attributable to the increasing consumption, and the good value offering in Indian growths. Although the stock at the end of last month was considerably in excess of the same time last year, at the present rate of consumption the supply will probably not prove excessive. It is difficult to forecast the course of prices during the next few weeks, as the supply in January bids fair to be heavy, but the present tendency of the market certainly points towards the conclusion that the lowest prices have been touched. Although the demand for Ceylon teas has rather fallen off, the smallness of the quantities brought forward on the one hand, and anticipations of a better demand after Christmas on the other, have sufficed to raise prices for almost all grades. The commonest kinds have been the least effected, and cannot be said to be dearer, but Pekoes at from 8d and upwards show a rise of from ¼d to ½d, while really fine liquoring teas command ½d to 1d more than a month since. Broken teas of all grades are in good demand, The general quality of the supplies has, unfortunately, shown no improvement; hence the extreme prices realised for a few of the best parcels.

COFFEE MIXTURES.—At the County Magistrates' Court, Liverpool, on Monday, the question as to the meaning of the term "French coffee," as it is understood by the trade and by the public, arose out of the prosecution of a grocer for having sold to a person sent by the police a mixture containing 65 per cent of chicory. The evidence showed that there was no attempt to deceive, but that on the contrary the mixture was plainly labelled as such, and that, moreover, the purchaser was distinctly told the nature of the compound. The bench dismissed the case, but inflicted a fine of 20s and cost in another instance wherein the nature of the article had not been thoroughly explained to the purchaser.

THE UNITED STATES AND THE WEST INDIES.—We learn from Washington that a commercial agreement has been arrived at with the British West Indies and British Guiana, whereby in return for the continued free introduction into the United States of sugar and coffee those colonies agree not only to enlarge greatly the free list of their customs tariff, but to make decided reductions in the duties imposed on the products of the United States.—*H. and C. Mail*, Dec. 18th.

IT must be gratifying to our planters to find that Ceylon and Indian tea is rapidly driving the Chinese article out of the market in the Australasian Colonies. Ceylon tea particularly is rising in favour at the Antipodes, and the Indian producers have now much to fear from the competition in the Ceylon quarter. Before long it seems probable that both John Chinaman and his staple export will be practically excluded from Australasian shores.—*Colonies and India*, Dec. 26th.

COOLIES FOR ASSAM.

We have already commented on the great and bitter cry of the Assam planter that the supply of labour is daily growing not only more scanty in amount but inferior in quality. This is a matter which not only affects the great tea industry, and, indirectly, the Government and population of Assam; the question is also interesting to us who live in Northern and Western India. Assam affords an ample outlet for our surplus population; it behoves us to inquire with some minuteness why our landless labourers are beginning to look askance on tea garden work, and can only be persuaded to emigrate by the unholy persuasions of the *arkati* and the crimp. The present system of recruiting is admittedly open to serious abuse of a kind which it is extremely difficult to check. And now we are told that this evil system has not even the recommendation of success, and that the supply of coolies is rapidly falling off. To what causes is the unpopularity of tea garden labour due?

It can hardly be said that the drain has been so severe as to have taken off all the people who are so poor as to need a refuge in temporary exile. A good deal has been said in some quarters about the expense and length of the journey to Assam. It has been hinted that when once Assam is connected with the rest of India by railway the labour question will solve itself. This seems somewhat doubtful. Every cold weather swarms of men go to Assam from Nepal, from these Provinces and from Tirhoot, to work on the Government roads, or to sell droves of plough cattle or buffalces. Most of these march by land, or, taking rail to Dhubri, walk the rest of the way. Even those who indulge in the luxury of a railway and steamer journey to Dhubri can make their way from Chapra or Muzaffarpur to Dibrugarh at a cost of from R12 to R14. The journey will occupy less than three weeks. Those of them who do earthwork on the roads reap a handsome harvest. The rate for earthwork paid by the Public Works Department in Assam is liberal, R4-8 or R5 per 1,000 cubic feet, we understand. A road-working coolie can easily do his 2,500 cubic feet in a month, and in the six months of the dry weather may easily lay by his R50 or R60. Of this he will spend some R12 on the return journey, and the rest, in so short a period as six months, is pure gain. Herel is an annual exodus which is purely voluntary. It is supervised by no Government agency. It is unattended by the wiles and oppressions of *arkatis*, and as an instance of successful and useful migration well deserves record. It proves that the natives of N. W. India will gladly travel to Assam at their own risk and expense, so that the labour they have to perform is done in the cold weather, and is sufficiently well paid to leave a margin for saving.

But the planter wants his coolies to labour all the year through; and chiefly in the rainy months, which are especially trying to unacclimatised inhabitants of drier parts of India. Even if wages as high as those earned by road menders were to be had on tea gardens (and in the case of old and trained coolies wages as good, or nearly as good as there may be earned) it is probable that coolies from Upper India are not easily persuaded to remain in Assam throughout successive rainy seasons, until they are acclimatised and really useful. Hence the enormous expense of exporting labour, and the great annual loss by desertion and non-renewal of coolie agreements to which we have already drawn attention. Wherefore the *arkati* steps in, and by blandishments, promises and other persuations inveigles the coolie to Dhubri and there induces him to enter into an agreement to labour for five years. The result in many cases is entirely for the coolie's benefit. Often he saves money during the term of his agreement, and on its expiry settles down to cultivation in a little clearing in grass jungle, a much more prosperous and contented being than he was in his native abode. But while a voluntary migration automatically selects the best men who are frugal, abstemious and hard-working, the *arkati* finds his victims chiefly among the waifs and strays of rural life. He picks up drun kards and loafers among the men and women of loose life among recruits of the other sex. It is small wonder that the impatient planter complains that the expense of importing such labour is never recouped, and finds the Labour Law itself ineffectual as a means of getting an honest, day's work out of his labourers. It is perhaps astonishing that the average rate of wage paid to tea garden labour should be so high as it is. The present system of recruitment then is attended by many inevitable disappointments and dangers. It is extremely expensive, and it must not be forgotten that the Labour Law itself cannot be administered without expense. The difficulty is to suggest a remedy. That *arkatis* and recruiters should make a profit by supplying coolies is itself a great evil. How are planters to replace the *arkati* by some less suspicious agency? Can the Government do anything to aid them in the enterprise? It is to the interest of Gov ernment to supply easy means of migration from the overstocked provinces of India; it is to its interest that the tea industry should flourish and reclaim the waste places of Assam, and that time expired coolies should open out its jungles. At present Government takes upon itself to look after the welfare of the labourers on tea gardens, and inspectors of labourers are legally empowered to see that tasks are not excessive and that all labourers are provided with the means of earning a sufficient livelihood. Can it not go further and take up the business of an Emigration Agency?

Before it could do so, it would be necessary to make sure that the conditions of labour in Assam were, or could be made, always and invariably better than in the districts of recruitment. It would probably be necessary to strengthen the staff of inspectors, and to raise the statute minimum of wages. Registration offices would be opened, at which coolies should bind themselves to labour in Assam for a term of years. The coolies might then be forwarded to Assam in charge of Government officials and despatched to the different gardens through the inspectors concerned. Any garden in which coolies were ill-treated or ill-paid might be refused a further supply of labour. The bare expenses of travel might be advanced by Government and recouped, as are other such advances, under Act I. of 1882. It may be said that such a scheme is an unwarranted interference with private enterprise. But no one except the *arkatis* themselves, certainly not the coolie or his employer, is likely to resent an interference with the *arkati's* business. If Government were once assured that tea garden life in Assam was really a change for the better for emigrants from other parts of India, it could easily and by the most legitimate means make these advantages known. It could assure the intending emigrant that he would be carefully looked after, and that if he were ill-treated or ill-paid he would be given the option of returning to his home or settling on his own account in Assam.

The suggestion has many obvious drawbacks, which we will leave it to others to discuss. Planters themselves admit that the *arkati* is a crying evil, and must be put down at all risks. It is clear that Assam is not yet ripe for free migration, and would probably not be not so even if the future railway were an existing fact. Attempts to organise superior agencies to compete with the *arkatis* seem destined to fail. The *arkati's* methods, if objectionable, are economical. It is quite possible, however, that the *arkati* is a maligned individual, and that natural selection has evolved the fittest person for the task of recruiting coolies. Even in that case the suggestion will have done no harm if it tends to whitewash a misunderstood and necessary individual. But it is a tenebrous subject, especially to minds unacquainted with Assam, and the man who throws real light upon it will be a public benefactor.

One other suggestion occurs to us, which we beg not be taken entirely in jest. There may yet arise a Cook or a Gage who will personally conduct coolie tourists to the Tom Tiddler's ground of Assam. But that presupposes a happy time when coolies shall be as anxious to travel cheaply and expeditiously to Assam, as pilgrims who seek Mecca. Why does not a Cook arise, and sweep the mob of *arkatis* off the earth. Rumour

has taught us to regard the *arkati*, perhaps unjustly,

"Like stabled wolves, or tigers at their prey,
Doing abhorred rites to Hecate
In their obscured haunts of inmost bowers."

Is it really true that they have "many baits, and guileful spells t' inveigle and invite th' unwary sense of them that pass unweeting by the way." We almost wonder that a Commission, with Mr. Cook's local agent for chairman, has not been appointed to sit on the *arkati*. Then we should probably hear the *arkati's* view of the matter.—*Pioneer.*

[There is much in the above which will be of special interest to the tea planters of Ceylon in the present crisis.—ED. *T. A.*]

AGRICULTURE IN SIAM.

In the Consular report on the trade of Siam during the past year, Mr. Beckett gives an interesting description of the mode in which agricultural operations are carried on in that country.

The system of agriculture, he says, is of the most primitive description. At the commencement of the rains, about the first week in May, the Brahminical custom* is still followed of formally inaugurating the rice-planting season with sundry open air ceremonies. An inaugurator having been chosen by lot from amongst several nobles of rank, a bullock of the best breed is selected and decked with sweet-smelling flowers, and the whole procession moves towards the plain of the paddy fields. The chosen chief then has placed before him three strips of cloth of different breadths, which he takes up and unfolds one by one. If the cloth thus taken is not more than four cubits broad, rains will come early and water will be plentiful; if not more than five cubits broad the water supply will be up to the average; and if six cubits broad, water will be scarce. This done, the master of ceremonies proceeds to stand by the plough with bullocks yoked, and with it makes a circuit three times in succession round a plot of Government paddy-land, which an elder present then sows with rice. After which, Brahmin priests place on a table near by three kinds of grain, with fruits of all kinds, and the bullock having been taken from the plough is allowed to eat of them. Of whichever kind of fruit or grain the animal eats, that kind will be most plentiful during the coming year. This concludes the ceremony, and from this date the agriculturists are permitted to plough and cultivate their rice-plots.

Of paddy-land under rice tillage there are two kinds, one called "Khu Kho," extending from Nontaburi on the Northern outskirts of Bangkok to Paknam on the south, and the other "Fak Loi," from Nontaburi, northward to Intaburi, a short distance south of Chainat. The rice obtained from the former is the so-called nasuen, or garden rice, sown in nurseries and planted out by hand. The annual tax on each rai, 20 fathoms square, of this land is 24 atts 9d. Each rai is again subdivided into four parts called "ngan," of 100 square fathoms each, on which the tax is 8 atts (3d.) on each "ngan" below three. The rice reaped from the "Fak Loi" land is named "na miiang," or field rice, which is sown broad-cast and left to grow as sown. The tax is 16 atts (6d.) on each rai, and 8 atts (3d.) on each "ngan" above two. It is impossible to ascertain the area of land in Siam under rice cultivation, owing to the unsystematic manner in which the land taxes are collected.

The Siamese agriculturist has no idea of the rotation of the crops. If he has not sufficient capital of his own, he obtains at high interest an advance large enough to cover the expenses of planting, ploughing, and harrowing during the six months in which he is compelled to work. During the remaining six months the generality of husbandmen in Siam dissipate their earnings in the local gambling houses,

* Brahmins and Brahminical customs in the Buddhist country of Siam just as we have the mainly Hindu Perahera in Ceylon.—ED. *T. A.*

The ownership of land is mostly hereditary, remaining in the hands of one family for many generations. European traders, as a rule, refrain from making advances to the agriculturists, on account of the insecurity of the investment. Rice is sown year after year on the same ground. Irrigation is almost totally disregarded. If the rice-land is adjacent to one of the numerous creeks, either natural or artificial, intersecting the country, the owners may consider themselves fortunate; but there is no co-operation amongst those whose rice-plots are at a distance from the water-courses. The Siamese peasant is slow to take up new methods, and even if European machinery were to be introduced, he would look on the experiments with distrust. He is equally careless about his grass or pasture land, taking no trouble to sow good seed or hedge round a grazing ground of his own; but allows his cattle to roam at will over the thinly populated country districts. The pasturage is the common property of the village. The cattle graze there until the rice-crop has been gathered, when they are turned out to browse on the stubble. In addition to rice, teel-seed, hemp, tobacco, sugarcane, cotton fruit, and vegetables are also cultivated. Hemp grows extensively in the districts of Petchaburi to the south-west, and is tended by the Laos and Siamese peasants of that province. A tax is levied equal to one-fifth of the value. The drug is smoked largely by the paddy cultivattors. Tobacco is grown in 42 districts of Siam, and is one of the most important local industries.

The Siam tobacco plant is sown in September by the Chinese cultivator, and the leaves are gathered in December. After gathering the leaf is left to ferment in some dark place during three or four days, and subsequently brought to a certain degree of ripeness by exposure to the night dews. In Deli, the difficulties encountered are the lack of proper coolie labour and attacks on the plants and leaves by earth-grubs. In Siam, if planting were to be undertaken by Europeans, the same would be found. The Siamese coolie is lazy and untrustworthy, and Chinese could only be engaged by paying them in proportion to the results of their work, and by cultivating good relations with the local governors. The quality of Siam tobacco differs according to the districts in which it grows. In many cases the salt absorbed interferes with the burning properties of the leaf. The best leaf comes from the Petchabun, from Kanburi and from Nakhonsawan.

The coffee shrub is as yet but little cultivated in Siam. The slopes of the hills at Chantabun and Korat are spoken of as highly favourable to the growth of the berry; and in view of the contemplated railway to the latter place, planters might consider, Mr. Beckett thinks, the venture worth at least a trial. The low-lying land in and around Bangok is well adapted for the culture of fruit, of which the most common varieties are:—Mango, durian, rambutan, pommelow, orange, jack fruit, mangosteen, bananas, custard and pine-apples, and many others. Plantations of fruit-bearing trees are subject to annual taxation, assessed once in each reign on a scale based on the circumference and height of the trees. The assessment is made regardless of new trees that may have been planted, or old trees that may have died off during the interval. The consumption of fruit is almost entirely local, the produce being hawked about on river and land, chiefly by women.

If, continues Mr. Beckett, agriculture in Siam is one of the most primitive character, the condition of local industries is still less developed, being confined to weaving of silk and cotton native cloths, the manufacture of native paper from bark of the "khoi" tree, the making and colouring of tiles for use on the numerous temple roofs, and the manufacture of earthen jars as receptacles for water, working in gold and silver, mat-weaving, and a few others. The carpentering and boat-building trades are carried on by some Siamese, but Chinese are superior at these handicrafts. The latter also monopolise the bricklaying, tinkering, dyeing, and similar industries. Most Siamese prefer to attach themselves to the person of

some influential noble, and throughout Siam, and in Bangkok especially, there exists a system, resembling that of feudal vassalage, by which each person, according to birth, position, or descent, forms one of a class owing dependence to a particular master or over-lord, under whose protection he is, and to whom he devotes his service. Most minute registers are kept of all such persons. Under certain circumstances the character of a guild is nearly approached when certain trades and handicrafts remain hereditary in a particular class or department, such as, for instance, in that of clerks and painters, potters, lacquerers, goldsmiths, incrustators, boatmakers, engravers, jewellers. Such persons receive salaries ranging from 6 ticals (12*s.*) to 120 ticals (12*l.*), including food, according to rank or individual ability.

When not serving their over-lord they can employ substitutes on payment to the latter of a sum of 6*d* per diem. This system of vassalage, now so thoroughly engrained in the national life, has many drawbacks, but it would be difficult to say if its abolition would be productive of much good, or stimulate the Siamese artisan to the development of local industries. His wants are small, a wage of 10 ticals (1*l*.) a month being ample to provide him with food, dress, and lodging; and if he be a man of means and ambitious of following the custom, which is now being more and more adopted, of wearing European articles of dress, if he can purchase his requirements at Bangkok and other important towns on the main river routes. Every year Siam is becoming more dependent on the manufactures of Europe and China, and there is a fear that the few existing local industries will soon be extinguished by foreign competition.—*Straits Independent.*

PATENT TEA CHESTS.

The following paragraph has reached us from Messrs. Andrew Polson & Co., of Glasgow:—

We hear from time to time of tea chests being invented to supersede the old wooden ones; and we have just seen one which promises to do away with tea lead, nails, hoopirons, &c.

The patentees think the cost will be only a little more than the cost of wooden chests. Apart from being able to dispense with the use of lead, nails, hoopirons &c. a large saving will be effected in the factory. One cooly will be able to pack, (screw up and make all ready for shipment) a large number of chests in a day. We cannot say anything more in the meantime as the patentees hope to have the chest in the market with full particulars shortly. A gentleman with large experience saw the chest today and says he thinks it is sure to be a success. Granted that the chest is a success, the only question is that of cost; freight to Colombo can, we have no doubt, be arranged with shipping companies. Perhaps in this way:—We will take out 10,000 empty chests if you guarantee to send 10,000 full ones back by our ships, same as the railway carries shooks, &c. free. Concessions as great as this are done daily by shipping companies."

THE REGULATION OF SUPPLIES.

To the Editor of the Home and Colonial Mail.

SIR,—In your last issue you publish a very sensible letter on "The Regulation of Supplies" of tea from a correspondent signing himself "Vis Unita Fortior,"

I believe, however, that when he writes "Remember that when it was seen ten months ago that the Indian crop was short and the price rising, word was passed round Ceylon to make all the tea they could—the object being, of course, to hasten the displacement of Indian"—he is doing either more or less than justice to the foresight of the tea planters of Ceylon.

It was well recognised in Ceylon that the great increase in the shipments of tea in the first half of this year was due to the unusual continuance of wet forcing weather, which, while largely increasing crops, added also greatly to the difficulty of proper preparation of the leaf, and so caused much of the tea shipped to be of inferior quality.

It is possible, also, that Ceylon planters had been to some extent predisposed to heavy plucking by the state of the London markets during 1890, when the ranges of prices for teas, whether of high or low quality, was comparatively small.

Till I saw the letter above referred to, I never heard it even suggested that Ceylon men had been moved in this matter by a wish to combine for the purpose of damaging Indian tea in the market.

On the contrary, the principle that has hitherto guided them in any combined action has most surely been that "Vis Unita Fortior" still holds good as the rule of the two great tea producing interests of the Empire.—I am, Sir, yours, &c., WM. MARTIN LEAKE,

Secretary Ceylon Association in London.

4, Mincing Lane, Dec. 14.

CEYLON TEA.

(From the *Grocer.*)

In our last issue was published the usual monthly statement of the movements of tea at the Port of London, which shows the same marvellous expansion in the supply of and demand for Ceylon tea that has characterised the trade in this article from its very commencement, about ten years ago. During the first eleven months of the present year the landings, in round numbers, have been nearly 55,000,000 lb., against about 37,120,000 lb. in 1830, and 28,444,000 lb. in 1889. The deliveries in the same period, it is an extraordinary fact to observe, have kept pace fairly well with this rapid increase in the imports, and have amounted to 49,203,600 lb., in comparison with 34,880,600 lb. last year, and 23,277,000 lb. in 1889; and the business still goes on expanding as fast as the crops grow larger every season. Another remarkable circumstance, is, that while the receipts of Ceylon tea here have been augmented by close upon 18,000,000 lb., those of Indian have not been rendered heavier by more than 8,693,200 lb., or barely half so much, and instead of a very substantial gain of 14,323,000 lb. in the clearances, as shown by the Ceylon description of tea, Indian sorts actually exhibit a deficiency of 1,979,500 lb. for the past eleven months. To satisfy these increasing requirements of Ceylon tea, it is reasonable to infer that there must be a constantly advancing rate of production, and it is therefore highly satisfactory to note that the entire crop, as gauged by the estimated shipments to the United Kingdom for 1891, will in the aggregate reach 64,000,000 lb., or 20,000,000 lb. more than in the previous season.

Having thus spoken of the quantity, we will now proceed to offer a few remarks on the quantity of Ceylon tea imported into this country; and first, it must be understood that, without creating the least prejudice against either the growers or distributors, exceptionally large crops of any kind of produce—tea or anything else—are not always identified with superiority of condition or out-turn. Consequently it is no libel on the general character of the article to say that among the importations of Ceylon tea this year have been numerous samples of complete rubbish, which would not have been tolerated or received by the trade as tea in the smallest sense if they had been offered as invoices or breaks of Indian or China, and it is the magical name of Ceylon alone that has enabled importers to dispose of the said tea when other—and, in the opinion of some persons, more excellent—kinds have been long on the market seeking buyers in vain. Without at all diminishing the popularity of Ceylon tea, we may further state that, so common has been a deal of the supplies put forward of late that pekoes have been selling down to 6d per lb. and under, pekoe souchongs as low as 5d broken pekoe at 7d and even less, and orange pekoe at only 7d besides broken sorts at the severely reduced figure of 4d per lb. At such cheap and popular prices surely there is a most powerful stimulus to an unstinted consumption, and a ready means for securing profitable returns on the capital invested by the wholesale dealers and others.

Further, it may be stated that, excepting for fancy trifling lots of gold and silver-tipped teas, prices of which are artificial, it has been quite a rarity and a wonder to see a line of Ceylon tea knocked down in public sale above 2s as the highest range of value for best qualities has mostly been from 1s 6d to 1s 10d per lb and even at these rates the parcels of teas realised at one time and another have been comparatively few. A principal cause of the larger proportion of inferior grades in this season's crop has been the continuous rains in Ceylon during the gathering and manufacture of the teas, which, besides adding to the difficulties of drying and withering the tea, have partly spoiled the quality of the same, and left in many gardens and estates little else but rubbish to be exported to England. From the latest information we can glean, however, it is expected that these adverse conditions of preparing tea for the London market will soon be overcome, and if so a decided improvement in the assortment of Ceylon teas will probably follow, and then this branch of the trade will be in a stronger position than ever to compete with the low-priced growths of India and China. In the meantime stocks on this side are excessive, embracing 14,966,000 lb. as contrasted with 8,505,000, lb. in December last, and until the extensive surplus here apparent is worked down, quotations generally may be reckoned to rule as much as ever in favour of both retailers and consumers.—*H. and C. Mail*, Dec. 18th.

THE REGULATION OF INDIAN TEA SALES.

TO THE EDITOR OF THE "HOME AND COLONIAL MAIL"

Sir,—In the letters addressed to you by Mr. Shillington and "Observer," a subject has been broached which seems to merit more thorough discussion than it has yet received. Prefacing what I have to say with the remark that my interests are bound up with those of producers as closely as any man's can be, and that I do not write with a controversial object, I will briefly analyse the substance of their last letters.

In them, the following propositions are assumed :—

1.—That supplies of Indian tea are being unduly forced on the market.

2.—That the value of tea would be raised by reducing the supply now, and reserving some of it for sale during the summer months.

3.—That it is possible for sellers to combine here to regulate supply.

4.—That the brokers are answerable for this not being done.

For propositions 1 and 2 Mr. Shillington is responsible. His opinions always deserve consideration ; but in this instance they do not accord with the judgment of the greater number of those engaged in the trade, whether as importers or buyers. It is a matter of common knowledge that each succeeding year finds buyers less willing to take tea of the old crop after April, or May at the latest. The loss to those who have held for the summer demand—whether producers, dealers, or speculators—is as well known as the reason for it is obvious—viz., the inflow of heavy supplies of fresh tea from Ceylon after March. The bearing of this is so fully appreciated that in future every producer of Indian may require his crop closed by April, just as every grower who sells in Calcutta elects to wind up his sales before March, if he can.

This being so, the realisation of the great bulk of the imports must take place between September and April. By the use of simple arithmetic, any one who knows what the total supply will be can find that to dispose of the crop it is needful to sell some 40,000 packages per week from Sept. 1 onwards, and a reference to the circular file will show that the average since that date has been not more than 38,000 packages per week,

But apart from the arithmetic problem, is it really the case that prices can be raised, except to the most temporary and trifling extent, by the process of feeding the market? Surely the value of a large article of commerce like tea depends upon the relation of total supply to the total requirement. Those who think otherwise forget that in these days the buyers have the same opportunities of obtainging information as the sellers have with respect to supplies. They are able to calculate for themselves the probability of excess or deficiency; they know how many chests arrive each day, and how much of it is held and how much sold. Nothing destroys their confidence in buying so much as the knowledge that supplies are being kept back, hanging like a cloud over the market ready to come down, as the rain does, it may be when least wanted.

Your correspondent "Observer," having assumed the soundness of Shillington's propositions, adds to them two of his own. Let me breifly examine them. He assumes that it is possible for importers to act in concert. Those who have earnestly tried to effect this know the exceeding difficulty. Only a few weeks ago the brokers met in solemn conclave, and passeda resolution declaring that it was desirable that only 35,000 chests per week should be put on the market. What followed? Within a fortnight the maximum was largely exceeded. Why? Because no machinery can be devised to carry out what is aimed at. Why not? Because every importer wishes *someone else* to hold, in order that he may sell to better advantage; but as for holding off himself, well he is not quite sure that this would be wise!—and so the brokers' deliberations ended in a farce.

Now let us go a little deeper beneath the surface. Run through the names of the great agency houses which manage the affairs of the industry in London, add to them the experienced managers and directors of the large companies whose headquarters are here, and you will find among them men of the highest business capacity and foresight—men who know how to manage their own affairs, and prefer to manage them in their own way, declining to limit their freedom of action by entering into combinations. Is it for the broker to go to such men and say, "We advise you not to sell, Messrs. A., B., and C. are offering large quantities this week and next, hold your teas for awhile?" Why, Sir, any broker who did that would speedily find himself among the ranks of the unemployed, and deservedly so. A broker's business is to obey orders, and carry out his employer's instructions as honestly and carefully as he can. Remember too, that one-third of the supplies are imported by speculators who buy in Calcutta; in no possible combination of products could they be included.

A friend at my elbow suggests to me that I should say something about "Observer's" warning to the brokers that if they do not succeed in raising the price of tea the importers may dispense with their services and "broke" for themselves; but I am loth to refer to such an uncalled-for threat, except to place it in the same category as another rumour which is current to the effect that certain enterprising firms are only seeking an excuse to add the functions of grower's agent to that of broker, and all for 1 per cent.! May each prove the antidote to the other! *Ne sutor ultra crepidam*, said Apelles to the shoemaker who daubed his wall with paint, and thought he was an artist. Fortunately there are still old-fashioned folks who respect the recognised boundaries of their several callings; but if the struggle for existence is to be carried to such a point as "Observer" hints at, well, I suppose the fittest will survive.

But can we do nothing to help each other out of the ditch into which we have fallen together? "Observer's" most valuable letter in your issue of the 13th, points to one way: let me indicate another. London is too large a place for combinations, but what is not feasible here may be possible elsewhere. Go to the source and fountainhead, India; and here a dozen more or less conflicting home interests are concentrated in a single focus, and if concerted action be possible at all, unite not to manipulate supplies, but to *shorten the output*. Let us have the courage to face the facts We are suffering from over-production, and if growers would agree to make 10 per cent. less tea in India *and in Ceylon*, we should soon see a very different state of things. Too many were mislead by the inflated

market in the spring and the real lesson which the present distress should teach us is that it is hopeless to expect a paying price if we over-supply the market with an indifferent article. No one who has been content with moderate crops of really good tea had cause to complain of results.—I am, Sir, yours, &c.,

VIS UNITA FORTIOR.

BULKED TEA.

(From the *Grocer*.)

Our readers are aware of the immense importations of teas from India and Ceylon, and of these a large proportion either is or ought to be bulked in London; for although the bulking operation when properly performed at the garden where the tea is grown is desirable, it has been found by experience that in many cases the machinery and other means for bulking abroad are imperfect. On arrival in England the chests have been found irregular in quality, thus rendering the mixing here absolutely necessary. This is a matter of regret because the exposure of the tea in a damp climate like ours must depreciate the value, particularly to grocers, who have to hold stocks either at their shops or in the large bonded warehouses. There is, however, another evil to which attention should be directed: it arises from the impatience manifested by importers to place their teas upon the market before they are ready for sale. Thus it sometimes happens that a parcel of tea is sent up from the docks to an up-town bonded werehouse, and, when bulked, samples are sent out and the tea sold; but shortly afterwards some packages—usually known by the name of "missing packages"—are found, which belong to the same consignment, and are forwarded to London, being then mixed with some of the chests remaining in bond.

One condition regulation public sale provides that missing packages up to a small percentage of the parcel, if equal in quality to the bulk, must be taken by a buyer; but the fact of the tea being bulked is an evidence of variation in quality, and unless the whole of the tea is properly mixed we failed to see how it could have been fairly represented by the sample upon which it was sold. In fact, this condition respecting missing packages can only apply to teas bulked abroad, or those from gardens where the quality is so regular that the bulking process is rendered unnecessary. This subject is of special importance to grocers who regulate their blends upon the samples of the first chests of a parcel they receive, and any variation in the quality of the missing packages may make a material difference in the blend and do them great injury with their customers, who are quick in detecting any variation in the liquor of a tea. Although in some cases the quality may be really better than that of the parcel, if there is a difference, and it is detected by the consumer, unfavourable conclusions are too frequently drawn which can only prejudice the trade. All missing packages of bulked tea should be sold separately, not palmed off on the buyer of the parcel; and considering the number of complaints which have been made of the variation in quality, this principle should be adopted. We understand the London Wholesale Teadealers' Association have this matter under consideration, and we hope they will lose no time in bringing about a substantial reform in the direction indicated. It would save wholesale dealers the annoyance and vexation of numerous complaints, and would be an act of justice to grocers generally. —*H. and C. Mail.*

COCONUT AND CINNAMON CULTURE IN CEYLON IN 1891.

COCONUTS.

The year that has just closed has been an exceptionally favorable one, as regards rainfall, for coconut cultivation, the more especially in the coconut-growing districts in the southern and western portions of the island where the rainfall has been abnormally high. As can be readily understood, water is an important factor in the cultivation of a product whose fruits are always carrying several gallons of liquid and whose leaves, being constantly moved by every gust of wind, favor rapid evaporation from their surface. But as in most things, there can be too much even of a good thing like water, and reports from the inland districts say, that with a lesser rainfall and more sun the prospects of crop for this year would have been better. Not that they are by any means such as to cause grumbling, but they are not as good as they might have been. This can be readily understood, for the soils in the inland districts are mainly clayey, and the persistent rainfall has so sodden them that the short intervals of sunshine have not more than warmed the surface, and thus the circulation of air through the soil, so necessary for the vigorous growth of vegetation, has been possible only to a limited depth.

It may be remembered that the year 1890 was distinguished for a drought extending from June to October, and which was felt severely along the coast from Jaela, 12 miles from the capital, to the North of the island and on to Batticaloa on the East coast. Its severity was felt most in the districts north of Negombo, increasing as we go further north, till in Jaffna not only coconut trees but even the hardier palmyra palms succumbed to it, and many plantations at Batticaloa were said to have lost a good number of their well-established coconut trees. Its effects were as a matter of course felt during 1891 in diminished crops and in nuts of abnormally small size; but the severe "wintering" the palms received have helped them to realize to the full the beneficial effects of the wet year we have just passed through, in bright prospects of crop during 1892.

During the first six months of 1891 the prices of nuts were such as to cheer the hearts of coconut planters. There was great activity in the trade and the enquiry for nuts was brisk. In July-August the demand ceased suddenly and the drop of prices was fully R5 per thousand. As can be imagined, this caused much loss both to buyers and sellers and the market was for a time greatly disturbed. Prices have not risen since, and were R4 or 5 less per thousand at the end of 1891 than they were during the same period of the year previous.

Though the desiccating of coconuts is not an industry that started into life during the past year, yet it deserves notice owing to the large number of nuts it consumes. The oldest establishment is at Colombo, where Messrs. Vavasseur & Co. are said to have set up over half-a-dozen of Brown's patent desiccators and where the daily consumption of nuts must be about 20 or 25 thousand. The mills at Veyangoda are constantly expanding, and the daily consumption of nuts there is said to average between 10 and 15 thousand. The enterprising Akbar Brothers started a desiccating mill at Negombo, but ceased working it after a very short while, for reasons which must be best known to themselves. Sinhalese gentlemen of equal energy and enterprise, the Pieris Brothers of Grandpass, have established a factory for the same purpose at Kelani, so coconut planters have not, like tea planters, to fear over-production just yet. A letter appeared in our columns a few months ago from a merchant in London expressing grave fears that the desiccating of nuts is already being overdone and that a promising industry was likely to be ruined. It is generally believed that the letter had emanated from an interested party who was anxious to reap as much of the profits of this industry as he could himself. The rumours outside are that desiccated coconut sells at R1 per lb. in Europe. A thousand coconuts are reported to yield about 350 lb. of desiccated stuff, and a thousand nuts sell for between R30 and R35, so that the difference between R35 and R350, after deducting cost of production, packing, transport, interest on capital and other etceteras, represents profit. From these figures it will be seen that if they are reliable it will take some time to render the industry unremunerative through over-production. But it is said the demand is limited. This is a serious drawback with a produot that will not keep longer than 3 months. In spite of it being packed in air-tight cases precisely like tea, the stuff is said to become rancid after that

period of time; but it need not go to waste even then, for if it be not sweetened it can be used for expressing oil.

We have heard very little of coconut leaf disease during the past year; but we are assured that this is not due to its absence, but to a desire by estate proprietors to keep the matter to themselves. With reports of a disease with a fatal termination in Jamaica, we think the wiser plan will be for proprietors to boldly face it and with the assistance and advice of the School of Agriculture devise means to overcome it.

CINNAMON.

The prayerful wish of all cinnamon planters must be that they will not pass through such another year, as regards prices, as 1891. Though Ceylon has the monopoly of the cinnamon market,* yet she has not been able to devise means to control it. Combination amongst cinnamon growers is impossible. One of the first acts of the now defunct Agricultural Association was to resolve that the antiquated system of quarterly sales of the spice in the Lane be abandoned and monthly sales substituted. There was nothing revolutionary in this change, for all other products are sold once or twice a week, and every other spice but cinnamon is sold weekly. The change met with a most determined opposition by the buyers, whose chief complaint most strangely was that the change would affect prices prejudicially! We believe that this is the first instance on record in which buyers expressed a disinclination to buy in a cheap market. The fact is that the only opponents of the monthly sales were the middlemen, who are the principal buyers and who lay by stocks for the intervals between the quarterly sales. They feared that their occupation would be gone if it became possible for the consumer to satisfy his requirements at frequent sales. Those who initiated the change on this side were looked upon by the older cinnamon planters as youthful enthusiasts with more enthusiasm than discretion, and their lead was followed under protest. The opportunity to revert to the old system was eagerly seized when at one sale buyers refused to bid. The combination was thus broken up and the better prices which the "old hands" expected would be coincident with the reversion to the quarterly sales have not so far been realized. Indeed prices have been steadily receding. An attempt to arrest this was made by Mr. Jardine summoning a meeting of cinnamon planters to discuss the possibility of abandoning the scraping of cinnamon chips and thus lessening production. An undertaking 'on honor" was signed by growers representing about two-thirds of the acreage under cinnamon not to scrape chips. How much this undertaking was respected can be inferred from the fact that the export of chips was not diminished during the twelve months that the undertaking was supposed to be observed! During the past year the scraping of chips was resumed.

At the May quarterly sales only about one-third of the cinnamon offered changed hands. There was no enquiry whatever, for the finer qualities. Agents and brokers in England suggested as a remedy that only cinnamon of inferior make, for which only there was enquiry, should be shipped but under another mark, so that the old well-established brands should not be imperilled. Very few estates we believe followed that advice. The next quarterly sales in August showed no better results, the finer qualities being as before neglected.

As the year was closing came the results of the last quarterly sales in November. They are such as to cause the gravest anxiety. There has been a further drop in the prices of the finer qualities, and no cinnamon but that of Goluapokuna, which seems to be in special demand in Spain, the chief consuming country, fetched higher than 1s per lb for its best quality. This is very nearly one-third of the prices ruling 15 to 20 years ago. To add to low prices, cost of manufacture has increased and the yield per acre has decreased by about 20 per cent owing to tender sticks only now being cut for the finer quality of cinnamon now manufactured. Cinnamon planters fervently hope that the bottom, as regards prices, has now been touched and that the new year on which we have entered will reveal to them a turning in that long lane of low prices through which they have been painfully traversing during a good many years. That their hopes may be realized is our hearty wish, for the trade in cinnamon is one of historic interest and is supposed to go back to the time of Solomon and even to the period of the Patriarchs.

* Only for the finer sorts: in coarse kinds China is a formidable competitor.—ED., *T. A.*

CEYLON TEA FUND.

Minutes of proceedings of a meeting of the Standing Committee of the Ceylon "Tea Fund" held at Kandy on Monday, the 4th day of January 1892, at three o'clock in the afternoon.

Present:—Messrs. Giles F. Walker (Chairman, Planters' Association of Ceylon), A. T. Karslake (Kandy), W. D. Gibbon (Kandy), T. C. Owen (Kandy), A. G. K. Borron (Kandy), A. W. Stopford Sackville (Chairman, Maskeliya Association), James H. Barber (Kandy), Dr. V. Duke (Kandy), Mr. J. Anderson (Kandy and Matale West), Hon. L. H. Kelly, M.L.C. (Kandy), Mr. A. Philip, Secretary to the Planters' Association of Ceylon (Kandy).

The notice calling the meeting was read.

The minutes of proceedings of a meeting of the Standing Committee held at Kandy, on Friday, the 11th day of December 1891, were read and were confirmed.

CEYLON TEA AT THE WORLD'S EXPOSITION AT CHICAGO IN 1893.—Read letters from Mr. J. J. Grinlinton (1) conveying his thanks for the mark of confidence placed in him by the resolution passed requesting him to act as a Commissioner to represent the planting interests at the Chicago Exhibition, and intimating that should His Excellency the Governor appoint him Commissioner it will be his duty as well as pleasure to give the planting interests his unremitting attention; (2) transmitting a memorandum of information given to Mr. Grinlinton by Mr. Erskine Phelps, late Chairman of the State and National Exhibition Chicago.

Read letter from Mr. Chas. Stouter, Colombo. Resolved:—"That the letter be acknowledged."

The CHAIRMAN introducted Mr. Grinlinton to the Standing Committee of the "Tea Fund," and Mr. Grinlinton explained his views and urged the necessity for prompt action.

CEYLON TEA IN GERMANY.—Considered the question of a subsidy of Ceylon tea to Mr. Schrader. Resolved:—"That the Standing Committee of the Ceylon Tea Fund do grant to Mr. Schrader 5,000 lb. of Ceylon tea in two instalments for free distribution in Germany, the Committee understanding that Mr. Schrader is prepared to purchase an equal quantity of Ceylon tea on his own account."

CEYLON TEA IN RUSSIA; MR. ROGIVUE'S REPORT AND ACCOUNTS.—Read letter from Mr. Rogivue, Moscow, transmitting his Report, together with accounts, in reference to his mission to Russia to make known and push the sale of Ceylon Tea in that Empire. Resolved:—"That in acknowledging Mr. Rogivue's letter he be informed that the Standing Committee of the Tea Fund trusts to receive further accounts showing an increasing sale of Ceylon Tea in Russia during the present year, when the Committee will be prepared to consider what further assistance they may be in a position to give Mr. Rogivue at the next Fair at Nijni Novgorod."

CEYLON TEA IN SWITZERLAND AND AUSTRIA.—Read letter from Mr. Charles Osswald, Winterthur, on the subject of introducing Ceylon Tea into Switzerland, and also making further proposals in regard to Austria as indicated by Mr. J. Ferguson's letter to the *Ceylon Observer*. Resolved (I):—"That a grant of 500 lb. of Ceylon Tea delivered free at Trieste duty paid be made to Mr. C. Osswald for gratis distribution in Vienna by Mr. Weiner; (II) that Messrs. Whittall & Co., be asked to purchase the Tea."

CEYLON TEA IN VIENNA, PRAGUE, KARLSBAD, &C.—Considered Mr. John Ferguson's suggestions in a

series of letters to the *Ceylon Observer*. Resolved :—"That the Director of the Royal Imperial Austrian Oriental Museum, Vienna, be asked to inform the Committee what samples of Ceylon teas he would wish to receive for Exhibition giving details as to the most desirable way of packing the samples with any further information that may occur to him.' Resolved :—"That a copy of these resolutions be forwarded to Mr. Ferguson."

CEYLON TEAS IN PARIS.—Read letters from the Secretary, the Ceylon Association in London in regard to the proposed joint operations in Paris with the Palais Indien Tea House, Limited.

ANALYSES OF SAMPLES OF CEYLON TEAS.—Read letter from Mr. H. Atkinson. Resolved :—"That Mr. Atkinson be thanked for his letter, and informed that the consideration of the question he refers to will not be lost sight of."

CEYLON TEA AT THE KIMBERLEY EXHIBITION 1892.—Read letter from the Secretary, the Ceylon Chamber of Commerce, forwarding copy of a letter received from Mr. Litchfield Green, Secretary of the Kimberley Exhibition of 1892, and asking if the Association had received a similar communication and also enquiring if the Association intends taking any steps in the matter. Resolved :—"That the Standing Committee of the Tea Fund do not recommend any part being taken by the Planters' Association at the Kimberley Exhibition of 1892."

Read letter from Messrs. J. M. Robertson & Co. Resolved :—"That the letter be acknowledged and that they be informed that the point raised in their letter will receive early consideration from the Standing Committee of the Tea Fund."

The Standing Committee of the Tea Fund then adjourned.

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

FOSSILS FROM DOLOMITE AT PUTTALAM.

Mr. H. P. C. Armitage writes from Puttalam :—

"I wrote you some time ago about the find of dolomite north of Puttalam. I am now sending you, by a friend, about ten fossils found in it. They are mostly shells, and that they are fossils is indisputable. As there has been a great deal of controversy as regards the finding of fossils in Ceylon, I have been at some trouble to solve the doubt, and am glad to be able to send you what I believe to be the first fossils found in Ceylon. I shall be glad if you will after inspection send them on to the Museum as a loan from me.

"This dolomite runs all along the coast and is found cropping up some miles inland. I hear that there is a formation of coral up north of Karaitivu also.

"At Kalpitiya and down most of the Akkarai Pattu, a layer of sand and lime, about one or two feet thick, exists. It has formed a hard conglomerate or breccia, being all cemented together, and is used for the Akkarai Pattu road. After going below this one again comes on the regular sandy soil. Coconuts would do much better in many parts if this layer of rock was non-existent, I expect, as it is only 2 to 6 feet from the surface. I attribute to this rock, however, the good water generally obtained in those parts, as all the water is filtered through this rock, which is porous and soft on first cutting it, but it becomes hard after exposure to the sun.

"I hope to write you soon a long paper on the geology of this district, which is the most interesting I have yet seen in Ceylon."

This find of true fossils in one of our primitive rocks is very interesting, and we shall be glad to receive the detailed information promised. Tennent wrote possitively, "the rocks of Ceylon are entirely destitute of organic remains." He added a note as follows :—

At Cutchavelly, north of Trincomalie, there exists a bed of calcareous clay, in which shells and crustaceans are found in a semi-fossilised state; but they are all of recent species, principally *Macrophthalmus* and *Scylla*. The breccia at Jaffna contains recent shells, as does also the arenaceous strata on the western coast of Manaar and in the neighbourhood of Galle. The existence of the fossilised crustaceans in the north of Ceylon was known to the early Arabian navigators. Abou-zeyd describes them as, "Un animal de mer qui ressemble à l'écrevisse; quand cet animal sort de la mer, *il se convertit en pierre*." See Reinaud, *Voyages faits par les Arabes*, vol. i. p. 21. The Arabs then, and the Chinese at the present day, use these petrifactions when powdered as a specific for diseases of the eye.

Mr. George Armitage, however, believes that he has actually found fossils in our gneiss rock. If that belief is well founded, our correspondent cannot claim priority, although the largeness of his find makes the discovery important. Mr. H. P. C. Armitage, it will be seen, is confident that the limestone is really dolomite and the organic remains real fossils.

THE INCREASE in the use of cocoa in the United States during the past few years has been remarkable. During the year ending June 30, 1891, the imports of cocoa crude and leaves and shells thereof, were 21,539,840 pounds, of which 1,939,308 were re-exported, leaving net imports of 19,600,532 pounds. In 1880 the entries for immediate consumption and warehouse withdrawals for consumption were 7,411,045 pounds, and in 1876, only 4,655,793 pounds or less than 24 per cent. of the quantity at present used. This is strong testimony in favour of the popularity of cocoa. The figures given do not include prepared cocoa or chocolate, of which 1,615,401 pounds were imported in 1890 paying a duty of two cents per pound.—*Am. Grocer.*

PERAK TEA.—The *Singapore Free Press* of 18th December says :—Disraeli was once recommended to try Australian Wines for the gout. It was in the early days of the corn-stalk vintages, so that no reflection is cast on the productions of the present day. He wrote that he had tried it—and preferred the gout. That is exactly how we did *not* feel after trying Perak Tea. The first morning the "boy" made it dark brown and bitter: we learned incidentally that he had been a couple of hours too previous in his forecast of the time the matutinal tea would be wanted. The next morning we had less tea put in, and tried it five minutes after brewing. The favour was splendid in our opinion better than that of Indian or Ceylon tea. People who want to try Perak tea fairly should see that it is properly made; then if they don't admit that it is good we shall feel inclined to say they like "black cap" best.

JUTE MILLS IN FRENCH TERRITORY.—Messrs. Gillanders, Arbuthnot & Co., of Calcutta, have applied for and obtained sanction from the Pondicherry Administration for erecting and working, by steam power, a spinning and weaving mill, on a block of land belonging to them situated at Gonalpara, in the Chandernagore colony. The firm intends to manufacture jute into cloths and gunny bags for export and for local use: and is sanguine of being able to compete successfully with similar factories in Bengal. Messrs. Gillanders, Arbuthnot & Co. are required, by the French Colonial authorities, to execute a bond assuring the salubrity of their establishment, and their willingness to conform to the rules and regulations of "public ways," as ordained for the colony. This is the third jute mill, for which sanction has been asked, to be erected at Chandernagore; and the future prospects for the once gay little colony are encouraging.—*Indian Engineer.*

PRESERVATION OF COCONUT TREES.—Under this heading the following Order in Council has been issued by the Perak Government :—

Whereas the provisions contained in Government notification No. 99 of 25th September, 1888, have proved insufficient to prevent the destruction of coconut trees by beetles, the following is added to the abovementioned notification. 1. All owners and occupiers of land in the vicinity of coconut plantations are required to burn the dead stems of all palm leaves that may be on their land, as it is in these stems that the beetles generally breed. Further, they are forbidden to accumulate heaps of decaying vegetable matter, old attaps, and the refuse of sugarcane or Indian corn, and where these have accumulated they are to take immediate steps for their removal or destruction, preferably by fire. 2. Any person neglecting to comply with the provisions of Section 1 of this Order in Council shall be liable, on conviction, to a fine not exceeding $10 for the first and not exceeding $50 for a second or subsequent offence.

THE MADRAS SEASON REPORTS.—The distress in this Presidency is becoming more and more concentrated every week. Chingleput and North Arcot are now reported to be out of the area of anxiety, at least for the present, and Kurnool, Bellary, Anantapur and Cuddapah have taken their place. The season telegrams in last night's *Gazette* for the week ending the 12th inst. report heavy falls of rain in Tanjore and South Arcot, and good falls in Trichinopoly, Chingleput, eastern parts of North Arcot and southern portions of Nellore. And since these reports were sent in we learn that large amounts of rain have been registered all round Madras and down south, that many tanks in North Arcot, Chingleput and Nellore have now a full supply, while most of the rest have a fair supply. The rain, however, did not extend far inland, and drought is now being severely felt in many parts of the centrally situated districts. In Kurnool, Bellary and Anantapur the dry sowings up to November were 768,000 acres deficient. Cattle, too, are now suffering severely in Bellary and Anantapur. Prices have further risen during the week. Last Wednesday we showed how dangerously high they were, and we regret to observe that the scarcity rate for rice has now been reached in Vizagapatam, and for dry grains in Nellore, Kurnool and Salem. Curiously enough, there continues to be a decrease in the numbers on relief works and in famine kitchens, but when relief operations have been thoroughly started in the Ceded districts we may expect large and sudden increases.—*M. Mail*, Dec. 16.

PUBLIC COMPANIES AND ESTATES IN BRITISH NORTH BORNEO.—To Mr. Henry Walker, Commissioner of Lands, we are indebted for an interesting return so entitled. Of the 28 companies the British North Borneo Company is beyond all compare the most important, with 2 millions sterling of capital, and 20 millions of acres of land,—that is to say 5 millions beyond the area of Ceylon! This Company will of course take up all possible enterprises. The rest are all tobacco companies, excepting one for gold mining, one for mining rights and planting, two for hotel and stores, two for planting, sawmills, &c., and one various. There is no coffee, tea or cacao company: all save those mentioned are tobacco companies. Tobacco shows the same preponderance in the lists of private estates. Of 45 in the Myburgh district two are for timber, two various, leaving 41 for tobacco. In Darvel Bay 6 estates all grow tobacco. In Alcock Province there are 10 estates, all tobacco, except one Liberian coffee and one coffee and cacao. In Dewhurst Province 5 estates all grow tobacco, and so with 12 estates in Martin Province. This being so we are not surprised to find that the names of the managers are nearly all Dutch and German: there is little more than a score of English names to fully three score foreign. The tracts of land monopolized by companies and individuals are enormous, ranging after the 20 millions of the great Company, from 50,000 acres downwards. The smallest acreage held by any public company is 3 577. One holding of 300 acres for Liberian coffee looks quite exceptional amongst the big figures. We trust British North Borneo will prosper, although at present the British element does not preponderate in the enterprise of the colony.

A FRENCH DUTY ON GROUNDNUTS.—An article which appeared in the *Madras Mail* on Saturday evening, the 5th instant, announcing that a telegram had been received from France during the day, to the effect that the Senate had voted a duty of 3 francs per 100 kilos (210 lb.) on groundnuts and gingelly seed imported into France, from any port except Pondicherry, caused an immense amount of excitement, for a time, and operators in the produce, of all classes of the traffic, rejoiced greatly, at the good tidings which were to spoil Madras and Cuddalore of their present groundnut and gingelly seed export trade, to the great advantage of the French port: it was settled, there and then, that the whole of the products, in question, exported from the Coromandel coast to France must, in future, be shipped from Karrikal or Pondicherry, while that from Bombay would go to Mahé. But the news was too good to last; and a very few hours after the distribution of the *Mail*, the extraordinary news was authoritively contradicted. It is true that a duty of 3 francs per 100 kilos has been voted by the Senate, but exemption applies only when the products are grown on French soil, and as there is no space in the Franco-Indian territories for producing groundnuts and gingelly seed for export, beyond perhaps 10,000 or at most 15,000 bags per year, the fair capital of French India is not likely, therefore, to be much benefited by the new import duty.—*Cor.*

EMIGRATION OF COOLIES FROM GANJAM TO THE INDIAN TEA DISTRICTS.—Recent articles which we have extracted from the *Pioneer* seems to show that the Assam planters are not so favourably situated in regard to cheap labour as Mr. Skrine's resolution assumed. Northern and Eastern India not being equal to their wants, they are now drawing labour from Ganjam in the Madras Presidency, where difficulties oppose themselves to recruiting which are thus stated in a Memorial to Lord Wenlock:—

We, the undersigned, agents for emigration of coolies to the Indian tea districts, beg respectfully to bring to your Lordship's notice the great inconvenience to which the coolies are put, and also the extra heavy expenses incurred by us in sending our coolies from Gopalpore to Chatrapore or Berhampore for registration. On the 21st of February last, we applied to E. C. Johnston, Esq, C. S., Protector of Labourers, to forward our appeal to your Lordship's Government to allow registration to be done at Gopalpore, the port of embarkation, but the concession was not granted. We take this opportunity of approaching your Lordship with this our appeal to grant us the concession asked for, namely that an office of registration may be extended to Gopalpore, as the coolies have to travel thirteen miles each way, in all a distance of 26 miles, for registration at Chabrapore, at which place registration is more expeditiously done than at Berhampore. We would also point out to your Excellency the disadvantage to emigrants, especially women and children, having to travel 26 miles, and their inability on such a journey to obtain properly cooked food previous to their undertaking a sea voyage to Calcutta. This state of matters is the more to be regretted, seeing that emigration is increasing every year, and that thousands of coolies are expected to emigrate from Ganjam during the current recruiting season. If deemed necessary, we are willing to pay cost of or fees for any extra establishment Government may think necessary for registration at Gopalpore. In conclusion, we fervently hope that your Excellency will take our humble petition into kind consideration. Gopalpore, Ganjam, Nov. 1891.

SINGULAR EFFECT OF CINCHONA.

The *Journal de Pharmacie* of May, 1819, gives the following account of the singular effect of cinchona bark:—A French merchant, called M. Delpech, who possessed a rich house at La Guayra, the port of Caraccas, had stored up in 1806 a very considerable quantity of cinchona newly collected. This bark filled several apartments upon the ground floor. There prevailed at that time in Caraccas a fever of a very malignant type. M. Delpech had occasion to receive several travellers, and to entertain them with the usual American hospitality. The apartments destined for visitors being filled, and the number of his guests increasing, he was under the necessity of putting several of them in the rooms occupied by the cinchona. Each of them contained from eight to ten thousand pounds of that bark. The heat was much greater in these rooms than anywhere else in the house, in consequence of the fermentation of the bark, which made them very disagreeable. However, several beds were put into them, one of which was occupied by a traveller ill of a malignant fever. After the first day, he found himself much better, though he had taken no medicine; but he was surrounded with an atmosphere of cinchona, which appeared very agreeable to him. In a few days he felt himself quite recovered, without any treatment whatever. This unexpected success led M. Delpech to make some other trials. Several persons, ill of fever, were placed successively in his cinchona depôt, and they were all speedily cured, simply by the effluvia of the bark.

In the same place with the cinchona, he kept a bale of coffee, carefully selected for his own use; and likewise some large bottles of common French brandy. They remained for some months in the midst of the bark without being touched. At last, M. Delpech, when visiting his depôt, observed one of the large bottles uncorked. He suspected at first the fidelity of a servant, and determined to examine the quality of the brandy. W at was his astonishment to find it infinitely superior to what it had been. A slightly aromatic taste added to its strength, and rendered it more tonic and more agreeable. He uncorked the other bottles, which had undergone no alteration, but which, by being placed in the same circumstances, soon acquired all the good qualities of the first bottle. Curious to know if the coffee had likewise changed its properties, he opened the bale, and roasted a portion of it. Its smell and taste were no longer the same. It was more bitter, and left in the mouth a taste similar to that of the infusion of bark.

We are not prepared to believe this story in its entirety, though as regards the first part of it, it is more than likely that the sick man swallowed a great deal of dust and minute particles of the bark that were floating in the air. If only cinchona could be found of advantage for maturing liquor, a new impetus might be given to the trade. It is possibly needless for us to point out in this connection that cinchona bark is used largely in the manufacture of lager beer, taking the place of hops.—*Madras Times*, Dec. 31st.

QUEENSLAND.

[The following letter in the *Louisiana Planter* gives the best account we have seen of the position of the sugar industry in Queensland, conducted now with European labour.—ED. *T. A.*]

Mackay, September 13th, 1891.

Editor Louisiana Planter: Few mishaps amongst the sugar machinery in this district, and none of a serious nature, have occurred to check the steady progress of crushing operations. The weather for the last few weeks has been uniformly fine, too much so, indeed, that a little moisture is now required to stimulate the growing crops, which are beginning to droop under the long spell of sunshine and light breezes. The crop now being harvested is somewhat disappointing, the late winter having been an unsatisfactory one and the yield of the fields turning out to be more and more below the expected output as work progresses. The difference will, of course, be the merest drop in the bucket, but to us it is none the less annoying, even though it fails to appreciably affect the world's output.

European labor is plentiful enough this season, and wages are not very high. The ordinary mill hand gets from $5 to $20 a month and his keep, while the clarifier, boilers and other hands receive a rate from $5 to $10 higher. When wages in the mill alone add to the cost of making a ton of sugar by 2 per cent. ($5), we consider more economy or a greater output is necessary.

The small mills are voted a failure, and in this district we have only two working this season, which will make much under 500 tons of sugar, or 1,120,000 pounds. Five mills will make between 500 or 1000 tons, and six 1000 tons and upward.

The factory at Homebush, the property of the Colonial Sugar Refining Company, making about 13,440,000 pounds this last season, has made considerable advance in procuring farmers to grow cane on the company's land, and now there are twenty-three men settled on 1000 acres of land, while small freeholders of neighboring lands are planting cane under five years' agreement. The mill pays from 13 shillings to to 14 shillings a ton for all canes landed on tramway trucks, which are run into the field. The price seems a high one, and yet it is being paid to farmers everywhere. In fact, the European will not grow cane for less, as near the tropics as this, at any rate.

Our millers are all green with envy at the handsome bounties their Louisiana friends are getting for their sugar from the U. S. A. Government. According to the figures published here the amount received is over £9 a ton, a figure which to us would mean colossal fortunes in a very few years. The little Queensland industry has to fight the world, and is practically unprotected, as it makes more than is required for its own consumption. The market of London is open to the world, while those of the other colonies in Australia are protected by different amounts up to £5 a ton. The values of our sugars on the local wharf may be said to range from £10 10s for best whites and £13 10s for bright yellows downward. Very low grade sugars are practically without value here, and usually go to London. The prices being so low the latter place is also the destination of a good deal of the yellows this year, where prices up to £17 a ton are expected to be obtained. The Colonial Sugar Refinery Company, referred to above, is purchasing or making over 23,600 tons of the colony's output of 64,000 tons for the purpose of refining, and pays £11 15s without deductions for 88 per cent sugar on the local wharf.

Those selling to this company are probably getting the best values for their sugars, but it will be readily understood that at such a figure the margin of profit is wofully small.

I think I mentioned in a previous letter that an experiment was contemplated by some of the large estate owners in settling Italian farmers on their lands as cane growers. The matter has been discussed in Parliament, and it appears that some 300 men and women have been engaged in Piedmont and are now probably on their way out. These families are under agreement to work for £15 a month and keep for two years, but a special clause is inserted by which the employer agrees to sell lands on long terms

to these men and to crush their cane for them. There are eighteen men due to come to this district and will be located on Havana estate. The scheme is not popular, and the politicians who have no responsibility are doing the best to stop the experiment before ever it receives a trial. They are not likely, however, to succeed, and pretty much the same may, I think, be said of the experiments.

The Australian farmers are, moreover, rapidly taking up the work of cane growing, some 50,000 tons of cane having been produced this year, while the amount for next year will show an increase of at least 75 per cent.

As I have said this year's results are proving disappointing. The density stands steadily at 10½ Baumé, but the crops are light, and though the forest land is producing somewhat richer cane, that from the scrub lands, a most important portion of the crop, only shows sucrose at a little over 14 per cent.

This, with us, is poor, as we have been accustomed to at least 16 per cent, but the season is chiefly accountable for it though some do assert that the quality of the cane grown here is steadily deteriorating. When we compare the results obtained by the beet manufacturers our extraction is not very satisfactory. An analysis of second megass from cane showing 14·07 per cent sucrose betrays the fact that we still lose 4·90 per cent or in other words, our percentage of extraction is only 89·13 per cent. Even this result is not obtained in many of our smaller mills.

I note that Homebush and Havana, the two largest factories in this district, have adopted an improvement in the method of applying maceration, so as to try and save more of the sugar. Hitherto the megass on leaving the first rollers was sprinkled by a perforated pipe with water and steam, but now it is proved advisable to further increase the heat of the megass, which hitherto, after the operation, stood at 180 deg. F. Under the present arrangement the megass travels from the first to the second rollers, at a slow speed, over a bed of perforated iron, the whole being enclosed and made steam-tight, except at the ends. As the megass travels through this enclosed space, steam enters into it from underneath, thus raising the temperature considerably. Already this plan has served to effect an appreciable saving, and unless already adopted by your millers would be well worth their attention. I may add that the proportion of water which should be used to the ton of cane in maceration has been found to be about seventy gallons.

As I do not know exactly the order of work in your sugar houses, your readers must excuse me if at times I give them stale news. I only profess to give Queensland information and to note the change here, even if they be a matter of history with you. Our ordinary plan hitherto in the mill has been to treat the juice in the clarifiers first, then subside, then clean and concentrate and subside again ready for the vacuum pan. Now the order is being somewhat changed. By an increase in the use of lime the first subsidence is made more complete and the cleaning pans are entirely unused at one mill, while they are used after the triple effect instead of before in another. In the latter, also, the juice is passed through bag filters between the first subsiders and the triple effect. It is more than probable that still further efforts will be made to clean the juice more thoroughly in the clarifiers, as it is obviously the safest and wisest to get the dirt out of the juice as quickly as possible the moment it leaves the cane.

MERCURY.

[We add an extract from an Australian source. —ED. *T. A.*]

THE QUEENSLAND SUGAR INDUSTRY.

A correspondent of the Melbourne *Argus*, writing from Mackay on the 15th of July says:—The evolution of the Queensland sugar industry on the lines I forecasted at the end of last year is now almost an accomplished fact. The strongest company engaged in sugar making in Australia—the Colonial Sugar Refining Company—has taken the matter in hand, and in this district, at any rate, have already made great progress. Doubtless the terms on which the Homebush lands are being leased and sold to farmers have ere this been communicated to your readers; also the fact that the applicants have been so numerous that the company is already in a position to pick and choose its tenants.

The price to be paid for cane grown by these sellers may run as high as 16s. per ton, if a sufficient quantity is produced, thus bearing out a statement I made last year that a manager who could not make sugar at a profit with cane at 14s. a ton, and sugar £13 on the local wharf, was not worth his salt. It is now generally admitted that even with colored labor, cane can not be produced at less than 14s., and, consequently, when it can be obtained at that figure, minus all anxiety and risk, the mill owner is obviously at an advantage. The season on which we are now entering promises to be a fairly good one. The amount of sugar produced throughout the colony will be about the same as last year, the two principal districts, Mackay and Bundaberg, producing nearly, if not quite, 40,000 tons between them. This will leave the rest of the colony to contribute 20,000 tons. Owing to short plantings and the fact that little cane was left unharvested last year, it is believed that the output of this district will be considerably less than last year, but for next year the acreage under cane and the results will probably be equal to the best on record.

A noticeable feature in connection with the present season's operations will be the production by one of the central mills—with white labor only—of some 1500 tons of sugar, showing that Europeans have cultivated no less than 15,000 tons of cane. On all hands contracts are being let to Europeans for cutting, loading and carting same, the first two operations having been in the past looked upon as exclusively kanaka's work. There is no likelihood of a scarcity of white labor during the next six months, as large numbers of the men who by striking lost their usual employment in the western pastoral districts, have drifted here in search of work. Near one mill alone there are over 100 men camped and awaiting the commencement of crushing. Since the first of the year over 75 in. of rain have fallen, this being 5 in. over the mean annual fall. In the face of this it is hardly surprising that the cane should be somewhat backward, but during this month with the splendid weather we have lately been having, it will be ripe enough for harvesting.—*Queensland Planter and Farmer.*

"AN APPEAL TO TEETOTALERS."

To the Editor of the Manchester Courier.

Sir,—On the 27th ultimo you were good enough to admit into your columns a letter of mine entitled "W. E. Gladstone and Unadulterated Coffee." On the evening of the day referred to the "United Kingdom Alliance" held their great meeting in your city, on which occasion the Hon. John Morley made himself very conspicuous. The concluding sentence in my letter was:—

"The leaders of temperance alliances should first clear the non-alcoholic beverages of all abuses before they

exert all their energies to compel everyone to become teetotalers."

And it is with a wish to emphasise this advice that I now venture to ask you for a further portion of your space. Sir Wilfred Lawson, in his letter of "appeal" which you publish today, although you state it has not your sympathy, writes :—

"It is one of the glories of England that her citizens abound in good works for relieving the sick and afflicted."

Now, I should like to ask this "good" citizen whose fault is it that the labouring classes in our still glorious "United Kingdom" are utterly unable to obtain a cup of really genuine good coffee when they ask for it? There has recently been a somewhat heated discussion in the London and provincial press on this very subject. The *British Medical Journal* of the 7th instant, under "The truth about coffee," took it up vigorously with the view of upsetting my statement that

"Today, in all probability, ours is the only country where, by its tax laws with respect to the sale of coffee, the working classes are almost unable to procure it in a pure state."

The *Daily Telegraph* on the 10th instant, in an editorial occupying more than a column refuted the statements made by the editor of the *British Medical Journal*, and, in fact, made it "very hot" for him, as follows :—

'With regard to the adulteration theory, it positively asserts that pure coffee is more easily to be obtained in this country than in France, Austria, Italy, or Germany. Why this should be so, however, does not appear, and we confess ourselves unprepared to place implicit faith in so sweeping an allegation while totally unsupported by satisfactory evidence to its correctness. Even should it be conclusively demonstrated that coffee is purer in London than in Paris, or any other continental capital, we should only be compelled to avow our preference for the impurer article, inasmuch as it is unquestionably much more palatable than the genuine stuff as prepared for us in our own dear native land. This is a fact as thoroughly ascertained and unanimously recognised by travelled Englishmen that it carries conviction with it as to the superiority of the French, Austrian, and German methods of preparing coffee over our own. Yet the *British Medical Journal*, which certainly has the courage of its opinions, boldly asserts that we "all know how to make good coffee," which may be regarded as one of the most amazing statements ever put forward in the columns of a scientific periodical, but that "there is no one who cannot make it." Having propounded these tremendous assertions, it straightway proceeds to disprove them, &c.

The *Standard* of the 12th inst. had also "a gem" of an article on this subject which ought to be dear to the heart of all "good teetotalers" like Sir Wilfrid Lawson, who are only too anxious to be engaged in doing "good works for relieving the sick and afflicted." Here is a short extract from the article referred to :—

Good teetotalers are dismayed and distressed to find that the consumption of coffee is declining in Great Britain; but the fact may be explained, perhaps, by the sample of coffee Dr. Stokes has discovered containing not less than 70 per cent of chicory. A cup of good coffee ought to be quite as easy to get as a cup of good tea. English householders should buy the berry fresh, and fresh grind it in their own kitchens, and serve it hot, strong, and above all, transparent.

The *Standard*, refering to the lost taste for "pure coffee" in England, concludes by saying :—

In time it may become the duty of food inspectors and public analysts to detect and punish the adulteration of chicory by means of coffee, and as the demand for the former gradually renders it more expensive, and the disuse of the latter makes it a drug in the market, we shall, perhaps some day purchase a packet of somebody's pure chicory, which will turn out to be mixed with 70 per cent of coffee.

The *British Medical Journal*, in long editorial notes, again returned to the subject on the 14th and 21st instant, under the respective headings of "Coffee as it is made in England," and "The Coffee Drinker's Lament." All the papers I have referred to are well worth reading, not only by "good teetotalers," but by "good citizens," generally, and particularly by promoters of such "glorious" institutions as "village clubs" referred to in your editorial of today. When it is remembered what Sir Andrew Clark (one of the ablest physicians of the present day) has lately had the courage to say with respect to the effect of "strong tea;" and what has appeared in the papers I have referred to with respect to the excellence of "pure coffee," as a stimulating beverage, there is every reason why we should have two strings to our bow, a demand sooner or later must be made upon our Legislature for an amendment of the present prostituted laws with respect to the sale of coffee to the people of the United Kingdom. In this connection, and in the interest of all concerned, I cannot refrain from calling public attention to the following extract from a letter, dated the 17th instant, received by me in reply to my inquiry from the secretary of the London Chamber of Commerce :—

"As regards the purity question, you are quite right in assuming that this Chamber was interested in the matter some years ago, when Mr. Gladstone's Bill, to which you refer was passed. We did all we could in Parliament to get the exact proportions of the different ingredients indicated on the labels. The President of the Chamber (at this time Mr. Magniac, M. P.) brought in an amendment to this effect, but the grocery interest, which preferred that no indication should be given, was too strong for us, and we had to accept the compromise contained in the Act as it now stands."

That is to say, the great Liberal leaders of that time, the G. O. M. being then the head of the Government, by allowing free licence almost to the grocers in the sale of "chicory mixed with coffee" and sold simply as a coffee mixture, secured the grocers' votes, but drove the people of this country from coffee—anyway, it must be logically conceded, drove them more and more in the direction of the beer and whiskey taps—for, as Dr. Stokes, the public analyst for Paddington, states (see *Standard* of 12th instant) :—

"The people have neither the time nor patience to read all the flummery which may be given away with a pound of coffee—the purchaser ought to possess a legal right to get what he asks for and pays for."

And yet these same astute Liberal leaders, who, not caring then one jot as to the consequences, entered into this disgracefully abominable arrangement with the grocers, are actually at the same game with the teetotalers, who are to solve their "Local Option" Bill passed, if they will, by their votes, in the meantime but consent to stoop and act as a fulcrum to the lever of the G. O. M. while he makes his second and, no doubt, final attempt to topple over the United Kingdom. Should he succeed, the story of Samson Agonistes will be repeated, only on a more gigantic scale, and W. E. G. will become—is this his little vanity?—a great historical personage for all time. Well, "good teetotalers," while listening to the voice of the charmer, will, I have no doubt whatever, remember, at a crisis like the present, that, though they are "good teetotalers," they are, first of all, GOOD CITIZENS.

Nov. 26th, 1891.

[The truth seems to be that preference is more and more given to tea from its greater cheapness, its more easy preparation and its freedom from adulteration But all the same coffee ought to receive fair play by the proportion of chicory admixture being always stated on the packets.—ED. *T. A.*]

THE GRASS FAMILY,

BY H. C. C.

Madge came in from among the flowers, washed her hands, bathed her hot face, and as she heard the tea-bell, walked to the dining-room saying, "I am so tired of this horrid grass that I promised grandma to keep out of her flower beds. What's grass good for

any way? Now mother, I know you are going to tell me how my cow likes it, and how I like her milk; but that don't alter the fact that grass is always in the wrong place and somebody has work to get it out of the way. I believe the world could do very well without the grass family."

"I know a little girl who would be the first to object if all the grass family were banished," said Mrs Winter.

"Try me and see, mother."

"Very well, shall we begin now?"

"Yes ma'am, as soon as I get my bread and butter."

"Here is the butter, but I cannot give you the bread; it belongs to the large family you want to banish."

"What mother, this light bread?"

"Certainly, wheat is one of the grasses."

"Well, then, I'll take a muffin."

"Not now; the muffin is made of corn meal, and corn is another member of the grass family."

"Dear me, I don't like brown bread, but I'll have to fall back on that."

"No; the brown bread is made of rye flour. I have often heard you admire the fields of ryegrass."

Madge's face fell. She was very hungry after her scuffle with the grass among the flowers, and now it seemed the troublesome thing was about to get the best of her after all. With a doubtful look she handed her plate for a spoonful of rice; but again her mother refused; it was one of the banished grasses.

"Well, mother, you always get the best of me. I'll take back all I said. I begin to think we could not live without grass; but of course, I did not know such things as wheat and corn were grasses."

"They are the seed or fruit of grass."

"But, mother, they do not look alike. Why do you class them together? What is the coat-of-arms of this family?"

"In the first place, all these stems are culms—that is, jointed and hollow between the joints. Second, the leaves have open sheaths enclosing the stem at their base; and they are 'two-ranked,' the second leaf coming out half-way around the stem above the first, and the third leaf exactly above the first, the fourth above the second and so on; and all have parallel veins. Third, each flower is enclosed in a glume or husk. Fourth, they are all endogenous."

"That means inside growing," said Madge.

"Yes; there are no layers, but the wood and pith is all mixed in together as you will see if you cut across a cornstalk.

"Why, mother, all the bread we eat is made from the grass family."

"Yes, and the oatmeal, wheat germ, hominy, grits, barley; and besides that they furnish nearly all the food for cattle. The great loads of hay, the barns full of timothy and orchard-grass, all come from your banished family. And there is one you are especially fond of, and drink its juice as readily as Daisy does that from the sweet hay."

"I may chew gum, but I never chew grass stems for their juice, mother."

"How about the sugar-cane?"

"Of course, I suck the juice from that. Surely that is not a member of the family?"

"Look at the coat of arms and see."

"Yes; I know it has a jointed stem with wood and pith mixed together. The leaves grow in two ranks, and are parallel veined, and form a sheath around the stem. Is the root fibrous?"

"Yes; there is no long tap root, and the flowers are enclosed in little, scaly bracts, or glumes. This cane is an important one of the grasses. Nearly all the best sugar of the world comes from it. Your candy-shops would have to close, and no more cane-syrup for that sweet tooth of yours. No more pop-corn balls, either."

"What, mother, how is that?"

"Only that the sugar comes from the cane and the pop-corn like your bread-corn, is first cousin"

"The corn and cane are the largest of the grass family; and they not, mother?"

"No; there is a distant relative in tropical countries which grows much larger, the bamboo. It runs up from fifty to eighty feet high, and the hollow-jointed stem is ten inches thick—as large as your body. It is a beautiful plant and very useful."

"Do they grind up the seed for bread as we do corn?"

"No;* only the young, tender shoots are used for food, but almost everything is made of the stem—houses, water-pipes, umbrellas, fishing rods, baskets, hats, furniture, ropes, and paper, and so on."

"Oh, yes, and I have seen the walking-canes made of bamboo. Which of all the grasses is the most useful?"

"Rice furnishes food to more people than any, for the people of China and India live almost entirely on rice. Corn and wheat are used more in this country."

"Do none of the grasses have pretty flowers?"

"No, perhaps not; but the feathery plumes of the pampas grasses are as beautiful as flowers."

"Why mother," said Madge, as she made a survey of the table, "not one thing on this tea table but what is made from the grass family except the butter; and I suppose you would tell me that Daisy could not give us that long if there were no grass. Well, I'll not say anything more against the grass family, only I wish it bore pretty flowers of its own, and did not take such delight in choking grandmother's."

"The plants that feed the world do not need beautiful flowers to make them valuable any more than the great oak, and elm, and chestnut trees do. And if the grass did not spring up so easily, food would be harder to get. Flowers are a luxury, and all luxuries must be paid for in work or money. When you grow weary of pulling the green blades from among your flowers, you must remember that; and instead of despising the persistent grass, respect it the more because it so freely and abundantly gives itself for the food of the world. Think of a world without this grass family. The cattle upon a thousand hills would lie down famishing; flowers might blossom, fruits ripen, but without bread, the staff of life is gone, and man would soon lose strength, and hope, and life."—*U. S. Paper.*

CINNAMOMUM—CINNAMON.

The inner bark of the shoots of *Cinnamomum Zeylanicum*, Breyne (Ceylon cinnamon); or the bark of the shoots of one or more undetermined species of *Cinnamomum* grown in China (Chinese cinnamon). Nat. Order Lauracea. Generic character. Flowers hermaphrodite or polygamous, panicled or fascicled, naked. Calyx six-cleft, with the limb deciduous. Fertile stamens, nine in three rows; the inner three with two sessile glands at the base; anthers four-celled, the three inner turned outwards; three capitate abortive stamens next the centre. Fruit seated in a cup-like calyx. Leaves ribbed. Leaf buds not scaly (Lindley). Habitat, Ceylon; cultivated.

CEYLON CINNAMON is in long, closely-rolled quills, composed of eight or more layers of bark of the thickness of paper; pale yellowish-brown; outer surface smooth marked with wavy lines; inner surface scarcely striate, fracture splintery; odor fragrant; taste sweet and warmly aromatic.

CHINESE CINNAMON (cassia bark) is in quills about one-twenty-fifth of an inch (one millimeter) or more in thickness; nearly deprived of the cork layer; brown; outer surface somewhat rough; fracture nearly smooth; odor and taste analogous to that of Ceylon cinnamon, but less delicate.

CEYLON CINNAMON.—The bark was originally collected from the tree in the wild state, but the Dutch introduced the practice of cultivating it. The principal cinnamon gardens are in the vicinity of Colombo. The cinnamon harvest commences in May and continues until late in October. The tree mentioned above is variable in size, but is usually of small stature. In favourable situations they attain the height of five or six feet in six or seven years.† The bark is

* Error: in times of scarcity bamboo seed have been eaten in India.—ED. *T. A.*

† The cultivated cinnamon is coppiced, and many of the shoots make a growth of over six feet in eighteen months.—ED. *T. A.*

assorted into three qualities, distinguished by the designations of first, second and third. The inferior kinds are used in the preparation of the oil of cinnamon.*

CHINESE CINNAMON (cassia bark). Immense quantities of cinnamon are exported from China, the finest of which is little inferior to that of Ceylon, though the mass is much coarser. It generally comes loose or packed in bundles with bands of bamboo. The pieces vary considerably in length and are either curved or double quills of one-fourth to one inch in diameter, and have a smooth or finely-wrinkled, reddish-brown outer surface, marked with some dark leaf scars, occasionally with light colored lines, and very generally covered with larger or smaller irregular patches of bark.

SAIGON CINNAMON, of late occasionally met with, is in regular unscraped quills, yields a darker colored powder, but has a very sweet and warm cinnamon taste.

CASSIA LIGNEA is a term sometimes applied to inferior varieties of Chinese cinnamon, which has a thicker bark and but slight cinnamon odor and taste. The origin of these barks is not positively known.†

CAYENNE CINNAMON has a reddish tinge, and is usually thicker, being collected from older branches, but when gathered very young is scarcely distinguishable from Ceylon cinnamon.

Sometimes cinnamon from which the oil has been distilled is fraudulently mixed with the genuine. It can be detected by its greater thickness and coarseness of fracture, and the deficiency in the peculiar sensible properties of the spice.—*Pharmaceutical Era*, Nov. 15th.

CEYLON'S PREMIER TEA COMPANY.

AN IMMENSE OUTTURN FOR THE YEAR.

We learn, on enquiry, that the total outturn of made tea from the factories of the Ceylon Tea Plantations Company during the year 1891 was 4,291,584 lb. which, so far as we know, beats the record of any one company for both India and Ceylon. We have no Indian statistics for the year 1891, but in 1890 only two Indian Companies approached this amount, viz., the North Sylhet and South Sylhet Companies, which each produced 4 millions lb. Comparing the Ceylon Company's figures for 1891 with the leading Indian companies for 1890, the result is as follows;—

		Outturn of made tea. lbs.
Ceylon Tea Plantations Coy.	1891	4,291,534
North Sylhet Coy. (estimated)	1890	4,000,000
South Sylhet Coy. (do.)	1890	4,000,000
Assam Coy.	1890	2,731,200
Land Mortgage Bond	1890	2,334,790

If either of the two Sylhet companies beat the outturn of the Ceylon Tea Plantations Company for 1891 we shall be surprized to hear it. The increase of tea manufactured in the factories of this Company during the year is about proportionate to the increase for the whole island, as the following figures testify;—

		Outturn of made tea
Ceylon Tea Plantations Coy.	1890	2,939,766
do do	1891	4,291,584

The excellent prices obtained for the tea manufactured by this Company, the low cost of production, and the efficient manner in which all their estates are worked, reflect the greatest possible credit on all the superintendents concerned, and especially upon Mr. G. A. Talbot, the General Manager, who is to be congratulated on the magnificent outturn from the estates under his charge.

* Of late years a fourth class has been added in the shape of chips, to the great lowering of prices. A large proportion of the chips formerly distilled into cinnamon oil are now used in lieu of the baled spice, chips being about the equivalent of dust in the case of tea.—ED. *T. A.*

† Mr. Ford, the Hong Kong Government botanist, has carefully examined and described the China cinnamon.—ED. *T. A.*

THE COMPANY AND COFFEE PLANTING IN THE STRAITS.

At a meeting of the shareholders of the O. T. P. Company held in London on January 6th (the day before yesterday), it was decided not to take up land in the Straits for coffee planting—a decision which is, under the circumstances, a very wise one we think.—Local "Times," Jan. 8th.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, Dec. 19th.

CINCHONA.—The last cinchona auctions of the year were held on Tuesday. They were of fair extent, the number of packages offered being:—

	Pkgs.		Pkgs.	
Ceylon ...	767	of which	654	were sold
East Indian ...	775	do	693	do
Java ...	55	do	55	do
South American ...	447	do	333	do
Total	2,044	do	1,734	do

There was no quotable alteration in the prices upon last auctions, though perhaps the tone, generally speaking, was a shade less firm during the latter part of the auction. The average unit may be quoted at 1 1-16ths d per lb.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Mannheim and Amsterdam works	102,877
Agents for the Frankfort o/M. and Stuttgart works	69,910
Agents for the American and Italian works	62,691
Agents for the Auerbach works ...	42,945
Messrs. Howards & Sons	35,931
Agents for the Brunswick works	4,247
Agents for the French works ...	2,240
Mr Thomas Whiffen	2,090
Sundry druggists	24,879
Total quantity of bark sold	347,810
Bought in or withdrawn	74,042
Total quantity of bark offered	421,85

SOME ACCOUNT OF THE NUTMEG AND ITS CULTIVATION.

BY THOMAS OXLEY, ESQ., A. B.,

Senior Surgeon of the Settlement of Prince of Wales' Island, Singapore and Malacca.

(*From the "Journal of the Indian Archipelago and Eastern Asia."*)

(Concluded from page 484.)

In addition to keeping the trees clean and free from moss and parisitical plants, it is highly desirable to use freely the pruning knife, cutting away all perpendicular shoots, the decayed ends of branches, or whenever the verticles are too close thinning them to admit air and sun to the centre. From over bearing, poverty of soil, or lodgement of water, it frequently happens that the top of the tree withers and the whole of the plant will soon follow, unless it be cut down below the affected part; if this be done in time it generally saves the tree which after a few months will throw a shoot from the hard wood of the stem to replace the former loss. Young plants are all the better for having the two or three first series of verticles cut off, otherwise the tree becomes too shrubby and the lower branches touch the ground excluding air, forming altogether a very inferior plant. This practice would however be unsafe in places like Penang affected by droughts, unless the plants be kept well shaded, until the upper verticles are sufficiently large to afford protection to the roots. As the tree bleeds freely upon being cut, the pruner ought to take along with him a pot of cement formed by boiling together two parts of pounded chalk and one of vegetable tar, which applied warm stops the run of the sap, gradually hardens and will remain on the cut part until it be quite healed. I have seen it stick on for several years resisting all weathers.

Some trees from receiving too great a check are apt to overbear, and will soon wear themselves out if not watched and relieved of their superabundant fruit. This ought to be done so soon as the fruit forms and if permitted to remain until three-

fourths grown the mischief is already effected and cannot easily be remedied, but even should the tree not perish, the crop will scarcely be worth the gathering so inferior will be the quality and the tree unable to perfect its fruit, which splits ere the mace is red and while the nut is soft and good for nothing. Unhappily some trees have a habit of splitting their fruit untimely although their general appearance indicates strength and vigor. This is a fault for which as yet I know of no remedy; I attribute it to an original fault in the seed, and if this be correct I fear it admits of none.

The planter having his tree arrived at the agreeable point of producing, has but slight trouble in preparing his produce for market. As the fruit is brought in by the gatherers, the mace is carefully removed, pressed together and flattened on a board, exposed to the sun for three or four days, it is then dry enough to be put by in the spice house until required for exportation, when it is to be screwed into boxes and becomes the mace of commerce. The nutmeg itself requires more care in its curing, it being necessary to have it well and carefully dried ere the outer black shell be broken. For this purpose the usual practice is to subject it for a couple of months to the smoke of slow fires kept up underneath, whilst the nuts are spread on a grating about eight feet above. I myself prefer one raised fully 10 feet, but the model of a perfect drying house is easily obtained, and the process is too well known to require any further explanation. The only caution I would give is that planters ought to take care and not dry their nuts by too great a heat as they shrivel and lose their full and marketable appearance; for this purpose I think it desirable to keep the nuts, when first collected, for eight or ten days out of the drying house, exposing them at first to an hour or so of morning sun, and increasing the exposure daily until they shake in the shell; the nuts ought never to be cracked until required for exportation or they will be attacked and destroyed by a small weevel-like insect, the larvæ of which is deposited in the ovule and, becoming the perfect insect, eats its way out, leaving the nut bored through and through and worthless as a marketable commodity. Liming the nuts prevents this to a certain extent, but limed nuts are not those best liked in the English market, whereas they are preferred in that state in the United States. When the nuts are to be limed it is simply necessary to have them well rubbed over between the hands with powdered lime. I am given to understand that they are steeped in a mixture of lime and water for several weeks by the Dutch mode of preparation. This no doubt will preserve them, but doubtless it must also have a prejudicial effect on the flavor of the spice. After the nuts are thoroughly dried, which requires from six weeks to two months' smoking, they cannot be too soon sent to market. But it is otherwise with the mace, that commodity when fresh not being in esteem in the London market, seeing that they desire it of a golden color which it only assumes after a few months, whereas at first when fresh it is blood red; now red blades are looked upon with suspicion, and are highly injurious to the sale of the article. This is one of those peculiar prejudices of John Bull which somewhat impugns his wisdom, but it must be attended to, as John is ever ready to pay for his caprice; therefore those who provide for him have no right to complain although they may smile.

Through the kindness of the Resident Councillor I have been furnished with the following correspondence and statistics which shew that the nutmeg tree was sent from Bencoolen to Singapore the latter end of 1819, so that twenty-nine years have elapsed since its first introduction. Some of the plants alluded to in Sir Stamford Raffles' letter were set out at the foot of Government Hill in neither a bad soil nor locality, and several of them are at present and have been for the last ten years fine fruitful trees. Table No. 1 shews that 315 trees in this garden yielded last year 190,426 nuts or at the average of 604 for each tree, but of the 315 bearing trees mentioned in the table not over fifty are of the old stock, most having been planted since 1836, so that a Planter may safely calculate on having a better average than is here set forth, provided he attends to his cultivation and his trees are brought up to the age of 15 years. If a plantation be attended to from the commencement, after the manner I have endeavoured to explain, and the trees be in a good locality, the Planter will undoubtedly obtain an average of 10 lb. of spice from each tree from the 15th year. This at an average price of 2s. 6d. per lb. is 25 shillings per annum. He can have about 70 such trees in an acre, so that there is scarcely any better or more remunerative cultivation when once established, but the race is a long one, the chances of life, a high rate of interest in this country make it one of no ordinary risk, and it is one that holds out no prospect of any return in less than 10 years. A person commencing and stopping short of the bearing point either by death or want of funds will suffer almost total loss, for the value of such a property brought into a market where there are no buyers must be merely nominal. Again if the property has arrived at the paying point, almost any person of common honesty can take charge of and carry it on, for the trees after 12 years are remarkably hardy and bear a deal of ill treatment and neglect; not that I would recommend any person to try the experiment, but it is some consolation for the Proprietor to know that stupidity will not ruin him, and that even at the distance of thousands of miles he can give such directions as, if attended to, will keep his estate in a flourishing and fruitful state.

I have now set the pros and cons of nutmeg cultivation before the reader. Should he like to try the experiment there is ample scope and verge enough for him in Singapore. He need not be afraid of failure if he proceeds with energy and perseverance. The cultivation, as will be seen by the appended tables, is rapidly extending, and I fear the prices are falling. Should the Moluccas be thrown open I cannot answer for how much greater may be the depreciation in value, but a produce that requires 15 years to bring it to market in remunerative abundance is not so easily overdone. The tree is not more quickly productive in the Island of Banda than in the Straits, and, as I have before said, neither do they excel us in relative quantity or quality. Those who have established plantations may laugh at the bugbear of over production and rest content even with some further reduction in prices.

The consumption is increasing and likely to increase in the United States, and no doubt were the heavy duty exacted in England lightened, the consumption would also increase in Great Britain. At present the duty is above the value of the article, which is anything but encouragment to our eastern colonies, and is hardly fair considering that the differential duties have been done away with and that we have to compete on equal terms with our monopolizing neighbours the Dutch, who take very good care to make no reciprocation in favor of British commerce.

To Major FARQUHAR,
Resident and Commandant, Singapore.

Sir,—Enclosed, I transmit a list of Nutmeg and Clove Plants this day shipped on the "Indiana" for Singapore, and put under the immediate charge of Mr Dunn, who is proceeding thither on the same ship.

100	Nutmeg Plants, in 3 boxes
100	Clove do. in 3 do.
1000	Nutmeg seeds, half of them in a double row.
350	Clove ditto.
25	Large Nutmeg plants and the same number of Cloves.

You will be pleased to report the condition in which these Plants are received, and to exert your utmost endeavours to establish the cultivation under your immediate authority.

I have &c.,
(Sd.) T. S. RAFFLES.

Fort Marlbro', 18th August, 1819.

To the Hon'ble Sir STAMFORD RAFFLES, Kt.,
Lieut.-Governor, &c. &c., Fort Marlbro'.

Hon'ble Sir,—I have the honor to acknowledge the receipt of your letter dated the 18th August covering

a list of Clove and Nutmeg Plants shipped on the "Indiana" under charge of Mr. Dunn, and have much pleasure in informing you that the whole have been landed safe and in good order.

The larger plants have been regularly planted out where it is intended they should remain, and the seed and smaller ones put in nursery beds for the present, the whole are in a thriving state,—you may depend on every possible attention being paid to the cultivation of Spices, and I consider myself fortunate in having Mr. Brooks, a European Gardener, here, whose services will be very useful in superintending generally the Spice plantations, and propose to allow him a monthly salary of 40 Spanish Dollars until your pleasure is known on the subject.

I have &c.,

(Sd.) W. FARQUHAR,

Singapore, 28*th Oct* 1819. *Resident.*

TABLE I.

Statement of Nutmeg Plantations with number of Trees, Trees in bearing, and produce in 1848.

Proprietors.	Districts.	Total No. of Trees.	No. of trees in Bearing.	Produce in Number.	Produce in Weight	
A. Guthrie,	..Tan. Pagar.	..2,250	..	252,581	..19	30
W. Montgomerie,	do	..1,800	1,200	368,791	..	..
Joaq. Almeida ..	do	.. 700	400	307,609	..	..
Government,	..Claymore..	765	315	190,240	..	..
Dr. T. Oxley, ..	do	..4,050	2,322	902,426	66	76
C. R. Prinsep, ..	do	..6,700	5,200	749,836	60	..
T. Hewetson, ..	do	..1,515	750	492,329	37	02½
C. Carnie, ..	do	..3,500	500	..	9	93
W. Cuppage, ..	do	..1,250	647	148,120	10	..
W. Scott, ..	do	..5,200	1,700	348,711	23	65
C. Carnie, ..	do	.. 870	250	..	3	50
Jose Almeida ..	do	..1,023	150	36,500	..	..
Dr. M. J. Martin,	do	..1,530	700	288,218	21	..
W. W. Willans,	Tangling.	..1,600	100*	..	..	..
E. B. Leicester,	do	.. 800	100*	..	..	..
E. Leicester, ..	do	.. 400	..	..	..	..
W. Leicester, ..	do	.. 250	..	..	..	..
W. Montgomerie,	Kalang...	510	200	..	..	20
F. Sorabjee, ..	Rochor...	12	..	..	..	..
Syed Allie, ..	do	.. 600	30	..	..	71
Sir J. d' Almeida,	Sirangong.	4,000	350*	..	..	..
T. Duaman, ..	do	..1,000	..	..	..	..
J. I Woodford, ..	B. Timah.	600	..	..	..	..
Chinese &c., ..		..7,000	..	..	..	..
G. Nicol, ..		..8,000	..	..	..	..
		55,925	14,914	4,085,361	252	07½

Remarks.—The greater number of the trees in Singapore as, will be observed from this Table, have not come into full bearing, but the produce is increasing rapidly, and this year will amount to fully 500 piculs.

Singapore, 24th July, 1848.

* Commencing to bear.

Statement of the Exports of Singapore Spices in 1845, 1846, and 1847.

Years.	Nutmegs.	Mace.	Cloves.
	Pls. cat.	Pls. cts.	Pls. cts.
1845	in No. 136. 64½	37. 44½	2. 55
1846	1200 and 208. 79½	60. 74	. 33½
1847	4 boxes & 105. 55	3 boxes & 34. 33	. 03½
Total for 3 years	1200 in No. 4 boxes and 450. 99	3 boxes & 132. 51½	2. 91½

PLANT COLOUR AND SOIL COMPOSITION.

Mr. George Ville startled the world some years ago with his suggestion "that plants can absorb free nitrogen." He now comes forward with an equally pregnant notion "that the varying tints of green, which plants assume, is an indication, which may be turned to practical account by agriculturists, as to the chemical deficiency of soils. This idea is well worthy of the attention of Trinidad planters, and especially with regard to coffee and cocoa. We all consider that a dark green in these plants indicates a perfect soil and perfect plant growth; now Mr. Ville says that any departure from this standard shows, according to shade, the chemical ingredient wanting, *e.g.*

1. Light green = Want of phosphoric acid.
2. Very pale green = Want of potash.
3. Yellow green = Absence of nitrogen.

If this is true the planters will have a practical and ever present test, and one which will perhaps tell them more than Chemistry or Science can do. No one, of course, disparages the service of the Agricultural Chemist with regard to soils, but it is the same with soils as with horses—Anatomy and Physiology can no more tell you everything about a horse than Chemistry can tell you about a soil; but in studying the proposition of Mr. George Ville two corollaries must be borne in mind (in tropical agriculture). 1. How may the plant-colour be affected by exposure, by stones and other mechanical causes? 2. What relationship is there between the darker shades of green of coffee and cocoa and their fruit-bearing qualities.—Trinidad *Agricultural Record.*

COFFEE ENTERPRISE IN TRINIDAD.

As to its impracticability and the unsuitableness of our soil and climate we have direct evidence to the contrary wherever we turn. Our native coffee, although badly kept, and mostly planted together with cocoa, is everywhere healthy, vigorous, and, yields, it is no exaggeration to say, over 1 lb. a tree on good lands; Mr. Prestoe I believe estimated it at double that amount. The question of altitude was raised by the Hon'ble Mr. Lange at the last meeting of the Central Agricultural Board, and it is a very important point: the fear is that any considerable area planted a little above sea level will be exposed to the coffee leaf disease which occurred in Dominica some years ago. Mr. Morris, of Kew, thinks we should go in for Liberian on low levels; but unfortunately we don't yet know quite how it might suit our climate and soil. The object of using this rather awkward plant, which ripens too slowly, pulps badly and was formerly quoted so low in the markets, although in the general coffee rise of late it has touched 100*s.*—is that it is supposed to resist the leaf disease (?). They are now pushing it (on Mr. Morris's advice) in Dominica, and they are giving it a fair trial also in Surinam. In the last named Colony they are making some interesting experiments with grafting, viz.:—

1. *Liberian on Liberian.*—To hasten and improve bearing and to dwarf the tree.
2. *Liberian on Arabian.*—The same object.
3. *Arabian on Liberian.*—To strengthen the vegetative growth of the first named and render it less subject to disease, etc.

These experiments are in course of observation, so no conclusion can be drawn at present, but it would be wise, here, to start a mixed cultivation; at the same time we must bear in mind that we lying much nearer to the equator, and almost forming part of the mainland of America, have very different climatic conditions to either Jamaica or Ceylon, and it is possible that with full and appropriate shade such as the Cachiman, (*Grands bois*) Poixdoux, Avocado, etc., we may have no cause to mistrust the Arabian or Mocha Hybrid (the latter is a most promising plant). Baron Eggers thinks the altitude a matter of secondary importance with us, and states that the best coffee estates in Venezuela have not an altitude of more than 300 or 400 feet above the sea level. The same thing obtains in the Brazils I am informed, where coffee grows nearly down to the sea shore in some places.

Coffee has nearly died out in Southern India, Java and Ceylon, and men who recognize the importance of this great staple have been hunting out North

Borneo and every part of the East and they have tapped Africa in different regions with the view of finding a suitable soil and climate The latest enterprise is the expedition of Sir Alfred Dent, organized in London, to explore the Peruvian Andes with the same object, the Peruvian Government having given extensive tracts of land and concessions on account of their failure to meet their engagements towards their bond-holders. In these wild regions, without any roads or good Government, there is of course no labour, but that is no object where *such mighty interests are concerned.* These enterprizing planters propose to introduce Chinese. Should not this open our eyes to the bright future coffee offers us in our fertile island (?) where we have a stable Government and labour in abundance?

Another very important consideration for coffee growers here is the recent discovery of rich phosphatic deposits (organic) at Gasparillo. Some specimens recently examined have proved to contain no less than 90 per cent., and in its present condition (without being treated chemically) it has proved valuable as a manure to garden vegetables.—Trinidad *Agricultural Record.*

J. F. KELLER, of Licking county, Ohio, in an article communicated to the *National Stockman,* correctly remarks that experience teaches that all farm crops are highly benefitted by being planted in a compact soil, though the degree of compaction depends to some extent on the nature of the soil. Very heavy clay soils need less compacting than some others of a lighter nature, as there is some danger of heavy soils becoming (in case of much rain) too hard if compacted to the extent that light soils will always require. On the writer's farm (which is clay loam) no crop is planted until the soil is first compacted by rolling once, and in some instances twice, with a heavy cast-iron roller.—*Indian Agriculturist.*

THE NILGIRI PLANTERS.—It has been a frequent source of annoyance to planters on the Nilgiris that they have been grouped with ordinary native ryats and land-holders, and made to pay their revenue or kistbandi in four equal instalments annually. The inconvenience of this system was often represented by the planters individually, and also by the Kotagiri Planters' Association; but their proposal to pay their revenue in one lump sum has hitherto not met with the approval of the Revenue authorities. Their chief objection to broken payments were (*a*) that a single payment in March was already sanctioned in the case of mixed puttahs; and (*b*) that few planters kept any large amount of cash in hand, but drew funds from the Banks as occasion required, and therefore felt it inconvenient to pay the Government demand in small sums. As a rule, the payment of land revenue by instalments is utterly unsuited to the conditions of planter life, and as planters are unable to adapt their financial arrangements to the kistbandi system, the repetition of small demands causes much irritation and friction. Taking these circumstances into consideration, and the almost general desire of all the European planters for a lump payment annually, it is under contemplation, as an experimental measure, to allow pattahdars who pay a land revenue of not less than R50 per annum, to pay the amount of their kistbandi in one sum on the 10th March, the concession being liable to be withdrawn if default is made in any year.—*M. Mail,* Dec. 29.

THE half-yearly meeting of the British North Borneo Company passed off with more unanimity than has been the case at similar gatherings during the last two years. As no criticisms were offered upon the very complete and interesting statement which the Chairman made, it may be assumed that the shareholders were satisfied the directors had done the best that was possible in the circumstances, and that their general policy meets with approval. The retirement of Sir Rutherford Alcock from the chair for reasons of health was not the least important incident of the meeting, and we believe every one connected with the company will regret that Sir Rutherford has been compelled through advancing years to vacate his position as Chairman at a time when it may be said the undertaking he has devoted so much of his time and attention to has weathered the hard times a company of this nature has to contend with in its early days, but which has an assured future before it. The expressions of regret with which Mr. Richard B. Martin, his successor in the chair, accompanied his announcement of the fact met with a ready response on the part of all present. It will be gathered from the report of the proceedings that the directors, while curtailing the expenditure as far as possible, are fully alive to the importance of pursuing a bold and progressive policy in the administration of the company's affairs. The Chairman struck the right note when he deprecated a cheese-paring policy which for the sake of securing a temporary profit might retard the proper development of the country. The advice, too, which he gave the shareholders to support, as far as was in their power, the subsidiary companies as likely to promote the success of their own undertaking was practical, and will not, we hope, have been given in vain. We are glad to note that amongst other projects the establishment of a bank—long contemplated—is taking shape, and the Chairman was also in a position to announce that the railway matter is progressing well. The biggest cloud at the present time is, of course, the disturbance of the tobacco market. But there is every reason to think that the crisis is only temporary; and, as it is now fully demonstrated the Borneo can grow the class of tobacco which is most in demand for "covers," when the American buyers come into the market again the prospects in this direction will undoubtedly improve.—*L. and C. Express,* Dec. 18.

SIR SAMUEL DAVENPORT, K.C.M.G., gave an address on the "Olive," in the cultivation of which he has taken great pains, and in the value of which he is a great believer. The whole address was very interesting and instructive. He said the wealth of a country depended on its produce of an exchangeable value. The natural home of the olive, he said was the home of the vine, and South Australia was peculiarly adapted for its growth. He quoted figures to show how well olives had paid. In 1890 olives from 1000 trees weighed 26½ tons, about ½ cwt. per tree. Some were young trees. The olives realised £212 9s, or 4s 3d a tree. The total working expenses were £104 13s 10d, the net return being £107 15s 2d. Planted 27ft. apart sixty trees could be put to the acre, and 100 would take sixteen and one-third acres, and the net profit would be £6 12s per acre and 2s 2d per tree. The returns compared well with returns from French and Italian vineyards. South Australian oil brought more than any other because of its purity and richness, and gave an eight times better return than wheat. Olive cultivation was equally profitable to the growing of good vines. South Australian olive oil was the purest and richest obtainable. There were several excellent varieties of European olives cultivated in South Australia. He had thirty-four varieties. The olive required technical knowledge and care. Few countries were so well off as South Australia with regard to sun and natural richness of soil. More technical knowledge was wanted.—*Indian Agriculturist.*

THE EXPORT TRADE OF CEYLON FOR TEN YEARS:

TEA FROM ITS FIRST APPEARANCE IN 1873.

The Customs figures and those of the Chamber of Commerce for the export of tea from Ceylon in 1890 differ by more than a million of pounds. The Chamber of Commerce table shows the enormous export for the last week of the year of 3,793,687 lb, or more than the quantity opposite most of the months of 1890. The result of this addition to previous figures is to bring up the total for 1891 to the large sum of 68,274,420 lb. The discrepancy may be due to the fact that only completed cargoes of ships which have sailed are included in the one case, while daily shipments are included in the other. If the Chamber of Commerce figures really represent the quantity taken away from the island, they largely support the guess we at one time hazarded that the exports of 1891 would closely approximate to 70 millions of pounds The quantity consumed in the island would go far to make up a total crop of 69 millions lb. for 1891. The figures in our Directory which represent the history of the enterprise from the first small quantity sent away in 1873 are those of the Customs, and to those previously given we now add the figures for 1891. This done, we get the following phenomenal advance :—

Year.	Packages.	lb.	R.
1873 ...	2	23	58
1874 ...	4	492	1,900
1875 ...	4	1,438	2,402
1876 ...	7	757	1,907
1877 ...	—	2,105	3,457
1878 ...	—	19,607½	20,900
1879 ...	—	95,969	85,229
1880 ...	—	162,575	150,841
1881 ...	—	348,157	322,993
1882 ...	—	697,268	591,805
1883 ...	—	1,665,768	916,172
1884 ...	—	2,392,973	1,435,784
1885 ...	—	4,372,722	2,842,269
1886 ...	—	7,849,888	5,102,427
1887 ...	—	13,831,057	8,300,434
1888 ...	—	23,820,723	12,624,990
1889 ...	—	34,345,852	17,859,840
1890 ...	—	45,799,519	22,899,759
1891 ...	—	67,021,777	33,510,888

As the two packages in 1873 seem to have been separate from the 23 lb., we suppose we may take R58 value as representing a like number of pounds of tea. The results are that in 19 years the export of tea from Ceylon has risen, by leaps and bounds latterly, from 58 lb. valued at R58 to 67,021,777 lb. valued at no less than R33,510,888. This is still more than a million of rupees below the value reached by coffee in its culminating glory; but then there was no sudden rush upwards in coffee as there has been in tea, the annual value of which is likely soon to leave the highest figures ever attained by coffee far behind. In the table showing the distribution of our teas the Chamber of Commerce figures are used. The vast proportion of our exports, 63,745,000 lb. went to Britain, of which between 1,500,000 lb. and 2,000,000 lb. were re-exported to countries on the continents of Europe and America, leaving 61¾ millions for consumption (about 53 millions in 1891) and to go into stock. Our second great customer is Australia, peopled mainly by men of the British race, whose acquired taste for China tea had to be combated and overcome. The fight was a hard one at first, as we personally know, but the progress recently in demand for our teas has been great and gratifying, the export having risen from lb. 2,560,000 in 1890 to 3,210,000 lb. in 1891. There can be little doubt, therefore, that Ceylon tea will replace China tea (the consumption of which has reached to over 20 millions of pounds) in the Australasian markets, as it has done in Britain. The markets of the United States and Russia—next to Britain, the greatest tea-drinking countries of the world—seem much more difficult to affect, by changing the taste of the tea drinkers. Hence the wisdom of the contemplated Chicago crusade and of every effort which can be made for the much more difficult conquest of the Russian market. At present our exports direct to America are represented by 163,000 lb. a fall from 204,000 lb. last year. To Russia we sent direct only a miserable 11,000 lb. To both countries (America including Canada) there were exports of our teas from Britain, but only to a small though promising extent. China took of our teas almost exactly the same quantity as America got direct, while India took no less than 620,000 lb. most of it for the Persian Gulf, no doubt. In the cases of China and India there have been considerable increases on last year, and so indeed to Germany, France and other countries on the Continent of Europe; but as yet only about 1½ million pounds of our teas are taken by other than countries peopled by the British race. All this will erelong be changed, however, to the benefit equally of those who consume and those who produce Ceylon tea.—As regards total exports of tea in the year on which we have entered, we can have no desire for the recurrence of the meteorological conditions which resulted in flushes so overwhelming during a portion of last year that they could not be properly overtaken by the curing processes. But there can be little doubt that the total export of 1892 will be little, if at all, short of 90,000 000 lb.; and we trust the demand for our teas will expand in proportion. To secure this, attention must be earnestly devoted to upholding the reputation of the Ceylon product for quality, —for retrieving indeed the good name which some of the teas sent away in 1891, so seriously endangered.

The history of coffee and cinchona in the past ten years has been very different to that of tea. The course in both cases has been downwards, the export of coffee having fallen from 463,000 cwt. to 86,000 cwt.; while cinchona, after having risen from 4 400,000 lb. in 1882 to 14,838 0 0 lb. in 1886, has gradually decreased to the still large quantity of 5,679,000 lb. Both articles are likely to shew still further diminution, unless the disappearance of leaf fungus and green bug, leads to a return by planters to their first love. In 1873, when only a few pounds of tea appeared in our exports, the quantity of coffee sent from our ports was 951,591 cwt. valued at £4,220,750 sterling. Cacao has, with some fluctuations, risen from 1,090 cwt. in 1882 to 20,532 cwt. last year. Conditions of soil and climate are likely to prevent any large increase in this article. For quality Ceylon cacao ranks first in the world; and we may say the same of the cardamoms produced in our island, the export of which has risen from 21 500 lb. in 1882 to 422,000 lb. in 1891. The once famous cinnamon of Ceylon, a pound of which at one time realized close on a pound sterling, is now down to the unremunerative price of about one shilling average. The gradual approach of this state of things has not hindered increased exports, which indeed must be largely the cause of lowered prices for a spice which is eminently a luxury. The figures for 1882 were :—

Baled bark	...	...	1,587,016 lb.
Chips	...	...	422,915 ,,
Total	...		2,009,931 lb.

From this quantity the rise in 1891 has been to

Baled bark	... ...	2,309,774 lb.
Chips	... ...	588,264 ,,
Total	...	2,898,038 lb.
Total 1882		2,009,931 ,,
Increase	..	888,107 lb.

The market has, in truth, been swamped with an article incapable of any very large increase, even by such lowered prices as the export of such large quantities of inferior bark and especially chips (equivalent to the "dust" of tea—scarcely equivalent indeed) have led to. Of this latter stuff which ought to have been distilled into oil or converted into manure, there has been an average export of over half-a-million of pounds during the ten years, while the baled spice has gone up from 1,587,000 lb. to 2,309,000 lb. The causes of the severe depression are manifest—excessive exports and lowered quality, quality in many cases on a level with China "cassia," so that a reaction to diminished exports is inevitable; while to the cinnamon producers as to the tea producers of Ceylon the same advice must be given: "Study quality rather than mere quantity." In coconut oil Ceylon well supports its claim of being the largest exporter in the world; and this is an article which is not likely to exceed the demand which exists for it, in Holland and Germany specially, for soap-making. The increase in the export of this article has been from 208,000 cwt. in 1882 to 409,000 cwt. last year—a doubled export. For this oil India and America are customers to the extent of 107,000 cwt. in the first case and 110,000 in the second.—Copra, the dried kernels of the coconut from which the oil is expressed, leaving a valuable oil cake behind (known locally as poonac), has fluctuated greatly; and the figures for last year show a fall more than equivalent to the increase in oil. The increased export of "desiccated coconut" used in confectionery may to some extent account for the decrease in copra? The export of "poonac" has increased in proportion to that of oil, the figures for last year, 192,210 cwt., being, we believe, unprecedented. The exports of coconuts fluctuate violently, the figures for last year being 6,699,000, against 11,908,000 in 1890. The export of coir rope, with some fluctuations, has ranged at an average of 10,000 cwt., but the increase in yarn and fibre, for the manufacture of mats, &c., some of the fibre being used in lieu of bristles, has been very important, yarn having risen from 66,803 cwt. to 90,699 cwt. and fibre from 7,959 cwt. to 37,897 cwt. Taken together the value of products of the coconut palm exported are of great value in our commerce, only second to tea indeed; with this grand difference between the two plants, that all but a fraction of the tea grown is exported, while most of the products of the coconut palm are consumed locally. "Desiccated coconut" is a marked exception; and the introduction and use of kerosene as an illuminant has set free from export a good deal of coconut oil which was formerly burned in the lamps of local houses, huts and boutiques. We now come to our one important mineral product (precious stones not reported except in rare cases), namely plumbago or graphite, of which in its finer forms, in large masses free from impurities, this island has almost a natural monopoly. Its very refractory character renders it exceedingly valuable in the shape of crucibles for the melting of the precious metals and the finer kinds of steel, such as is used for ordnance. The exports have fluctuated with "wars and rumours of wars," commencing in 1882 with 258,877 cwt., going down to 180,912 cwt. in 1884 rising again to the culminating figure of 475,516 cwt. in 1889, and closing last year with 400,268 cwt. Mining for this article and the search for sapphires and other precious stones are sometimes conjoined. The plumbago enterprise is far the less precarious. Heavy digging is necessary, but this strange mineral, the result either of carbonized vegetation or deposited, as a German savant thinks, from either gas or water, is more or less prevalent and plentiful over large portions of the western, and south and north western portions of Ceylon. Its preparation and classification in Colombo afford employment to large numbers of men, women and children. The export of Ceylon ebony, under a restrictive policy adopted by the Forest Department, has gone down from a maximum of 23,951 cwt. in 1886 to a minimum of 3,539 cwt. in 1891. The one important dye-wood of Ceylon, sappan, has fluctuated and fallen, having shown an export of over 10,000 cwt. ten years ago, going down to 1,080 cwt. in 1889 and recovering last year to 2,577 cwt. Another dye substance, orchella weed, has fluctuated between 1,394 cwt. and 308 cwt., closing with 774 cwt. Kitul fibres, used as substitutes for bristle, for brushes and for brooms, began with 1,496, cwt. rose to 2,771 cwt. in 1889, and closed with 1,889 cwt. The export of deer horns will probably decrease under the operation of recent laws directed to the preservation of game animals. The figures have varied from 2,375 cwt. in 1882 to 1,735 cwt. in 1891. The table closes with two essential oils, that from the lemon-scented grass, citronella, and cinnamon oil. The former, used chiefly to scent soaps, we believe, has assumed important proportions, the exports rising from 2,940,000 oz. in 1882 to 14,559,000 oz. in 1890 and 11,263,000 in 1891. It is regrettable if what we read, especially in American journals, be true, that this delicate product is not infrequently and not slightly adulterated with kerosene oil. The elegant cinnamon oil, obtained from the cells of the inner bark, in which alone resides the odour which poetry has imparted to "the spicy breezes," is not, we believe, tampered with. It was exported to the extent of 93,000 oz. in 1882, the export rising to 167,000 oz. in 1886 and closing at 122,835 oz. in 1891. The relative importance of our chief staple exports, now that coffee is no longer king, may be stated thus we believe:—TEA; PRODUCTS OF THE COCONUT PALM; COFFEE; Cinnamon; Plumbago; Cinchona; Cacao; Cardamoms and minor articles. In present value and future promise, three articles seem to stand pre-eminent: TEA, which is KING in succession to coffee, abdicated; PRODUCTS OF THE COCONUT PALM; PLUMBAGO. Coffee, as we have indicated, may possibly revive, and minor industries may develope into importance. But the fortunes of the colony, doubtless, now and for years to come will be mainly dependent on the success of the tea enterprise. Increase of production is so assured that herein lies ground for anxiety and reason for every possible effort to promote increased consumption.

PROSPECTS IN WYNAAD.

OOTY, Dec. 20.—As I have visited Wynaad I write you a few lines, to give you the impressions which I have formed, as they are not altogether so entirely of the "has been" as our old friend who revisited the country lately wrote you of. That it is very sad to see so many large properties that we knew in the old time as flourishing coffee estates now overrun with lantana and jungle, must be allowed; but in writing of this deserted cultivation,

the flourishing condition of many of the coffee gardens and the very promising appearance of the new tea fields should not be forgotten. The terrible area of abandoned coffee is mainly to be attributed to the gold mania of the past decade. The companies that invested in Wynaad land for gold mining, looked on the cultivation of the surface as a very minor consideration. The coffee was worked on what was called commercial principles, and if for any reason the crop fell short of expectations, the expenditure in upkeep was proportionately reduced, and the unfortunate planter who was retained in the Gold Companies' service, to attend to the plantations, had no resource but to reduce the area worked in proportion to the allowance given, and thus nearly the whole gold country has reverted to its original jungle. Indeed, the two could hardly be worked together when the labour available was always requisitioned for the mining department whenever there was any scarcity of hands or press of work. But in private hands there are still well cultivated and paying coffee estates, and now with the high prices ruling, and a crop above the average, planters are doing well.

That King Coffee, as they call it in Ceylon, is on its last legs in Wynaad, is an exploded idea. Large fields of coffee were planted in Wynaad this last season, and men of experience from the famous Bamboo District of Coorg are now opening extensively in Wynaad, and the beautiful young coffee, with various shade trees planted at the same time, delight the eye with their flourishing appearance, and recall days of the past, when every coffee plant seemed to thrive in any locality. Cinchona cultivation is now at a terrible discount, the market price of bark at a penny per unit of quinine, stops all idea of harvesting any but the richest bark, and the owner of a cinchona estate can only hope that his trees may outlive the enormous supplies from Java, and those trees that can do this will yet be a source of large profit.

Tea is doing well. The old seed bearing trees at Pandalar set at defiance the neglect of years, and when burnt down by jungle fire, rise again healthy as ever, like the Phœnix, while the young plantations of the last two years show such growth, that a planter of experience mistook a four-year-old Ledger field for Tea!! I suppose at some little distance. With the report on Mr. Punnett's tea that you lately published in your paper, there must be a great impetus given to this industry, as there is available in Wynaad a very special type of tea plant which appears to exactly suit the soil and climate, and produces a tea of most exceptional strength and flavour, which always commands a high price.—*Madras Times.*

THE AMSTERDAM CINCHONA AUCTIONS.

AMSTERDAM, Dec. 19.

At today's auctions 5,380 packages Java cinchona sold at a slight reduction in price, as compared with the last sales, the average unit not exceeding 5¾ cents or about 1 1-16d per lb., which is on a par with this week's London auctions. The following was the range of prices:—Manufacturing barks in quills broken quills and chips, 7 to 75 cents (= 1½d to 11½d per lb.); ditto root, 10 to 44 cents (=1¾d to 8d. per lb.) Druggists' barks in quills, broken quills, and chips, 10 to 36 cents (= 1¾d to 6½d. per lb) ; ditto root, 12 to 19 cents (=2d to 3½d per lb.) The principal buyers were Mr. Gustav Briegleb, the Amsterdam quinine-works, and the Brunswick quinine-works.—*Chemist and Druggist.*

THE DUTY ON TEA.

TO THE EDITOR OF THE "SYDNEY MORNING HERALD."

Sir,—Now that the Government have proved a majority in their favour in the Assembly, I would like to point out the unfairness of the proposal to remit the duty on tea on so short a notice. The proposal has already brought business in this commodity to a standstill so far as the distributing trade is concerned Every grocer and storekeeper in New South Wales has ceased to buy, and will buy nothing before the 1st of March next unless he runs out of the article before that date: consequently the distributing houses, who are holders of large stocks of duty-paid teas, will find themselves losers on the 1st of March next of 3d per lb. on all their duty-paid stocks, besides the loss of three months' trade, which in itself is a very serious matter. The retail trade is not so hardly dealt with, as it will have three months to reduce stocks; but even amongst retailers there are numerous holders of large stocks—men who buy 12 months' supply on the arrival of the new season's teas, and have still six months' supply on hand. I would suggest to the Treasurer, under these circumstances, that in fairness to the trade in general and the distributors in particular, he should alter the date for remitting the duty to the 1st of August next, as at this date traders in tea in the ordinary course of business have their stocks worked down to minimum in view of the arrival of the new season's crop, and it would allow holders to get out without loss, and the disorganization of business which is inevitable if the 1st of March is the limit. This would also be an advantage to the Treasurer, as it would add so much more revenue to his accounts for the financial year. Trusting you will find space for this important matter,—I am, &c., DISTRIBUTOR.

December 11th.

STATEMENT SHOWING THE EXPORTS OF INDIAN TEA FROM BOMBAY PRESIDENCY, APRIL TO NOV. 1891.

(*From Watson, Sibthorp & Co.'s Report.*)

	Lb.
United Kingdom	17,322
Austria	2575
Malta	36
Spain-Gibraltar	2,750
Abyssinia	290
E. C. of Africa-Mozambique and Zanzibar	3,700
Egypt	500
United States	40
Aden	1,733
Arabia	26,592
Persia	1,286,315
Straits Settlements	50
Turkey in Asia	164,431
Australia	194
Total...	1,506,528

[The above export of over 1½ million of pounds in 8 months is described as "Indian tea," but query whether much of the Ceylon tea sent to Bombay is not included ?—ED. *T. A.*]

THE SAPPHIRES AND RUBIES OF SIAM.

The report of the directors states:—

In the beginning of April Mr. Gibbons, the company's chief agent in Siam, paid his first visit to the mines, and selected an area of nine square miles, which embraced all the mines of Navong and Chanak, in the province of Krat. The negotiations with the Government in connection with the formal transfer of the properties to the company were somewhat protracted, but towards the end of June Mr. Gibbons received permission from the Government to take over the nine square miles he had selected. He at once proceeded to Krat, and a month later he was able to report that he and his party were in peaceful possession of the mines.

It then became necessary to decide upon a system of working the properties. The directors were opposed to any outlay being incurred for machinery until the value of the company's property had been proved, and Mr. Gibbons suggested as a temporary system that licenses should be issued to selected diggers on condition that all stones obtained by them were to be at once surrendered to the company's officers, their labour being rewarded *pro rata* with the value of the yield, such value to fixed by the company's resident gem expert; it b

further understood that if a digger did not care to accept the company's prices he would not be allowed to dig within their selected area. These proposals were approved by the directors, and about the middle of August Mr. Gibbons commenced to register and issue licenses to those diggers who were willing to stay and work for the company. The majority of the men working at the mines at once agreed to the conditions imposed, and were granted licenses. Mr. Gibbons' illness somewhat delayed the despatch of stones, but at the end of September he was able to announce the shipment of a first consignment of 40,000 carats, and reported that monthly shipments might be relied upon. Cablegrams have since been received from him advising the shipment of two further consignments, one of 130,000, and another of 40,000 carats. Seeing that four months have not elapsed since the company commenced its operations at the mines, the directors consider it exceedingly satisfactory that three consignments of stones should have been already shipped, amounting in the aggregate to 210,000 carats.—*L. and C. Express.*

ODDS AND ENDS.

Take the spots out of white goods by rubbing them with the yolks of eggs, before washing.

Rub windows with a clean cloth wrung out of kerosene oil; rub dry and polish with a clean dry cloth.

Fresh cucumber parings scattered about shelves that are over-run with ants, will, it is said keep them away.

Whole cloves are as effective as camphor—and more agreeable to some—for keeping moths out of clothing.

Dredge a little flour over the top of cake to keep the icing from running.

Purify clothes that have been kept from the air by laying pieces of charcoal (wrapped in paper) in the folds. Try the open air first.

Stoves and ranges should be kept free from soot in all compartments. A clogged hot-air passage will prevent any oven from baking well.

Ink stains on linen can be taken out if stain be first washed in strong salt water and left to stand over night.

New tins should be set over the fire with boiling water in them for several hours before food is put into them.

In bottling catsup or pickles, boil the corks, and while hot you can press them into the bottles, and when cold they are tightly sealed. Use the tin foil from compressed yeast to cover the corks.—*Florida Agriculturist.*

THE JAVA BUDGET.—In the First Chamber of the States-General the reply of the Minister for the Colonies upon the report of the Java Budget has been received, in which the Minister states that the deficit on the years 1886 92 amounts to f.2,700,000 while during that period f.47,800,000 were spent for public works, and f.143,000,000 were received from the coffee cultivation and f.6,100,000 from the sugar cultivation, and f.4,700,000 from the Banka tin mines. Considering this, reinforcement of the revenue and economy is necessary, but there is no reason to suppose that a satisfactory financial condition would be excluded. The Government has not yet taken a decision as to the time a loan for Java would be issued. With regard to the Ombilien Coalfields the Minister maintains his opinion in favour of working by the State.—*L. & C. Express*, Dec. 25th.

THE CAWNPORE EXPERIMENTAL STATION.—From a summary official notice of the report, we quote as follows :—

The results obtained in some of the green soiled and indigo refuse plots (rabi statements Nos. III and IV) were remarkably good. With wheat at 16 seers the rupee four of the plots in statement No. IV, which were treated with indigo refuse, each gave a net profit of over R60 the acre, rising in one case to R87 the acre. This shows the value of a good wheat crop at present prices. In statement No. III green indigo ploughed in gave a net profit in wheat and straw of R38 an acre. The results obtained by means of the more expensive kinds of manure, such as saltpetre, bone dust, and bone superphosphate, were less striking. The first two cannot be applied at a less cost than R10 the acre, and the third costs R20 the acre. To cover an outlay of R10 an increase of 4 maunds of wheat per acre over the produce of unmanured land is required. In some few of our plots we can show this or a larger increase over a series of years ; but this is the exception. The farm is in good order, and has been carefully managed during the year by the Assistant Director and Farm Overseer, Ali Husain. It is frequently visited by zamindárs and others, and the ploughs, pumps, sugar mills, and sugar making machines used on it are not unfrequently borrowed by the neighbouring cultivators.

SAFE QUININE.—Levi a Central American physican offers this combination, the administration of which followed by none of the disagreeable buzzing in the head which is the ordinary result of large doses of quinine. Mix and divide into twelve powders 40 grains each of quinine sulphate and pepsin, 6 grains powdered capsicum, 12 grains powdered ginger 40 grains sodium bicarbonate. One powder is a dose in neuralgia but in certain conditionss the amount may be varied. Vomiting and purging symptoms are averted by the employment of this combination.—*Pharmaceutical Era*, Nov. 15th.

DELIVERIES OF CEYLON TEA IN BRITAIN for 11 months ended November were 49,203 000 lb., and as the deliveries for November were 4,487,000 lb., we suppose we may take 4,500,000 lb. to represent the deliveries for December. If so, the total for the year will be 53,700,000 lb. Remembering the quantities diverted to Australia and other places, this is in very satisfactory proportion to our crop. From Messrs. Geo. White & Co.'s circular we quote as follows :—

Deliveries for November, although half-a-million lb. under those of October, which, however, contained two more working days, compare favourably with November last year, while it is satisfactory to observe that the increased consumption has reduced the Bonded Stock from over 17 million lb. on 31st August, to slightly under 15 million lb. on the 30th ult. As an indication that the use of Ceylon Tea is growing on the Continent and elsewhere outside the United Kingdom, it may be noticed that the quantity exported from this country from July 1st to October 31st had risen from 556,000 lb. in 1890 to 829,000 lb. in 1891.

WITH reference to Mr. J. Astley Cooper's proposed Britannic Festival, Mr. T. Hudson Beare writes to the *Morning Post* suggesting that "as the Empire as it now exists is pre-eminently of the Victorian era, June 20th (Ascension Day) should be the Prize Day of the Festival ? It would commemorate for ever a most auspicious day in the growth of the Empire—the Accession to the Throne of Queen Victoria. The scholarships might be called the 'British Scholarships.' In the case of those awarded for technical work there should be facilities given, not only for study within University walls, but in the best factories and workshops. On his return to his colony each young man would form a nucleus around which would gather all that was best, and each one would form one of those invisible ties, stronger than any which can be devised by the cunning of lawmakers, which will keep together, for good or for ill, the Anglo-Saxon race." The suggestion merits serious consideration, for it is by close attention to such details as this that the success of the scheme is most likely to be promoted. —*E. Mail.*

THE ESTIMATED CEYLON TEA CROPS OF 1892 AND 1893; WITH A GLANCE AHEAD AT A.D. 1900.

A remonstrance has reached us regarding our mention of 95,000,000 of pounds as the possible yield of 1892; and we may at once say that, writing hurriedly, we miscalculated. An estimate of 85,000,000 would be the safer, but we should not be at all surprised to see a crop of 90 000,000 made up, in the shape of 89,000,000 exported and one million consumed locally. We are told that our high figures are calculated to produce a panic, just as we used to be told in the days of advancing coffee crops that our sanguine figures, which generally turned out to be correct, were inimical to the interests of planters. We must say now, as we said then, that our simple duty is to state the truth as closely as the circumstances and conditions within our ken enable us to ascertain it. Mr. John Ferguson, in his able and exhaustive review of the tea trade in the latest issued Directory, wrote: "But too little has hitherto been made of the future production of Ceylon. Even we a year ago blamed a well known Colombo merchant for making known in the City of London his opinion that in four or five years Ceylon would be exporting a hundred million pounds of tea! He is likely to prove a true prophet by present (August 1890) appearances." The writer of the above, who had so closely predicted the crops of 1890 and 1891 at 46 and 68 millions of pounds respectively, and who had adduced data so convincing of the continuance of increases by leaps and bounds for at least the first five years of the present decade, seems to have recoiled from the results of the evidence he had so carefully collected, and he threw forward the realization of the round figure of 100 millions of pounds to 1895. Looking at his own statements of a quarter of a million of acres under tea in 1890, of which a considerable proportion was rapidly coming into full bearing, while much of the old coffee lands were yielding returns far in excess of calculations,—looking also at the actual advances made, year by year (while making allowance for the abnormal flush of 1890), we are forced to the conviction that the era of the round 100 millions must be antedated by two years. We estimate 85 millions of pounds for 1892 and 100 millions for 1893. No less than 66,000 acres of the quarter million under tea in August 1890 were planted in the period extending from July 1888, and much (most indeed) of this tea will come into full bearing by 1893, while the area of 184,000 acres planted previously to 1888 will have reached full maturity and will be yielding full returns. Mr. John Ferguson's calculation was that the additions to the half million of acres under tea in 1890 were likely to be at the rate of 6,000 acres per annum. These additions we leave out of view, and taking a fair average for the yield of our tea land,—the returns from which are in some cases only 250 lb. per acre, while in a very considerable number of cases they are equal to a yield rising from 500 to 1,000 lb. per acre,—taking a fair average, we say, which we reckon at 400 lb. per acre, the round 100 millions will be exactly made up in 1893. The careful researches of the compiler of the Directory compelled him, after making all possible allowances, to recognize 400lb. per acre of mature tea as the yield of this hot moist colony. And although his revised estimates for 1890 and 1891 were almost absolutely correct, he was forced to confess: "It will be seen that our estimates of a year ago for 1890 and 1891 were far below the mark: the present year has, in fact, in crop bearing exceeded all expectations. It has shown that tea on old coffee land, after six or seven years, yields far more leaf than was anticipated." He accordingly revised his estimates to 68 millions for 1891, which are almost exactly the figures in the Chamber of Commerce return. With commendable caution he gave 80 millions for 1892 and 90 millions for 1893. Our estimates, therefore, of 85 millions for 1892 and the round 100 millions for 1893, are not, we submit, considering all the circumstances, extravagant. Of course, our estimates might be somewhat affected by the extensive or universal adoption of finer plucking than now prevails; but supposing there is no material change in this respect let us see what inferences we are justified in deducing for the future from the experience of the immediate past. We have shown that the rate of increase in our crops is not at all likely to diminish up to 1893. What have the rates been since 1884 when our exports (we take the customs figures,) reached 2,392,000 lb.? Next year the export very nearly doubled, the figures being 4,372,000. This was an increase of very nearly 50 per cent. The increase to 7,849,000 lb. in 1876 was not so great. Then came an increase nearly at the same rate, the figures for 1887 being 13,834,000 lb. Then came a diminished rate of increase, the figures for 1888 being 23,820,000 lb, an excess of 10 millions over the previous year. A somewhat larger rate of increase marked 1889, the figures being 34,345,000, an increase of 10½ millions. There was a still larger advance in 1890, to 45,799,000 lb, an increase of nearly 11½ millions. Finally the figures rose to 67,000.000 in 1891, an increase over the previous year of no less than 19 millions. Conceding that this latter case is exceptional, and taking 15 millions as the rate of increase for this year and the next, respectively, we get total crops

For 1892 82,000,000 lb
,, 1893 97,000,000. ,,

An annual increase of 15 millions on the much higher figures is so much lower a percentage than previous increases of 10 and 11 millions on the smaller quantities of previous years, that we suspect the increases will really be greater and fully make up our revised estimates of 85 millions for the present year and 100 millions for 1893. If readers admit, as we think they must, that our estimates are founded on indisputable evidence, connected with specially favourable conditions of soil and climate which are as likely to be operative in the immediate future as they have been in the immediate past, the strongest possible case will be made out not only for continuing but for indefinitely extending the efforts made to open new markets for our teas,

We have shown reasons for expecting a largely increased production this year and the next in the fact of the whole 250,000 acres under tea in August 1890 attaining maturity and full or nearly full bearing in the course of the two years. In years subsequent to 1893, we have reason to look for a considerably diminished rate of increase say to about 7 millions per annum, which would make the export of Ceylon tea as nearly as possible 150 millions in the last year of this nineteenth century. So much will depend on continued and expanded demand at remunerative prices. Such conditions granted, we believe our figures represent the very minima of results.—If our reasoning is wrong let the fallacies be pointed out, but there is no use in shutting our eyes to the inevitable effects on tea of our specially forcing climate and fairly fertile soil. If our vaticinations are fulfilled, and a crop of 100

millions of pounds of tea is harvested in Ceylon, in 1893, the result will, we believe, be unexampled even in the annals of tropical agriculture. In 1872, not a pound of tea entered into the exports of Ceylon. In the twenty years succeeding 1872 and ending with 1893 the enterprise will have made yearly increasing additions to the commerce of the colony rising from a few pounds valued at a few rupees to 100 millions of pounds, of a local value, we trust, of not much under 50 millions of rupees. That will not be much behind the culminating period in the history of the coffee enterprise. While that enterprise may revive, we have every reason to hope, from the experience already gained, in the comparative permanency of the tea enterprise. In almost complete exemption from blights, tea culture in Ceylon has an advantage of great magnitude over the similar pursuit in northern India. In quality too, judging from demand, our tea stands high. *Stood* high, at any rate, until the overwhelming production of last year; and we must not close without adding to our arguments in favour of opening new markets for our chief product an earnest appeal to planters to pay such attention to quality as will not only retrieve the reputation of Ceylon tea but place it on a higher level in public favour than ever, so that it may hold existing markets and capture new by its superiority to all competitors.

CEYLON TEA CULTURE, &c.

On this subject Mr. J. C. White* writes as follows:—When it is known that the tea plant is indigenous to Ceylon, it cannot be a matter of wonder that the cultivated plant should produce such a splendid article of domestic consumption as the tea now imported from that island, some rare samples of which are said to have realised lately in London seventy guineas a pound. The natives had small plantations of coffee in the early days when the Portuguese took possession of the island in A.D. 1505. The Dutch, who subsequently expelled the Portuguese, landed there A.D. 1602, taking possession of the coast country, the Candians retaining the interior under the rule of a native king residing at Candy, the capital. The British turned the Dutch out in 1796, and soon after, in 1802, the Candians were subdued, and the whole island became a British colony, the chief exports of which were cinnamon and other spices, coffee, coir, copra, pearls, and precious stones. The tea plant was unknown to the Portuguese or Dutch. Neither the Portuguese nor the Dutch had coffee plantations; it was grown by the Cingalese, who cultivated it as boundary fences to their properties, as may be seen to this day in the pretty homesteads hid away in the grove of coconut trees between Colombo and Point de Galle, a distance of about 70 miles. Ceylon being for a long time under military government, there were but few capitalists, and they belonged to the military and Civil Service, and it was upwards of 20 years after British occupancy that coffee planting was started as a commercial enterprise, for in 1825 there were only two plantations on the island—one at Paradynia, on the Maha Villa Ganga River, near Kandy, the property of the Governor Sir Edward Barnes; and the other at Gampola, about eight miles south, the property of Colonel Bird, where I first acquired my colonial experience in coffee growing. The business was carried on very extensively for about half a century after that, and the product being equal to the best Mocha coffee, that article became one of the principal exports of Ceylon. The leaf disease (so called made its appearance on the island, and decimated all the large plantations, and the attention of planters was directed to the cultivation of the tea plant, which it appears had been growing wild in the jungles of Ceylon, and for a period of nearly 300 years after European occupancy had, like the modest violet, been shedding its fragrance unnoticed in the desert air.

I have now before me a very interesting history of the island of Ceylon, published in 1805, by Captain Robert Percival, of the 18th Royal Irish Regiment, who was present at the capture of the island from the Dutch in 1796, giving an account of the natural productions. I herewith quote his words:—"But it is not sugar alone that Ceylon seems destined to afford to the general use of the Western world; the tea plant has also been discovered native in the forests of the island. It grows spontaneouly in the neighbourhood of Trincomalee and other northern parts of Ceylon. General Champagné informed me that the soliders of the garrison frequently use it. They cut the branches and twigs and hang them in the sun to dry; they then take off the leaves and put them into a vessel or kettle to boil to extract the juice, which has all the properties of that of the China tea leaf. Several of my friends have assured me that the tea was looked upon as far from being bad, considering the little preparation it underwent. The soldiers of the 80th Regiment made use of it in this manner on being informed of its virtues and quality by the 72nd Regiment, whom they relieved. Many preferred this tea to coffee.'

Neither the Government nor the public seem to have taken notice of this fact until after the coffee exportation became a partial failure. I believe it is generally admitted that the Ceylon tea is likely to supersede the use of the China article, as also of the Indian or Assam. The qualities are not sufficiently known to be appreciated. A much smaller quantity is requisite for a decoction, and the great secret of making it is not to let the teapot stand too long before use. Making tea in the usual way by infusing the leaves too long, the extract of the leaf is too strong and the flavour disagreeable to some tea-drinkers. I have heard it as a fact that made as I have described the leaves can be drained or laid aside and made into a second brew. I know the Chinese are in the habit of saving and drying the leaves of the tea they use to increase the quantity of the article they sell, and it is not at all unlikely that they will do the same with the Ceylon tea, thus adding flavour as well.

I do not advocate the use of Ceylon tea because it is the product of my native country, but I like it much better when properly made than the other imported articles, and I know it will go further, and consequently much cheaper; and I presume economy is, or should be, the order of the day in domestic circles.—*Auckland Weekly News*, Nov. 21st.

* This is the old gentleman, contemporary and playmate of Sir Charles Peter Layard, who, some time ago, sent us an interesting account of himself and his experiences in Ceylon and New Zealand. We need scarcely say that tea is not indigenous to Ceylon, and that coffee was unknown in the island until introduced and cultivated by the Dutch. Kandy, too, did not become British until 181.—ED, *T. A.*

WASHING CACAO.

SANTA CRUZ, 10th February, 1891.

Dear Sir,—At the last meeting of the Central Agricultural Board, I had the honor to lay before the Board, *viva voice*, the result of my experiments with regard to the advisability or not of washing cacao Ceylon fashion and to the loss in weight which such operation involves. I have been requested by the membors then present to put my remarks in writing so that they may be published in the *Agricultural Record*, and I accordingly send you the following notes which, if having no other merit, have the advantage of being based on facts and figures indisputable.

My attention has been called, in 1889, to the Ceylon method of preparing cacao by a letter from Mr. Prestoe published in the *Trinidad Chronicle* some

years back in which he saw no reason why the very best of Trinidad cacao should not be better than it is now, and as Ceylon prices averaged something between 20/ and 30/ over Trinidad cacao I decided to give the matter a serious trial in hopes of obtaining at least 10/ more than I did then.

Accordingly on the 24th of October, 1889, I wrote to England for a sample of Ceylon cacao to go by, and in the meantime I put up on my Estate the necessary requirements for washing cacao: pipes 1¼ diameter and 650 foet long to lead the water to a concrete trough 32 ft. × 1 ft. 1 × 3 ft.

In answer to my letter, instead of the desired sample which could not be obtained at the time, I got a report from Messrs. Wilson, Smithett & Co., Brokers, that it was not advisable to imitate Ceylon cacao because the principal value of that class of cacao resided in its pale cinnamon break which, whether due to the soil or to the different variety of cacao, Trinidad planters could not imitate. I thought, however, that having once begun I could not give up this matter without fighting it through and I again insisted for the sample to guide me.

In the interval I had prepared a small quantity of washed cacao for the San Fernando Exhibition and the Hon'ble W. Gordon, one of the Judges who gave that sample a 1st prize, having informed me that it was similar in external colour to the best Ceylon cacao he had seen in England and that the beans were twice the size of Ceylon beans, I immediately prepared a shipment of 13 bags for the English market.

This shipment was effected on the 14th March, 1890, and a few days after I prepared another lot of 12 bags which I sent to America so as to test both markets.

I had not yet received the sample of Ceylon cacao which I was anxiously expecting when by a letter dated 19th March, 1890, I was informed of the cause of the delay which had thus taken place. The following extract of the letter will speak for itself:

"The sample of Ceylon cacao which we addressed to you by Parcel Post last mail came back a day or two afterwards with the intimation that cacao was prohibited to be imported into Trinidad! We are having another try by this mail, by letter post this time and if you do not receive it you will know it has again come to grief somewhere—in Port-of-Spain probably."

I am glad to say that the Post Office authorities here could make a better distinction between the spirit of the law and the letter of the law than the authorities at home and I got my much desired sample at last.

I tried all I could to imitate the internal break and I approached it somewhat by sweating the cacao 12 to 14 days; but then the external appearance became darker and this could not be sacrificed only to approach *faintly* the internal appearance. My friend, Mr. C. de Verteuil, also received samples of Ceylon cacao and had them analysed and compared with his cacao. Analysis shewed no difference between the two except a very small percentage of theobromine *more* in Trinidad cacao.

In reference to the first shipment to England I received a latter dated 24th April, 1890, of which the following is an extract:—

"Now as regards the 13 bags of Ceylon cure the appearance is simply splendid and we most heartily congratulate you on the result; but after all the one point to be considered is—Will it pay? One of our largest buyers of Ceylon cacao saw the sample yesterday and was loud in his praises of it but summed it all up in these words:—"Yes, I dare say you'll get a few shillings extra for it, but try all you can and you'll never get the Ceylon colour inside." However, this is a pure experiment and a very interesting one too, and the great object is to establish, if possible, a high price for this little parcel to act as a kind of precedent for future shipments. By dint of careful manipulation our Brokers hope to take advantage of the fact that certain buyers of Ceylon cacao are now being frightened away by the abnormally high price now ruling, and if some of these can be tempted to give yours a trial at some price between 80/ and 90/ as against 100/ to 110/ for Ceylon, it will be an important step in the right direction. You must however bear in mind that the new cure to some extent reduces the strength of flavour while it fails to give that delicate pale colour inside which is the great attraction in Ceylon cacao. In addition to this the Ceylon production is very small and the demand for it, though relatively large, is actually also very small; consequently if it were possible for all Trinidad cacao to be prepared exactly like Ceylon cacao the difference in price would probably no longer exist, as the supply would then far exceed the demand."

Notwithstanding this flattering opinion the cacao was put up at auction and only elicited a bid of 70/ as against 68/ ruling at the time for my ordinary cacao. It was withheld however by my instructions and later on, after great pains and tact by the part of my agents was disposed of at 85/. I was advised at the same time that this sale must be regarded purely as an experiment and not as having established a market value.

In America the second lot met with a ready sale at 17½ cents per lb. and having received the account sales of this lot before that of the 13 bags to England, I continued to ship to America a few parcels of 5 and 7 bags respectively which fetched 16 to 16½ cents. From there also I was informed that if any great quantity of this cacao was shipped at a time the price would fall; and so it turned out, for others shipped to America also and the price fell to 14½.

The crop having come to an end I could not continue to ship until October this year, when I wrote home to say that I was going to prepare all my crop Ceylon fashion and asking for an opinion on the matter. But the price of ordinary cacao having gone up 2/, I thought it was wise to send a trial shipment of both qualities at the same time before running the risk of losing the advantage of a rising market for the ordinary kind. Consequently I prepared 17 bags ordinary and 10 bags Ceylon fashion which were shipped by the same boat and put up to auction at the same time. The former was sold at 66/ and the latter at 68/; but on account of the difference in weight the former yielded £5 17 3 gross and the latter £5 9 6 gross, that is 7/6 less notwithstanding the difference in price. I was advised therefore that "taking into account the great loss in weight in preparing your cacao Ceylon fashion it seems to us that the small extra price you will obtain for it will not compensate you."

It is needless to say that I am following that advise, the more so that my next lot of ordinary cacao was sold at 68/, the same price which the Ceylon process had fetched.

With regard to the loss in weight as from one method to the other, the question was practically settled by Mr. C. de Verteuil, of Maraccas Bay, who from the same sweating-box weighed a certain quantity of cured cacao and prepared that lot, the ordinary way of dancing, rubbing and sun-drying, and weighed again an equal quantity which was immediately washed and sun-dried. The difference was 14 per cent. less for the washed sample when dried.

I was then present when this test was taken and did not renew it. But in course of practice I can again say that the same number of baskets measured in the field which gave me a bag of ordinary cacao also gave me a bag of Ceylon prepared cacao, with this difference that the Ceylon bags weighed 12 to 14 per cent. less than the others. Practically therefore I may state that the loss of weight in washing is 14 per cent.

The actual results, so far as I am concerned shew that the English market is not ready to take up our cacao, washed, at a much higher price than the ordinary kind, whilst in America only small quantities at a time can be depended upon to fetch good prices.

But does that settle the matter once and for always against washed cacao? I hope I may not be looked upon as a utopist if I venture to submit that, notwithstanding this initial failure, to wash cacao is the only rational way of preparing that article for the following reasons:—

1st—It is indisputable that the cacao shell with

its coating of dried and decomposed mucilage, and in some cases with an adjunct of red earth or red ochre, cannot be a wholesome article of food, and I believe large manufacturers have to remove that shell before manufacturing chocolate. The loss of weight to be met with in washed cacao is also therefore to be taken into account by the manufacturer, plus the cost and labour of removing these impurities.

2nd—Artificial drying has to be resorted to sooner or later, and already I may say that Mr. C. de Verteuil has successfully initiated such a means of drying cacao in bad weather.

It is evident that the beans when washed will not only dry quicker and save fuel but also they will not require to be hand-rubbed and danced and thus save labour.

Why then will manufacturers not pay higher for washed cacao?—I suppose the natural tendency of manufacturers to keep down the price of the raw product is responsible for that. But time would soon convince them that it would be to their advantage to buy a clean article and the public also would prefer to purchase chocolate manufactured *undoubtedly* from a clean and pure article.

Why then cease to prepare my cacao Ceylon fashion?—I am but an individual and can ill-afford to lose money for any length of time; but a company, with very little capital, which would start a central factory in Port-of-Spain, for instance, where abundance of water can be had, where by rail they could receive the raw product from small and large proprietors, where also they could put up cheap artificial drying houses, would be the right thing to put the washed cacao on the markets of the world and to have it in time appreciated as it should be.

Not only such a company would make money but small proprietors and some large ones, I venture to predict, would have a ready sale for their product especially in bad weather, and the name of Trinidad cacao would again stand foremost in the markets of the world.—I beg to remain, Dear Sir, Yours very truly,

Eugene Lange, Jr.

—*Trinidad Agricultural Record.*

The Castor Oil Plant.—No sort of bird, beast or creeping thing will, says an American paper, touch a castor oil plant. It seems to be a rank poison to all the animal world. Even a goat will starve before biting off a leaf, and sniff at it and turn up his upper lip as though it had the most detestable odour on the face of the earth. Army worms and locusts will pass by it, though they may eat every other green thing in sight, and there is no surer way to drive moles from a lawn than to plant a few castor beans here and there. Even the tobacco worm will refuse to feed on its leaves. There is hardly another instance in natural history of a plant being so universally detested by the animal world. And yet we know the Eria silkworm of Assam feeds freely and thrives well on the leaves of this plant.—*Indian Agriculturist.* [Castor oil plants grown on a large scale in Ceylon as a supposed protective of Liberian coffee, if we remember aright, had their leaves all eaten off by an insect. There is actually an insect which does not revolt even at tobacco!—Ed. *T. A.*]

A Correspondent points attention to what tea will do at Darjeeling, or rather to what it *has done* and instances the Dooteriah Tea Estate, which was sold by public auction during the crisis of 1866-67 for R20,000, and is now worth 18 lakhs or more. It was sold in the usual manner by Mackenzie, Lyall and Co., and knocked down to Colonel A. Fyers, of the Madras Fusiliers, who was joined as a half share by the late Dr. J. P. Brougham, of Calcutta. For more than 20 years past the property has yielded a princely income to both partners; and since Dr. Brougham's death Colonel Fyers being desirous of acquiring the other half-share is understood to have made the doctor's heirs *bona-fide* cash offer of nine lakhs of rupees for it, which, has been refused! Surely, if this is not quite as good as a gold mine, it must be pretty nearly so. And there are other properties in the neighbour, hood which changed hands to similarly low figures during the same crisis which are known to have done and to be doing almost as well as the Moonda Kotee Garden for instance, which along with more half-a-dozen others was taken over by the Land Mortgage Bank for some R50,000 after the original owners had spent about 3½ lakhs upon it. It is a pity it is so difficult for the public to ascertain reliable particulars as to the working of the Darjeeling tea gardens. There used to be an *Indian Tea Gazette*, in which one would naturally expect to and information of this sort, but I understand it is now defunct.—*Indian Agriculturist.*

The sedimentary deposit taken out of ponds is largely composed of dead leaves. This material forms a very useful dressing if spread alone over a bare or thin part of a field, but it would be more desirable to have it mixed with lime before application. The lime hastens the decomposition of the organic matter in the leaves and other *débris* of vegetable forms, and materially adds to the usefulness of the dressing. The stuff taken from the pond may also be profitably used in covering dung heaps, as it will serve not only to waterproof the dung heap, but also to absorb any ammonia that might otherwise escape from the decomposing dung—*Indian Agriculturist.* [A hint this for utilizing the offensive but fertile dredgings from the Colombo Lake.—Ed *T. A.*]

Ceylon Tea in London.—Messrs. Gow, Wilson & Stanton write to us by this mail:—

"The market for Ceylon tea as you will see has somewhat advanced from the lowest point, and as competition is general and a good all round demand prevails, the prospects are somewhat more encouraging than they were two or three weeks back. It must not however be forgotten that large quantities of tea will shortly be arriving from the Island, and these if forced on the market too quickly, may somewhat overtax it, although we sincerely hope that this will not prove to be the case, as there is generally a considerable business transacted in the first few months of the year. With kind regards, and wishing you the compliments of the season; and wishing Ceylon Tea Planters generally a Happy and Prosperous New Year with better prices than we have recently seen."

The Commercial Value of Egyptian Petroleum.—We have heard a good deal from time to time about Egyptian petroleum, and of the possibility of the mineral oil which is found at Gemsah on the shores of the Red Sea, becoming an important factor in the oil trade of the future. That being so, it will be interesting to learn something concerning the character of this oil. The illuminating power was tested in Elster's photometer; the burning oil gave a light of 9·8 standard candles (German). The weight of oil burnt per hour was 31 grams. When exposed to the air the oil rapidly developed an unpleasant odour. Messrs. Kast and Kunkler are of opinion that Egyptian petroleum is not suitable for the manufacture of illuminating oils, but is an excellent material for the preparation of lubricating oils.—*Chemical Trade Journal.*

New Adulterants.—M. Callardot announces his discovery of two more new adulterants of saffron, viz. fine shreds of onions, dried and coloured artificially, and also the powder of "sweet cayenne" or paprika, made adherent to the style by some agglutinating agent, which he believes to be honey. This second adulterant he finds present in as high a proportion as 60 or 70 per cent. or more.—*Chemical Trade Journal.*

GARDEN NOTES.

(From the Proceedings of the Agri-Horticultural Society of Madras.)

ARAUCARIAS.—A number of young *Araucarias* were planted out, in October, on each side of the main walk from the entrance gate, and with the exception of three specimens of *A. bidwillii*, look very healthy. Attempts have been made, on former occasions, to grow *A. bidwillii*, in pots and in the open ground, but have failed. Mr. Whiteside informed the Committee that he had made several attempts to grow *Araucaria bidwillii* in his garden, and that, when it was removed from the pots in which it was thriving and planted in the open ground, it invariably died in a few weeks. On the other hand, *Araucaria excelsa* did very well in the open.

BAMBOOS.—Mr. J. S. Gamble, Conservator of Forests, recently identified the following species of Bamboo, which are growing in the Society's Gardens :—

Bambusa arundinacea.—India and Burmah.
" *nana.*—China.
" *vulgaris* var. *aurea.*—China.
Cephalostachyum flavescens.—Burmah.
Dendrocalamus hamiltonii.—Sikkim, Bhutam, Assam.
" *giganteus.*—Penang.
" *strictus.*—India and Burman.
Ochlandra travancorica.—Tinnevelly.
Teinostachyum wightii.—W. hills of India.

The plants of *Dendrocalamus hamiltonii* and *Teinostachyum wightii* were raised from seed received from Calcutta and Trivandrum respectively. The giant Bamboo, *Dendrocalamus giganteus*, has been recently introduced into the Public Gardens at Trivandrum (Travancore) from Ceylon, and is flourishing in the moist climate.

Beesha travancorica.—Seedlings of *B. travancorica* (Elephant grass) were received from Mr. Rhodes Morgan in 1886. One of these is now 10½ feet high and 5 feet broad, and is much more effective as an ornamental plant than the ordinary Bamboo.

Dillenia speciosa has flowered recently for the first time in the Gardens. The plant is 16 feet high.

VICTORIA REGIA —The Honorary Secretary reported that, while visiting Ceylon recently, he took over with him, at the request of His Excellency Sir A. Hamilton Gordon, some young plants of *Victoria regia*, for the new tank in the Fort Gardens, Colombo. Two of these plants were, at the date of his departure from Ceylon, two months later, growing rapidly in the tank, which is supplied with running water, and looked perfectly healthy. Some seeds of *Victoria regia*, which had been sent to Ceylon earlier in the year, germinated a short time before his arrival on the Island.

The *Victoria regia* in the Society's Gardens, which was removed last year from the tank near the Palm House to the tank in the nursery, is in a very flourishing condition. In December, out of sixteen leaves, six measured 7 feet 8 inches in diameter.

Sir Charles Lawson observed that the leaves of the *Victoria regia* near the Palm-House seem to have diminished in size under the influence of the slightly brackish water, with which the tank is supplied. The tank in the Nursery Garden is supplied with rain water, and the greater size of the leaves, as compared with those in the other garden, is noticeable.

INSECT PESTS.—Mr. Thurston exhibited specimens of the following species from the Madras Presidency :—

1. *Suastus gremius*, one of the *Hesperiidæ*, which is reported to do great damage to the paddy plants in the Balasore District, Bengal, though Mr. L. de Niceville is inclined to doubt the fact.

2. *Lampides elpis*, one of the *Lycænidæ*, which is said to do so much damage to the Cardamoms in Ceylon that from 5 to 10 per cent. of the fruit capsules are perforated by the insect. And Mr. Owen estimates the damage done by it to be sometimes as much as 80 to 90 per cent. to young plantations.

3. *Papilio erithonius*, one of the *Papilionidæ*, which has been reported by Mr. Cameron of Bangalore to attack lemon trees. The insect also does much damage to young budded oranges,

4. *Cryptorhynchus mangifera*, the Mango Weevil.

5. Larvæ of a noctual moth *Achœa melicerte*, which is said to attack Castor-oil plants, and reported by the Collector of Ganjam to attack sugarcane, paddy, and brinjals.

6. *Nezara viridula*, the green Bug, which is reported by Mr. Cameron as occurring on potato halms in Bangalore.

Much information on these and other pests will be found in the Indian Museum 'Notes on Indian Insect Pests.' The Committee considered that it is very advisable to keep a collection of Insect Pests which are injurious to plants and trees for inspection in the Society's office. The Honorary Secretary will be glad to receive specimens accompanied by notes thereon.

BRANCHING PALMS.—"In the *Journal of the Linnean Society*, 1871, Vol. XI., Dr. Shortt published an account, with illustrations, of some branched Palms from Southern India, the species mentioned being the Palmyra Palm or Borassus, and the Cocos. Our present illustration (fig. 40) is taken from a photo kindly sent to us by Mr. T. H. Storey, the Superintendent of tha Sujjan Niwas Gardens, Oodeypore, Rajpootana. The species represented is the Wild Date, Phœnix silvestris. Mr. Storey tells us the occurrence is quite rare, he having seen hundreds of miles of Date trees, but only this one group of branched Palms growing in a jungle, about 30 miles from Oodeypore. Mr. Storey continues: "There is a large beetle (identified for us by Prefessor Westwood, as *Scarabœus (Oryctes) rhinoceros)* which is very destructive to the Palm family.' It bores a hole right through the centre of the tree, and cuts all the leaves off. I think this beetle may be the cause of the Date Palm's branching. I have in the garden one tree which has been attacked, and it is now throwing out a side-shoot." We have no doubt Mr. Storey's conjecture is correct, and that the branching is an attempt to remedy the evil consequences of the injury inflicted by the insect."—*Gardener's Chronicle*, September 7, 1889.

The Committee observed that in some instances, the parts of the flower, instead of attaining the normal condition, assume the form of leaves. Some years ago Dr. Shortt sent to Surgeon-General Bidie an example of this in a Coconut, which has, unfortunately, been lost. A good example of a branching Palmyra Palm is, or was a few years ago, growing in the Assistant Collector's bungalow at Ramnad.

Mr. Whiteside informed the Committee that, some years ago, he found, in the Polur taluk of the N. Arcot district, a Palmyra tree which had three branches, the stem of the tree being encircled by the roots of a healthy young Banyan tree, the seed of which had, doubtless, been deposited by a bird. He had the tree photographed, but the plate was unfortunately broken when on its way to Madras to be developed.

MANGO WEEVIL.—*(Cryptorhynchus mangifera).* In a note on a communication from the curator of the Perak Museum on the subject of this pest, 'Nature' observes (August 22, 1889) that "it is believed that it lays its eggs in the flower or very young fruit, for in the ripe fruit there is no external mark to show where it gained an entrance, and it is not until the perfect insect eats its way out of the mango that it is possible to tell whether any particular fruit is sound or diseased. Some varieties of the mango enjoy complete immunity from the attacks of this insect, and it has been noticed that even particular trees of varieties which are not so favoured always escape. This fact seems to hold out a hope that, by careful selection, good varieties of the fruit could be raised, which would not be subject to the attacks of this destructive pest. The character which renders the fruit unsuitable for the weevil is, and probably always will remain unknown, as our senses may not be keen enough to detect the particular taste or smell which prevents the female from laying her eggs in the fruit of the naturally protected trees."

[As a rule mangoes grown in Ceylon seem to be free from insects. We can only remember some grown at Jaffna being infested.—ED, *T.A.*]

THE CHEMISTRY AND COMMERCIAL POSSIBILITIES OF WATTLE GUM.

BY J. H. MAIDEN, F.L.S., F.C.S.,

Curator of the Technological Museum, of New South Wales.

The subject acquires additional interest on account of the short supply of good gum arabic, and the categorical statement which has been more than once made that Australia might meet the demand. Although a common product, seen and known by everyone in the Colonies, it is singular that wattle gum has not hitherto formed the subject of systematic reseach. In the following pages I have treated the subject both from a botanical and chemical point of view, and have, I believe, included all published references to the subject. My researches and observations, conducted with exceptional facilities for thoroughly sifting the subject, have caused me to arrive at the conclusion that Europe and America must not look to Australia for any quantity of high class gum.

Wattle gum is the produce of various Australian species of Acacia, a genus which is very largely developed in that continent, comprising about 320 species, besides a large number of well marked varieties.

Gum has, however, only been recorded from comparatively few species, as by far the great majority have no local names, and where it has been collected at all it has usually been styled "wattle gum." The present paper includes all species known to the author as having yielded gum in Australia; several of the gums are now recorded or described for the first time. The specimens described are in the Technological Museum.

Speaking of Wattle gums in general, Bentley and Trimen, 'Medicinal Plants,' say, "It is found commonly in large tears or masses of a dark yellow or reddish-brown colour. This gum, which has a transparent appearance, being nearly free from cracks or fissures, is said to be readily soluble* in water, and to form a very adhesive mucilage. It is frequently contaminated with pieces of the astringent barks of the trees from which it is obtained, hence its solution, unless carefully prepared, will frequently contain some tannic acid." This is an objectionable constituent, as it affects the mordants in calico printing.

"Best selected Turky gum" is the ideal gum of the group to which Wattle gum belongs, and if judging were to be by points, it would take the highest place as regards absence of colour, freedom from accidental impurities, ready solubility, and adhesiveness of its mucilage. The Australian gums seen by the author for the most part fall far behind this high standard, although specimens of those from *A. homalophylla*, *A. pendula*, *A. sentis*, and *Flindersia maculosa* compare with it very favourably. As far as his experiments go, those samples obtained from the interior (comparable in its aridity to the Soudan and other noted gum-producing countries), are completely soluble in water, and make good mucilages, while those obtained east of the Dividing Range, *i.e.*, in well watered districts, in which vegetation is comparatively luxuriant, are more or less insoluble, portions, at least, merely swelling up in water, like cherry gum. In other words (speaking of the Eastern colonies, in the absence of detailed knowledge of the western one), the coast Wattle gums contain metarabin, while the interior ones do not. And when it is borne in mind that the yield of gum in the interior is insignificant as compared with that of the coast country, it becomes apparent how hazardous is any generalization that Australian gums are readily soluble in water.

I do not think there is much commercial future before Australian gum, on account of the high price of labour, except in the few localities where gum is very abundant and of high quality, and because the natural gum-yielding trees have been largely destroyed for their tan-bark and for firewood.

Wattle gum exudes chiefly during the summer season from fissures and accidental injuries to the bark. After careful observation, I have formed the opinion that, as a very general rule, it is a pathological product. I came to this conclusion long before I was aware of Trecul's observations, that Acacias and the Rosaceæ yield their gums most abundantly when sickly, and in an abnormal state caused by a fulness of sap in the young tissues.

Wattle gum of various species is largely eaten by the blacks, and, by those of the interior at least, especially with fish. This fact is well-known in the Colonies, and I give a few quotations from explorers on the subject. Following is Captain Sturt's account of the occurrence and use of Wattle gum by some natives of Central Australia:—"Among other things we found a number of bark troughs filled with the gum of the mimosa, and vast quantities of gum made into cakes upon the ground. From this it would appear that these unfortunate creatures were reduced to the last extremity, and being unable to procure any other nourishment, had been obliged to collect this mucilaginous food" ('Two Expeditions into the Interior of South Australia,' etc., 1828-31, i., 118). Captain Sturt was not then aware that the natives by no means look upon Wattle gum as starvation food.

Captain J. Lort Stokes ('Discoveries in Australia') gives "Minnung" as the name of a Western Australian Acacia whose gum is "very abundant," and eaten by the natives.

Captain (now Sir George) Grey gives the following account of the use of Wattle gum (? *A. microbotrya*) by the natives of Western Australia:—

"The gum of the mimosa is a favourite article of food amongst the natives . . . . *Kwon-nat* is the kind of gum which most abounds, and is considered the nicest article of food. It is a species of gum tragacanth *(sic)*. In the summer months the Acacias, growing in swampy plains, are literally loaded with this gum, and the natives assemble in numbers to partake of this favourite esculent. As but few places afford a sufficient supply of food to support a large assemblage of persons, these Kwonnat grounds are generally the spots at which their annual barter-meetings are held, and during these fun, frolic and quarrelling of every description prevail." ('Journal of Two Expeditions,' etc., ii., 260, 294). Captain Grey also makes the interesting statement (p. 298) that some of these Kwonnat grounds appear to be visited by numerous families by acknowledged right at the period when the gum is in season, although not allowed there at any other time. This hereditary ownership is very rare amongst the aboriginals, although it is exercised in the well-known instance of the *Araucaria Bidwilli*, of Queensland.

Small boys eat the more insoluble gums, particularly when made into a jelly and sweetened (see *A. decurrens*).

Wattle gum is considered useful in diarrhœa (in such cases a little astringency would of course be an advantage rather than a drawback) and piles. It is also said to be employed in veterinary practice in the country for wounds and raw shoulders in horses.

I have been shown a statement by "a good practical man" that Wattle gum dissolved in benzole "makes an excellent carriage vanish." Perhaps here will be a convenient opportunity to point out that Wattle gum is quite insoluble in that liquid, to say nothing of the ridiculous suggestion to use a true gum for a varnish, and to protest against the reckless statements which are made in regard to our little known raw products.

It would appear that some species, which in their

* Perhaps this statement has arisen from the following:—"Generally speaking, the Victorian acacia gums are somewhat less soluble than the gum arabic of commerce, but, on the other hand, they appear to yield a more adhesive mucilage, which is less liable to splinter and crack when dry" *(Report on Indig. Veget. Subst.*, Victorian Exhibition, 1861.) This statement gives an exaggerated idea of the value of Victorian gums, and of Australian ones generally!

native habitats yield gums more or less insoluble, produce more soluble products when grown in some other countries. The question is a wide one, and well worthy of being followed up, for it would be of the highest commercial importance if it could be shown that free-yielders of inferior metarabic gum would in other soil and climate develop a tendency to the formation of arabic gum (see *A. dealbata*, *A. decurrens*).

Some notes by Dr. Hopff on an Australian Wattle gum as compared with gum arabic will be found in *Pharm. Journ.*, vii., 588. The experiments have no conclusiveness, and the source of the Wattle gum is not given, for it was probably unobtainable.

I have divided the Wattle gums experimented upon into three provisional groups. I could make sagacious guesses as to the groups into which many other Wattle gums are likely to fall, but prefer to confine myself to the record of facts. The classification of the future will probably be into arabin and metarabin groups, in which case my groups II. and III. will simply require to be united. The samples chosen for analysis were picked ones in all cases.

GROUP I. (ARABIAN GROUP.)

Acacia homalophylla.
Acacia pendula.
Acacia sentis.

They are readily and entirely soluble in cold water, like Turkey gum arabic, for which they form an excellent substitute. Arabin is their characteristic and main constituent. Following are analyses:—

	Arabin.	Metarabin.	Moisture.	Ash.	Total.
A. homalophylla...	79·84	—	16·83	2·86	99·53
A. pendula var. *glabrata* ..	79·5	—	17·51	2·39	99·40
A. sentis	76 97	—	17·88	4·59	99·44

Acacia homalophylla, A. Cunn.; 'B. Fl.,' ii., 383.

The common "gidgee," found in South America, Victoria, and New South Wales. This tree yields gum copiously throughout the summer season.

My sample outwardly resembles, in a striking manner, common pine resin or "rosin." Its fracture is conchoidal and very lustrous. From its resemblance to "rosin," its colour is a drawback, but it is remarkably bright and clean, and as it is so freely soluble, and so adhesive, it would well pay to export, could it be obtained in sufficiently large quantities. It dissolves entirely in cold water, forming a very pale yellow, almost perfectly transparent liquid.

Mr. Edward Palmer ('Proc. Roy. Soc., New South Wales,' 1883, 94), states that gum of this species is eaten by the blacks of Northern Queensland, but there is apparently some confusion in the locality, as I am not aware that this species extends to that colony.

Acacia pendula, A. Cunn., var. *Glabrata*, F. v. M.

Perhaps co-extensive in geographical distribution with the normal species. *A.* "*Yarran.*" Sample obtained from between the Lachlan and Darling Rivers, New South Wales.

There is a marked difference between the new and the old gum of this sample. The new gum is in rounded pieces, and very similar in appearnace and usual size to Senegal gum, and Aden gum arabic. The gum which remains long on the trees becomes filled with minute fractures which cross each other nearly at right angles. The fissures which radiate from the centre of a lump cause the lump to break into sub-triangular or conical pieces, but as disintegration proceeds, these pieces are broken down into small angular fragments. It is worthy of notice that the colour of the lumps varies in depth from the centre outwards, and the bands of colour are usually fairly well defined. The difference in colour is dependent upon the extent to which the fissuring has proceeded. As fissuring (the result of weathering) is most evident on the outside of a lump, and as the process of repeated reflection of light makes the part affected lighter in colour, though more opaque, the colour of the gum increases in depth as the central portions of a lump are reached. A common tint for the outside (or basal portion) of a conical piece is amber, that of the inside (or apical portion) "rosin brown." I have described these appearances at some length, because they are commonly seen in the "dry country" gums.

Like other Wattle gums, this would require selecting for the market, but some portions are of very high class. It dissolves entirely in cold water, forming a perfectly clear solution, almost colourless, with the exception of a brownish tint.

Acacia sentis, F. v. M., 'B. Fl,' ii., 360.—Found in all the colonies, except Tasmania; "prickly wattle." Sample obtained from Whittabranah, Tibooburra, New South Wales.

The trees of this species in the above neighbourhood are for the most part very small, and gum is found on them very sparingly. Much of it is of a rich amber colour when freshly exuded, and quite different in appearance from any other Wattle gum I have seen up to the present. Other portions are nearly as pale as selected Turkey gum arabic, while a small portion is of a dainty sulphur-yellow colour. It is sparkling and clean-looking, and would be a very acceptable article of commerce could it be obtained in quantity. This gum presents more points of resemblance to the preceding than to any other gum yet examined by me. It is very easily reducible to a powder, partly on account of its somewhat vesicular nature. It dissolves in cold water readily and completely, forming a solution of a pale yellowish-brown or amber colour. —*Pharmaceutical Journal*

SCRUB EXTERMINATOR.

I have the honor to give an account of an experiment I made last April on prickly-pear, with a small quantity of the Australian Scrub Exterminator noticed in G. O., dated 5th October 1889, No. 2287-L.

2. The manufacturers of the chemical very obligingly sent me, on my application, a sample, 15-lb. weight, free of cost, through Messrs. Oakes & Co.

3. I made two experiments, the first on the 18th and the second on 28th April, on prickly-pear growing on an open piece of ground to the south-east of the Dindigul road, just outside the toll-gate, the clump of pear selected on each occasion being vigorous, old and well developed.

4. *First experiment.*—The first experiment I need not dwell on. I used a small garden hand-syringe to throw the fluid over the pear. The suckers in the syringe were loose, a great part of the fluid escaped, and was wasted, and it could not be scattered sufficiently. I used 3 lb. of the chemical, 2 lb. in 8 gallons of water, that is, at 1 to 4, and 1 lb. in 3 gallons, that is, at 1 to 3. The only points that the experiment established were (1) that the chemical destroyed the parts of the pear that were well sprinkled, and (2) that the strength of the fluid appeared to make no difference in its destructive effect, that at 1 to 4 being just as effective as that at 1 to 3.

5. *Second experiment.*—The second experiment was more complete. For this I got the loan of a small hand fire-engine from the South Indian Railway Workshop. The engine was a lttle too big to get full value out of the quantity used, for the long tube from the engine held some two gallons of the fluid when the engine had ceased to work; but it answered well otherwise. The remaining 12 lb. of the chemical were put into 52 gallons of water, that is, at 1 to $4\frac{1}{3}$, and pumped on the pear. When the engine ceased to work, the fluid in the tubing was poured off, and pumped on, as well as possible, with the garden syringe; and when that was done, a small part of the chemical found undissolved in the bottom was mixed with a further quantity of water at about 1 to 20, I should say, or weaker, though this could not be measured accurately; and this very weak solution was thrown over a separate small clump of young pear growing near.

6. As in Australia, the chemical produces no immediate effect on the pear. Two days after the experiment, a top leaf here and there hung down slightly browned; on the third day, though there was a smart shower of rain in the night previous, the beginning of decay was well marked; and, by the

end of a week, the whole of the area sprinkled was dead, with the exception of some thick stems in the middle, which were protected by the leaves above them, and so got little of the fluid. All the leaves were as dry as tinder, and the whole had an unpleasant smell. I had no more of the chemical to complete the destruction of the thick stems and their roots; so decided to furnish it by fire. The whole of the destroyed area was then set fire to with a little straw and rubbish; and all, including the thick stems, burnt freely. The whole patch was thus destroyed. A few sprouts have since appeared here and there in the patch; but so few and so small, that they could be destroyed by a few ounces of the fluid, or a man could dig up the roots in a few minutes and burn them. Such sprouts always appear when prickly-pear has been nominally destroyed; and the ground has always to be gone over a second time. They are much fewer than usually appear after destruction by hand-labor. The extent of the patch destroyed was 274 square yards. The small clump of young pear on which the weak solution was thrown was found killed, and it was not necessary to burn it.

7. The experiment thus proved—

(*a*) that the chemical thoroughly destroys all the leaves and all the parts of the pear that it gets at;

(*b*) that it destroys completely all young pear, even when used in a very weak solution;

(*c*) that even old well-established pear, with thick stems, is destroyed by it so far that the destruction can be readily completed by fire;

(*d*) that, judging from the Australian reports, the chemical acts a little more quickly in this country than in Australia; and

(*e*) that rain has no effect in checking the decay of the plant once it has begun.

I believe also that the destruction is more complete than if done by manual labor.

8. The only question remaining is that of cost. I have had to delay this report to be able to answer the question, as the manufactures gave me no information on the point when sending the sample. I have now received information from Messrs. Oakes & Co. that they can supply the chemical at R60 per box of 100 lb. Railway carriage would add a few rupees to this. Taking the total cost delivered in Trichinopoly at R66, the cost per lb. would be about As. 10-8. At this rate, the destruction of the 274 square yards costs as follows:—

	RS.	A.	P.
12 lb. of the chemical at As. 10-8 ..	8	0	0
Cost of burning—			
6 Coolies 1 2 0	2	0	0
Fuel 0 14 0			
Total..	10	0	0

Or just 7 pies per square yard—a little more than the usual rate for destruction by manual labor, viz., **6 pies.**

9. So far, therefore, it would not pay to use the chemical. I believe, however, that the chemical could be used much more economically; and that a strength of 1 lb. to 10 gallons of water would be just as destructive. It would be slower in action, but that is of no consequence. I could not unfortunately prove this, except on the clump of young pear, for the fire-engine was so large that I had to put all the remaining stuff in. The cost of burning too would, the Tahsildar tells me, be only one-half the figure given in villages away from Trichinopoly town. Taking that as correct, the expense for 274 square yards would be—

	RS.	A.	P.
5 1-5 lb. of the chemical at As. 10-8..	3	7	6
Cost of burning	1	0	0
Total..	4	7	6

Or 3·15 pies per square yard; or including a cooly to work the pump, an item I have not taken into consideration, as the South Indian Railway Company have not charged me anything, the cost would be something under 3½ pies per square yard. That rate would pay. Another item I have not considered is the initial cost, and occasional repairs, of one or more suitable pumps; but this would make very little difference in the cost per square yard when distributed over any considerable area. Cartage to a long distance from the railway would, of course, raise the figure.

10. The most suitable pump, I think, would be a garden watering pump, on wheels, to hold about 12 gallons. One man could easily wheel about and use a pump of that size without assistance.

11. On the whole, the chemical is not, I fear, cheap enough to supersede destruction by manual labor altogether; but I think it may be used with advantage, even at its present price, in places near the railway. I propose asking the Local Fund Board to put a small sum of R100 or so at my disposal for the purpose of making further experiments with weak solutions when the dry weather comes. I shall report the result.

12. I shall also ask Messrs. Oakes & Co. whether they cannot reduce the price.

Resolution—dated 28th November 1890, No. 369.

The Board is much indebted to Mr. Fawcett for the care with which he has carried out the experiments described above. They leave no doubt that the chemical is most efficacious in destroying prickly-pear in all stages of its growth; but, as Mr. Fawcett points, out, its present cost is too great to allow of its being extensively introduced into a country where labor is generally cheap. He states that taking the price of the chemical alone at the figure given by Messrs. Oakes & Co., viz., R60 per box of 100 lb., and excluding the cost of pump, &c., which are essential to the success of the experiment, the cost of destroying the prickly-pear came to 7 pies per square yard as against only 6 pies, which is the usual cost of destroying it by manual labor. It would seem, however, from the report printed in G.O., dated 6th September 1889, No. 764, that the quantity of the chemical used by Mr. Fawcett, viz., 12 lb. in 52 gallons of water for 274 square yards, was somewhat excessive. Mr. F. Piper, Head of the Forests Branch, Department of Lands, Victoria, considered an application of the chemical by Mr. Brodie, Prickly-pear Inspector, at the rate of 240 gallons of the solution (containing 80 lb. of the chemical) per acre, to be *twelve* times as much as the quantity named by the proprietors of the patent as sufficient, viz., 6⅔ lb. dissolved in 20 gallons of water. The quantity of the chemical applied per acre in the experiments in Trichinopoly was about 212 lb., that is nearly *thirty-two* times as much as the quantity named by the proprietors as sufficient. Both in Australia and in Trichinopoly, it has been found that a solution of 1 lb. of the chemical in 6 gallons of water was as good as a solution of 1 lb. of the chemical in 3 gallons of water. For destroying young clumps of prickly-pear, Mr. Fawcett found a solution of 1 lb. in 20 gallons of water quite sufficient. What the weakest solution capable of killing prickly-pear in this country is has yet to be determined.

2. In Australia, prickly-pear of a species which attains a far larger size than that usually found in this country was found to be completely killed in from 8 to 10 days after the application of the chemical, and it was found that it acted there much more speedily during hot weather than in cold weather. The Collector of Trichinopoly found an old clump of prickly-pear completely killed in about a week after the application.

It appears from the Trade Circular issued about the chemical, that its cost in Melbourne is £2-10-0 per 100 lb. which, at the current rate of exchange, is equivalent to about R33¾. The cost might probably not exceed R40 per 100 lb. delivered at Madras. Even if the chemical be applied at the rate considered very excessive, at which Mr. Brodie, Prickly-pear Inspector, effected the destruction of old clumps on ¼ acre of land, the cost per square yard on account of the chemical would probably not exceed 1¼ pies. Of course, if 6⅔ lb. of the chemical

be enough for an acre, as the proprietors of the patent appear to think, the cost per square yard for the chemical will be a mere trifle.

3. Since these proceedings were drafted, a small quantity of the chemical (a little over one pound) has been received from Melbourne with G. O., dated 29th October 1890, No. 845. This will be tried at Saidapet under the supervision of Mr. Keess and Sub-Assistant Director Mr. Subba Row at a strength of 1 lb. in 6 gallons of water applied to 60 square yards which is the rate which has actually been found to be effective in Australia. According to the proprietors the same solution would seem to be sufficient for about twelve times the area. This will also be tested by actual experiments as far as possible with solutions of the chemical varying in strength from 1 lb. in 6 gallons to 1 lb. in 20 gallons. The latter strength was found to be sufficient for killing young prickly-pear at Trichinopoly.

4. One important point which should be carefully borne in mind in making these experiments is that a solution of the "Scrub Exterminator," if allowed to come in contact with the skin, causes some abrasion, and if allowed to come in contact with the finger nails causes much pain, and that cattle are apt to be poisoned if they eat scrub or grass saturated with it. The proprietors state that stock should not be allowed access to the ground operated upon for about a week.

REPORT ON THE COCONUT DISEASE AT MONTEGO BAY.

Botanical Department, Gordon Town P. O., 24th July, 1891.

Sir,—I have the honour to report that I have visited Montego Bay to examine into the death on a large scale of Coconut Palms in that neighbourhood.

Several trees were cut down, and the roots, stem, leaves, and cabbage examined. There was no evidence whatever of attacks by a beetle, there were some small larvæ, some wood lice, earwigs, ants of several species and other insects on the affected parts, but they were evidently only preying on the diseased juices, and were not the cause of the disease.

The roots were quite sound and the stem appeared to be unaffected. Both stem and leaves were of normal size, and there was no indication of a gradual dwindling of vitality due to lack of proper nourishment extending over a long period. The disease, whatever it might be, seemed to be quick in destruction.

The youngest parts were those affected. The leaves and flowers in the bud were sometimes able, though affected, to withstand the disease so far as to open out, and some leaves and nuts attained almost their full development before the tree succumbed. In the case of tall trees, the first indication of the disease was the dropping of the young fruit. It was stated that the disease in this condition had been checked by setting fire to the fibrous material at the base of the leaves, which process burnt all the leaves; new fronds, however, developed, and the tree was at any rate for the time saved. The application of salt to the cabbage had also, it was alleged, been successful.

If the terminal bud in the cabbages is affected, the tree is doomed.

In almost all the trees examined, the sour smell of a putrefactive fermentation was very noticeable, and I am of the opinion that the disease is due to an organised ferment which is able to attack the very tender tissues of the youngest parts, even outside the terminal bud If this ferment can be destroyed by fire or other means before it reaches the terminal bud in the heart of the cabbage the tree may be saved.

Any remedy should therefore be applied on the very first signs of disease. If delayed too long until the terminal bud is diseased, the tree cannot be saved.

Although to fire the fibre at the base of the leaves is easy of application, it is not safe near buildings, and by the destruction of the leaves, the production of fruit is for a long time retarded with consequent loss.

I would recommend that those who do not care to apply fire should drench the cabbage with a solution of sulphate of iron in water in the proportion of two pounds of sulphate to one gallon of water. A solution of sulphate of copper might also be tried in the proportion of 5 parts to 100 of water and a solution of boracic acid in the proportion of 4 parts to 100 of water.

All diseased trees which cannot be saved, should be cut down and burnt, to prevent infection.

In order to give the tree every chance of recovery the soil might be scraped away from the roots and the ashes of the burnt trees applied together with some manure.

It may be said that these remedial experiments are costly, but on the other hand the annual value of each tree is stated to be at least four shillings.—I have, &c., (Signed) W. FAWCETT, Director of Public Gardens and Plantations.

The Hon'ble the Colonial Secretary.

COCOA: SAMPLES FROM LONDON MARKET.

The following correspondence transmitted by the Secretary of State for the Colonies to the Jamaica Government on the subject of Cocoa has reference to samples received from Messrs. Wilson, Smithett & Co., through the kind offices of Kew. The samples have been placed in the Museum of the Jamaica Institute for ready inspection by those interested.

Royal Gardens, Kew, to Colonial Office.

Royal Gardens, Kew, 1st July, 1891.

Sir,—I am desired by Mr. Thiselton Dyer to inform you that he has received from Mr. W. Fawcett, Director of the Botanical Department, Jamaica, an application for samples of commercial Cacao as it is usually received in the London market, for the purpose of bringing before planters in Jamaica the appearence and ouality of Cacao which receives the highest prices.

2. In furtherance of Mr. Fawcett's wishes application was made by this Establishment to a firm of brokers in the City and the enclosed report, with a set of samples, has been received from Messrs. Wilson, Smithett & Co. The samples are being forwarded direct to the address of the Director of the Botanical Deparment, Jamaica, by the outgoing mail.

3. The Cacao industry in Jamaica has steadily extended of late years. The quantity of Cacao exported has iscreased fourfold, but the value per cwt. has been almost stationary. In fact it has become a matter for serious consideration to the Government of Jamaica how it may be possible to rescue an otherwise promising industry from being crippled by the carelessneas of the small proprietors, (who at present grow the bulk of Jamaica Cacao) in exporting an inferior article.

4. In an address given at the request of Sir Henry Blake at the late Jamaica Exhibition on February 9, I drew particular attention to this subject and pointed out that owing to bad curing Jamaica Cacao was at the bottom of the list of Cacao in the London market, and the Island lost yearly on this account about £20,000 to £30,000. Acting on my suggestion then given, the Government has lately taken steps to send intelligent instructors round the Cacao growing districts to explain carefully to the settlers the way the Cacao should be cured, and the Legislative Council has voted a sum of £600 for this pursose. The result of this experiment will be watched with some interest.

5. As confirming the information placed before the Government of Jamaica it will be noticed that Messrs. Wilson, Smithett & Co. report that the bulk of Jamaica Cacao "is of very ordinary quality" the only West Indian Cacao taking rank below it, being St. Domingo from Jeremie, "whilst that from Samana in the same Island is superior to Jamaica.

6. Owing to the facility with which Cacao can be grown under the shade of bananas, the extension of Cacao planting in Jamaica should proceed *pari passu* with that of fruit culture. The little attention, however, so far devoted to properly curing the produce is a matter of grave concern to those interested in the Island, and it is to be hoped that the measures now in course of being taken to remedy the defect will produce results of a more hopeful character.

I have, &c.,

Edw. Wingfield, Esq C.B., Colonial Office, Downing St

(Sgd.) D. MORRIS.

Messrs. Wilson, Smithett & Co., to Royal Gardens, Kew.

41 Mincing Lane, London, E.C., 25th June, 1891.

Sir,—We duly received your letter of 11th instant requesting us to supply for the Government of Jamaica, commercial samples of the various sorts of cured Cacao which come into the London market, and we have much plesure to advise you that we have despatched four samples, the best of the respective kinds to your address, viz :—

No. 1. Fine Ceylon, value 154/ per cwt., from Aloowihare Estate.

No. 2. Fine Trinidad, value 98/ per cwt., from Locounseo Estate.

No. 3. Fine Grenada, value 65/ per cwt., from Tufton Hall Estate.

No. 4. Fine Guayaquil, value 90/ per cwt., from Arrila Prima Estate.

We have not included a sample of Caracas, as that growth is generally cured in the earth of the country and attempts made in various places to prepare Cacao in that manner have almost invariably ended in a disappointment. A small proportion of Jamaica Cacao imported here has undergone fermentation to a greater or less degree, but the bulk is of very ordinary quality, the only West Indian Cacao taking rank below it being St. Domingo from Jeremine, whilst that from Samana in the same Island is superior to Jamaica It has however all the characteristics of good Cacao—although wanting in size, and if properly harvested, fermented or sweated, and then dried in the sun until the bean becomes crisp to the feel, so that the shell is fairly loose, and the interior dry and of an even chocolate brown, not violet colour when broken, it should command the general attention of Trade. Great care should be taken to protect it from rain whilst curing. It must be noted that manufacturers cannot pay much attention to small parcels, and that to insure a ready sale not much less than a ton weight of even colour and quality should be shipped, the larger the lot the better.

We are, &c.,

(Sgd.) WILSON, SMITHETT & Co.

D. MORRIS, ESQ.

ANOTHER COFFEE PEST.

In view of what has already been so succesfully attempted in the experimental gardens of Mergui, and also with reference to the prospect of the increased cultivation of the coffee plant in the southern districts of this province, it may not be without some interest, even to general readers, to become acquanited, in some slight degree, at least with an insect pest that has only recently been found to work great mischief and loss in the coffee plantations of distant Guatemala. We are indebted to the interest taken in this matter by our Consul in that state, Mr. Arthur Chapman, who has embodied in his last annual report, the report of the scientist, M. Vendrell, a member of Belgian and Spanish Agricultural Societies, and who made his investigations, by order of the local Government of Guatemala, in the plantations in the Department of Amatillan where the disease caused by the insect pest, had resulted in extensive ravages in the coffee plantations.

Coffee is one of the chief articles of growth in Guatemala, where also the cochneal insect is obtained, in immense quantities for export, on the numerous members of the Cactus trible, so common on the virgin soil of that country. And, it is not a little strange, that the pest, so much complained about as a "new and hitherto unknown trouble," should be so much like the cochneal insect, which is such a prolific source of local wealth. The insect, called a "chinch" or "bug" by the agriculturalists, is declared by M. Vendrell to be "a standing menace to the coffee industry," and is therefore well deserving of attention by all coffee planters. The genus to which the pest belongs—the *Coccidæ*—not only includes many species which are highly injurious to plant-life, but not a few which have come to be of use to man. Among the letter are the *cochneal*, already referred to, the *lac*, whch is found in such abundance in our Shan State; the *manna* growing where few forms of civilised life are to be found, though in some places largely replaced by exudations from such trees as the ash and tamerisk; and lastly the *Chinese Wax* insect so remarkably peculiar in its habits as well as in its produce of wax in parts of China, like Si-chuen.

As general characteristics of the genus we may note the want of wings in the females, the degeneration of the suctorial proboscis posterior wings in the males, and the peculiar life-history of both sexes. In the early stages of their growth they are in form like miniature tortoise-shells, and may be seen running all over the plants they affect. Soon, the females become impregnated, and then they settle down to the work of maternity on the branches and leaves, burning their suckers deep into the tender tissues in order to imbibe the nourishment they require from the juices of the plant. Henceforward the females do nothing but feed and breed; and the latter process is so wonderfully prolific that the ova of a single female, looking at certian seasons like a pinch of dry dust, number very often millions. When in this state the wind blows this living dust about in all directions, and not unfrequently the careful gardener finds a favourite rose or plant, which the evening before he had left quite clean and healthy, covered in the morning by multitudes of these insects seeming to have come into existence magically. The matured females often become quite plump and fat, looking like berries, but more generally they form distinct excrescences, some round and plump, others flat like scales. At the present time in Rangoon a species of these scale-insects may be found on the back of rose leaves. They look like black dots, and frequently have a margin of white. Under a magnifying glass they may be watched with a "good deal of amusement and instruction. The popular name by which these insects are known is scale-insects."

The coffee scale-insect, which has lately caused such consternation in Guatemala, appears as small galls or excrescences similar to small tortoise-shells on the edges of which are small double points. Under a microscope the back shows a central crest traversing its length, and also a number of small points covering the whole surface, just like what may be seen on some marine shells. Its color is variable. When first noticed, unlike the rose-leaf scale, it is of a reddish color, but becomes a dark yellow as it grows in size and developes its eggs. In its last stage it becomes the color of the bark of the coffee plant, and this is so when the insecet dries and its outer shell becomes thin, ligneous and fragile. If the yellowish liquid, contained in the body of the mature female, be examined under a microscope, it will be found to contain thousands of little eggs. If a dry insect be opened there will be seen a little, very fine, dry powder of a reddish yellow color which is transported by the wind in somewhat the way in which the pollen of flowers is wafted. From each egg issues a maggot, and this goes through its transformation like the generation which gave its birth.

It is said that when the insect first takes possession of a coffee plant, it is barely noticeable; but after a time an infinity of small red spots appear in the trunk and branches, and these increase in size daily until they attain their normal dimensions. Then it is that the coffee

plant becomes abnormally yellow, a characteristic sign of some form of disease, or the presence of some animal with which it has to struggle for life. On examination now the plant is found to be the victim of the coffee-scale. The berries produce by such plants, if produced at all, are small, few and worthless. A noticeable thing in connection with the presence of the "scale insect" is that attacked plants and fruit mature much earlier than sound plants, but, as stated, the fruit is worthless. Nearly fifty per cent. of their crops have been lost by the planters through the ravages of this insect.

As for remedy M. Vendrell recommends the use of nitrates as manure for the soil, but he says nothing as to means for destroying the insect itself. In America an emulsion of kerosine oil has been found very efficacious in cases of some the "scale-insects."—*Rangoon Times.*

THE IMPROVEMENT OF TREES.

It can hardly be doubted that trees whether grown for timber or for ornament, can be improved by methods similar to those which have been used for the development of our modern fruits and vegetables, and that the time must come when the same attention will be paid by scientific foresters to the improvement of races of timber-trees as is now paid to the improvement of plants of far less importance to the human race.

There are certain individuals of every species of plants which, for some reason or other, grow more vigorously than others or possess other exceptional qualities. This fact has been taken advantage of to establish new races of garden-plants, but in the case of trees it has been too generally overlooked, and sufficient attention has never been paid to the selection of the seed-bearing parents, the mothers of future forests. The whole question of the improvement of trees, whether as producers of timber or merely as ornaments of gardens and parks, is still before us. Humbler plants often gain hardiness by the mingling of the blood of allied species, and what little has been learned of the few natural hybrid trees known to exist shows plainly that it is within the bounds of possibility to produce trees artificially by hybridization which may possess certain qualities to a greater degree than either of their parents. Then there is the whole question of the relation of the stock to the graft as applied to the production of timber-trees to be investigated. It is known that certain trees, when it is desirable to produce them under certain conditions, grow much more rapidly and vigorously, while young at least, if they are grafted, than they do on their own roots; but time and careful observations are needed to determine what results, from economical points of view, will finally be obtained by such a method of propagation.

All such questions as these are matters which must one day occupy the attention of scientific foresters, and which can only be solved at well equipped forest-stations, which all governments, following the example of Germany, can wisely establish; for without the stability which governments alone can give, scientific observations, demanding a longer period than the life of one generation of men, are apt to be barren of useful fruit.

Such thoughts naturally lead us to consider whether it is not possible to increase the number of ornamental trees to be grown in any particular region and the beauty of individuals by the application of the same rules of selection of seed from exceptionally fine individuals as we now employ in producing cabbages or radishes. This seems such an evident proposition that it requires no argument to support it; and yet how few persons who raise trees from seeds pay the slightest attention to the character or health of the individual which supplies them. For the ordinary collector of tree-seeds in the nursery or the forest a seed is a seed, and the fact is ignored or forgotten that the constitutional weakness of an individual plant can be transmitted through its seed. Neglect to properly select the seed-parent is doubtless the cause why many nursery-grown trees fail before their time, and why seedlings raised from trees subjected in cultivation to more or less unnatural conditions are less desirable than those raised from individuals growing spontaneously under the most favorable natural conditions.—*Garden and Forest.*

EXAMINATION OF OIL OF CASSIA.*

BY H. GILBERT.

It is pointed out that oils of cassia and cinnamon may be highly adulterated with resin oils and still pass the tests of the German Pharmacopœia. With nitric acid, sp. gr. 1·45 at 15°, or with 1·50 acid at 6°, both the pure and impure oils give crystals without development of heat; however, with the 1·50 acid at 15° both react violently, with development of heat and without the formation of crystals; therefore, the P. G. test, as neither the sp. gr. nor the temperature of the acid is stated, may lead to the condemnation of a pure oil and *vice versa.* By determining the "acid number," the adulteration can be detected, as the following numbers show:—

	Acid numbers.
Genuine oil of cassia (with 6 per cent. non-volatile residue)	13
Genuine oil of cassia after 40 hours' aeration	13
Genuine Ceylon oil of cinnamon (2 per cent. residue)	9
Genuine Ceylon oil of cinnamon (2½ per cent. residue)	10
Adulterated oil of cassia (28 per cent. residue)	47
Adulterated oil of cassia (prepared from pure oil of cassia by intermixing 20 per cent. of colophony)	40
Colophony, sp. gr. 1·08	150

—*Pharmaceutical Journal.*

ECHOES OF SCIENCE.

Dr. Paul Gibier, director of the New York Pasteur Institute, has issued his report for the six months from February to August of this year. Of 415 patients who applied for treatment, no fewer than 345 were found to be suffering from needless alarm, as the dogs which had bitten them were not mad. The remaining 70 cases were put under the Pasteur treatment, as the bites were really due to hydrophobic animals. Only one death took place. That of a child five years old, who had been bitten in nineteen places by a mad dog. Three other persons, namely two sisters of the child and a man, who had been bitten by the same dog, were also treated, and are now alive and well.

Peat promises to become a very useful article. In a recent number of the *Handels Museum* Dr. Leo Pribyl states that the Germans and Swedes are utilising their peat bogs in the manufacture of naphtha, tar, solar oil, paraffin, acetic acid, and gas. Moreover, the peat yelds an elastic fibre which, freed from dust, is employed for weaving into carpets. Good peat also furnishes a cellulose which is valuable to paper makers. Besides serving as a wholesome litter for live stock, it is also used to preserve perishable goods. Meat and fish are now packed in peat litter for transpot between Trieste and Copenhagen. Here is a matter for the consideration of Irish landowners, and peasant proprietors as well.

The Franco-American Cellulose Manufacturing Company, of Philadelphia, have a process for making coconut cellulose which absorbs eight times its weight of water. It is intended for use in lining vessels, and it is difficult to make a hole through it.

The Journal of the Camera Club for December contains a paper by Mr. G. L. Addenbrooke, on the advan-

* *Chem. Zeit.*, xiii., 1406-1407. Reprinted from the *Journ. Chem. Soc.*, April.

tages of aluminium for photographic lenses and the metal parts of cameras. Being so light it reduces the weight of the fittings to nearly one-third. He suggests its use in place of wood for the dark slides, and also for developing dishes, as it is very little affected by the chemicals employed in photography. Any compounds that might be formed would not vitiate the picture.

The first scientific account of the great earthquake in Japan has been given by Professor John Milne, the well-known seismologist, of the University of Tokio. Mr. Milne was awakened at 6-38 a.m. on October 28th last by the oscillations of his house which produced a sense of dizziness and nausea. As recorded by his bracket seismograph, this continued for ten or twelve minutes. On examining these instruments, he found that they were acting very imperfectly, and failing to record the horizontal displacements, which in this case were accompanied by vertical motions.

Mr. Milne's letter, which has appeared in *Nature*, and is dated November 7, bears witness to the admirable self-command of the Japanese. There was no panic among the people of the district, although the earthquakes were in progress when he wrote, and no helplessness from hysteria or mental prostration. They hear the "boom" announcing a shock, and "run laughing into the middle of the street." "As to what happens with Europeans under like circumstances," says Mr. Milne, "I must leave readers to consult history." Foreign buildings of brick and stone have suffered severly; cotton milss have fallen in, and their chimney stacks have broken at half their height. Cast iron columns supporting bridges have snapped near their basses: masonry piers have been destroyed in a similar manner; embankments have been shot away, brick arches have collapsed, and railway lines have been twisted into snaky folds and vertical waves. In the cuttings near the hills, however, the railway tract is unaffected. Here and there a Japanese temple or castle has escaped destruction, owing, Mr. Milne thinks, to the superior quality of the woodwork and jointing. The greatest havoc has taken place on the Okazaki-Gifu plain, where the opening of crevasses, the spurting of mud and water, the falling in of river banks, and other phenomena, marked the violence of the earthquake.

Kelway's system of signalling by night at sea has the merit of simplicity. A board is studded with electric incandescent lamps, and the connections to the lamps are so arranged that in order to signal a given letter (say N) the lamps forming a group N are lighted. There is a keyboard for sending the currents into the proper lamps, and the keys are played like those of a type-writer. As most large vessels are now furnished with electric lighting plant, the system is in a fair way of being taken up and tried.

The surveys for the proposal railway from Mombasa to the lakes of Central Africa will be commenced at once under Captain J. R. Macdonald, R.E., and a staff of Indian pioneers (with native servants), lent by the Government. The work will be undertaken by the British East Africa Company. The surveys for the proposed line from the Pungwe River to Massi Kesse have already been made. The railway will start from the Pungwe at a point opposits Inhambane and run to Iobo on the River Busi, thence across the wooded plains between the Pungwe and Busi. It will be the work of the Mozambique Company, and the British East Africa Company's line to Fort Salisbury will branch from it.—*Globe.*

THE CLOVE AUCTIONS IN ZANZIBAR.—Further particulars have now been received of the first public sale of cloves at Zanzibar. The Auction, as we have already announced, took place on November 21, at 9 a.m. The cloves offered were Government property, having been tendered as "payment in kind," in discharge of export duty. Mr. Gerald Portal and General Matthews attended the sale, and before it began Mr. Portal addressed the merchants, briefly pointing out that the sale of Government property about to take place, though small in itself, was really most important as making a new departure in the trading system of Zanzibar. It was he hoped, one more important step towards the development of the commerce of Zanzibar. Mr. Portal expressed his firm belief in the practicability of making Zanzibar a great central market for Africa, and in conclusion stated that in a very short time the Government hoped to remove the few remaining restrictions upon trade here, when he said, all ideas of rivalry or jealousy between Zanzibar and the coast territory must cease as the prosperity of one would tend to the prosperity of all. The sale was well attended by all European and Indian merchants, and the stock offered was disposed of at fair prices although heavy purchases for Bombay, during the early part of the week, somewhat restricted the demand. Pemba quality realised $2·36 to $2 40 per frazileh, and Zanzibar (new crop) $2 60. The management of the sales was in the hands of Mr. Hugh C. Robertson, the Receiver of Revenue for the Zanzibar Government. The first sale proved a decided success, and it is hoped that the public auctions which are to be held fortnightly will prove a beneficial change from the plan formerly followed by selling the cloves privately.—*Chemist and Druggist*, Dec. 18.

CINCHONA CANKER AND QUININE FACTORIES IN BRITISH INDIA.—Mr. Lawson the Indian Government botanist, is now or was when the last mail left in the Wynaad district of India engaged upon some interesting experiments for the cure of canker in cinchona. The quinine manufactory at Nedivetam has been a success and there is a rumour that a somewhat similar one is to be established in South Wynaad on the co-operative system by the planters. There should be no difficulty (a correspondent thinks) in accomplishing this work and the saving to the planters would be very considerable; the cost of carriage would be reduced to a minimum and all the money now paid for baling and shipping bark and to agents for analysing and selling would be saved—to the tune of 25 per cent. or more. With a quinine manufactory and two or three capacious tea factories established in the country the Wynaad may yet be rehabilitated and something like the old prosperous days may be restored to the planters.—*Chemist and Druggist.*

SIAM'S FOOD SUPPLY.—Referring to the scarcity of rice the *Bangkok Times* says:—Burmah has ceased to export; Tonkin is unable to supply anything like the quantity she did last year; Japan needs nearly all she can harvest in this period of calamity; the crops in the Philippians are barely sufficient for the sustenance of the inhabitants, despite all the inducements in the shape of bounties offered by the Spanish Government; and in Siam, judging from the official reports, we shall be lucky if this harvest produces one-fourth the average yield. In the Patriew district it is true there has been an excellent crop, but we are assured that elsewhere not more that one twentieth of the expected crop is to be expected. That being fully required for the sustenance of the population here, surely the Government will do well to take precautions against possible scarcity by prohibiting the wholesale exportation which is going on owing to the high prices now offering in the surrounding countries. Last month three hundred and seventy-five thousand piculs of rice, valued at nearly 750,000 dollars, left Siam—two-thirds of it for Singapore. In the corresponding month of last year, with a moderately bountiful harvest, the export was only about a quarter more.

Correspondence.

To the Editor.

TEA DUST EXPORTED IN BAGS.

London, E.C., Dec. 4th.

SIR,—Yesterday we received into our warehouse the tea dust which had been packed for us by Messrs. Buchanan, Frazer & Co., Colombo, into cotton canvas bags, christiated. W. R. Appleton & Co., tea dealers in the City, came in and examined the packages, took samples and tasted the tea and expressed themselves very much pleased, as it was in splendid order. I think that this will show that tea dust can be safely sent home in bags if properly waterproofed with a material which has no smell whatever. Other tea brokers examined the tea and pronounced it in very good condition because the packages were air-tight; they said that if they gave me a report there would be an upset in the trade. Some people fear to advance out of the old groove.—Yours truly truly,

THOS. CHRISTY.

MR. LIPTON AND THE CHICAGO EXHIBITION.

Dickapittia, Haputale, Dec. 14th.

SIR,—The following was embodied in a letter received by me yesterday. It is possibly not yet too late to suggest the name of Mr. Lipton in connection with our representation at the Chicago Exhibition. As is well-known he is a capitalist with large established interests in that city, also that he is one of the largest if not the largest tea dealer in the United Kingdom, moreover that he is interested in Ceylon.

But selling an article which is considered the best value in the trade and which owes its excellence to the mixture of Ceylon tea in it he has gained in a few years the prominence he now occupies in the trade. It would no doubt benefit the industry on which Ceylon is chiefly dependent if the influence of a capitalist like Mr. Lipton with his interests in Chicago, Ceylon and in the tea trade could be secured. The suggestion may be objected to on the grounds that it would be advertising Mr. Lipton, who may possibly start on his own account to boom his teas in America; but as they are largely a mixture of Ceylon tea and those now consumed in that country are almost entirely Japan teas every pound he sold would benefit this country, and extended consumption of our produce is what we want whether pure or as a mixture.

We have just received the telegram announcing the unanimous selection by the Planters' Association of Mr. Grinlinton as Commissioner to Chicago. I am sure he would be glad of Mr. Lipton's co-operation.

The idea above expressed seems to be an excellent one; and if you think so, Mr. Editor, I trust you will ventilate the matter and give it your support.—I am, dear sir, yours faithfully,

JAMES DUNCAN.

[We have no doubt that Mr. Grinlinton, if appointed Commissioner, as he is pretty sure to be in deference to the wishes of those connected with our chief enterprise, will give full consideration to this suggestion But if Mr. Lipton's co-operation is invoked it will undoubtedly be on the principle of promoting the sale of pure Ceylon tea, unblended and unmixed with any other. This as we showed recently, Mr. Lipton does not do,—all the teas he advertises in his circular are blends.—Since writing the above we have seen the proceedings of the Tea Fund Committee, amongst which is a notice of the withdrawal of subscription on account of Mr. Lipton's Pooprassie group of estates. This, we should say, settles the question of Mr. Lipton's attitude in regard to the Ceylon tea enterprise. He is interested in our tea, no doubt, but only as it serves his own personal profit, in the shape of a blend; such are not the men to help in extending the use of pure Ceylon tea.—ED. *T. A.*]

TOBACCO IN NORTH BORNEO.

Kandy, Dec. 22nd.

DEAR SI ,—The last advice I have from North Borneo *re* tobacco is as follows:—"We are glad to say that our North Borneo tobacco is topping the market and beating Sumatra. Although the prices paid, in the face of 40,000 bales, are low, it is satisfactory to know that they are better than others. We are expecting an Australian-China steamer here on the 6th, to load timber for the Australian market. The latest reports from the tobacco estates are encouraging. The weather continues favourable, the rains having not set in yet Mr. Pryer returned from England yesterday representing a planting and development company."—Yours truly, W. D. GIBBON.

THE PRICE OF PEKOE SOUCHONG.

DEAR SIR.—Now that we are on the job we may as well thrash this matter out to the end, especially as "A Buyer" has dropped the mild sarcasm usually indulged in by tea buyers when noticing any animadversions dating from upcountry. This is novel and refreshing, and I will endeavour to imitate his moderation. The fact that my first letter caused him genuine surprise simply goes to show how little sympathy exists between tea buyers and tea producers. Well, I will not lift much of the curtain to show all that is behind it; but to suppose that there can be much community of "feeling" between a buyer getting a haul of average pekoe souchong at 22 cents a pound (while the equivalent London value is 30 cents)—and the planter whom it has cost 30 cents to produce, is of course out of the question. "Well, but it is not so," says "A Buyer," "our margin is much smaller than that." What the margin is with which he is satisfied is not stated, unless we may infer it from the 5½d sample sent to him as his "buying standard" up to 25c. This would leave a loss! instead of 8 cents profit, against which I for one have nothing to say.

But WHY "Buyer's" principals in London should send him out a "standard sample" at 5½d when the London average is for "*one uniform quality which never varies*," as he asserts, and is at the time quoted 6¾d remains for "A Buyer" to explain. The instructions look like:—"buy quotable Pekoe Souchong at 25 cents."

But may I ask "A Buyer" not to wander too far afield. I might as well ask him to come upcountry and grow tea (which perhaps he does, by the way—such things are!) as he to ask me to "*buy*" at any price, while I am in the position of being obliged to *sell* at any price. If this were not so then "A Buyer's" occupation would be gone. Notwithstanding all that "A Buyer" has said—and I think his letter is fair and candid—he has not yet answered my question. I have looked for, but cannot now find the qualifying words which formerly appeared on the London Price Lists, namely:—"Fair Pekoe Souchong *of the quality usually made in * * * factories*." Now this description of the

"quality" quoted has always stuck in my memory, and I do not think it will be denied that the factories designated have a low average. If SUCH Pekoe Souchong sells in London at 6½d, and this, as you, sir, figure it out, is equivalent to 30 cents locally, I cannot understand *why* it should only realize 22-24 locally, except that at the Colombo sales there is no fair and healthy competition. But as I remarked before, neither "A Buyer's" laboured explanation nor my growls can throw much more light on the subject. There is, however, after all, not much mystery about it; and if I were a buyer I should not need to ask WHY?

RICE CULTIVATION.

Jan. 2nd.

DEAR SIR,—There seems to be a deal of misapprehension regarding the system of dry ploughing and about the yield of paddy and other grains generally.

When crops are spoken as 'so many fold,' it always bears a relation to the quantity of seed used in sowing. As regards paddy in ordinary cultivation, 1 to 3 bushels are sown per acre. The quantity used always depends on the nature of the land, the season and the variety of paddy. In rich and fertile lands only a small quantity of seed paddy is used, the case is especially so if the season is favourable. On the other hand when the land is unfertile and the season is unfavourable a larger quantity of grain is used for sowing. It has to be borne in mind that whatever the quantity of seed be, which is scattered over the land, only a certain proportion of plants do come up. An acre of paddy field can never under any circumstances hold a number of plants over the number of grains of paddy from say a quarter bushel of seed. If an acre of land is sown with one bushel or three bushels, the plants which survive cannot count over the number above mentioned. That would be the highest possible number, but in the majority of cases it is very much less. The rest of the seed grain is simply wasted.

Unless any sowing machine or a seed drill be used and until the proper selection of seeds is carried out, the necessity of sowing a larger quantity of grain than is actually required must continue to exist. Out of the grain thrown on a well prepared rich land a great number comes up, while when the land is unfertile and the season is unfavourable only a smaller number germinates. That is the reason why a large quantity of seed grain is scattered on inferior soils. The above I believe is the cause of much misunderstanding as regards the yield of paddy in different areas. When mentioned by folds, the quantity always depends on the amount of seed paddy used. So the adoption of a yield per acre for calculation purposes would be much better, as things stand just now.

But it is deplorable that there is such a waste of seed paddy, and it was I believe one for Mr. Green's first plans in the improvement of rice cultivation to advocate the use of seed sparingly. Even as matters exist the quantity of seed grain could be very materially reduced, and if selection of seed is practised, a greater saving could be made, but if seed drills and sowing machines are introduced the quantity would be still more reduced, whilst the transplanting system wherever it could be adopted would bring the waste to a minimum.

The above applies with the same force to kurrakkan and other grains. The finer the grains are there would be a larger number of seed, measure for measure: for instance a measure of kurrakkan would contain over 15 times the number of seed contained in a measure of '6 months' paddy,' whilst a measure of small grained '2 months' paddy,' would contain about twice the number. Hence each of these varieties would produce a varying number of plants in spite of the quantity being the same. The land has almost nothing to do with seeds, but to support the plants. This explains why a much smaller quantity of fine grain is used in sowing a given extent of land.

Your correspondent "Native Cultivator" does not seem to favour dry or deep ploughing, and he naturally sticks to the much easier process of stirring up the mud when the land is thoroughly soaked. Some of his arguments against the adoption of the improved system have been put forward more than once in your columns. I remember that some years ago almost the same arguments were brought forward, and Prof. Wallace's authority was cited in support. But so far as I am aware the Professor never wrote or spoke against the advisability of dry and deeper ploughing. It is said that dry ploughing would throw up lumps of clay which it would be difficult to pulverize. Lumps of earth would be turned up by the share of an improved plough no doubt on some lands, but if those lumps are not allowed to be baked in the sun, there cannot be any difficulty in pulverizing the same. In such lands the clods should be pulverized just after the ploughing and then exposed.

The great drawback in our native system is that whilst it prepares a suitable seed-bed, it does not expose the soil to the action of the sun and the atmospheric agencies, which action alone could make a soil fertile. The weeds buried by the native plough might decay but they very seldom form a suitable manure; on the other hand the action of the water makes them to decay and stagnate and generate objectionable organic acids, whilst in the case of dry ploughing the weeds and rubbish disintegrate and form a manure without generating anything objectionable. Your correspondent again says in one place, "that the native plough digs deeper than the improved plough." It might in some instances, when the land is soaked, stir up the mud deeper. But such deep stirring is quite useless and sometimes objectionable, when the land is not exposed to the action of the sun. What the improved plough *does*, so far as I have seen, is that it does not *dig* deep, but *exposes* a larger quantity of soil, thereby increasing the quantity of plant-food.

As your correspondent mentions, the villagers also have a system of dry cultivation which they generally adopt whenever they fail to obtain the water necessary for soaking the fields. This is known as *kekulan* sowing.

When lands are dry sown according to the native system they at first give very goods crops, but in some cases when the dry system is continued, as your correspondent observes the land yield poorer and poorer crops. But in other instances, such as mentioned by Mr. Elliot they continue to yield good crops. This is very easily explained; in the first place it should be mentioned that in the native system of dry cultivation not more than two to three inches of the soil is stirred. At first the land yields a bumper crop as the soil is exposed and a large quantity of plantfood is liberated; when the cultivation is continued if it be an average and the fertile constituents are gradually wasted, for the same material (the upper two inches) is used over and over again and hence the poor crops. If the land is unusually rich in dormant plant constituents the fertility is maintained for a longer time.

This is not the case where the improved plough is used, it turns up more soil, four to six inches or more, and hence there is not only more feeding growth for the plants but a larger store of plant food to fall back upon; besides the depth of ploughing could be varied at different seasons.

Under any system, be it the ordinary wet cultivation, dry cultivation or the improved system, the land is found to get poorer year by year unless manure be added to it or unless it be fed by a silt-bearing stream. But one thing is clear; that is that a land worked according to the improved system would retain its fertility much longer than it would otherwise.

In this connection I may mention that the paddy soils of Ceylon have never been subjected to any series of chemical analyses, and it would be in the interest of the improvement of paddy cultivation if a series of samples of paddy soils be obtained from the different districts and subjected to a careful analysis.—Yours truly.

W. A. D. S.

THE ORIGIN OF "PADDY."

Ratnapura, Jan, 6th.

DEAR SIR,—I should be glad if you would inform me of the correct derivation of the word "paddy," as applied to grain grown in Ceylon.

2.—Is the word in use in other countries, and when was it first used in Ceylon?—Yours faithfully,

C. S. V.

THE PRICE OF PEKOE SOUCHONG.

Colombo, Jan. 8th.

DEAR SIR,—I have some difficulty in understanding the meaning of "Why" 's last letter, but at any rate he does not answer my statements.

With regard to what he says about the buying standard which I mentioned, why he should suppose instructions to buy tea of equal quality to a sample sent (as a standard) mean "buy quotable Pekoe Souchong at 25 cents" (whatever that may mean) passes my comprehension, I understand it to mean buy tea to match the standard sent, not to match "quotable Pekoe Souchong," or else why send a standard?

But I will not waste more of your valuable space. I offered to buy tea of quality considerably below that of your standard, at more money than "Why" tells me it is selling at in Colombo; but though that is more than a month ago I have not had a single package offered me. This is I think sufficient answer.—Yours faithfully,

A BUYER.

RICE CULTIVATION; A PLEA FOR THE GOYIYAS AND THEIR HUSBANDRY.

Veyangoda, Jan. 8th.

DEAR SIR,—Please permit me to have my little say on what you and your correspondents have written on the above subject.

I must preface my remarks by observing that whatever the results obtained by Mr. Green and Agricultural Instructors, they have no practical bearing on the justice or otherwise of the paddy tax. All that they prove are the possibilities in the way of yield by the adoption of improved methods. These are not general, and the yield of paddy cultivation is, except in favorable localities, what was represented to His Excellency during his travels. The question, therefore, resolves itself into whether the recovery or rather exaction of a tythe from fields whose average yield is 5 fold, is a cruel and grinding tax, or no. The Select Committee of the Legislative Council recommended, if I mistake not, the exemption of lands yielding less than 5 fold, and you have ever heartily endorsed their recommendations, therefore you must be of opinion that the continuance of this exaction from fields yielding these miserable returns is cruel, or at least unjust.*

Now to the editorial comments on the letter of "W. A. D. S." I do not think anything he has written warrants the conclusion that the small proportion of plants that results to the number of seeds sown is due, as you assert, to carelessness or worse in harvesting and preserving seed paddy. There is no branch of paddy cultivation operations to which the *goyiya* pays so great attention as the preparation and storage of seed paddy. But hardly one per cent of the *goyiyas* grows sufficient paddy to reserve for seed. The seed granaries belong to the minor headmen or to the extensive field owner, a very small proportion indeed of the village population. Where I reside I know only one man for a group of 5 or 6 villages, who is in a position to store and sell seed paddy. When his stock fails, I know people go as far as Henaratgoda to procure seed paddy. † It must surely be known to you that a certain proportion only of every kind of seed germinates. The poportion is not fixed and varies with circumstances. The *goyiya* makes allowance for that, as well as for what rots by becoming too deeply embedded in the mud,* for what is washed away by the rains and for what is eaten up by birds, when he sows the quantity he does per acre.

The system of paddy cultivation as practised by the natives may be unscientific, but it has not been so denounced by Hughes, Wallace or Voelcker—but no one with an intimate acquaintance with the preparation of fields will call it "careless" as you have done, nor is it correct to say that ploughing is a mere stirring of a few inches of water-saturated mud.

There is no doubt that one of the advantages of the iron plough is its ability to plough land when dry; but it neither pulverizes the soil nor stirs the subsoil without bringing it to the surface. In fact the complaint against it is that it leaves the land with large clods on the surface, which it is expensive to pulverize, and it brings to the surface sour subsoil.

I am very strongly of opinion that the increased yield resulting from the experiments of the Instructors, is due chiefly to the fields being ploughed at the beginning of the dry season and being exposed for a month or two to atmospheric influences. I think the introduction of a "cultivator" or subsoiler will yield better results, in more senses than one, than those of the iron plough. It will be lighter than the plough, and therefore more suitable for village cattle. In appearance and action it will closely resemble the native plough, and it will work deeper than the iron plough, without bringing the subsoil to the surface.

A critic should be certain of his facts and not lay himself open to a charge of misrepresentation.† No one, as far as I am aware, cited Professor Wallace against dry and deep ploughing. He told me personally that he was no believer in the iron plough in paddy cultivation, that the native plough suited our special circumstances and that with a little improvement, which he promised to effect, it will be a very useful little implement. He also told me that the artificial aeration of the soil was not so necessary in a tropical land as in Europe, and that the innumerable fissures he saw in paddy fields did naturally what had to be done by an expensive process in Europe. He denounced neither deep nor dry ploughing in my hearing.

Dry cultivation of paddy has no doubt all the advantages enumerated by Mr. Elliott and more, but it struck me as a very slovenly system. The fields are not as carefully prepared as in wet cultivation, the beds are not smoothed nor the weeds got under the soil.

That the paddy soils of Ceylon have not been systematically analyzed is a reproach, that ought to be the aim of the School of Agriculture to remove.

The system hitherto practised of stationing an Instructor in a village for a few months and then removing him to another far removed from it, is I think a waste of public money and of valuable time and energy. We know that even with a progressive and enlightened people, no radical reforms can be made except their advantages are constantly demonstrated. In fact "pegging away" is necessary for all reforms. Can it be imagined that a conservative class like the *goyiyas* can be made to give up time-honored customs and take to revolutionary methods of paddy cultivation by Instructors flitting about the country? I lately advocated elsewhere the appointment of an Instructor to every Korale, whose duty will be to establish experimental cultivation of high and low lands in connection with every village school. These stations to be under the immediate supervision of the school masters. Whether as a result of that or not I know not, but I was glad to hear the Director of Public Instruction at the recent prize-giving in connection with the

* With just this qualification, that the very exemption will be a premium on bad husbandry.—ED. *T. A.*

† Then the quality of the seed depends upon one man here and there, and not to the care attributed to the goyiyas generally.—ED. *T. A.*

* Would not soil less in the condition of mud be better for the seed and also for the resulting crop?—ED. *T. A.*

† This refers, of course, to our correspondent "W. A. D. S."—ED. *T. A.*

School of Agriculture foreshadow a scheme for the larger employment of Instructors. The policy of maintaining a School of Agriculture and expecting that the educating of a few lads in it will benefit the masses through the percolation to them of the instruction afforded there, is as shortsighted as the restoration of gigantic irrigation works in uninhabitated wastes without improving means of transport, so as to induce settlement under them and encourage the raising of paddy beyond the personal wants of cultivators. Both undertakings will not yield adequate returns to Government for the money expended.

My principal object in writing this letter is to attempt to remove from your mind the conviction, which you say the perusal of the communication of "W. A D. S." has left on it, that the small returns of paddy cultivation is more often due to "perfunctory husbandry" than to soil or to too much or too little water. I am sure your correspondent could not have intended to create in your mind an impression so damaging to his countrymen. I am not a blind admirer of the *goyiya*, nor do I believe him to be a model of industry; but this I do say, and say it with emphasis, that though his methods may be primitive and unscientific, yet they cannot, in connection with paddy cultivation, with truth be said to be "perfunctory." Surely, sir, you have seen and admired the care and skill with which he prepares his rice fields, in your frequent railway travels along the main line of railway.

B.

[No doubt the mud is well worked and nicely smoothed: but query, if less water and more "elbow grease" would not result in greater returns of better grain?—ED. *T. A.*]

CEYLON TEA SEED EXPORTED: GERMINATION RESULTS.

Jan. 12th.

DEAR "OBSERVER,"—I promised in my letter to you of 27th July to let you know the results of tea seed exported from Ceylon compared with that from Assam which has so much longer transport delay. As I said the seed I took with me to Java was only 10 days from my seed-bearers here (Ratnapura) to the *'S lands Plantentuin*, (Government Gardens) Buitenzorg. My advices from Batavia are:—"The long drought we have had has been very unfavourable to experimenting with new descriptions of seed, and planters' attention has been solely given to keeping their growing plants alive. The *Tjisalak* report on the outturn of the seed not yet received." Notwithstanding this unfavourable weather, &c., in a letter Dr. Treub, the distinguished botanist in charge of the Government gardens, has favoured me with, he says:—"The seeds were sown (100 each) on 25th July. The young plants were counted today (3rd Nov.)

Lot A has produced 70 seedlings per 100
Lot B ,, ,, 78 ,, &c."

so I think I can safely guarantee 75 per cent *plants* for Java and say 80 for Singapore and the Straits Settlements generally; and shall do so in my next blazer* in your *Tropical Agriculturist* (Feb. 1892 number). My agents in Singapore (Messrs. Paterson, Simon & Co.) can do the same in the Straits newspapers.—Yours truly,

WILLIAM GRIGOR SANDISON.
Sana Estate, Ratnapura, Ceylon.

PROGRESS OF BRITISH NORTH BORNEO.—Mr. Henry Walker writes to us:—"North Borneo is going ahead and I am glad to say attention is being paid to many new products. The Government is stimulating the cultivation of gambier which has shown itself to be well adapted to our climate and of pepper by offering rewards for the cultivation and proper up keep of certain fixed areas, and cotton also has been introduced, the small sample so far obtained being remarkably fine and strong. Coconuts and fruit are also receiving attention. Those of your planters who are nervous and cannot meet the fluctuations of the tea market calmly, should come here and see our Liberian coffee—it would do their hearts good to see it."

FOODS THAT BENEFIT THE SOIL.—Of all foods procured off the farm and fed to stock, cotton seed meal possesses the highest manurial value, as a ton of cotton seed meal contains 135 pounds of nitrogen, 30 pounds of phosphoric acid, 56 pounds of potash, bran containing 30 pounds of nitrogen, 28 pounds of phosphoric acid, and 54 pounds of potash. These substances are the most evenly balanced of all foods that enrich the land, and the farm will suffer but little loss if they are used as a portion of the ration for the stock. The farmer can, by noting the effects of certain crops on the soils, and growing such crops as may be best adopted thereto, with judgment in the selection of his stock foods, return to the soil all that the heaviest yield of any crop may carry away from the farm.—*Exchange.*

THE COFFEE PRODUCTION OF BRAZIL.—According to a recent bulletin of the Bureau of the American Republics in Washington, the coffee plant was imported to Brazil from Africa, and found there the conditions necessary for a marvellous growth. In 1800 Brazil exported 13 bags of coffee; in 1817, 66,985 bags; in 1820, 97,498; in 1830, 484,222; in 1840, 1,037,981; in 1876 3,765,122. The annual production now is about 6,000,000 bags of 1321 lb. each. The United States takes as much Brazilian coffee as all Europe. For its cultivation virgin forest lands on hill sides are preferred, as it is known that extreme heat and cold are unfavourable to the growth of the plant. In four years the plant begins to produce, and from that time forward the production continually increases. The tree attains the average height of about 10ft., and its head a diameter of 5ft. It reaches its *maximum* productiveness at about nine years of age, and continues in bearing for 40 years if carefully pruned. There are three annual bloomings and corresponding crops of which one is vastly more important than the others. The coffee is gathered in baskets and carried to yards of hard beaten clay, where it is dried in the sun, or in drying pans by artificial heat. The outer shell is separated from the beans by machinery and the thin, inner husk by other machines, and the coffee is then ready for market. Its quality is greatly improved by age, the aroma increasing as desiccation goes on. The best Brazilian coffee when dried is usually of a pale colour, while the new immature beans are green. The different varieties possess different qualities, though from the same crop are obtained Mocha, Java, and other varieties that figure in the market reports. The beans of different sizes and weights are separated by machinery, and sold as Mocha, Java, &c., according to the taste or gullibility of the consumer. For those who do not know that a green colour is usually an evidence of immaturity the light and spotted beans are dyed to a beautiful green, which is easily washed off in warm water, as it should be before using. It is probable that not a ton of true Mocha enters the United States annually; but thousands of pounds of Brazilian "pea-berry" are sold every month in the New York market as genuine Mocha. The characteristic constituent of coffee is caffeine, whose chemical formula is identical with that of theine; of theobromine of cocoa, and of guaranine.—*London Times*, Dec. 26.

* Blaze away!—ED, *T. A.*

CATERPILLARS ON ALBIZZIAS.—A box of poor tea attached to a branch of albizzia having been sent to us by a planter who wished to know if the insects were likely to do harm, we handed them to our entomological referee, who writes :—"The poochies are the larvæ and chrysalids of a common little yellow butterfly belonging to the genus 'Terias.' They feed on a great variety of plants, but are not likely to do any more than temporum damage to the plant they select. When noticed they can be collected by hand and destroyed."

PREPARED COFFEE LEAVES.—Coffee-tea was brought under the notice of the Royal Botanic Society of London on Saturday at a meeting presided over by Mr. G. J. Symons, F.R.S. The samples of coffee-tea, or prepared coffee leaves, were grown in the Society's Conservatory. The secretary said it had been estimated that the percentage of theine in the leaves of coffee was 1·20 as against 1·00 in the beans. As the leaves may be easily grown in many parts of the world where it is difficult to insure good crops of coffee beans, he thought it might prove a valuable agricultural product in many of our warmer colonies. At present, he said, only some 2,000,000 of men use coffee-tea in comparison with 110,000,000 who use the bean, and 500,000,000 who drink Chinese and Indian tea.—*Echo.*

CEYLON TEA IN AUSTRALIA.—We have been naturally gratified by the receipt of a note from a Ceylon planter who has returned from a visit to Australia, in which he is good enough to say, after conveying remembrances from old friends,—

"Till I visited Melbourne I did not realise how much good you have done the Ceylon Tea industry." The period referred to, 1880-81, is an age back in the history of the rapid rise and progress of the tea enterprise. It was the day of small things, but of large promise; and few can imagine the virulence of the attacks we had to bear from vested interests in China tea, and the hardness of the battle we had to fight in common with our friend, Mr. James Inglis, who represented India in the absence of Mr. (now Sir Edward) Buck, to secure fair play for the teas of India and Ceylon, which were being introduced to the Melbourne market. We were fortunate enough to get Mr. Newbery, C.M.G., of the Melbourne Museum, and his Assistant Chemist and Mr. Moody of Messrs. Henty & Co., interested in our Ceylon products; and the results of a number of elaborate analyses by the able Government chemists, went to show what Mr. Goschen recently dwelt on, the superior cheapness of our tea in comparison with that of China, when strength was considered. We were also able to exercise some influence through the Melbourne press which helped the then infant cause. But the contest was a hard one. It is pleasing to learn that, though largely forgotten here, friends in Melbourne appreciate the efforts we made and have conveyed their impressions to a Ceylon planter after the fashion he kindly indicates.

A BARK SYNDICATE AT WORK.—A syndicate of bark importers, formed for the purpose of keeping up the price of cinchona bark, commenced its operations at last Thursday's bark sales in Amsterdam. At those auctions 470,444 kilos. of manufacturing bark (containing about 20,000 kilos. quinine) were offered. Of this supply, 30,000 kilos. bark, representing 1,453 kilos, quinine, were bought in, leaving 480,069 kilos. bark (=18,548 kilos. quinine) as the total purchases by the various competitors. The syndicate purchased over one-fourth of this quantity—viz., 118,441 kilos. bark, equal to 5,136 kilos. quinine sulphate. This quantity, it should be borne in mind, has not gone into consumption, but is at present stored up. The primary object of the combination is said to be the advance of the unit to 7c., or 1¼d. per lb., and it is believed that funds to the ex ent of 500,000fl. (nearly 42,000*l*) are at its disposal for the realisation of this object. The total cost of the bark purchased at Thursday's auctions by the syndicate was 60,000fl; or 5,000*l*. If, therefore, the combination continues its operations, in Amsterdam only, upon the same scale at succeeding auctions, its funds will be exhausted at the end of August next year, and it will then, upon the basis of the present price, have accumulated about 950,000 kilos. bark. At the preceding Amsterdam auctions the unit averaged 5 83c. Since then quinine has fallen 10 per cent in value, and, calculating upon that basis, an average unit of 5·2c. would have been the true market level. On Thursday last, as a matter of fact the average rose to 5·65c.; hence the purchasers who bought for actual consumption had to pay an average of 0.80c. per kilo., or about 7-16d. per lb. more for their quinine than they would presumably have paid had the market been allowed to follow its natural course. As the manufacturers bought bark representing about 13,000 kilos. quinine, it follows that the syndicate by spending 60,000fl. (5,000*l*), compelled the makers to an extra outlay of about 10,700 fl. (900*l*.)—*Chemist and Druggist*, Dec. 26th.

EXOTIC TREES AT SAHARUNPORE, N. W. P., INDIA.—From the interesting and comprehensive report of these Gardens, which are extra-tropical and in a region of moderate rainfall, we extract as follows :—

The following is a statement showing the number and kinds of trees under trial in the exotic plantation and their present condition :—

Name.	Number planted out.	Remarks.
Acacia rupestris ..	4	Healthy, but growing slowly.
Do. tortuosa ..	6	Doing well.
Anogeissus pendula ..	4	Healthy, but growing slowly.
Acer dasycarpum ..	4	Not doing well.
Brossonetia payprifera ..	27	Doing well.
Cedrela australis ..	3	do.
Croton tiglium ..	3	Healthy, but growing slowly.
Ceratonia siliqua ..	34	Healthy; fruits freely every year.
Divi Divi	5	Not doing well; cut down every season by frost.
Diospyros virginiana ..	2	Healthy, but growing slowly.
Eucalyptus meliodora ..	10	Doing well.
Do. citriodora ..	13	do.
Do. sp ..	10	do.
Do. saligne ..	15	Doing best of all.
Do. bicolor ..	3	Growing slowly.
Do. robusta ..	46	Doing well.
Do. resinifera ..	15	do.
Do. rostrata ..	380	do.
Melia sempervirens ..	15	Doing well and growing fast.
Pithecolobium bigeminum	12	Doing well.
Catalpa bignonoides ..	20	Growing slowly; not very healthy.
Owenia cerasifera ..	7	Doing well.
Prosopis spicigera ..	14	Growing slowly, but healthy.
Do. juliflora ..	100	Doing very well; makes a good rough hedge.
Swietenia macrophylla ..	4	Growing slowly.
Do. mahogani ..	7	Doing fairly well.
Sapium biglandulosum ..	4	Injured by frost; does not seem hardy.

CROPS OF CEYLON TEA SINCE 1883: ANNUAL INCREASES AND YEARLY PERCENTAGES OF INCREASE.

A mistake having crept into our article on crops past, present and future, whereby the increase of 1891 over 1890 was understated by a couple of millions of pounds, we now give figures for crops, with absolute increases of succeeding years and percentage of increase in each case since 1883, when, for the first time, our export exceeded a million of pounds:—

YEARS.	CROPS lb.	INCREASES.	PERCENTAGES OF INCREASE.
1883 -	1,665,000	—	—
1884 -	2,393,000	728,000	43¾
1885 -	4,373,000	1,980,000	82½
1886 -	7,850,000	3,477,000	79½
1887 -	13,834,000	5,984,000	76
1888 -	23,821,000	9,987,000	72
1889 -	34,346,000	10,525,000	44
1890 -	45,800,000	11,454,000	33⅓
1891 -	67,000,000	21,200,000	46⅓
1892* -	85,000,000	18,000,000	26⅔
1893* -	100,000,000	15,000,000	17⅝

Our readers will see from the above figures that in the third year of the series the increase over the previous year was actually 82½ per cent. The rate of increase per cent then went gradually down until that of 1890 over 1889 was 33⅓, a rise of just one-third. Then came the year of exceptional weather and exceptional yield, 1891, when the percentage of increase approximated 50, the exact figure being 46⅓. Our estimate for 1892 of 85 millions of pounds is lower by 20 per cent than this rate, and lower by 7½ per cent than the rate for the normal year 1890 over the normal year 1889. Our estimate for 1893, high as it seems, is only at the rate of 17⅝ per cent, or only a little more than one-half the lowest percentage of increase previously shown. We fear, therefore, in view of all the circumstances, especially in view of the fact, that the whole 250,000 acres, including the 66,000 planted subsequently to July 1888, will then be as nearly as possible in full bearing, at the average rate of 400 lb. per acre,—we fear our estimates are only too likely to be realized. As we have said already the general adoption of light plucking might lessen our figures, and we believe that in a good many cases the order for lighter plucking has gone forth. But we have more confidence in the Chicago crusade and similar efforts in regard to other markets, than belief in the general adoption of plucking so light as materially to effect the yields we feel compelled to estimate.

* Estimates.

THE DUTY ON TEA.

A FALLACY TO REPRESENT THAT ITS REMISSION WILL BENEFIT THE WORKING MAN.

(BY W. F. PONDER.)

When the Colonial Treasurer announced to the House and to the country with a flourish of trumpets, and as a preface to announcing his general taxation policy, that it was the intention of the Government "to take the duty off the poor man's tea," it was but too plainly evident that this course was adopted with the sole object of attracting the public mind from the enormity of the proposals that were to follow, and blinding them to the serious weight of the burdens it was their intention to bind upon them.

"A free breakfast table at last," interjected the member for Bourke, Mr. Willis; an old Gladstonian cry of 30 years ago, that was doubtless intended should be taken up by the populace and echoed throughout the country. "A free breakfast table," forsooth, with a duty on bread and butter, sugar and milk, coffee, crockery, cutlery, and every other requirement that makes the distinction between our educated civilization and savage ignorance. And thus, this protectionist Government wishes to pose as the "poor man's" friend, the champions of the working man, and make a party cry of the fact that they have abolished the duty on tea, and thereby try to blind the public to the far greater fact that they will have to pay a much higher price for all the actual necessaries of everybody life, and that they are to be prohibited from enjoying any of its comforts unless they are prepared to pay the high prices that will result from the heavy duties placed upon what they characterise as "the rich man's luxuries."

But what does this great boon that it is proposed to confer upon the "poor man" really mean? Is Mr. See so ignorant of the commercial conditions under which the trade of the colony is carried on that he really believes the actual consumer will be benefited by it in the slightest degree?

In point of fact, instead of the remission of the duty upon Tea being a benefit to general consumers it will not benefit them in the least, but will simply confer a great benefit upon the rich importers and wholesale grocers who distribute this article of everyday consumption, and will leave in their pockets the sum of £110,000 annually that they have now to pay as duty before the Tea is released from bond, and which under present circumstances is one of the fairest sources of indirect taxation for providing the necessary revenue for state expenditure that exists.

To show that such is the case we have simply to look at the conditions under which tea is distributed to the public. In the first place it must be admitted that the general purchaser is totally ignorant of the actual value of the tea they buy. They may know the class of tea they like when they have it infused in the cup, but this is simply the result of education of the palate. They like a certain class of tea because they are accustomed to drink that quality, and this education goes to the extent of their often preferring a common inferior quality tea to a higher class and richer flavoured one, or to the class of blended tea supplied by one grocer in preference to that supplied by another, although the rejected sample may be worth from 6d to 1s per lb. more than the one that the buyer likes, simply through his having acquired a taste for the inferior article through constantly using it. This fact is taken advantage of by the general grocer, who always looks to get a large profit upon his tea. He may have to give the best value in sugar, an article the quality of which anyone can judge. He may have to cut down the price of his butter, cheese, bacon, jams, and other standard goods to the finest margin to compete with his opponents, but he must make up for this by getting a large profit on his tea, because in this his customers cannot judge of the relative values offered, being in total ignorance of the value of the article they are purchasing.

The truth of this statement is evidenced by the fact that numerous grocers advertise and proclaim by large signs that "they will give 5 lb. of the best white sugar to each purchaser of 1 lb. of their best 2s tea. "Now let any thinking mind analyse this wonderful offer; do they really imagine that they will get" 1 lb. of the best 2s tea," and that the kind-hearted grocer generously presents them with 5lb white sugar? If they do, let us inform them for their information that it is much more probable that they get 1lb. old exhausted rubbish, that once perhaps deserved the name of tea, and that would be now dear at any price, and that by this catch the grocer makes a profit on his sugar that otherwise he would not get. The working man can now buy his tea at any price, from 1s per lb. upwards, according to his taste and requirements. Let us ask him to use his own common sense and practical knowledge of the world, and say whether in the face of the foregoing facts it is at all probable that he would be able to buy his tea cheaper, or get better value for his money through the fact of the 3d per lb. duty being taken off. We can tell him he will not. The remission of the

duty will simply enrich the importer and the grocer, who will thus be able to increase their already large profits while the Government are using the fact as an excuse for putting heavy duties upon every other article he consumes.

But there is another and most serious view that has to be taken of the results that are likely to be brought about if this proposed remission of duty is carried into effect, and one that will make even the Government pause and consider before they finally adopt this policy. It is a well-known fact, and one that has been repeatedly brought before the community in the public press, that tea is most liable to adulteration, and that the Chinaman loses no opportunity of foisting an inferior and adulterated article open any one that will allow him. To such an extent has this been done in the past that in England, where a special law has been passed authorising confiscation, whole cargoes have often been destroyed to prevent them going into consumption. In Victoria and Queensland, where specially qualified officers have been appointed to prevent the introduction of inferior quality and adulterated tea, shipments are often condemned and prevented from entering the ports. But here in New South Wales no such precautions have been taken. The only protection that exists is the fact that teas imported are under Customs House supervision, and are sampled and weighed by the Custom authorities. Take away this solitary though slight guarantee by exempting tea from the payment of duties and Customs control, and we give a premium to the Chinaman to make this colony a receptacle, for all the filth and rubbish they can produce, the only act that exists against adulteration being absolutely inoperative, as its wording precludes the possibility of interfering with anything that does not actually endanger human life.

Such being the actual position in which the Government proposal places the general public, it remains for the so-called "poor working man" and the consumer generally to judge the amount of kudos they are entitled to for proposing to remit the sum of £110,000 duty upon tea and place an extra duty of £836,000 upon all the ordinary requirements of everyday life.—*Sydney Evening News.*

CEYLON TEA AVERAGES IN LONDON FOR 1891.

As the last public sale of Ceylon tea for 1891 has been held in London, we give below in tabular form the results of Reuter's and Messrs. Wilson, Smithett & Co's telegrams received by us weekly during the last twelve months, with similar figures for the previous year, for the sake of effective comparison. There has not been very much fluctuation in the figures for the weekly average; and the monthly figures shew even less movement. The latter were as follows:—

MONTHLY AVERAGES DURING 1890 AND 1891.

	1890.	1891		1890.	1891
	s. d.	*s. d.*		*s d.*	*s. d*
January ...	0 11½	0 11¾	July ...	0 10¾	0 9
February ...	0 10¼	1 00	August ...	0 10½	0 9
March ...	0 10¼	0 10¾	Sept, ...	0 11¾	0 9½
April ...	0 10½	0 10¾	Oct, ...	0 11¾	0 10
May ...	0 10	0 9¾	Nov. ...	0 11¾	0 9½
June ...	0 10¾	0 9¼	Dec. ...	0 11	0 10

Prices during the early part of this year were higher, and in the latter lower, than was the case last year.

[The above from the local "Times" underrates, we submit, the fall in prices in 1891. In 1890 the prices never went below a monthly average of 10¼d. In 1891, the prices for the first four months ranged at 11¾d, once reaching 1s. Then came a drop to below 10d for 5 months, the figures for July and August being only 9d. October showed 10d, November 9½d, with a recovery to 10d in December. The record of 1891 is that of the lowest prices ever realized for Ceylon tea, the redeeming feature being the ultimate good effects, which we may take to be certain, of the large quantity consumed.—ED. *T. A.*]

THE ORIGIN OF "PADDY."

In reply to the first question put by our correspondent "C. S. V." elsewhere, we would quote the following from Yule's "Hobson-Jobson":—

Paddy, s. Rice in the husk; but the word is also, at least in composition, applied to growing rice. The word appears to have, in some measure, a double origin. There is a word *batty* used by some writers on the west coast of India, which has probably helped to propagate our uses of *paddy*. This seems to be the Canarese *batta* or *bhatta*, 'rice in the husk,' which is also found in Mahratti as *bhat* with the same sense, a word again which in Hind. is applied to 'cooked rice.' The last meaning is that of Sansk. *bhakta*, which is perhaps the original of all these forms. But in Malay *padi*, Javan. *pari*, is 'rice in the straw.' And the direct parentage of the word in India is thus apparently due to the Archipelago; arising probably out of the old importance of the export trade of rice from Java (see *Raffles's Java*, i. 239-240, and *Crawfurd's Hist.*, iii. 345, and *Descript. Dict.* 368). Crawfurd (*Journ. Ind. Arch.*, iv. 187) seems to think that the Malayo-Javanese word may have come from India with the Portuguese. But this is improbable, for as he himself has shown (*Desc. Dict.*, u. s.), the word *pari*, more or less modified, exists in all the chief tongues of the Archipelago, and even in Madagascar, the connexion of which last with the Malay regions certainly was long prior to the arrival of the Portuguese.

It will be seen from the above that the origin of the word "paddy" is somewhat uncertain. With regard to the second question (or rather questions): (*a*) The word "paddy" is used generally throughout the east by English-speaking persons. (*b*) This is a more difficult question to answer. There is no doubt that the word was introduced into Ceylon by the English. The Dutch invariably used the Tamil word *neli* for rice in the husk, following the example of the Portuguese in this. Vieyra's Portuguese-English Dictionary has "*nelle*, rice that has not been peeled." The word is still current in the Ceylon Portuguese. Knox does not mention the word "paddy" at all; and the first writer on Ceylon that we know of who uses the word is Pybus, who in the account of his mission to the King of Kandy in 1762 speaks of "paddy plantations." Hugh Boyd in the journal of his embassy to Kandy twenty years later also mentions "paddy." Percival writing at the beginning of this century says: "What is commonly called *paddy* is a very inferior grain." Cordiner writes "paddee." From the first of the following quotations given by Yule, it will be seen that the word was first brought to England from Java in the 16th century:—

1580. "Certaine Wordes of the naturall language of Jaua . . . *Paree*, ryce in the huske."—*Sir F. Drake's Voyage*, in Hakl., iv. 246.

1598. "There are also divers other kinds of Rice, of a lesse price, and slighter than the other Ryce, and is called *Batte* . . ."—*Linschoten*, 70.

1600. "In the fields is such a quantity of rice, which they call *bate*, that it gives its name to the kingdom of Calou, which is called on that account *Batecalou*."—*Lucena, Vida do Padre F. Xavier*, 121.

1615. ". . . oryzae quoque agri feraces quam *Batum* incolae dicunt,"—*Jarric, Thesaurus*, i. 461.

1673. "The Ground between this and the great Breach is well ploughed, and bears good *Batty*." —*Fryer*, 67, see also 125. But in the Index he has *Paddy*.

1798. "The *paddee* which is the name given to the rice, whilst in the husk, does not grow . . . in compact ears, but like oats, in loose spikes."—*Stavorinus*, tr. i. 231.

Wilcocke, the translator of Stavorinus, adds the following note to the passage quoted above (the author is speaking of Java):—

The following, besides many others, are names applied to rice, in its different stages of growth and preparation: *paddee*, original name of the seed: *oossay*, grain of last season; *bunnee*, the rice-plants before transplantation; *bras*, or *bray*, rice stripped of its husk; *charroop*, rice cleaned for boiling; *nassee*, boiled rice, &c.

If any reader can give us a reference to paddy by any writer on Ceylon earlier than those we have referred to we shall be obliged.

THE FISH LEAF.

As no one has answered my questions: (1) the meaning and derivation of this name. (2) the cause, or nature, of this "abortive leaf," I will say what I think about it myself. Standing before a recently pruned tree the other day it occurred to me for the first time to give myself a scientific lesson in the growth of the flush, and, consequently, in "plucking." This proved to be as simple as it was interesting, and, in an instant, to make the whole art of "plucking" as clear as till then it had been obscure, and followed only by rule of thumb. But, as in many other things, this useful rule is often a very safe one, as witness the absolutely perfect practice carried on by most Ceylon planters.

First, then, what is the "fish-leaf"? Anyone who will take the trouble to examine a new "shoot"—whether upon a newly-pruned branch, or from the flushing wood of a tree ready for the knife—it will be seen that, the bud itself being too tender to pierce the bark or skin of its parent stem, nature has provided a stronger and coarser gimlet for this purpose. This gimlet is, in fact, a hollow case composed of two sides, and when once through resolves itself in a smooth orifice, or matrix for the passage of the new shoot. Once born into the light, the shoot, or flush, grows without further aid, each bud in turn developing itself into a true leaf. In the case of the tea plant this case, or matrix, or vagina, does not wither and fall off, but attaches itself to the root of the new shoot, which carries its birthcase with it, and thus forms *two* abortive leaves. One (the smallest side not always developed) simply curls round near the root of the shoot like a tiny whitish fin, while the other side of the case (the true fish-leaf) is carried further up the shoot and assumes more the appearance of a true leaf. I need not moralize on what this teaches in regard to plucking, as that is self-evident. To duly nourish a new shoot thus formed, either a full flow of sap is necessary, as in the case of new growth from bare old wood, or a matured leaf on greener wood, to feed the new shoot growing under its protection.

Now as to the first question, viz., the name "fish leaf"? All planters know that this is called by the coolies "Toppil Elei," but not many know that being translated this means the "Navel" leaf, the "*navel*" of each new shoot. Now this name in its absolute correctness is highly scientific, so much so as to be amazing, and I for one should very much like to know whence it came. We are apt to look upon our humble workers as the opposite of observant and scientific, and yet here is a name in common use amongst them more scientific than anything we have invented for the same purpose. Not that Ramasamy and Minatchy ever think of its real signification unless their attention is called to it, so far even as the mere name is concerned, and of course all are ignorant alike of the facts above given. Still there *is* this proper and curious name in every-day use, and what I ask is, whence came it?

And now I come to its designation by the European planters, viz. "fish-leaf"! Why "fish-leaf"? This seems a poser, and though I am going to give a good guess (so far as Tamil is concerned), I do not overlook two important considerations; first, that a closer acquaintance with the science of botany than I possess may furnish an answer to this question, and second, that—if the name originated in Assam—Tamil could have had nothing to do with it, though it may be, for all that I know to the contrary, that the coincidence of language may even then account for it. Well, then, I do not think it is called the "fish-leaf," because it bears much resemblance to a fish—though the smaller half of it does look finnish. We have already seen that Tamil is not to be despised as an authority, and, if the term had originated here, I should say "fish-leaf" was nothing but a corrupt English rendering of *Mün elei*, or first, fore, front, proceeding, advance leaf. Either of these words will render *Mün* (going before) in English, and also correctly describe the growth and position of the "fish-leaf." But, query, how do we get "fish" out of "mün"? Answer, by the corruption I have already hinted at —"mün," with a ú sound, is by Europeans nearly always called *min*, and whereas "MÜN" means first, or before, "MIN" means fish! R. W. J.

[NOTE BY KÁROLY FÜRDÖ.—The above learned discourse on the "Fish-leaf" is full of most interesting and enjoyable reading, and will no doubt lead us all to study with greater pleasure and profit the life-history of our flush. But I must take exception to the derivation of the Tamil name "min elei" from *mun*, before: for the *i* of min is long (as the very name Minádchi, *fish-eyed*, quoted by R. W. J., proves), though derived from a root *min*, to shine, from which come *minmini puchchi*, a glow-worm, and *minnal*, lightning. The Tamils call stars *van-min*, the sky fish, and when the sky is spangled with them they say the stars *minnuhirathu*, are in *shoals*! That the germ-leaf is like a fish both in shape and colour I never heard anyone before deny: but it should seldom, if ever, be allowed to come to the *scales*. *Thoppul elei*, navel leaf, is certainly extraordinarily scientific, and it would be worth while finding out what the North Indian labourers call it.]

Some interesting statistics of agriculture have recently been published, from which it appears that the largest natural hive in the world is the mammoth cave of Kentucky, which has been taken possession of by myriads of bees. The great bee-master is Mr. Harbison, of California, who owns 6,000 hives. In Greece there are 30,000 hives, in Denmark 90,000, in Russia 110,000, in Belgium 200,000, in Holland 240,000, in France 950,000, in Germany 1,450,000, in Austria 1,550,000, and in the United States 2,800,000 hives. It is calculated that a bee sucks 218,750 flowers for every ounce of honey.—*Globe*.

THE DELIVERIES OF CEYLON TEA IN LONDON for 11 months ended November were, in 1889 28,443,000 lb.; in 1890 34,880,000 lb., an increase of 6,337,000 lb.; in 1891 49,362,000 lb., an excess over the previous year of no less than 14,482,000 lb. This was, no doubt, largely the result of low prices; but the prices of Indian were also low without leading to a proportionate increase, while in China there has been a large decrease. With due care in preparation, there seems no fear that Ceylon will preserve its leading position in the markets. The deliveries of our teas for 1891 in London must have been about 53½ millions of lb; and counting exports to Australia and other places direct the world's consumption of Ceylon tea must have been 57 millions of lb.

THE RICE CROP IN BURMA.—The report received from the local administration on the prospects of the crop on 31st December is as follows:—"The area under paddy cultivation in the ten chief rice-producing districts of Lower Burma is now estimated at 4,107,562 acres, or 191,374 acres more than the actuals of last year and 34,222 acres less than the area reported last month. The areas reported from Akyab and Shwegyin are unchanged, while there small decreases in Hanthawaddy, Tharawaddy, Prome, Bassein, Henzada, and Amherst. Pegu reports a further decrease of 16,453 acres due to destruction by floods. The crop estimates are the same as last month excepted in the case of Tharrawaddy where a sixteen-anna crop is now expected. It is estimated that there will be available for export 1,215,500 tons of cargo rice, equivalent to 20,601,690 cwt. of cleaned rice, including what is required for Upper Burma."

THE COMMERCE OF CEYLON FOR 1891.

The EXPORT TRADE of Ceylon during the year 1891 compares very favourably as regards the chief articles of export with that of the two preceding years, indicating a further advance towards the condition of prosperity that prevailed during the period when coffee cultivation was flourishing and formed the chief staple export of the island.

The revenues of the country show a satisfactory increase as compared with past years; and it is probable that the prosperity of the island generally rests at the present moment on a more assured and substantial basis than has existed at any time during the past decade.

The danger that appears to threaten in the future is the over-production of TEA, which now forms our chief article of export, and upon the cultivation of which the revenues of the country directly and indirectly to a very great extent depend. When it is considered that the export has increased from .. 34,048,085 lb. in 1889
to .. 46,901,554 lb. in 1890
and .. 68,274,420 lb. in 1891
with probable further
increase to .. 85,000,000 lb. in 1892
it is obvious that unless the consumption of Ceylon tea increases largely so as to compensate for the increased production a range of such low prices may be looked for as will serve to largely neutralize the benefits that might be expected to occur from the larger exports and in some cases render the cultivation of tea altogether unprofitable.

The tea planters and merchants of Ceylon are by no means oblivious of this danger; and strenuous efforts are being made in various directions to introduce Ceylon tea into countries where it is either not known or where the consumption is so small as to afford room for increase. A large measure of success has so far attended the efforts made with this end in view, and it is hoped that the opportunity afforded by *the Chicago Exhibition of advertising Ceylon tea* will result in a greatly increased consumption in Canada and the United States of America and the creation of a demand for our product in the Central and South American States. The colonies of Australasia took in 1891 3,210,598lb. against 2,559,901lb. in 1890 and Ceylon tea is becoming known in various parts of the world from Teheran in Persia to Samoa in Polynesia, and Tobago in the West Indies to Algeria in the Mediterranean.

Next to the marked increase in the exports of tea, the most noticeable feature in the export list is the greatly decreased export of CINCHONA BARK—the quantity sent away being only 5,679,339 lb. in 1891
against 8,728,836 lb. in 1890
and 14,838,402 lb. in 1886
when the cultivation was at its maximum.

The growing of this drug now attracts but little attention; and seeing that the unit of quinine has fallen in price, from 25 cents in 1885 to 6 cents, the present price in the local market, it is perhaps not to be regretted that a cultivation subject to such fluctuation, and of so precarious a nature, has fallen into desuetude.

The exports of COFFEE for the last three years have remained almost stationary at about 87,000 cwt.; and it appears probable that the export will average about this quantity for some years to come. The shipments now to a great extent form the yield of estates situated in districts where climatic conditions and superior soil have enabled the trees to resist to some extent the ravages of the coffee leaf fungus, the cultivation of these properties being still profitable, notwithstanding a greatly reduced yield per acre.

The yield of CACAO has to some extent increased, the exports being 20,532 cwt. in 1891
against 15,981 cwt. in 1890
and 19,054 cwt. in 1889
The difficulties attending the cultivation of CACAO in large plantations lessen the probability of the exports increasing largely in the future. The cultivation of CACAO in village gardens appears however to be increasing, if the numerous small parcels brought to market by native dealers may be taken as an indication of this development.

The increased exports of CINNAMON and COCONUT OIL are probably due more to a favourable season than to a development of cultivation; and as regards the latter item to a decrease in the quantity of copra exported for manufacture into oil in other countries. The disastrous famine in Russia has affected the exports of COPRA to that country, the shipments that usually take place in September and October not having this year gone forward.

A new and interesting item of export appearing in the export list of the Ceylon Chamber of Commerce is DESICATED COCONUT, the manufacture of which—and other products derived from nuts—affords employment to a large number of labourers is both male and female in Colombo and elsewhere. Formerly the nuts were exported intact for manufacture at the port of delivery; but the superior quality of the shredded and desiccated kernel obtained from the nuts in a fresh condition has led to the development of a local industry that has already assumed some importance. Concurrently with the shipment of the desiccated nut the export of COCONUTS has fallen off from 11,907,969 in 1890 to 6,699,403 in 1891.

The IMPORT TRADE of Ceylon during 1891 has not been exceptionally active or profitable, but the business has been done on a less unstable basis than during the preceding year, the violent fluctuation in exchange which took place in 1890, and which caused the import trade to be attended with a maximum of risk, not having been repeated in 1891. The sterling equivalent of the rupee during the year has averaged about 1s 5d, while in 1890 it fluctuated between 1s 5½d and 1s 9½d.

PLANTING SUMMARY OF 1891; WITH ROUGH FORECASTS FOR 1892.

TEA.—An increase of over 22,000,000 lb. in our exports in one year is calculated to throw over us the shadw of the cloud of over-production. Still there are two or three very good reasons why the producer should lay before the consumer his belief that Ceylon tea in 1892 will only run about 75,000,000 lb.

First and foremost, that there is no such large increase of land coming from partial into full bearing or from unproductiveness to partial bearing.

Second, that it is very unlikely we shall have a season in 1892 such as we had in 1891, especially in the first 6 months of the year. In 1891, 13,000,000 lb. of the 22,000,000 lb. increase were shipped in that period.

Third, we are plucking finer. On one large estate the manager, working on the lines of 1891, estimated 240,000 lb. in 1892. He received instructions to pluck finer and only to estimate 200,000 lb. Another large estate in the lowcountry manufactured 250,000 lb. 1891. It is only estimated to give the same quantity in 1892.

The estates everywhere look in good heart. The

Indian tea man need not hug the delusion prevalent among the planting community there that our production is only a flash in the pan. As for our China friends, they "are not in it," Sir Andrew Clark to the contrary. Improved machinery and withering accommodation are everywhere being placed or provided in our tea factories; so that we shall not have such terribly low averages as we had in 1891.

LABOUR, which at one time was so scarce (in the beginning of 1891), is now more abundant.

COFFEE for the last 3 years has been exported up to 80,000 cwt. It will probably run down to *70,000* in 1893. The coffee in fields of tea over 3 years old has no chance.

CINCHONA went down 3,000,000 lb. in 1891, and for all it brings to the owners in the way of cash, it might cease to be an article of export. No one is doing anything in the way of planting fresh supplies, excepting, perhaps, a few plants of Ledgeriana.

COCAO has jumped up 5,000 cwt. in 1891 over 1890, and it may run up another 5,000 cwt. in 1892, as judicious shade is being cultivated and fields that were previously barren are now yielding 1 cwt. to 2 cwt. per acre. Continued wet weather has done harm to the fruit-bearing in the last half of the year, but moisture in the long run must tell on this product for good.

TOBACCO.—The less said about this product the better. It has been a regular "will o' the wisp."

CARDAMOM is not a general cultivation, being mostly confined to the dwellers in Rangala and Medamahanuwara.

TIMBER cultivation has received great attention in 1891, and the fruits of it will be seen in a year or two in the improved appearance it will give tea estates, compared to what coffee estates presented.

THE CEYLON FOREST DEPARTMENT.

The following brief notes will give an idea of some of the operations in which this department has been engaged during the past year:—

(1) Surveys of forest by the Survey Department have been made, confined chiefly to the fuel reserves near Mirigama, the forests near Battuloya, North-Western Province, and the Kalugala forest in the Kurunegala district, North-Western Province, &c.

(2) Reservations of forests and village forests have been published in the *Government Gazettes*,

(3) Forest Ordinance.—The draft of the amended forest ordinance only requires one more reading in Council. The chief feature is that the Government may place the Conservator in direct charge of reserved forests.

(4) Plantations.—(a) Railway fuel plantations at Galboda about 300 acres:—Grevillea, eucalyptus robusta, pithecolobium dulcis, pterocarpus indicus, hal, hora, pithecolobium saman, &c.

(b) Strip plantations at Nanuoya planted with blue gum, eucalyptus robusta and others, acacia melanoxylon and decurrens, some cryptomeria japonica and pinus longifolia.

(c) Badulla.—Patana plantations have been extended, grevillea chiefly. Haputale.—Strip plantations have been extended, chiefly eucalyptus robusta.

(d) Puttalam.—Teak plantations have been extended and the older portions trimmed.

(e) Eastern Province.—Teak chenas have received attention, and something has been done in the way of weeding and refilling:

(f) Ratnapura.—The Parà rubber plantations have been extended.

(5) Timber Operations:—Supply to public depôt.—Chief works, Badulla Kachcheri and hospital, Anuradhapura hospital, &c., sleepers of red doon from Sabaragamuwa and kumbuk from Central Province and North-Western Province, supplied to public. Local demand met. Also felling of ebony in North-Central Province for China market, only a small quantity auctioned, but fetched excellent prices. Satinwood export to England has been started, with a brisk demand. Halmilla, export to India reduced.

(6) Miscellaneous.—(a) Chena cultivation was brought under further control.

(b) Steam saw-mill received and sent to Batticaloa.

(c) Elephant establishment started; there were three elephants, one died.

(d) Very complete and interesting collections of timber and minor produce exhibited at the Agri-Horticultural Show.

AGRICULTURAL EDUCATION IN 1891.

The work at the School of Agriculture has been most satisfactory, to judge from the report read by the Superintendent, and the comments made by the speakers, on the occasion of the prize giving in November. The classes consisted of 26 students—all resident pupils except two day scholars. Six of these passed out at the end of the year having gained certificates of merit after a two years' course of training at the School. The labours of the Agricultural Instructors have also been attended with good results, as is evinced by the fact that applications for their services continue to be made by Government Agents and Assistant Agents, while the Government has sanctioned the employment of six extra men during the present year. An area of 40 acres of land adjoining the School was granted by the Government for experimental cultivation, and a good type of stud bull was imported from India, to be stationed at the School. It is likely that the matter of improving the native stock of the island will be taken up in a more active way in the future, and that during the present year a veterinary surgeon will be added to the staff of the School. Schemes are also in contemplation whereby a technical branch will be grafted on the School, and the various establishments for training teachers will be centralized at the School of Agriculture.

THE FISH LEAF.

I am much beholden to "KàrolyFürdö" for his friendly and instructive notice of my short paper on this germ leaf, or birthcase, or navel of the tea flush. He has given us quite an interesting lesson in Tamil, more about which further on.

Seeing my 'discourse' in print, I observe one or two expressions that may draw upon me adverse criticism. For instance, "*the whole art of plucking*" is a large order, and may be misconstrued. Nevertheless it correctly describes the revelation that flashed into my mind, in "an instant,"—and not only the whole art of *plucking*, but the whole art of *pruning* also. By this I merely mean the fundamental law underlying both operations, independent of age, soil, jat, climate and condition of the bushes. How each of these things affect both operations in actual practice, is another matter, and might easily be told, if that were my object, which—being only the name and nature of the Fish Leaf—I have nothing to do with.

That part of my paper where I attempt to fix *Min-elei* (fish-leaf) upon *Mun elei* (first-leaf) was rather a *jeu-de-mots* than a serious intention, because—as I explained, Tamil came too late on the field. I never heard the coolies call it "Mun-elei" (though I have pointed out to them it would not be a bad name for it), and, frankly, I do not believe it has anything to do with it. After reading "Kàroly Fürdö's" note *minmin pootchi* (glow worm), *minnal* (lightening) *van min*, (stars) and *Minatchy* (fish-eyed maiden) will remain fixed in my memory, and also the root "min" to

shine,—which, by the way, almost points to the fact that Minatchi would be best rendered Bright-eyed than Fish-eyed, following Vellatchi (light eyed, or silver eyed), Tangatchi (golden-eyed, as well as younger sister). But I suppose there is a difference between "Achi" (a mother), and "Adchi," which probably comes from some root meaning eye. "Kàroly Fürdö" is better able to explain. Most u's are pronounced as i (in pin) by the coolies, so that I don't quite follow "K. F." in objecting that *mun* and *min* are easily confounded; but cooly-Tamul (or Tamil) is doubtless a fearful and wonderful thing. I owe my knowledge of the meaning of "*Toppul ulei*" to a Tamil gentleman of the Edinburgh University, and I found the coolies had to think twice before they could see the connection.

R. W. J.

NOTE BY KAROLY FURDO.—It is quite refreshing to find anyone taking interest in anything beyond the mere routine of tea manufacture, and going into the why and wherefrom as "R. W. J." is doing. I quite concede that in Tamil short *i* and *u* and long *i* and *u* are interchangeable, but what I cannot admit is that short *u* is ever pronounced like long *i*, or that *mun* could ever become min. And now I am sorry to see that "R. W. J." has flown off at a tangent regarding the *achchis*. Kām-ādchi means "love-eyed" or "amorous-eyed"; but Velleichchi (the white woman) is only the feminine form of Velleiyan: and Tangachchi is the fem. of thambi, younger brother, which is a contraction of Tham-pin, after one's self, as can be seen by the forms um-bi, your younger brother: em-bi, our younger brother &c.

KAROLY FURDO.

SALE OF PLANTATIONS IN 1891.

District.	Name of Estate.	Sold by	Purchased by
Maskeliya	Dotala	Executors of A R Campbell-Johnston	G B de Mowbray, R35,000.
Kelani Valley	Mt. Gregory *alias* Broadlands	J M Zulueta and Deare	Do, R12,600
Dikoya Lr.	Dotlegallai	Trustees of late Mr. Alexander	Frith, Sands & Co., £2,600.
Ambagamua	Hyndford	(Fiscal's Sale)	David Reid, R32,755
Pussellawa	Harmony	J R Grant	Heirs of Colonel Lillie, R45,000.
Kalutara	Rogart Lang's Land	F D Mitchell and Donald Mackay	A P and R J Booth, £3,500.
Dimbula	Holyrood West	G S Duff	Ceylon Tea Plantations Co., £15,000
Laggala	Brae Dell Lauragalla Foyers	H Fraser, and H and A Mackenzie	Barlow & Co., Manchester, £4,500.
Do	Hattanwella & Rock Park	E G Reeves	Do, £3,300.
Badulla	Mortlake	Alex. Thomson	G S Duff and Col. R J Dawson, R10,000.
Dikoya	Mayfair	C. J. Backhouse	A Anson, £6,500
Kelani Valley	Elston (½ share)	C Byrde	H C Harrison, £1,400.
Ambalangoda	Sinnegoda and Bellevue (cocoanut)	E. Produce and Estates Co.	F W Byrde, R20,000.
Dimbula	Thornfield (½ share)	G B Sparkes	Wm. Mackenzie,
Dikoya Lower	Adelaide	G H Withers	Scottish Ceylon Tea Co., R30,000
Dimbula	Ardallie	Scottish Trust and Loan Co., Ltd.	Ceylon Tea Plantation Co., Ltd., £7,000.
Kelani Valley Kalutara Hewaheta Upper	Moralioya Pathragalla Wilson Deegalla Narthupane	Jeronis Pieris	Ceylon and Oriental Inv. Corporation.
	Part of Mooloyakele	— Williams	R J d'Esterre R12,100.
Madulsima	Heathstock	J McInnes	Capt. Hamilton Gordon.
Dimbula	Avoca	Miss Layard	W L Marshall R52,000.
Wattegama	Wattegama	Major Gwatkin	H J Vollar.
Dikoya	Lynford	H A Claremont	A R Lewis, £10,000.
Dimbula	Yoxford	Baring Bros.	Ceylon Tea Plantation Co., Lt £18,000.
Dikoya Lower	Arslena	T C Anderson	C J Backhouse £6,500.
Dikoya	St. Leys (½ share)	do	J W Holt, £3,000
Kelani Valley	Mipitiakand (½) share	R Porter	Kennedy and Evans, £5,000.
Dimbula	Wattegodde	Arbuthnot, Latham & Co.	Consolidated Estates Co., Ltd. £30,000.
Yakdessa	Kandaloya (⅛ share)	T S Dobree	Dickenson, Akroyd & Co.
Badulla	St. Mary's	Col. Coml. Co.	Capt. H Gordon.
New Galway	Glenshee	Brown and Martin	R I C Bowie, R34,800.
Ambagamuwa	Mt. Jean	Alston, Scott & Co.	Frith, Sands & Co., R2,400.
Dimbula	Rathnillokelle	Elias & Co.	Ceylon Tea Plantation, Co., Ltd., £5,000.
Dikoya	North Cove (½ share)	A R Lewis	Thos. Farr, £5,000.
Do	Bridwell and Kirkoswald (½ share)	A Fetherstonhaugh	C Fetherstenhaugh, £20,500.
Udapussellawa	Eskdale and Liddesdale	Norman Grieve	Standard Tea Co. Ceylon, Ltd., £1,600.
Do	St. Leonards	R K Shuttleworth	Do, £14,000.
Dimbula	Glasgow	Cross & Ballardie	Glasgow Tea Co., £14,000:
Dikoya	Dunkeld	Redfern, Alexander & Co.	Dunkeld Tea Co. Ltd., £10,500.
Do	Castlereagh	Kelly and Trustees of Mrs. Kelly	Castlereagh Co. Ltd., 16,500.
Kurunagala	Delgolla	Laurie and Fox	Delgolle Co.
Dimbula	St. George and Woodlake (½ share)		Charles Strachan £7,000.
Rakwana	Springwood, Barra and Ranweltenne	Shand's Trustees	Assiatic Co. of Ceylon, Ltd., £25,000 (?)

NOTES ON PRODUCE AND FINANCE.

LAST WEEK'S SALES OF TEA.—The demand for India tea, says the *Produce Markets Review*, continues active, and a large business has been transacted in all kinds. The tendency of the market is stronger, more particularly for the medium and lower grades the latter having risen from ¼d to ½d, and from the lowest point about ¾d. Notwithstanding this advance, prices are quite 1¼d lower than at this time last year, and providing there is no further material increase in values, there is no reason to anticipate any check in the satisfactory demand. On the other hand, if any attempt to force up prices to an unjustifiable level met with any measure of success, it would be sure to stop the demand, and similar unsatisfactory results to those experienced in the early part of the year would have again to be contended with. The quantity of Ceylon tea offered has again been small, and prices are firmer. The demand from the country has somewhat diminished, chiefly owing no doubt to the cheapness of Indian teas, which at the moment, except where Ceylon flavour is

demanded, undoubtedly show superior value. The quality of the imports during the week has shown a slight improvement, and as reports from the island point to better weather, teas of good quality may be on the way. Java teas are much neglected except for export, for which the demand is rather more active. The arrivals for the week are:—The "Clan Buchanan," "Golconda," "Mira," and "Legislator," from Calcutta and Colombo; "City of Canterbury," from Calcutta; and the "Oroya," from Colombo. Notwithstanding the near approach of the Christmas holidays, says the *Grocer*, the quantity of Indian tea brought forward has continued heavy, reaching 32,385 packages, which, it is satisfactory to say, met an active demand, and were nearly all taken off with a healthier competition than for some time past, at a further slight advance. The common sorts are gradually recovering from the recent depression, and are now ¼d to ½d per lb. dearer than they were a fortnight ago. The better and strong-liquoring kinds also have been more readily purchased, and still form the smallest proportion of the general supply.—*H. and C. Mail*, Dec 25.

DOOM DOOMA TEA COMPANY, LIMITa e-

The following circular has been issued to the sh holders:—"I beg to inform you that at a meeting of the directors of this company, held on the 16th inst., it was resolved to declare an interim dividend at the rate of 5 per cent. upon the whole capital of the company, namely:—To the A shares, 5 per cent.; to the B shares, 5 per cent.; to the ordinary shares, 5 per cent. In conformity with this resolution, I have now the pleasure to forward a dividend warrant for the amount due to you, as per accompanying statement. I am instructed by my directors to inferm you that the total tea crop of this seasons, including that of the Samdang Garden (about 98,000 lb.) amounts to 1,120,960 lb. as compared with 893,890 lb. last year. The sales up to date of 733,337 lb. in London have averaged 10 15-16d. per lb., as compared with the average to same date last year of 590,498 lb. at 1s 0 3-32d per lb., or with the total 1890 average of 1s 0½d per lb.—I am, yours obediently, E. G. Rock, Secretary."—*H. and C. Mail*, Dec. 25.

SAPPHIRES AND RUBIES IN SIAM.

The first annual ordinary meeting of the above company took place on Monday.

Lord Thurlow, the chairman, in speaking at some length, said that matters were progressing as favourably as could be expected in the face of the many difficulties they had had to contend with.

Mr. C. Preston Gibbons, who was at the head of their affairs in Siam, had been dangerously ill, and the fever so prevalent in that country had at first attacked many of the men on the fields. The company, he continued, had now taken possession of nine square miles of gem-producing ground, and the result had been 210,000 carats of sapphires and rubies, 40,000 carats of which had already come to hand, a second consignment of 130,000 carats being expected shortly. They had as yet not exported any expensive machinery, trusting rather to the simple appliances by which the natives were accustomed to extract the gems. They would not risk sending out expensive machinery, &c., until they had extended their business sufficiently. He regretted to say that the bank balance in London was very small, and that they would have to make a call of 2s. 6d. in the £ payable on Jan. 15th. This would enable them to keep the concern going for six months. He did not think a further call would be necessary, as they were receiving consignments of stones for disposal, unless they extended their operations largely. He congratulated the shareholders on their excellent staff, both in Siam and in London, and also on their relations with the Siamese Royal Family and Government, who were largely interested in the undertaking, and whose patronage would contribute greatly to the success of the company. In conclusion, he moved the adoption of the report and accounts. The motion having been unanimously agreed upon, the meeting closed with the usual vote of thanks.—*H. and C. Mail*, Dec. 25.

A GUIDE TO RICE-GROWING.

Near the end of the last century the reigning Emperor of China, Kanghi, the second of the present dynasty, impelled by the importance of the rice industry in the Flowery Land, and to show his solicitude for the welfare of his subjects, published a sort of guide to rice-growing. This curious work (dated 1796), which suggests to the European mind that the Emperor compiled it when in a playful mood and rather as an amusement than out of regard for the welfare of his subjects, has been rendered into English, and as it may be of interest to our readers we produce the translation (kindly lent by Mr. Alex. Macpherson) in full. It should be mentioned that each of the short descriptive verses given below is accompanied by a picture:—

Soaking the Rice Seed.

The rains have fallen and brought water to our cottage gate.

Immerse your bamboo baskets of seed in the limpid waters, and soon the precious grain sprouts will show forth.

It is now that outdoor preparations begin.

Sacrifice the fowl to greet the opening spring, and offer up your prayers for an abundant harvest.

Let the plough do its work from morning till night.

Ploughing.

Good! The water in the fields has accumulated to the depth of a plough.

How beautiful to see the vernal foliage casting its shade on the land.

Aged as I am I delight to saunter from the cottage door, and with the aid of my staff I come to watch the water buffalo laboriously wading the muddy flats.

Alas! in how many years gone by have I put my shoulder to the plough!

Harrowing.

With my bamboo hat I brave the morning mist.

With my bamboo leaf coat I resist the rains of spring.

See the poor buffalo.

The mud is four hoofs in depth, but who will say that he works harder than I, the man behind, who from morn to eve stand till my legs ache with fatigue?

Raking.

Off with your coat and out to your work.

Harness the buffalo and rake all the fields.

Such is the morning cry.

Now, soon will the sun be sinking in the west, and already I hear the song of returning woodmen.

Ah, my good buffalo! thou art quickly to go home and enjoy your evening swim.

Harrowing.

Wo! Steady, my beast.

Now, gentle reader, while your rustic friend reins in his buffalo, please take a glimpse at his native village. A single row of thatched cottages along the margin of a lake backed by bamboos and other foliage, and there you see a specimen of quiet Chinese rural life.

Sowing.

The land is prepared, the grain is sprouted.

Entering the field with each a basket on his arm,

We walk backwards, and with a wave of the hand deftly disperse the seed.

Ere a few days have elapsed the tender blades will be bending before the wind.

Thus by a picul of seed may a full harvest be reaped.

The First Shoots.

The warmth of spring has started the seed, de,

And with staff in hand and a youngster by my si

I hobble out to see the first green blades;

This is the first result of this year's work;

But how much more is there yet to be done.

Manuring.

Our system of agriculture has been handed down to us by our forefathers.

Without manure mother earth will not yield in abundance.

Such is a portion of our labour.

Let us hope that we shall reap abundantly.

Transplanting.

The young plants have reared their heads above water;

Fathers and sons all lend a hand to transplanting.
We gather up the plants in bundles sufficient to fill the hand.
We will plant them east and west in the broad fields.

TRANSPLANTING.

At early morn we began our work.
The plants must be sown in straight lines and evenly apart.
With the bundle on the left arm we plant with the right.
Beginning from the left each his line towards the right.
Amidst song and talk thus we pass the day.
This is the husbandman's busiest of times.

WEEDING.

The rains have been falling,
The plants have taken root,
But the weeds have started and are invading the soil.
They must be eradicated as should all evil things.
So up to our knees in mud we walk between the plants,
And with the hand pluck up these noxious foes.

SECOND WEEDING.

If you take off your coat the sun will scorch your back.
Although wearing a hat the perspiration trickles down one's neck.
But can we refuse to brave the heat of the day?
Whoo! the work is very hot,
But here come the good ladies
With a pitcher of tea and something to eat,
And see, they bring the little youngster.
Is it that he may take an early lesson in agriculture?

WEEDING.

The paddy grows up, right glad are we,
But yet another weeding, or ill 't will be.
To get our daily meal how hard it is,
For all our toil and labour
Is but with the view to fill the stomach.

IRRIGATING.

There was a man of the time of Sung,
Because the paddy grew slowly he pulled it up an inch,
And returning boasted how he made things grow.
There was a man of the Tang Dynasty
Who watered his field with a cup
And thought he would do what others could not;
But we of this wise generation,
We use chains, pumps, and buckets,
And never do such foolish things.

REAPING.

With our backs bent well to our work
The sickles ply from right to left.
Come, boys, and gather up the leavings,
The sun is already in the western horizon.
Burdened with the fruit of the soil
We return with joy to our humble homes.

STACKING.

See the stacks how they rise on high,
There, then, are our winter supplies;
Our minds are at rest,
For we have plenty to eat,
And our labour is easy from this time forth.

THRASHING.

When the hoar frost sets in
The leaves begin to fall and the weather is fine;
This is the time we choose for thrashing.
From the open space before the cottage
The noise of flails resounds afar;
The fowls pick up the straying grain,
And the black crows sit kwaing on their perches around.

POUNDING.

The rustling sound of wind is heard without,
The noise of pounding goes on within,
We pound the grain by hand in a tub,
We pound it also by working with the feet,
And while this scene goes on
A neighbour may be drops in;
To talk of crops and other things.

SIFTING.

Before the winnow the grain must pass the sieve
Fine work it is for our arms.
With a bamboo copse to shelter us from the wind,
A youthful wife from the window looking on,
And the bright sun spreading warmth around,
The time passes busily but pleasantly along.

WINNOWING.

The wind is high and good for winnowing,
The grain drops down with noise like rain,
While the chaff being light is blown with the wind.
As we fill our baskets and measure what 's left
We are thankful that with plenty we are blessed.

HULLING.

The husk has been, you 've seen, removed;
There is the skin of the grain to go;
The wherefore of it 's ground between two stones,
Three men to push and pull and one to erve
he while s
And one more sifting, and the grain is rice for human kind.

STORING.

It is winter, the weather is very cold,
Many of us seek warmth in the sun without,
While our cattle we house secure from the wind.
See how we store the rice in bulk,
The officials will now come to collect their tax.

RETURNING THANKS.

The spades and forks are now put away,
The sieves and baskets no longer required.
One year's operations have thus rotated,
And on our knees before our altar god
We give offering and thanks for blessings vouchsafed.

—*Queenslander.*

SOUTH WYNAAD NOTES.

Jan. 2nd, 1892.—* * * There is no blotting out the fact that though on some estates, crop this year has been all that could be desired, on others, it has proved a failure, perhaps the more keenly felt on account of the previous brave promise, so pleasantly held out to us at blossoming time. The blossom of 1891 was an exceptionally fine one, and to all appearance it set with every prospect of success. This was followed on some estates by wave after wave of leaf disease. Still crop remained visible in most satisfactory quantities upon the leafless branches. The first result of such denudation was that the berries dropped off in large numbers, the next, that the trees, unsheltered and sapless, refused to ripen their fruit, and this either blackened and shrivelled up, or remained green and unfit for pulping. As I write, whole fields are to be seen here and there as green as though we were in September instead of January. Another effect of the continued leaf disease is, that much of the coffee, apparently perfectly good, contains, when pulped, a large proportion of floaters, whilst amongst the parchment are to be found many discoloured and spotted beans. All these little difficulties have considerably taken the gilt off our ginger-bread, and if we in South Wynaad depended entirely upon Coffee Arabica, it would be anything but a bright look out for most of us. The high prices help us to and we can heartily rejoice with those fortunates whose crops have turned out trumps: and as I have always said, there is no need for us to strike our colours because one industry in one locality is more or less a failure.

We are perfectly and thankfully conscious that other things will grow and flourish in Wynaad, and that only money and enterprise are needed to make us prosperous again. At the same time, from what I see just round me, I venture to doubt the wisdom of stating that the prospects of coffee Arabica are entirely flourishing. The young fields may look well and promise hopefully, but with the soil and atmosphere saturated as they undoubtedly are by vastatrix germs, it would be absurd for us to suppose that our enemy is conquered. That this is not a mere craze of my own, as some of your correspondents have asserted, is proved, for my statement is practically supported by the fact that a very considerable acreage has already been planted up in Wynaad with Liberian coffee, and that almost every one who objected to the idea twelve months ago, is now acknowledging the force of such visible arguments as abandoned estates provide, and making

the most of every available acre for the cultivation of Liberian. I have heard several discussions on the subjects of grafting and inarching, and I know that here, grafted and inarched plants of Arabica and Liberian have been procured from Bangalore for the purpose of studying the process carefully, but from what I can gather, it is not generally regarded as likely to be of much use, the argument against it being, that it is the delicate thin leaves of the coffee Arabica which are susceptible to disease, and that merely grafting cannot alter their texture, or thicken them sufficiently to enable them to resist the germs; whilst grafting Liberian upon Arabica is ridiculous on the face of it, for surely the Liberians own sturdy roots must be the most suitable for its well being.

There is a good deal of talk about tea; and I am very glad to say, something a great deal more solid besides talk. Two well-known properties hereabouts are now being opened for tea, and reliable rumours hints at an Agricultural Company, with tea for its principal product, which is to be started before long. This will embrace some old abandoned estates, as well as properties still in cultivation, all admirably situated for the purpose, and this should prove a good step in a new direction. There can be no doubt whatever as to the suitability of Wynaad for a tea-growing country, and its introduction, practically, should commence a new and prosperous era for us all. It does not take so long to come into bearing as Liberian, which is also an advantage, and so far such as has been grown here, has apparently been exempt from disease of any sort. An experienced Ceylon planter lately gave it as his opinion that this district was in every way good for tea; and expressed his surprise that it had so long been a neglected string to our bow. I hope in my next to tell you more of what I am at present only at liberty to mention as a rumour. We are beginning to cry out for rain. There has been none since the middle of November, and the country has begun to dry up considerably, which naturally causes us some anxiety on account of our young plantings. There is a really fine show of wood for next year, and the spike just beginning to sprout is healthy enough, and we are anxious that it should not be forced by too early rains, so that we feel somewhat like the farmer who, hearing there were to be prayers for rain, suggested that the petitions should be on account of the cornfields only, as he had not then got in all his hay! We want rain badly for the new clearings, and we do not want it at all yet a while for the spike. Starving cattle are being driven in already from Mysore, the price of grain is very high, and our Canarese are becoming very humble, and evidently wish to remain as long as possible on the estates, instead of, as usual, longing to hurry off to their own country.

By the way we have discovered a new and abominable poochee, which some one cheerfully suggests is to be the future plague of the Liberian. This is a beetle, about an inch long, narrow, and grey in colour, shaded with black. It has very long antennæ and as one writer described it, "a mouth like a h'elephant, sir." Its particular talent is whittling. No American, however accomplished in that national pastime, could beat our beetle. It will work in one night through a stem as thick as a man's wrist, cutting round and round with mathematical regularity and neatness, until so small a bit of wood remains that the branch breaks off. It is not particular as to the plant. On three occasions I had fine crotons entirely destroyed, the main stems having been cut through then the beetle wandered to the opposite side of, the garden and cut down the long, climbing stem of a beautiful *Gloire de Dijon* rose. His last freak was cutting through a thick old branch of Bougainvillea. I hinted in vain for the culprit, and tried my best to the motive for such seemingly purposeless mischief. I can only suppose that it is in some way connected with the depositing of its eggs. Later on a specimen was caught upon another estate, which I put under a finger glass for observation. It seems to eat *moorikah* leaves (*Erythrina Indica*) and it was absurd to see it go for a date stone, and clinging round it commence whitling. This did not last long, however, and by the next morning the beetle looked very sick indeed; and had not made much progres upon his date stone. I wonder if any of your readers can give us some information about this beetle, especially as to its motive for felling shrubs in this unconsiderate manner.

I have heard of several coffee robberies, but nothing very serious, and the police have undoubtedly been much more active this year than usual. There was one rather amusing case some weeks ago, in which a gang of Punniahs made a most determined attack upon the watchmen, returning three times, and being as often pluckily repulsed by the writer, who had come to the rescue. It ended by sending for the police who, however, failed to capture the would-be thieves. These, no doubt, belonged to a well-known robber's village at the foot of the ghauts.

Very high prices are being offered for coffee, both parchment and cherry, by the various Coast firms, R13-4 for parchment, and R8 4 for cherry per bushel being locally offered, so that all expenses of curing and cartage to the Coast are saved, and several of our planters have availed themselves of so convenient an opportunity of disposing of their crops, without the additional trouble and expense of home shipment.

There are several new openings being made for cinchona, which shows there is still hope felt for the future of this product, in spite of the miserable prices at present offered, which make it hardly worth while to harvest our bark. * * *

I think we all very heartily congratulate our fortunate-brethren in Coorg, and rejoice for them about their splendid crops, whilst we hope that we ourselves may rank amongst the lucky ones next year, *Floreat Coffea*! wherever it may be.—*M. Times*, Jan. 7th.

TEA IN VICTORIA.

From the review of trade and commerce for 1891, in the Melbourne *Argus* of Jan. 1st, we quote the notice of the tea trade. The record regarding Ceylon tea is similar to that from London,—increased import and consumption but quality and prices low. The benefit of the increased consumption and the taste it must create will come in following years.

TEA.—Contrary to general anticipations the trading results of the first half of 1891 were generally unsatisfactory, caused mainly by the unexpected discovery of stocks in bond, which converted a prospectively bare into an over-supplied market. The repeated errors in our Customs department are beyond all reason, and have called forth the strongest condemnation of its inefficiency from all branches of the tea trade. However, it is generally believed that the stocks are now correctly stated, and that is something. The second half of the year has disclosed a rapid increase in the demand for blended teas, and consequently increased sales of Indians and Ceylons, and a decreased sale of all China kinds. There has been throughout an absence of excitement, and holdings in first hands have continued almost nominal, which fact alone would have caused, in view of the small quantity of leaf now afloat and the state of the various exporting markets, speculative sales but for the necessary caution now being exercised in all branches of trade in the present unsettled financial state of the minor monetary institutions of Victoria and adjoining colonies. The most marked change has been the heavy increase in shipments from Colombo, the total from May to November being 2,150,000 lb., as against 1,550,000 lb. for the same period last year. The greater bulk has, however, been of undesirable and inferior grades, and the results to shippers unsatisfactory. From Calcutta, for the same period, the figures are respectively 3,750,000 lb. against 3,480 000., and here again almost the whole has consisted of common kinds, for which prices have throughout ruled well under cost, while for the few better sorts and fine teas competition has been sufficiently good to show covering rates. The very low range of values that has existed for blending kinds of Ceylon and Indian teas have so far assisted

their consumption that the increased shipments were fully justified. Having forced their way through their cheapness, they have still further strengthened their increasing hold upon our markets. From Foochow the figures read 13,500,000 lb. against 12,750,000 lb., an apparent increase in trade, but there was a further addition of 2,500,000 lb. last year to complete the season, as against the present outlook of about 1,000,000 lb., thus foreshadowing a still further decrease in the exports from Foochow, the cause of which is solely the improved demand for Indian and Ceylon teas. The qualities from Foochow have shown a marked change, there having been a heavy falling off in the demand for low common congou, as also for fine and choice congous and all scented kinds, with an improved demand for fair medium flavoury sorts, full flavoured good mediums, and sound liquoring common. All teas packed in cut and original boxes have suffered almost to extinction from locally-packed blends, now freely sold in 5 lb., 10 lb., and 20 lb. tins. With the change in the demand for stronger teas there has necessarily been a change in the distributing channels, the conservative houses rapidly losing ground in favour of the advertising, single-package, and well-managed blending firms. The general outlook for the rest of the season is a fair trade at sound rates, except in New South Wales, where the proposed abolition of duty has completely disorganised the trade for some months to come.

DISCOVERIES made not long ago near the Stabiana Gate, in Pompeii, included the trunk of a tree which an Italian savant has identified as *Laurus nobilis*. Some of its fruits were likewise found, and from their size it is now said that the eruption which destroyed the city must have taken place in November, and not, as previously believed, in August. —*Garden and Forest.*

THE TEA TRADE AT FOOCHOW.—The past year has (says the Foochow *Echo*) proved no exception to the retrogade movement in the Tea trade of Foochow, which has been going on without interruption since 1880. The supply of Congou in that year was approximately 850,000 chests, and it fell off to 345,000 chests in 1891. There has also been a considerable decrease in the supply of Souchong, Scented Teas and Flowery Pekoes though not a corresponding extent, Oolong alone having maintained its position as far as yield is concerned. The values too have sensibly shrunk in the eleven years. Looking at the Export statistics, it is startling to note that to Great Britain we shipped 71½ millions lb. in 1880, and only 19 millions in 1891. One noticeable feature in the trade of 1891 is the export of Brick tea to the North which is far heavier then any year since 1887. Amongst the events of the year we have to record the failure of two large firms, one English and one American, though we should add that neither one nor the other occurred through unsucessful trading at this port. Their places have been filled by new firms started on the remaining business of the old ones. With the falling off of the trade it was to be expected that there would be some depreciation in the value of business premises, but the community was taken by surprise in July to find a double property, which was said to have cost $40,000, knocked down at auction for $8,000. Expiring leases of Hongs have been renewed at about the half of the previous rentals, and an abatement of a third has been made to residents renting houses on the hill.

THE ANNUAL REPORT of the Superintendent of the Royal Botanic Garden at Trinidad has reached us, and, like its predecessors, contains a large amount of useful information about various tropical economic plants and several interesting and instructive illustrations, the most striking being that of a noble specimen of *Corypha elata*, surmounted by an enormous panicle of fruit estimated to weigh over a ton. Mr. Hart calls attention to the fact that the large crown of leaves borne by this Palm withered and fell flat to the stem soon after the appearance of the huge panicle of flowers. As the fruit, set and commenced to develop the leaves became dry, then hung down (as shown in the illustration) and finally fell off, leaving nothing but the crowning panicle of fruit. Mr. Hart remarks: "From the early falling and drying away of the leaves after the period of anthesis, it is fully evident that they cannot assist in any way during the period in supplying or manufacturing the plant-food necessary for the formation and development of the seeds, and that the supplies and material for such purpose must have been accumulated and deposited in an easily assimilated form in the stem itself. This will form an important fact for those who are discussing the movement of fluids in the cells of plants." He points out that morphosis of this character, although rare in temperate climates, is a familiar feature in tropical vegetation. The Silk Cotton-tree, *Eriodendron anfractuosum*, of which a portrait appeared in *Garden and Forest* (iii., p. 341), is cited as an illustration of this phenomenon. This tree produces its flowers and sets its fruit at a period of the year when it is entirely destitute of leaves, the seeds being distributed by means of the cotton attached to them just as the tree is putting out the new set of leaves for the season. Mr. Hart, as he has in previous reports, deplores the want of interest taken in forest-preservation on the island, and the inevitable destruction, under the existing feeling on the subject, of the valuable forests which still occur in some parts of Trinidad.—*Garden and Forest.*

CEYLON EXPORTS AND DISTRIBUTION, 1892.

COUNTRIES.	Coffee, Cwt.			Cinchona	Tea.	Cocos.	C'monas.	Cinnamon.		Coconut Oil.		P'bago.
	Plantation	N'tive	Total.	1892 B'nch &Trunk lb.	1892 lb.	cwt.	lb.	Bales lb.	Chips lb.	1892 cwt.	1891 cwt.	1892 cwt.
To United Kingdom	2042	...	2042	204286	3441035	3209	729	16530	...	...	993	9168
,, Austria	...	...	...	...	...	...	...	...	...	...	951	738
,, Belgium	...	...	...	...	...	...	...	10000	...	504	...	...
,, France	...	...	...	...	...	...	...	19700	...	...	...	...
,, Germany	...	...	...	...	...	...	...	10000	...	2912	1504	...
,, Holland	...	...	...	...	...	...	...	...	...	...	...	...
,, Italy	...	...	...	...	...	...	...	...	...	...	...	...
,, Russia	...	...	...	...	...	...	...	...	...	...	...	...
,, Spain	...	...	...	...	...	...	...	...	...	...	...	...
,, Sweden	...	...	...	...	...	...	...	...	...	...	...	...
,, Turkey	...	...	...	...	...	...	...	...	...	...	...	...
,, India	...	...	...	...	...	...	6114	...	...	909	387	82
,, Australia	316	74	390	...	72526	161	...	...	...	...	...	...
,, America	...	...	...	...	9553	...	...	...	...	...	2514	...
,, Africa	...	...	...	...	500	...	...	...	...	...	...	...
,, China	...	...	4	...	...	...	...	...	...	...	...	...
,, Singapore	4	...	4	...	1100	...	...	...	...	...	...	...
,, Mauritius	...	...	...	...	...	...	...	...	...	...	...	...
,, Malta	...	...	...	...	...	...	...	...	...	...	...	...
Total Exports from 1st Jan. to 26th Jan. 1892	2362	74	2436	204286	3525064	3370	6842	56230	...	4325	4325	9988
Do 1891	5251	...	5254	293301	3150777	2746	21431	186565	4221	6339	6339	16312
Do 1890	13080	438	13518	222941	1977297	2074	29943	80500	38598	1095	1095	4996
Do 1889	2369	376	3645	350446	1289974	1965	12184	41040	...	10210	10210	16965

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current. London, December 17th, 1891.)

EAST INDIA, Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY	QUOTATIONS
ALOES, Socotrine	Good and fine dry	£3 a £5 10s
Zanzibar & Hepatic	Common and good	40s a £5
BARK, CINCHONA Crown	Renewed	3d a 8d
	Medium to fine Quill	4d a 7d
	Spoke shavings	2d a 4d
	Branch	1d a 2d
Red	Renewed	2d a 7d
	Medium to good Quill	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow	,, ,,	£6 a £7
Mauritius & Madagascar	Fair to good	£5 5s a £6 5s
CARDAMOMS—		
Allepee	Fair to fine clipped	1s a 2s 6d
Mangalore	Bold, bright, fair to fine	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 6d
Ceylon, Malabar sort	Fair to good bold bleached	2s 4d a 3s
	,, ,, medium ,,	1s 6d a 2s 2d
	,, ,, small	1s a 1s 6d
	Small to bold brown	1s a 1s 6d
Alleppee and	Fair to fine bold	2s 2d a 3s 3d
Mysore sort	,, ,, medium	1s 6d a 1s 10d
	,, ,, small	1s a 1s 4d
Long wild Ceylon	Common to good	6d a 2s
CASTOR OIL, 1sts	White	4d a 4½d
2nds	Fair and good pale	2⅝d a 2¾d
3rds	Brown and brownish	2½d a 2½d
CHILLIES, Zanzibar	Fair to fine bright	50s a 57s 6d
	Ord'y. and middling	40s a 48s
CINNAMON, 1sts	Ord'y. to fine pale quill	6½d a 1s 3d
2nds	,, ,, ,, ,,	6½d a 1s
3rds	,, ,, ,, ,,	5½d a 11d
4ths	,, ,, ,, ,,	5d a 10d
Chips	Fair to fine plant	2½d a 7d
CLOVES, Zanzibar	Fair to fine bright	3 5-16d a 3½d
and Pemba.	Common dull and mixed	3d a 3¼d
,, STEMS	Common to good	1d a 1½d
COCULUS INDICUS	Fair sifted	11s a 11s 6d
COFFEE	Mid. Plantation Ceylon	103s a 105s 6d
,,	Low Middling ,, ,,	98s a 102s
COLOMBO ROOT	Good to fine bright sound	22s 6d a 30s
	Ordinary & middling	16s a 20s
CROTON SEEDS, sifted	Fair to fine fresh	15s a 20s
CUTCH	Fair to fine dry	24s a 32s 6d
DRAGONS BLOOD, Zan.	Ordinary to goo drop	50s a 90s
GALLS, Bussorah & Turkey	Fair to fine dark blue	65s a 70s
	Good white and green	55s a 60s
GINGER, Cochin, Cut	Good to fine bold	90s a 95s
,,	Small and medium	55s a 65s
Rough	Fair to fine bold	45s a 55s
,,	Small and medium	35s a 40s
Bengal, Rough	Fair to good	30s a 32s
GUM AMMONIACUM	Blocky to fine clean	50s a 100s
ANIMI, washed	Picked fine pale in sorts	£11 a £12 10s
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto	£5 a £7 10s
	Amber and red bold	£9 a £10 10s
	Medium & bold sorts	£6 10s a £10
scraped	Good to fine pale frosted sifted	60s a 80s
ARABIC E.I. & Aden	Sorts, dull red to fair	35s a 55s
	Good to fine pale selected	45s a 55s
Ghatti	Sorts middling to good	25s a 33s
	Good and fine pale	65s a 90s
Amrad cha	Reddish to pale brown	25s a 50s
	Dark to fine pale	15s a 50s
Madras	Fair to fine pinky block and drop	30s a 80s
ASSAFŒTIDA	Ordinary stony to midling	15s a 25s
KINO	Fair to fine bright	60s a 65s
MYRRH, picked	Fair to fine pale	£4 a £7
Aden sorts	Middling to good	70s a 80s
OLIBANUM, drop	Fair to fine white	35s a 60s
,,	Reddish to middling	22s 6d a 32s 6d
pickings	Middling to good pale	12s a 18s
siftings	Slightly foul to fine	10s a 15s
INDIARUBBER	Red hard clean ball	1s 10d a 2s 1d
East African Ports, Zanzibar and Mozambique Coast	White sottish ditto	1s 7d a 1s 11d
	Unripe root	10d a 1s 4d
	Liver	1s 2d a 1s 8d
	Sausage, fair to fine	1s 8d a 1s 10d
Assam,	Good to fine	1s 6d a 2s
	Common foul & middling	9d a 1s 5d
Rangoon	Fair to good clean	1s 7d a 1s 10d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	1s 8d a 1s 11d
	Fair to good black	1s 5d a 1s 10d
ISINGLASS or FISH MAWS Tongue.	good to fine pale	1s 10d a 2s
	dark to fair	1s a 1s 6d
Bladder Pipe	Clean thin to fine bold	1s 6d a 3s 6d
Purse	Dark mixed to fine pale	8d a 1s 4d
Kurrachee Leaf	Common to good pale	1s 8d a 3s 3d

EAST INDIA *Continued* Aast Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal	Middling to fine violet	4s a 5s 2d
	Ordinary to middling	3s a 3d 10d
Kurpah	Fair to good reddish violt	3s 2d a 3s 6d
	Ordinary and middling	2s a 3s
Madras (Dry Leaf)	Middling to good	2s 8d a 3s
	Low to ordinary	1s 8d a 2s 4d
IVORY—Elephants' Teeth- 65 lb. & upwards	Soft sound	£65 a £71 10s
over 20 & under 60 lb.	,, ,,	£52 a £66 10s
40 a 100 lb.	Hard ,, ,,	£45 a £57
Scrivelloes	Soft ,, ,,	£25 a £41
,,	Hard ,, ,,	£23 a £34
Billiard Ball Pieces 2¾ a 3¼ in	Sound	£75 a £91
Bagatelle Points	Sli. def. to fine sound	£6210s a £7810s
Cut Points for Balls	Shaky to fine solid sd.	£52 a £67
Mixed Points & Tips	Defective, part hard	£40 a £53
Cut Hollows	Thin to thick sli, def to sound	£29 a £56
Sea Horse Teeth— ⅝ a 4½ lb.	Crvd. crkd & close strght	1s a 3s 9d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	11s 3d a 13s
	,, II, fair pickings	7s 6d a 9s
	Jubblepore I, good & fine pale	10s a 12s
	,, II, fair rejections	7s 6d a 8s 6d
	Vingorlas, good and fine	9s 3d a 10s 9d
Madras, Upper Godavery	Good to fine picked	10s 6d a 11s 3d
,, ,,	Common to middling	7s 3d a 8s 9d
Coast	Fair	10s a 10s 6d
Pickings	Burnt and defective	7s a 8s 6d
MACE, Bombay	Dark to good bold pale	2s a 3s 2d
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,,	65's a 80's	2s 11d a 3s 1d
	83's a 180's	2s 4d a 2s 10d
NUX VOMICA Cochin, Madras and Bombay	Fair to fine bold fresh	10s a 11s
	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON	Fair to fine heavy	1s a 2s 6d
CITRONELLE	Bright & good flavour	¾d a ¾d
LEMONGRASS		1½d a 1¾d
,, ,, ,,		1½d a 1¾d
ORCHELLA WEED Ceylon	Mid. to fine, not woody	20s a 25s
Zanzibar	Picked clean flat leaf	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER— Malabar, Black sifted	Fair to bold heavy	3¾d a 4d
Alleppee & Tellicherry	,, good ,, ,,	
Tellicherry, White	,, ,, ,,	1s a 1s 1d
PLUMBAGO, Lump	Fair to fine bright bold	15s a 22s
	Middling to good small	11s a 14s
Chips	Sli'tly foul to fine bright	9s a 12s
Dust	Ordinary to fine bright	4s 6d a 8s
RED WOOD	Fair and fine bold	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	60s a 80s
	Ordinary to fair	40s a 55s
	Inferior and pickings	20s a 30s
SALTPETRE, Bengal	Ordinary to good	16s 6d a 17s
SANDAL WOOD, Logs	Fair to fine flavour	£35 a £60
,, ,, Chips	Inferior to fine	£9 a £30
SAPAN WOOD	Lean to good bold	£4 a £7
SEEDLAC	Ordinary to fine bright	50s a 90s
SENNA, Tinnevelly	Good to fine bold green	8d a 1s 2d
	Medium to bold green	5d a 7d
	Small and medium green	2½d a 4d
	Common dark and small	1d a 2d
Bombay	Ordinary to good	1d a 2d
SHELLS, M.-o'-P.	EGYPTIAN—med. to large	92s 6d a 95s
	medium part stout	0s a 105s
	oyster and chicken	80s a 95s
large	BOMBAY—fine thick	0s a 100s
medium stout	bright fairly clean	10s 6d a 112s6d
chicken part stout	,, ,, ,,	75s a 92s 6d
oyster part thin	,, ,, ,,	6 s 6d a 72s 6d
Mussel	bold sorts	50s a 62s 6d
	small and medium sorts	40s a 48s
Lingah Ceylon	Thin and good s out sorts	4s a 11s
TAMARINDS	Mid. to fine blk not stony	10s a 12s
	Stony and inferior	6s a 8s
TORTOISESHELL	Sortsgoosmo tlepatheavy	14s 6d a 20s
Zanzibar and Bombay	Pickings thin to heavy	9s a 14s 6d
TURMERIC, Bengal	Leanish to fine plump finger	17s a 19s
Madras	Fin. fair to fine bold brgt	24s a 30s
,,	Mixed middling	20s a 24s
,,	Bulbs	10s a 12s
Cochin	Finger	13s a 14s
VANILLOES, Bourbon, 1sts	Fine, cryst'ed 5 to 9 in.	8s a 18s
Mauritius, 2nds	Foxy & reddish 5 to 8 in.	7s a 12s 6d
Seychelles, 3rds	Lean & dry to mid. under 6 in.	4s a 7s
Madagascar, 4ths	Low, foxy, inferior and pickings	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for February :—

OCCASIONAL NOTES.

Two plots of land have been laid under *Lathyrus Sylvestris* at the School,—one a sandy soil, the other a heavy loam. In the latter, the plant must be said to be a total failure, for though the seedlings were carefully attended to and watered, they died out after a few inches growth when the dry weather began to prevail. The other plot shows a fairly healthy growth. The plants in this plot are not much exposed to the sun and are growing in a moist place. It would thus seem that in Ceylon at least *Lathyrus sylvestris* is not the hardy plant it is reported to be, and that the hope of being able to cover our poor sandy soils with a nutritious fodder crop must be given up, that is to say if the seed we have been supplied with was not at fault.

The School of Agriculture re-opened on the 16th January. Out of a large number of applicants for admission, 15 students have been admitted.

"Cow-keeping in India" is the title of a work by Isa Tweed, published by Thacker, Spink & Co., Calcutta. The book contains many valuable practical hints, which we hope to give our readers the benefit of as opportunity offers.

Mr. H. S. Dias has been appointed Agricultural Instructor in the Kegalla district.

Received with thanks for the School Museum a sample of silky fibre from the fruit of the wara tree (*Calatropis gigantea*) sent by Mr. Van Starrex of Crystal Hill Estate, Matale; and specimens of felspar from Hanguranketa, sent by Mr. H. S. Dias, late headmaster of the Buddhist School in that district.

At a meeting held on the 27th instant, it was decided that the meetings of the School of Agriculture Improvement Society should be held on the first Friday of each month. Mr. Kehelpanala was appointed Secretary and Mr. Attepattu, Treasurer.

The wealthy residents in and about Colombo, who are willing to give money towards a charitable cause, or for the founding of a really useful institution, could not do better than help to establish a School in Colombo on the lines of the Industrial School of Kandy. This School, as it is now managed by Mr. Donald Jansz, is worthy of all the support and encouragement that men of position and influence can give. In it some 47 boys are being taught tailoring, shoemaking, carpentry, wood carving and fretwork, bookbinding, picture framing and such useful industries as are suited to the class from which the boys are drafted. Carriage building on a small scale has also been taken up, and the result of the work of the boys reflects the greatest credit upon them and their Director.

We are glad to learn that there is a fair sale for the articles turned out at the Industrial School, while the orders for printing are many. We have heard it said that the charges made for work done at the School are exorbitant, but excepting fancy articles which might, with excuse, have fancy prices, the charge for other kinds of work is quite moderate. It would be a great matter if some wealthy gentleman would come to the rescue of the School and pay off an old debt that stands in the way of the development of the institution. Not the least important features of the School are the exercise of discipline and the teaching of method.

W. A. D. S. writes of Mudar (*Calotropis gigantea*):—This plant is know in Sinhalese as Wara. It grows in the uncultivated parts of the warmer regions of the Island, and its leaves and stems contain a milky juice of a thick consistency. The milk of the Calatropis is very acrid, but is largely used in medicine by Indian native medical practitioners. The milk has also been subjected to experiments recently, and has been found to yield pseudo caoutchouc of some value. The bark of the Mudar plant contains a fine silky fibre, which though of not much commercial importance is used by the villagers for various purposes. Its strength, texture, and appearance are all very favourable. In the fruit of the Mudar, the seeds are found together with tufts of long silky cotton. The staple is long and strong and of a shiny appearance. This cotton is said to be spun and used in the manufacture of a kind of fabric in imitation of Cashmere shawls. In Japan the cotton from the Calotropis is used among other things in the manufacture of the strings of stringed instruments. If sufficiently found the Calotropis is no doubt capable of being put to greater commercial use. I am informed that not long ago the Spinning Company brought over a quantity of Calotropis cotton from Badulla, but so far it is not known whether the staple was found of use, or whether any experiments were made to test its value. The latter course would be a very desirable one, especially in view of the possiblity of growing the plant largely if it is found to be a paying crop.

THE CULTIVATION OF THE COCONUT PALM.

To facilitate the process of watering on a young estate, rough wells are dug at convenient distances apart; these, when the trees are in full bearing, are filled up with rubbish, or become covered over by the natural process of the tumbling in of soil. On most coconut estates in the Eastern Province the water level is not far from the surface of the soil; the cost of well-digging is not great at first, but where supplying has to be done the wells (as well as fences and nurseries) must be attended to. Watering is done by means of chatties (earthenware pots)—one chattyful of water being given to each plant. A sloping path leading to the water is generally cut to facilitate the process of watering. When the estate is young there is no reason why vegetables should not be grown—and this is generally done on an open space near the bungalow—as vegetables thrive well till the palms grow up to a extent when the roots and the shade of the coconut trees interfere with such subsidiary cultivation. Jaks, mangoes, oranges, shaddocks, and lemons might with advantage be made to line the roads leading to the bungalow or be grown along the fences—they are both ornamental and useful, the fruit commanding a ready sale. In the low ground plantains will thrive well; and pumpkins and melons might be raised among the cassava and Indian corn, while the latter are growing. It is quite common for the watchers and bungalow servants to have their own plots of chillies, brinjals, beans, &c., so that the coconut planter has no lack of vegetables for his table. Many estate proprietors keep no superintendents and trust their properties to a head overseer or cangany, but for reasons too patent to need mention here, this plan is to be greatly deprecated. The man who lives on and manages his own estate naturally reaps the greatest reward, and a trustworthy superintendent—whether a relative of the proprietor or not, is the next best alternative. Young palms generally bear the largest nuts, and these have thinner shells than the nuts from old trees. The fibre of the latter, however, is the tougher and produces the strongest rope, and the toddy from old palms contains more saccharine matter and is more intoxicating.

Many systems of manuring have been practised in the Eastern Province. The plan of liquid-manuring entails the cost of large vats or reservoirs generally placed below the cattle-shed floors which then need to be planked over. Again special carts fitted with barrels are necessary to cart the manure to the places over which it has to be distributed, and where trenches are dug round the trees to receive the liquid. In one case where liquid manuring was carried out, sulphuric acid was added to the manure before using, but this was found to be an expensive practice, and it was considered doubtful whether it paid. Liquid manuring may now be said to be abandoned, except in one instance, and other modes of manuring resorted to. A common method is to dig trenches 3 to 3½ feet wide round the trees and tie cattle to the palms for 3 or 4 nights running—from 4 to 6 head being employed for the purpose. Their droppings together with dead leaves and refuse from the trees are then earthed up. This is done before the rainy season, so that the ensuing rains may help to decompose the manure and wash down its valuable ingredients into the soil to be taken up by the roots—while little, if anything, is lost by evaporations owing to the covering over of the dung.

I lately visited an estate, of some age, not far from Batticaloa, which is manured in the manner I have indicated, except in the case of a patch in the centre of the property, that is fertilized by the droppings of a herd of some 100 goats. I here had an opportunity of judging of the relative value of goat and cattle manure, and found that the results of the former were infinitely superior to that of the latter. By the keeping of goats and sheep not only will such coconut planter vastly improve his estate, but he will never be in want of meat for his table and milk if necessary. The keeping of these animals entails little expense beyond housing them during wet and windy weather, and engaging a boy, say for every 50, at the cost of 6 or 10 cts. a day.

In this district the fronds or branches which fall, and these only, are plaited after soaking in water, and for every 1000 given to a villager he will return 500 woven cadjans to the estate, keeping the rest for his trouble. At one time it was usual to sell the branches for 50 cts. per 100; those branches not fit for cadjan making are allowed to rot and are applied to the ground together with manure. The coconut cultivator should endeavour as much as possible to return to the soil all that falls from the tree, and with this end in view, should throw into the manure trenches the rotten branches, husks, &c. if possible mixed with jungle leaves. The natives use the dry flower

sheaths as torches, and the ashes of midribs as a cleansing powder in lieu of soda. Coconut shells are used for burning especially by dhobies in their "irons," as they produce much heat owing to the presence of oil in their tissues; and they are purchased for this purpose. It is a good plan to keep the branches, husks, &c., which fall from the palms piled up between the rows of trees with some regard to neatness, so that when the "coconut fly" makes his appearance, these piles may be sprinkled over with water and fired. The result is that a dense volume of acrid smoke is sent upwards, which causes the insects on the crown of the palm to fall off. Care should be taken not to allow the flames from the burning mass to mount high, as damage might thereby be done to the trees. Green leaves added to the heaps will increase the efficacy of smother-burning. The ashes resulting from the incineration will of course be turned into the trenches round the trees. By this means a bad attack of "poochies," which often costs the proprietor 2 or 3 years' yield of nuts, can be with a little trouble averted. This plan was, I believe, first tried by me on Chandivelly estate, the property of Mr. Stuart Munro (the designer of the antipilfer safe) who showed me how to carry it out. Many years afterwards, when the "poochies" were attacking the estate of Mrs. Sortain, the same process was gone through with the result that the disabled insects were found in millions wriggling on the ground. R. ATHERTON.

INDIGENOUS FOOD PRODUCTS: CULTIVATED AND WILD.

Convulvulaceae.

60. *Ipomoea Tridentata*, Roth. Sin. Heenmadu

This is a creeper growing in the jungles of the warmer parts of the Island. The plant is much branched with a green and cylindrical wiry stem. The leaves are cordate, dark green, and are of a thick texture: a milky juice is exuded from the plant when a leaf or the stem is broken.

The leaves of this plant may be considered as a famine food. The villagers often eat it boiled in water with a little salt added, and sometimes along with coconut. Cattle relish the whole plant very much and hence the leaves are often gathered and given to calves. It would, no doubt, form a good fodder, and as it grows easily, it might well be grown experimentally for trial as a cattle food.

61. *Ipomoea Aquatica*, Forsk. Sin. Kankun.

The *Ipomoea Aquatica* thrives in moist situations as the name signifies. It is a low creeper with a hollowy succulent stem which easily breaks at the nodes. The leaves are cordate and are of a light green colour. They are succulent, and when the plant is found growing wild are of a small size, while when cultivated, or found growing in particularly rich soil the leaves attain to a larger size. This plant is esteemed as a vegetable, and is often cultivated especially in the vegetable gardens in the vicinity of towns, where they find a ready sale in the markets. The leaves and the stems are used both as a dry curry and fried in ghee or oil.

It is generally believed that this plant possesses certain medicinal properties, and there is therefore some demand for it. Native medical practitioners ascribe to it certain cooling properties.

Solanaceae.

62. *Solananum Ferox*, L. Sin. Malabatu.

This plant is generally met with in uncultivated places, and where the land is at all fertile, they grow vigorously. It is a low shrub, two to three feet in height, and covered with numerous erect spines. The leaves are obcordate and angular, with soft hairs on the upper surface, while the lower surface is generally of a whitish colour. The veins of the leaves are covered with strong and straight prickles, the flowers are of a white colour, and the fruits are round and smooth and are of the size of ordinary marbles. The calyx and the petiole adherent to the fruit are also covered with prickles. The fruits when young are of a green colour, and when ripe, turn a beautiful ruby red. The shining peircarp is succulent and a large number of seed is found inside the fruit. The part generally eaten in this plant is the fruit. Correctly speaking, it does not form a food, but the pericarp of the fruit could be eaten and is by no means of an unpleasant taste.

An infusion of the roots of this plant is said to be given in cases of acute rheumatism, and Native medical practitioners use the leaves in cutaneous diseases.

63. *Solanum Indicum*, L. Sin. Tibbotu.

This plant grows wild in jungles and uncultivated places. It is a shrub much branched, and five to six feet in height. The stem is thin and is covered thickly with prickles. The leaves are large and have prickles on both surfaces. The calyx of the flower is also prickly, and the fruits are round, very small in size, and are borne in clusters.

The fruit of the *S. Indicum* is eaten after being boiled, by the villagers, and in small quantities even in its raw state, but in the latter case it has a peculiar bitter taste.

The root of this plant is used by Indian doctors to prepare decoctions. It is considered as a good remedy in fevers and coughs, and the juice of the leaves boiled with the juice of fresh ginger is administered to stop vomitting. The leaves and the fruits with a little sugar are rubbed on the body for itch. Sinhalese Medical Practitioners use this plant in cases of cough, pains in the chest, asthma, and toothache, and prescribe the fruit as a vermifuge.

W. A. D. S.

FOREST PRODUCTS.

The villagers in many parts of the Island have been long accustomed to consider the forest and its produce as public property, which any and everyone is at liberty to make use of. This idea was allowed to prevail till comparatively lately, as there were such vast tracts of jungle land in all parts of the Island; but with the extensive clearing of jungles, mainly for cultivation, it was thought necessary that some measures should be adopted for the conservation of the reduced area of forest land. Now the adoption of such measures through officers appointed by the Government is most advisable, but when rules and

regulations assumed too stringent a nature, the result was to bring on a deal of hardship to the poor villagers who had hitherto enjoyed many harmless privileges. The protection of forests, so that the Government may not lose the produce which is of value is a matter of great importance, and the villager himself would admit that it is to his own interest to help to effect this. Let us for a moment glance at the position of the poor villager of the interior. He may possess some paddy land, but it often happens his condition is so helpless, that he is too poor to obtain even the seed paddy necessary for sowing his fields, much less to secure any manure for the land, or to carry on any agricultural improvements. On his bit of garden land he may grow a few yams, vegetables, or a little grain, and these if they come up well, will supply him with a small quantity of food: but in the villages in the interior of the Island there is of course no sale for anything that can be raised on such land. There is no industry he can take to, and in the absence of any industries he was accustomed to gather beeswax and wild honey, jungle ropes and fibres, tanning fruits and edible berries, fence sticks and firewood either for sale or for barter with the village traders, or sometimes for his own immediate use. These brought him some little money or the necessaries for subsistence, and were the means by which he employed a part of his time usefully. What the villager complains of in the new forest rules, is the fact that he is now denied the privilege of obtaining these products. The right of collection of jungle produce is now given over to a single enterprising man (not generally a villager) for a nominal sum. What the forest regulations aim at is not the paltry income that accrues, but the protection afforded to the forests. It appears, however, that a better plan would be to encourage the villagers to carry on the work which they were used to, with proper restrictions, and to draw up regulations in such a way as to give them liberty to collect any jungle produce, be it beeswax or honey, jungle rope or fibres, tanning fruits or edible berries, fence sticks or firewood, free of cost, after registering their names with the officer in charge of the forests. The best way to guard against any undue advantages that are likely to be taken, would be to place a check on the traders who should in all cases, before they remove the produce from a district, be made to take a permit to do so.

It would also be for the interest of native agriculture if certain areas could be reserved in different centres as "village forests" for the use of the cultivators, as they appear to do in India. Such reserves would not only supply the necessary sticks and ropes for the putting up of fences around fields, but also yield the firewood necessary for the inhabitants. Above all, parts of such village reserves should form the feeding grounds for the village cattle, that are generally in need of food, and suffer greatly during the period the fields are under cultivation.

Many a useful industry in connection with forests could be introduced by instructing the villagers as to the value of various products found in our Ceylon jungles, and by explaining how these could be utilized for industrial purposes. I shall note some of these in a future issue.

W. A. D. S.

CEREMONIES OBSERVED BY KANDYANS IN PADDY CULTIVATION.

(Concluded.)

This paper will bring to a close the consideration of the subject I have dealt with in my preceding contributions.

Threshing is of course conducted by buffaloes yoked together. During this ceremony women are not permitted to intrude on the *kalavita* or threshing floor on any pretence whatever, as the Kandyan goyiyas harbour an ill-defined notion of their impurity. But in Beligal Korale, in Kegalle District, and also in Seven Korales (Kurunegala District), women are not altogether subjected to this probition. When the ears of paddy are well trodden down by buffaloes so as to separate the paddy, it is winnowed, in order to remove the dust and other refuse which are very often found along with paddy. If the threshing is likely to continue for more than a day, a rude watch hut called a pela is constructed by the goyiya, and a watcher is set as a guard to prevent theft and ravages of wild beasts.

After winnowing, the paddy has to be measured. This process is termed *yal karanawa*. It is noteworthy that because the Kandyan cultivator often happens to be illiterate, he resorts to a seemingly queer method of measuring the crop his field had produced. For this purpose a ripe arecanut is taken, and when 40 lahas (1 amunam) are counted, a line is drawn on the arecanut, and so on, as many lines as there are amunams. A *nilakaraya*, or tenant, when he goes to his landlord to tell him the quantity of paddy his field yielded, takes great precaution not to express the number in words, but to offer the arecanut which would clearly indicate the number.

The following is a list of the measures of paddy current among the Kandyans:—

2	Patas	..	1 Manawa.
2	Manawas	..	1 Neli.
4	Nelees	..	1 Kurune.
4	Lahas	..	1 Timba.
5	Kurunes	..	1 Bera.
2	Beras	..	1 Pela.
4	Pelas	..	1 Amunam
12	Amunams	..	1 Yala.

The removal of paddy from and to the house is exclusively performed by women who are required to go through a process of purification.

There are many receptacles of paddy among, which I shall mention the principal ones.

Paddy is generally stored in an *atuwa* or a barn or granary, which is the largest possible receptacle. It is made of wooden planks in the shape of a square and set usually on stone pillars. The best site for the construction of an atuwa is in front of or in the middle of a house. The atuwa has an opening at the top which is reached by means of a ladder. A *Bihi* is next in size and importance. This is a huge vessel conical in form and constructed of sticks or split calamus (rattan). The largest sized one is capable of holding about a hundred amunams or 400 bushels.

A *pes* follows this. It is a large cylindrical vessel made of bambo or rattan, and will contain about 10 amunams.

The other minor receptacles of paddy are of little importance and too well known to need mention. Certain incantations are uttered by the goyiya in the act of storing paddy as a preventative against the attacks of moths and other injurious insects.

The goyiya and the parties interested use peculiar technical terms during threshing naming different agricultural implements, &c. These terms though used from time immemoial are yet never mentioned in ordinary language, and are not in keeping with native idioms and dialects. This mode of communication is called *Govi-basawa*, or the goyiya's language. I was told by a well-informed Kandyan Chief that the object of the goyiya in adopting this course is in order to prevent the *Yakkhos* (devils) from stealing the paddy and consequent misfortunes!

The following are a few of the technical terms referred to, and I believe they will be of interest to the readers:—

1.	*Gongahanawa*	for	ploughing.
2.	Yatura	„	winnow.
3.	Goi Lèlla	„	leveller.
4.	Sakawaliya	„	sweeper.
5.	Bolgediyo	„	buffaloes.
6.	Pubboruwoo	„	rice.
7.	Ratta	„	fire.
8.	Kotabanawa	„	eating.
9.	Ratte Mahat-karapan	„	to kindle a fire, &c
10.	Pellai	„	bags.
11.	Goyan Madinawa	„	ploughing.
12.	Beta	„	paddy.

Before taking paddy for household consumption, a portion is first reserved called *Akkiyala* as *Dehiyangè Panguwa* or god's share. This is given in the name of the god to the Kapurala who is supposed to have officiated throughout. Another portion called *Alut Bat Dáne*, is sent cooked to the neighbouring Pansala for the priests.

A quantity of paddy is then put into the mortar, and three women clad in white with three pestles in their hands pound the paddy at an auspicious hour. A grand feast is next given to relations, at which all the guests including the goyiya and his family make merry, afterwards dispersing with every good wish for the coming harvest.

T. B. Pohath Kehelpannala.

Kehelpannala Walauwa,
Gampola, 7th Dec. 1891.

THE NITROGEN QUESTION.

The first Quarterly Journal of the Royal Agricultural Society for the year contains a paper by Sir John Lawes and Dr. Gilbert, in which are given the experimental facts in support of Hellriegel's theory that the leguminous crops are able to obtain nitrogen from the air by means of the microbes in the wart-like nodules on their roots. A paper by Dr. Gilbert, lately published, also refers to the Rothamsted experiments to prove the doctrine of Hellriegel. It will be remembered that a little more than twelve months ago Dr. Lawes delivered himself to the effect that he was no believer in the truth of the latest theory regarding nitrogen, or rather that his (Lawes') own experiment did not warrant his belief in the teaching of the German Scientist. Hellriegel's doctrine, it was said, was anticipated by Professor McAlpine of Edinburgh, who, we can ourselves vouch, explained in his class-room the peculiarities, of the leguminosae, as regards their supply of nitrogen, on the same hypothesis as that adopted by the German, at least a year before the latter published his ideas to the world. We now have the results of a series of careful experiments, which it is not necessary to detail here, and we will therefore merely give a resumé of the conclusion which the Rothamsted experiments have led to :—

"As to the explanation of the fixation of free nitrogen, the facts at command did not favour the conclusion that under the influence of the symbiosis the higher plant itself was enabled to fix the free nitrogen of the air by its leaves. Nor did the evidence point to the conclusion that the nodule-bacteria became distributed through the soil and there fixed free nitrogen, the compounds of nitrogen so produced being taken up by the higher plant. It seemed more consistent, both with experimental results and with general ideas, to suppose that the nodule-bacteria fixed free nitrogen within the plant, and that the higher plant absorbed the nitrogenous compounds produced. In other words, there was no evidence that the chlorophyllous plant itself fixed free nitrogen, or that the fixation takes place within the soil, but it was more probable that the lower organisms fix the free nitrogen If this should eventually be established, we have to recognise a new power of living organisms —that of assimilating an elementary substance. But this would only be an extension of the fact that lower organisms are capable of performing assimilation-work which the higher cannot accomplish; whilst it would be a further instance of lower organisms serving the higher. Finally, it may here be observed that Loew has suggested that the vegetable cell, with its active protoplasm, if in an alkaline condition, might fix free nitrogen, with the formation of ammonium nitrate. Without passing any judgment on this point, it may be stated that it has frequently been found at Rothamsted that the contents of the nodules have a weak alkaline reaction when in apparently an active condition—that is, whilst still flesh-red and glistening.

"As to the importance of the fixation for agriculture, and for vegetation generally, there is also much yet to learn. It is obvious that different Papilionaceæ growing under the same external conditions manifest very different suceptibility to, or power to take advantage of, the symbiosis. The fact, as shown by Professor Nobbe, that Papilionaceous shrubs and trees, as well as herbaceous plants, are susceptible to the symbiosis, and under its influence may gain much nitrogen, is of interest from a scientific point of view as serving to explain the source of some of the combined nitrogen accumulated through ages on the surface of the globe; and also from a practical point of view, since, especially in tropical countries, such plants yield

many important food materials, as well as other industrial products.

"In conclusion, it will be seen that the experimental results which have been brought forward constitute only a small proportion of those already obtained or yet to be obtained at Rothamsted, but they have been selected as being to a great extent typical, and illustrative of the lines of investigation which are being carried out."

SOME PITH-PRODUCING TREES.

The sola Tree (*Acschynomene aspera*) belongs to the order leguminosoe, and is known among the Sinhalese as Maha-deya-seyembala; another member of this family in Ceylon being *Aeschynomene Indica* (deya seyembala). Both are common in the warmer parts of the Island, and affect marshy land. The pith is much used in various parts of India for manufacturing hats, bottle cases, &c., especially the former, sola being a bad conductor of heat. The material for manufacture is cut from the thick stems and is also made up into artificial flowers and various ornaments by the natives, such as models of temples, fishing floats, &c. The larger plants are particularly light and spongy; they are gathered during April and May.

The Malays use the pith of *Scœvola taccada* (Sin. Taccada) for making artificial flowers, &c., in the same way as sola is used.

The pith of *Aralia papyrifera*, the rice-paper plant of China, resembles sola pith, but it is much finer and whiter. The pith of Aralia is used for drawing paper, and has been employed by entomologists for lining the drawers of their cabinets.

Mr. William Ferguson, in his paper on Ceylon Timber Trees, refers to *Aschynomene aspera* and *Æ. Indica*, and mentions that sola hats &c. are made from "a spongy substance generated *on* the stems of these plants when growing in water, as they generally do."

It may be mentioned in passing that *Erythrina Indica* (Sin. Erabodu) a common leguminous hedge plant (used, as well, as a shade tree for young cocoa) also produces a light spongy wood which is used for making models, floats, bungs, as well as toys, especially dolls. It is this latter use it is put to that has given it the name of "Mootchee wood" in India.

Mr. Ferguson informs us that *Aralia Papyrifera*, the rice-paper plant was introduced into Ceylon, and that several plants of it were growing in his time in the Fort garden. The same writer mentions Maha-takkada (*Scœvola*) as a seaside plant from the large white pith of which ornaments are made.

The substance commonly called "pith," it will be seen, is not always got from that part of the plant known botanically as the pith or medulla. The word pith (for instance in the name pith-hat) rather signifies a soft spongy material resembling the dry dead cells generally found in centre of the stems of trees.

It is not generally known that the pith of the deya-seyembala has been utilised in Ceylon in the manufacture of pith-hats. Mr. Murray, the Assistant Government Agent of Hambantota, started the industry of pith-hat making in the Hambantota jail about four years ago, and he succeeded in manufacturing about 100. When Mr. Murray left the station, the industry was given up, but now that he is back again, the work will probably be started again.

There is little doubt that there will be a good sale for pith-hats in Colombo, as visitors to the tropics generally invest in pith-hats before they think of doing anything else, on disembarking in the East; and though pith-hats are to be had at Port Said, it is not always convenient to get them there; so that passengers generally supply themselves with their necessary head gear at Colombo, where they begin to appreciate the heat, rather than wait till they reach India or China. It will of course have to be seen whether pith-hats could be manufactured in Ceylon at a cheaper rate than they are made in and imported from India. It is quite likely once pith-hats are cheaply made in Ceylon, that those who cannot afford to purchase English-made sun-hats at 12 or 15 rupees or even Indian ones at the prices they are sold for in the Colombo stores, would gladly invest a rupee for a Ceylon-made "Sola topee."

GENERAL ITEMS.

Elementary Agriculture is the title of a new text-book written by Dr, Webb, Principal of the Aspatria Agricultural College. A short while ago two other works on Agricultural Science were published by Professor Wrightson of Downton College, and Professor Wright of the Glasgow Technical College, and it is announced that Dr. Fream will bring out a work on Elementary Agricultural Science early this year. There is thus no lack of text-books for our Agricultural Schools and Colleges, but in fact a number to select from. The Manual by Dr. Webb is said to be admirable, both in conception and execution, and only requires to be known to be very highly appreciated.

The varieties of mango grown in Queensland are known as Dohdohl, Strawberry, Alphonse. Gumphor, Bengalee, Sangier, and Gratissima, None of these names are familiar among us, but doubtless these indicate some of the numerous varieties we have in Ceylon, where the largest number of varieties, if not the best mangoes, are grown.

In a lecture delivered before the Society of Arts by A. T. Laurie, M. A., the lecturer stated that Dragon's Blood was mentioned by Pliny, and that it is the resin obtained from the Calamus Palm (*Pterocarpus Draco*, Lin.), Dragon tree.

The leaves of Indian hemp (*Cannabis Sativa*) is said to be a simple and yet most effective means of keeping weevils out of grain. They have been tried with success in Cape Colony, and have been proved to be harmless to everything but the weevil. The leaves are simply placed about in the bags containing the seed. All grain-growers should have a few bushes of *Cannabis Sativa*, which grows rapidly and is easily propagated from seed.

"Stock-owners would do well," says the *Indian Agriculturist*, to cut out and preserve the following recipé, which is an excellent ointment for wounds in horses and other stock. It is known as "green ointment." Take lard 6 oz., yellow resin 1 oz., Venice turpentine 1¼ oz., accetate of copper 1 drachm. Melt the resin and copper (with a small piece of the lard to prevent burning) in an iron ladle, and the lard and turpentine in a hotwater bath: mix all together when thoroughly melted. As it cools add 2 drachms of turpentine and stir occasionally.

Land surveying is said to have had its origin in Egypt more than a thousand years before the Christian era, where the annual inundations of the Nile, and the consequent large deposits of mud, destroyed the landmarks of the different proprietors. It therefore became necessary to determine these landmarks by measurement, or to lay out the proper quantities of land claimed by the several proprietors irrespective of their landmarks thus destroyed.

An extensive slip of land—over fifty acres in extent—was reported to have occurred on Kandanuwara Estate in the Matale district. The uncommonly heavy rains in January no doubt rendered the underlying rock soft and incoherent by the action of the increased underground flow of water, while the steepness of the land must have greatly aided the sliding down of the surface soil.

Mr. Abeyesekere, a student of the School, has brought for our Museum a number of eggs, of absurdly small size, laid by an ordinary country hen. The smallest of these is less than half-an-inch in diameter.

On the 18th, a cow at the School dropped two calves—one fully formed and alive, the other a dead fœtus, a few inches in length and imperfectly developed.

Mr. James Storrey, of Kansas City, claims that the artificial production of eggs at a phenomenally cheap rate is now an accomplished fact, and he is proving his own belief in his contention by erecting a large factory to work the invention which he has patented for the production of artificial eggs. The raw material which he uses for the production of artificial eggs are lime water, bullock's blood, milk, tallow, peas, and a few other odds and ends, including some chemicals, the nature and composition of which are known only to the inventor. The machinery used by this egg manufacturer is said to be very ingenious. The yolk is first run in a mould, and then placed in a second matrix containing the proper proprotion of the albuminous substance which stands for the white, after which the whole is covered with a shell made of lime water and glue, which hardens after it is set. Mr. Storrey guarantees that his artificially-made eggs will keep 'new laid' for a month, and that the total cost of this production is so low that they can be retailed at 1½d per dozen.

THE

TROPICAL AGRICULTURIST

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SETTLEMENT OF THE TEA SALES QUESTION.

WE are sincerely glad to learn, as we do by our London Letter last received, that the matter of Ceylon tea sales in the Mincing Lane rooms has been satisfactorily determined. Indeed, it seems difficult to understand why, the Committee of those rooms being ready and able on the first application to grant every desired facility, that we here and the trade and its brokers in London should for so long have had to submit to disabilities which we have little doubt have often been the cause for low prices having been obtained for our teas. The Committee has readily granted the use of a second room; and it seems to be matter of general agreement by the brokers that Ceylon sales shall proceed in it throughout the whole of Tuesdays and Thursdays, simultaneously with the sale of Indian sorts in another room. Whether this present limitation to the two days will eventually be found to suffice for the demands of the increasing trade in Ceylon teas it is not possible to say; but should it prove to be incommensurate with that demand, the Committee, it would appear, raises no objection, should it be necessary to do so, to sales being held on every day of the week. The determination to follow such a course will rest at any time with the brokers engaged in the trade. If they find it imperative to absorb another day, or even more days, they can do so by arrangement among themselves without the chance of objection being raised by the proprietors of the sale rooms. For the future, therefore, we ought to hear of no more complaints as to the impossibility of giving a sufficiency of time for the exhibition and testing of samples, though doubtless it will be desirable that our shippers should bear in mind the necessity for giving to their brokers greater latitude as to time than they have hitherto enjoyed, in deciding upon placing the shipments entrusted to them upon the market. The only difficulty which would seem to be apprehended by the wholesale trade is the necessity which the concurrent sales of Indian and Ceylon teas will place them under of providing additional buyers. It is evident one buyer cannot be attending to the sales in both rooms at one and the same time; and doubtless the increase of the staff required will be viewed by a good many among the dealers with some amount of dissatisfaction. But this cannot be helped, and we are told that the dealers have expressed themselves ready to submit to the necessity involved in the change. To many of them the burden must prove to be but a slight one, because the largely decreasing volume of the China teas dealt in must set free to a very great extent the buyers the dealers employ in that branch of their trade. We expect, therefore, to hear but of little opposition to the new arrangement, which came into operation on the 15th December last. Proof has already been afforded to, and before quoted by us, of the serious monetary loss to which the system now abandoned has subjected our planters, and we hope that the concessions now yielded may have a sensible effect in maintaining the prices of our teas at more level standards. At the same time, however, as we permit ourselves to express the expectation that such a result will follow the new arrangements, we would ask our planting brethren not to neglect the many warnings they have of late received as to other points by which they have themselves contributed to the serious fluctuation which they have had to submit to.

NOTES FROM OUR LONDON LETTER.

LONDON, Jan. 1st.

There has for some time been a lull in the announcement of new companies starting in the tea enterprize of Ceylon; but one has just been announced which, from the weight of the names concerned with it, will probably attract much support. The following cutting from a financial paper will give you all the information as yet possessed by me with reference to this new venture, though it may be hoped that by the time of my next writing it may be possible for me to afford you further details respecting it.

Mr. John Hughes has addressed a very lengthy letter to the *Grocer* (or it may be to the *Spicer*, if there be such a paper, for the handwriting attached to the extract lent to me is so bad that it is impossible to accurately determine the name of the paper) on the subject of "the agricultural value of shoddy." You will recollect that this subject received much ventilation in your columns at the time the proprietors of the Mariawatte estate decided, on Mr. Hughes' recommendation,

on making a trial of a manure of this nature. The results to that trial do not seem to have had public announcement as yet, so that we are ignorant how far Mr. Hughes' recommendation has been justified by results. The letter by that gentleman tells us that "the value of shoddy, or woollen waste, as a manure for hops, has long been recognized in this country; and in Italy, in the crude form of old rags, it is at present largely applied as an economical dressing for olive trees." Reference is also made to the single trial as yet made in Ceylon, and Mr. Hughes writes that the manure promises to be an excellent fertilizer for tea.

Owing, however, largely to the bad quality of much of it that is manufactured, Mr. Hughes says that the use of the manure has largely decreased in Kent, and he warns intending users that much must depend on the quality of the supplies they obtain. Prices quoted in the letter show that these vary in an upward ratio with the higher quantity of ammonia present, the increased amount of organic matter, and the decrease of mineral matter and water. These prices range over twelve samplings from £1 3s 5d to £3 6s 4d per ton. The nitrogenous organic matter, upon which the agricultural value as a manure chiefly depends, varies from 62 to 26 per cent. A variety of other constituents go to make up "shoddy." Of mineral matters alone there are no less than twelve, these being lime, magnesia, potash, soda, oxide of iron, alumina, phosphoric acid, sulphuric acid, carbonic acid, chlorine, soluble silica and insoluble siliceous matters. Who would have thought that our cast-off coats and trousers could contain such a variety even as that above quoted, and of course there are many more of a different nature which might be added to that list! It appears that two tons of "shoddy" manure are required for each acre of hops, and this quantity yields gradually 358 lb. ammonia, 113 lb. of soluble silica, 90 lb. oxide of iron, 65 lb. of lime, 52 lb. sulphuric acid, 12 lb. of potash, and 6 lb. of phosphoric acid. Space does not permit me to quote further from Mr. Hughes' letter, but in view of the favourable opinion expressed by him as to the applicability of this manure to tea, it seemed to me desirable to call special attention to it.

Another long letter, which appeared in the *Morning Post* of Dec. 25th, deals with the subject of Indian tea, and quotes largely and appreciatively from an article that appeared in the *Ceylon Observer* just received, in which you most justly condemned the character of many advertisements of China teas as calculated to, and as intended to have the effect of injuring the reputation of Ceylon teas. We do not know who the writer of the letter is, as he conceals his identity under the *nom-de-plume* of "Mincing Lane." He writes, among other much sensible matter, that "Indian teas cannot be placed (as the writer of the article in the *Ceylon Observer* would have) in the same comparison with the good old China Ningchows, as Ceylon teas can. At the present time Ceylon Pekoe selling at from 11½d to 1s 2d per pound in the market are generally equal to the finest old China tea which, 15 or 20 years ago, realized 2s 6d to 3s per pound, and by far superior to the best of the same class that arrive now and command at the opening of the season on the average about 1s 6d to 1s 8d, and a few chops of exceptionally fine 1s 10d to 2s per pound." It is to this fact that the writer attributes the rapid ousting of China by Ceylon teas. He closes his letter with a vigorous calling over the coals of Sir Andrew Clark for his late uncalled-for assertion, though he admits that in one sense that distinguished *medico* hit the right nail on the head when he qualified his dictum with the remark "if the right quantity be put in the pot."

You will be glad to hear that the matter relative to the holding of Ceylon tea sales in Mincing Lane has now been definitely and satisfactorily settled. The proprietors of the sale-room have acceded to the request of the wholesale dealers that a second room should be granted for the sale exclusively of your production, the concession being made from the 15th December. We learn that for the present the brokers propose to limit the use of this room to the entire of Tuesdays and Thursdays, believing this will afford all facilities required; but as trade extends, and if it may be found necessary to do so, there will now exist no obstacle to sales being fixed for every day in the week. The arrangement now made will not be without its inconvenience to some of the wholesale buyers, because it will be necessary for these to increase their staff of buyers, as the sales of Indian and Ceylon teas will now proceed simultaneously, and a single agent cannot possibly attend both. The larger men in the trade, we are told, assert that they will not consider this to be a burden on them, as the decreased sales of China teas will enable them to utilize the services of the men employed by them in that branch of their business. There is now every prospect that we shall have no more complaints of difficulties in the way of properly examining and tasting the large number of samples exhibited by the brokers, though the circumstances attending the sales render it desirable that your planters should send home as large breaks as they possibly can.

Noticing in the last received *Overland Observer* the letter addressed to you by Mr. Price of the Brokers' Association on the subject of the alteration of estate marks on many of the tea chests received here, I this week sought and obtained an interview with that gentleman. We discussed the subject of his complaint in all its bearings, and, as the result, we could come to no other conclusion but that the alterations must be made in Colombo. Mr. Price assured me that they could not have been made on this side, as it would be in direct contravention of all the Customs rules to do so, and these are strictly, and with the greatest care, enforced by the officials. Manifestly, Mr. Price thinks it cannot possibly be to the interest of any Ceylon planter to commit an act which would efface the identity of his estate, and the only possible solution of the matter to his mind is that in order to form breaks of a large size, the purchasers of tea in Colombo endeavour to assimilate the marks throughout their shipment. Mr. Price tells me that he hears of repeated complaints, and of return of teas sent out, to the grocers to whom the members of the wholesale trade have sold them, on the ground that the estate marks do not properly correspond with the description. We must all see that this is likely to cause much injury to the trade, and Mr. Price is most anxious that your Planters' Association should take active steps to check the practice.

TEA IN WYNAAD.

Mr. J. W. Minchin, of Octacamund, sends us a most interesting *communiqué* anent the pedigree of the tea seed now being planted in Wynaad, which, as he states, is probably unique. We believe that there are some very old tea trees on the Ashamboo Hills in South Travancore, and it would be interesting to learn whether their pedigree is similar to those in Wynaad which we surmise is more than likely. Mr. Minchin writes:—

With regard to the high quality of the tea trees in

Wynaad, I have been able to trace the pedigree of the seed bearing trees, and as these have always been entirely segregated, the seed is almost unique, as a pure Assam indigenous tea thoroughly acclimatised in South India. I find that the original seed was imported from Assam by the then Collector of Salem, Mr. Cookburn, about the year 1830, when the existence of the local indigenous tea plant was first known. The trees from this seed were planted on the Grange Estate at Yercaud and are still thriving, some 20 to 30 feet high; the stem of one is nearly three feet in circumference and a leaf from one of the new shoots measured 10 + 3½ inches.* Col. Scott, of the Veriday Mulla Estate, who has been connected with the planting industry of these hills for very many years, was told of these Assam tea plants by the then Collector of Coimbatore, Mr. Pat Grant, in the year 1862. He was at that time about to plant tea in Wynaad, so visited the Shevaroys. The manager of the estate did not know what the grove of high trees was, and was astonished at learning from Col. Scott that they were Assam tea trees. A nursery was formed on the Surrey Estate from the seed obtained at Yercaud, but as the land which Col. Scott intended to plant was refused him by Government, who gave him land on the Nilgiris at Thai Mulla instead, he removed most of the plants from the Surrey nursery to Thai Mulla, where he planted a large field of this variety of tea, but tells me that he pulled them up, as they differed so much from General Morgan's plants which he ignorantly thought were the only right kind. A few of the plants escaped and were kept up on the Thai Mulla Estate. Meanwhile some of the tea plants were left in the Surrey Estate nursery, and these plants have been growing there since, entirely separated from all other tea, and now, like the original Shevaroy trees, resemble small poplars. Seed from these trees had been planted on the Richmond and Cheria Shola Estates in 1876, and these trees are now seed bearers, and seed from them has been planted on the Glenrock, Wentworth, Richmond, Cheria Shola and other estates during the last few years. As I think this account is of interest, I have sent it to you at length, and as it is now being generally recognised that not only the quantity, but also the quality of the tea depends on the preponderance of Assam jât in the plants cultivated; Wynaad may be congratulated on having a fairly large supply of such good tea for seed.—*Madras Times*, Jan. 4th.

ADVANCES TO CULTIVATORS.

(From the *Administration Report of the Bombay Presidency.*)

The total amount advanced to cultivators during the year for the purchase of seed and cattle was R57,566, and for the purpose of effecting permanent improvements R1,27,750 were lent by Government. The corresponding amounts for the year 1889-90 were R36,499 and 74,233, and it is therefore clear that moderate terms on which loans are now granted, by Government are gradually attracting the cultivator. In the Northern Division but little advantage was taken of the new takavi rules, but elsewhere, and especially in Sind and the Southern Division, large sums were advanced. From one or two districts it was reported that the rayats held aloof, fearing to take advantage of the chance of borrowing money on easy terms, lest the savkar should retaliate by declining to advance them money in a bad year when they urgently required it; elsewhere, however, as in Belgaum, the freedom with which cultivators borrowed from Government had the effect of reducing the rates of interest charged by local money-lenders.

* There are tea trees on Abbotsford estate, Ceylon, none of which are more than 17 years old, some of which are over 32 feet in height and 42 inches circumference of stem.—ED. *T. A.*

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, Jan. 2.

CINCHONA.—The exports of cinchona from Ceylon in October reached the enormous total of 1,079,527 Amsterdam lb. The equivalent of sulphate of quinine in this quantity may be estimated roughly at 780,000 oz.

The following are the exports of cinchona from Java during the periods between July 1st and October 31st four months):

	1891 Amsterdam lb.	1890 Amsterdam lb.	1889 Amsterdam lb.	1888 Amsterdam lb.	1887 Amsterdam lb.
Government plantations	288,751	264,208	231,410	226,235	238,246
Private plantations.....	3,488,974	2,035,890	1,600,888	1,204,732	1,308,133
Total	3,777,725	2,300,098	1,832,298	1,530,967	1,546,379

QUININE.—There is a perceptible improvement in the market since last week, and sales of 40,000 oz. of German, in second-hand, at 9¾d per oz for March-April, and 10,000 oz of ditto for April delivery are reported. On the spot a parcel of 10,000 oz in second-hand is reported to have been sold at 9½d per oz, but this transaction has not been confirmed. No particular reasons are assigned for this rise of ¾d per oz since last week. The influenza, perhaps, has something to do with it, and it is also rumoured that some of the makers are again trying to effect a combination.

AGRICULTURAL VALUE OF SHODDY

The value of shoddy, or woollen waste, as a manure for hops has long been recognised in this country; and in Italy in the crude form of old rags, it is at present largely applied as an economical dressing for olive trees, being trenched in some 3ft. to 4ft. from the stem of the tree. Quite recently, in Ceylon, shoddy (manufactured into a fine powder by treatment with sulphuric acid) has been tried as a manure for the tea plantations; and for these, bearing in mind its richness in organic nitrogen—it promises to prove an excellent fertiliser, if only it be properly applied and of good quality.

Of late years, however, the use of shoddy in Kent has fallen off, probably to a great extent, in consequence of the great variation in the quality of the deliveries. Some lots will contain as much as 30 to 35 per cent. of water, and others show an excess of it and mineral matters, amounting, in some samples, of upwards of 40 per cent.

It may be useful, therefore, in the first place, to give, in the following table, some analyses of the different qualities of shoddy, the results being selected from a great number of samples examined during the past twenty years:

ANALYSES OF SHODDY AND COMPARATIVE VALUE.

No.	Water.	Organic matter.	Mineral matter.	Ammonia.	Value per ton. £	s	d
1	20·85	62·00	17·12	8·85	3	6	4
2	25 57	60·33	10·10	8·81	3	6	1
3	21·14	60·48	18·38	8·43	3	3	2
4	25·44	58·76	15·80	8 22	3	1	7
5	19·13	62·80	18·07	8·00	3	0	0
6	14·13	65 10	20 77	7·63	2	17	2
7	17 01	65·20	17·79	7·49	2	16	2
8	21·04	53 57	25·39	6·59	2	9	5
9	18·01	54·71	17·28	6·46	2	8	5
10	25·46	57·35	17·19	6·33	2	7	5
11	3 ·81	25 91	42 25	3·16	1	3	8
12	32·74	26·21	41·05	3·13	1	3	5

It will be seen from the above results that there is great variation in the composition of shoddy, and that the agricultural value varies with the quality.

It will be noticed that the water varies from 32·74 to 14·13, and the mineral matters from 42 25 to 10·10; while the nitrogenous organic matter—upon which the agricultural value as a manure chiefly depends—varies from 62 to 26 per cent.

The quality of the organic matter further varies—according to its richness in nitrogen—which ultimately becomes converted into ammonia. Consequently, the value of shoddy as a fertiliser may be said to depend upon the richness in ammonia, and the comparative value of the above samples has been accordingly calculated from the proportion of amonia allowing 7s. 6. per unit. Of course, it will be understood

that in constructing the above table the relative value of the different samples has been stated, because the market value is liable to variation, according to the demand and supply. The above figures are quite sufficient to show the importance of purchasing shoddy upon the basis of analysis—as the ammonia is shown to vary from 8·85 in the best sample to 3·13 in the worst, which is really shoddy dust containing much dirt. The relative value being in the former £3 6 4d. per ton, delivered at station, as against £1 3s. 5d. in the latter. The farmer, therefore, who buys without any analytical guarantee, runs the risk of getting any quality between the above limits.

Shoddy containing from 7 to 8 per cent. of ammonia is a most valuable and economical manure for hops; and it is a pity that it should not be supplied in the natural dry state as it comes from the mills. In addition to the nitrogen compounds, there are mineral constituents of shoddy which have a distinct value as a manure. In the following analysis portions of the residue left after burning were selected in equal quantities from samples 5, 6, 7, and 10. These were carefully mixed, in order to obtain a fair average of the mineral portion.

ANALYSIS OF THE MINERAL MATTERS IN SHODDY.

Lime	8·62
Magnesia	·28
Potash	1·62
Soda	2·12
Oxide of Iron	11 86
Alumina	2·34
Phosphoric acid	·82
Sulphuric acid	6 92
Carbonic acid	1·60
Chlorine	·29
Soluble silica	14·23
Insoluble siliceous matters ...	48·60
	100 00

It will be seen from the above analysis that there is 14·93 per cent. of soluble silica, which forms an important constituent of the flowers and leaves of the hop plant, the flowers (hops) containing in their ashes 19·16 per cent. of silica, the leaves 22·35 and the bine 9·99. There is also 8·62 per cent. of lime, 1·62 of potash, 2·12 of soda, 11·86 of oxides of iron, 6·92 of sulphric acid, and ·82 of phosphoric acid. The value of lime, potash, and phosphoric acid as manurial constituents is fully recognised.

As regards the importance of the presence of a good supply of sulphuric acid, in the form of sulphate of lime, either naturally in the soil upon which hops are to be successfully grown or artificially, as supplied by manure, reference may be made to an interesting lecture on "The Fertility of Hop Soils," given before the Maidstone Farmers' Club in March, 1884, by Mr. F. J. Lloyd, in which special stress was laid upon this point, and the lecturer stated that, in his opinion, woollen rags, on account of their richness in both nitrogen and sulphur, were the most suitable manure for hops.

Lastly, as regards the presence of 11 86 oxide of iron, Dr. A. B. Griffiths, in his book on manures, gives numerous well authenticated experiments, showing increased yield of various crops by the use of iron sulphate in moderate doses; and it is quite reasonable to conclude that hops will also be benefited in a like manner.

Having said so much respecting the fertilising value of the mineral constituents, let us now proceed, with the aid of the above analysis, to calculate the quantities supplied per acre.

It is generally allowed that it takes two tons to properly manure an acre of hops with shoddy. If, therefore we assume that the quality used contains 8 per cent. of ammonia and 17 per cent. of mineral matters, we shall have the following figures:—

TWO TONS OF SHODDY SUPPLY PER ACRE.

	lb.		lb.
Ammonia ...	358	Sulphuric acid ...	52
Soluble silica ...	113	Potash ...	12
Oxide of iron ...	90	Phosphoric acid ...	6
Lime ...	65		

Let us now compare these figures with those representing farmyard manure. Assuming 1 ton of dung to contain 15 lb. of ammonia, 12 lb. of potash, and 7 lb. of phosphoric acid, it would require, in round numbers, 24 tons of good dung to yield the 358 lb. of ammonia supplied by 2 tons of shoddy.

The 24 tons of dung would certainly also supply 288 lb. potash and 168 lb. phosphoric acid; but both these constituents should be largely supplied naturally by a good hop soil, whereas the ammonia has to be provided by the farmer. This being so, it is necessary to regard the cheapest source of ammonia as of the greatest importance. Farmyard manure, or London dung delivered, would cost about 7s 6d per ton, consequently 24 tons would represent £9, as against 2 tons shoddy costing £6, which leaves a saving of £3 in favour of using shoddy against farmyard manure. When the farm is situated a considerable distance from the station, the smaller bulk of shoddy compared with dung would, of course, make the above comparison still more in favour of the former. Shoddy, like dung, is a slowly decomposing manure, and should be carted on during the winter months, and carefully dug in round the hop-hills, where under favourable climatic conditions, it should afford a continuous source of nitrogenous plant food as required, and in this respect froms a marked contrast to those concentrated and highly soluble fertilisers, such as dissolved guano and nitrate of soda, which, in the more advanced and often critical stages of growth, have been found to render special assistance when judiciously employeed. In conclusion, it may be well to mention that, in analysing samples of shoddy, it is most necessary to make a water determination in the material as received, and then proceed to cut up a portion for the nitrogen determination, taking care to make a second water ditto in finely cut-up portion, which, on account of water lost during the process of cutting up in a warm room, is naturally much drier, and therefore richer in nitrogen, than the shoddy as originally received. The nitrogen results being calculated eventually upon the natural wet state of the shoddy as received, will represent the real quality of the material.

If farmers will take the trouble to stipulate that the shoddy shall contain from 7 to 8 per cent of ammonia (and be in a fairly dry condition, containing not more than 20 per cent of water) they will find it one of the most economical manures that can be purchased. Indeed, manure manufacturers—many of them—have used shoddy with marked advantage in compounding special mixtures, where nitrogen, in the form of organic matter is required. Further than this, several patents have been taken out for the purpose of treating shoddy with sulphuric acid, and, by subsequent drying, to convert the bulky material into a fine powder which can readily be passed through a drill.

For vines, as well as for shrubs like tea, coffee, cacao, and the numerous garden fruit trees, shoddy is admirably adapted; and it is hoped that the remarks that have been made in reference to its use for hops will attract attention to the more extended application of a manure which, at the present time, is certainly so suitable and so cheap.

JOHN HUGHES, F. C. S., Consulting Chemist to the Ceylon Planters' Association.

79, Mark-lane, E.C.

—*Field.*

PHARMACEUTICAL ETYMOLOGY.

The following notes are gathered from the most recently published volume of the Philological Society's new English Dictionary, edited by Dr. Murray.

There are several "Cloves" of distinct origin. The term as applied to the spice, the dried flower-bud of *Caryophyllus aromaticus*, is derived from the French *clou*, which word was originally applied to it on account of its shape. The *Caryophyllus* is the Latinised form of the Greek term derived from *karyon*, nut, and *phyllos* leaf. In old French the spice was termed *clou de girofle*. This term passed on to the clove-scented pink (*Dianthus caryophyllus*), but *girofle* has passed into English as gilly-flower, and represents others

scented flowers. Some very correct people with inaccurate ideas of its etymology have civilised gillyflower into "July flower."

The "clove" of garlic, &c. is traceable to the old Teutonic words which give us cleave, clove, cleft, and is applied on account of the separated condition of the fruit.

How "clove," an old weight of wool and cheese (=about 7 or 8 lb. avoirdupois), came to be adopted is not known. It is understood to be derived from the Latin *clavus*, a nail, which was also under that name a lineal measure in olden time. The connection between the nail (measure) and the clove (weight) seems to be lost.

COCA is the Spanish form of the Peruvian *Cuca*. Its first mention in English literature is found in Ballokar in 1616.

COCCULUS (as in Cocculus Indicus) is merely a Latin word signifying a little berry.

COCHINEAL comes via the Spanish *cochinilla* from the Italian *coccinigliia* traceable to the Latin *coccineus* scarlet coloured. In Spanish the same word, a diminutive of *cochina*, sow, is used as the name of the wood-louse, and has been suggested as the origin of cochineal. But the two words appear to be only fortuitously similar and have entirely distinct origins.

COCOA and COCOA NUT have occasioned no end of confusion among uninstructed people. Cocoa (the "grateful and comforting" article obtained from the seeds of the *Theobroma cacao*) is a corruption of the three-syllabled word "ca-ca-o," which was the Spanish adaptation of the Mexican name for the seeds *cacauatl*. The coco-nut was, and should be still, written "coco." It was so called by the Portuguese when they discovered it in India, where it was called in the native language *tegma* or *tenga*. Coco is a Portuguese word for grin or grimace, and was probably used in reference to the queer-face-like appearance of the base of the shell with its three holes.* It is worthy of note that in Johnson's Dictionary the article "Coco" was run together with that on "Cocoa," apparently by an accident, for Johnson himself used the word "Coco" (plural Cocoes) in his other writings. This accident is probably to some extent the cause of the confusion which has prevailed between the two words.

COFFEE is the descendant of a Turkish word *qahvah*, which was applied not to the berry but to the beverage, and is believed to have originally meant some sort of wine, and to have been derived from a verb which meant to have no appetite.

COMMERCE began to be substituted for "merchandise" in the latter part of the sixteenth century. It is composed of *com*, with, and *merx*, *merci*, wares. For more than a century the word was accented on the second syllable, as in Watts's line (1709), "I hold no more commerce with Hell."

COMPETE and COMPETITOR are among those words of which the original sense has been modified by human tendencies. The etymological meaning, and no doubt the early use of the words, implied a seeking in company, a sort of partnership. The union developes into rivalry, the rivalry into opposition, which is more like the modern signification.

CONGOU, as applied to tea, is a corruption of the Chinese word *Kung-fu*, work. It means tea on which work or labour has been expended.—*Chemist and Druggist*, Dec. 26.

THE CEYLON LAND AND PRODUCE COMPANY, LIMITED.

Report of the Directors to be submitted to the Seventh Annual General Meeting of Shareholders to be held in Room 147 (1st Floor), Leadenhall House, 101, Leadenhall street, in the City of London, on the 31st day of December, 1891, at 12 o'clock noon.

Your Directors beg to submit the annexed profit and loss account and balance sheet for the year ending 30th June, 1891, duly audited.

The amount at credit of profit and loss account, after deducting depreciation of machinery and buildings on New Peradeniya, Fetteresso, and Rickarton estates (1,000), and writing off £8,038 10s 8d from the Matale properties referred to below, is £3,069 6s 6d which with the sum brought forward from last year £2,308 7s 4d leaves £5,377 13s 10d to be dealt with.

Your Directors propose to pay on the 30th day of January, 1892, the fixed Cumulative dividend of 6 per cent on the preference shares, and 10 per cent on the ordinary shares, both less income tax, and to carry forward the balance, £1,693 3s 10d subject to the Directors' remuneration for the year under review, to be fixed at the general meeting, and to the payment of income tax.

Your Directors' earnest consideration has been given to the question of the capital value of the Matale Estates as they stand in the books. In the report for year ending 30th June, 1889, it was stated by your then directors that the expectations on which the Company's Cocoa Estates were acquired had not up to that time been fulfilled, and in the amended report for same period your Board expressed the belief that that was partly owing to the unprecedented drought that occurred early in the history of this Company. They have now, however, come to the conclusion that a shrinkage has occurred in their original value, and they consider this to be an extremely favourable opportunity for re-arranging the figures. They have therefore written off from profits the sum of £8,038 10s 8d, and applied the same in reduction of the book values of the Matale Estates. In effecting this reduction your Directors anticipate the shareholders' co-operation and consent.

The past year has been a favourable one for the Company, the satisfactory result of which is largely owing to the exceptionally high prices which prevailed and were obtained both for cocoa and coffee.

It is gratifying to your Directors to report that the average prices for Ceylon cocoa during the year have been on a higher scale than formerly and where the curing has been carefully attended to, extreme values have been obtained; the production, however, in the island does not appear to extend very rapidly.

A new feature however has been developed, in the increased output of Java since 1886, during the last two years particularly so, and the rapid strides made in the improved curing has made this growth a strong competitor which your Directors think will be felt. The demand continues good, and it is noteworthy that no stock of Ceylon is on hand, parcels going immediately into consumption after sale, which of course adds strength to the position.

With regard to coffee it is pleasing to your Directors that they can report that prices during the whole of the year have been of an eminently satisfactory character. The prices for the article have continued high since 1886, and although consumption does not appear to have been materially affected, the production has been stimulated, and the world's supply will probably be considerably increased in the near future. Your Directors therefore anticipate a lower range of prices, but they look forward with confidence, that those for Ceylon will be still remunerative.

The Company's Teas have also shown a profitable result, but your Directors view with some concern, and indeed it has been pointed out by various authorities, that the planting of this product is being overdone in Ceylon; they have therefore instructed the Company's Managers to cease planting tea on any extensive scale, and have directed them to give their attention to the introduction of coffee, cocoa, and other and minor products on any of the Company's land suitable for their growth.

The year 1891 opened with a strong market for Ceylon tea, the average price at the public sales in January being 11¾d per lb. No material decline took place until April when arrivals increased, and in consequence of unusually heavy flushes, the quality shewed a marked falling off, while, in many cases, the dry leaf evidenced hurried preparation. Mainly owing to these causes prices became weaker, and the general average for the past six months to the end of November has ruled at about 9½d per lb. Lower rates have, however, no doubt benefited the industry

inasmuch as the consumption has been stimulated, and growers have been able to dispose of the larger yield at fairly satisfactory prices. Deliveries during the eleven months of the year have increased to 49,203,000 lb. against 34,881,000 lb. in the same period in 1890.

The estimates for the year, covered by this report, although exceeded in tea, cocoa and coffee, bear testimony to the careful manner in which they were compiled by the Company's superintendents, in conjunction with the visiting agent, Mr. W. Forbes Laurie, it being a very difficult matter to estimate what the crops of cocoa and coffee are likely to be; with tea, however, it is less difficult.

The mortgage over North Matale has now been reduced to £11,500.

PROFIT AND LOSS ACCOUNT, 1ST JULY 1890 TO 30TH JUNE 1891.

Dr.	£ s. d.	£ s. d.
To Expenditure in Ceylon on account of crop		24,964 15 6
,, Agency and Office Expenses in Ceylon		463 1 6
,, Charges in London, consisting of Rent, Salaries, Auditor's Fee, Law Charges, Postages, Stationery, &c.		584 3 7
,, Interest on Debentures, Loans, &c., to 30th June 1891 ..		2,811 4 7
,, Debenture Charges ..		180 3 7
,, Written off the Matale Properties		8,038 10 8
,, Depreciation of Factories and Machinery		1,000 0 0
,, Depreciation of Furniture ..		13 17 1
,, Balance		5,377 13 10
		£43,433 10 4
Cr.	£ s. d.	£ s. d.
By amount brought forward from last Balance Sheet ..	6,089 7 7	
Less Dividends of 6 per cent, on preference shares and 10 per cent ordinary shares	3,354 0 0	
Loss on Estimated Proceeds of Produce ..	43 3 3	
Directors' Fees for 1890 ..	250 0 0	
Income Tax for 1890 ..	133 17 0	
	3,781 0 3	
		2,308 7 4
By Proceeds of Produce sold to 30th June 1891 ..	32,008 11 9	
,, Produce in course of realization (all of which has since been sold ..	8,626 4 9	
		40,634 16 6
,, Commissions, Transfer Fees, &c..		490 6 6
		£43,433 10 4

BALANCE SHEET AT 30TH JUNE 1891.

	£ s. d.	£ s. d.
To capital authorised, 10,000 preference shares and 10,000 ordinary shares of £5 each		100,000 0 0
,, Shares Issued:—		
1,450 Preference Shares, fully paid .. £7,250 0 0		
6,400 Preference Shares, £3 paid .. £19,200 0 0		
	£26,450 0 0	
1,100 Ordinary Shares, fully paid .. 5,500 0 0		
6,400 Ordinary Shares, £2 10s paid .. 16,000 0 0		
		47,950 0 0
To Liabilities:—		
Debentures issued .. 27,327 8 3		
Interest accrued and payable thereon .. 254 17 5		
	27,582 5 8	
Mortgage Account .. 12,000 0 0		
Interest accrued and payable thereon.. 147 5 8		
	39,729 11 4	
Deposits .. 741 13 4		
Interest accrued and payable thereon .. 11 9 4		
	40,482 14 0	
Sundry Creditors .. 3,287 15 5		
Bills Payable .. 14,274 14 8		
		58,045 4 1
,, Net Profit at 30th June 1890 .. 2,308 7 4		
,, Net Profit at 30th June 1891 .. 3,069 6 6		
		5,377 13 10
,, Exchange		448 8 11
		£111,821 6 10
	£ s. d.	£ s. d.
By Estate, Nurseries, Buildings, Machinery, &c., in Ceylon ..		98,159 10 3
,, Produce in course of realization (since sold)		8,626 4 9
,, Cash in Bank		770 3 9
,, Cash in hand		4 3 8
,, Sundry Debtors		4,231 4 5
,, Furniture .. £43 17 1		
Less written off 13 17 1		
		30 0 0
		£111,821 6 10

ANOTHER REVIVAL OF INDUSTRY which appears possible in these islands is that of the mango trade. A small trial shipment was sent recently from Grenada to New York, and found a remunerative sale. Through neglect, the mango has greatly degenerated in the West India Islands, but if care were taken to develop the better kinds there seems to be no reason why a very profitable trade could not be developed in this article.—*Pall Mall Gaette.*

WHAT AN AMERICAN PHYSICIAN SAYS ABOUT CEYLON TEA.—From an advertisement in the *N. Y. Express*, we quote as follows:—

Ceylon Planters' Tea Co., 5th Ave. and 16th St., New York City. New York, October 27, 1891.

Dear Sirs: After many experiments in all forms of nervous troubles, and some of them the most susceptible, I will say the results have even surpassed my expectations, and I am in a position to fully indorse your claim.

I have never know the tea to produce nervousness or other injurious effects, or cause any interference with medical treatment.

I fact, I now look upon it as a help, rather than as a hindrance, and permit all my patients to use it, where I would be afraid to allow the use of any other tea. I am even inclined to the opinion that Ceylon tea aids nutrition of the nerves, and thus is not only free from injurious effects, but beneficial as a beverage.

I feel it my duty to acquaint you with these experiences, as the subject is of the greatest importance, from the fact that thousands of persons suffer from nervous symptoms which can be traced directly to the use of tea and coffee. *I use Ceylon Tea in my household, and would use no other.* I wish you all success, and hope, for the sake of the nervous public that the day will come when you will have introduced Ceylon Tea into every household in the country.—Yours, very sincerly, G. A. BONSCHUR, M.D., 32 West 27th St. New York, Specialist in Diseases of the Nervous System.

THE CEYLON TOBACCO COMPANY LIMITED.

It is only right that all the circumstances connected with the enterprise so named should be known. The main point is that the bulk of the capital of the Company was invested in *land*, which cost some R81,000, or nearly half the capital of the Comdany, which was about R220,000. When after two years' experience tobacco was found to be not only uncertain in growth, but also difficult of sale, it was decided at once to open with other products; and had the shareholders all paid their calls, the directors would have been able to go on for another 18 months, by which time 120 acres of tea would have been in partial bearing, and the cacao, Liberian coffee, and coconuts so advanced as to render it easy to finance the Company. The money was not by any means all spent. When it was decided to voluntarily wind up, the assets were some R25,000 of unpaid cal'ls, or rather more than the equivalent of a year's working; and some 60,000 lb. of tobacco, which it is hoped will realize at least 20 cents per pound average. So far, we believe, none has fetched less than 27 cents, but it can only be sold in small quantities, say R12,000 as the value of the tobacco. In addition to this the Company has all its lands, which are some of the finest in Ceylon. Of course all concerned knew that tobacco was a great speculation and that the Company have lost on it goes without saying; but it is contended that the directors did the best they could in the interest of the Company in commencing to plant other products with a view to selling the properties. Messrs. T. N. Christie, Armstrong, Owen, Hill, &c. were all shrewd, hard-working honest men doing their best without pay or remuneration for the Company as directors; and the fact that at a large meeting two of the directors were unanimously (with the exception of Mr. Borron, who left the room) put on the consulting board to assist the Liquidator shows that they still retain the confidence of the shareholders. It gives us much pleasure on public as well as private grounds to state these facts; and we shall be only too glad to learn that the valuable lands and cultivation possessed by the Company will realize prices which may enable the accounts to be closed without loss to any of the shareholders. It was really the refusal of so many of these to pay their calls, we believe, which compelled the directors to decide on liquidation.

NOTES ON PRODUCE AND FINANCE.

DARJEELING TEA.—Messrs. Lloyd and Carter report that auctions have been lighter during the past month, and this, coupled with a very low range of prices, has enabled buyers to operate with more confidence, and all grades have been taken at a slight advance. The deliveries and stocks can hardly be considered satisfactory, but with continued low quotations, there should be increased consumption. The best averages have been made by M L B over M K in cross Poobong Goomtee, Selimbong and Hope Town, but some very choice teas have been sold from Chamong; the Orange Pekoe at 3s 7d, Broken Orange Pekoe at 3s 11d, and Pekoe at 2s 4d.

LAST WEEK'S TEA SALES.—On Monday the public sales of Indian tea, says the *Grocer*, amounted to 20,520 packages, when notwithstanding the foggy weather and the near approach of the holidays, there was a steady demand, and the above quantity was taken off at full rates, especially for the best liquoring kinds. Ceylon Tea.—A very dense smoke and fog enveloped the City on Tuesday, when 10,450 packages of Ceylon tea were offered, but the demand proved good, and full prices were obtained. An occasional irregularity was apparent, while the small breaks were extremely slow sale. Sales will now be suspended until the New Year, and the trade will be heartily glad of the interval, as the number of samples tasted for months past has been remarkable.

"A RANK AND ASTRINGENT DECOCTION."—In a book entitled "Delicate Dining," Mr. Theodore Child, the well-known American writer, says:—"In a great country like England it is impossible to obtain really well-made coffee, except in a few private houses, while English tea is generally a rank and astringent decoction, instead of a delicate infusion." This may be true; but, at least, we have the consolation that in the matter of tea-making we can give Mr. Child's countrymen and women some points. But we Westerns have much to learn from the Chinese and Japanese as to the art of infusing tea. If the British matron and her family were to drink tea as often as the light-hearted Japanese do, the result would not be conducive to the comfort of the said matron and family. To materially increase the consumption of tea some method of infusion akin to the Eastern is necessary. Mr. Child is right. Stewed tea is a "rank and astringent decoction." Let us, by all means, adopt a better method of infusing, and tea may be taken at all times without injury. It is not urged against the Japanese or the Chinese that they take too much tea, and yet they are for ever drinking it. They are not accused of being victims to dyspepsia either; and when our learned physicians wish to point a moral they do not go to the Far East, but maintain that we who drink tea far less frequently than the peoples of China and Japan are ruining our digestions in consequence. One would almost think that scientific opinion, far from being on the side of the angels, was on the side of the brewers.

THE ADULTERATION RECORD.—The record of the year's adulteration with the London area shows that tea is the only article of produce which has a clean bill of health. Coffee continues to be adulterated freely. Chicory is invariably the foreign substance, and the proportion used is often enormous. The cocoa drinkers will not appreciate the fact that their favourite beverage is the chief subject of adulteration, no less than a third of the ninety-six samples analysed having been condemned. In many instances the amount of sugar, starch, and arrowroot added was so considerable that the nutritive value of the quantity of cocoa used for making a cupful must be infinitesimal After a good many years, in which the adulteration of sugar had apparently ceased, it has again come under notice in a curious form. Of 246 samples examined, nearly one-seventh were reported as having been coloured with an aniline dye of an amber tint in order to make white crystals of beet sugar imitate the more valuable Demerara. The quantity of the dye used, however, is very minute. The following figures show the number of samples examined during the year, and the percentage of cases in which adulteration was reported:—Coffee: 1,733; adulterated, 266; percentage in 1889, 14·9; ditto, 1890, 15·3. Sugar: 246 adulerated, 34; percentage in 1890, 13·8. Pepper: 1,329; adulterated, 75; percentage in 1889, 8·9; ditto 1890, 5·6. Tea: 349; adulterated, 0; percentage in 1889, 0·5; ditto, 1890, 0.

BANANA CULTIVATION.—Discussing the banana, the *Horticultural Times* says:—"At present the fine-flavoured bananas are almost unknown in Europe; not because their excellence is unappreciated, but simply because the fruit is of necessity too long by the way to reach those countries in a marketable condition. So it comes that two lines of inventions having to do with banana culture are sorely needed in the West Indies, where with them the banana output would soon be doubled, and in time might easily be multiplied tenfold. These are a desiccating process and a flour of meal-making process. The former is at present most in demand, and wherever one travels in the banana-producing regions, from Demerara to British Honduras, from Colon to Samana Bay, the cry will be heard at every large plantation, "Oh! if someone would only invent and perfect a drying or preserving process that could be depended on." The man or men who can

put before the banana growers of the West Indies who send thousands of pounds worth of this fruit to England each year, any system which will do for the bananas what is now done for the fig, the grape, or the corinth, commonly known as "dried currants," or who can succeed in treating that fruit as well as peaches, apricots, and prunellas now are, will find himself the possessor of a wealth-producing invention. And the same may be safely predicted of any system which will succeed in putting into the meal or flour state a fair portion of the marvellous sustaining and nourishing powers which makes the banana the king among fruits. The improvements which this century has seen, that lead up from the rude mandioca meal of the Brazilian native to the beautiful pearl tapioca of commerce, have developed for the cassava, *Manihot utilissima*, a foreign consumption which now runs high into the millions of dollars annually. The same period has seen the crude black cacao of the Carribbees and northern South America develop into the chocolate, breakfast cocoa, and broma of today, and now the tree *Theobroma cacao* vies with coffee in yielding nourishment and producing wealth in many countries. So may it be with the banana, if inventive skill will but turn its attention in that direction.—*H. and C. Mail*, Jan. 1.

THE TAMBRACHERY ESTATES COMPANY.

The tenth annual meeting of the shareholders of the above company was held on Monday at the Cannon Street Hotel E. C., Mr. James Labouchere in the chair. The notice convening the meeting having been read.

The Chairman submited the report for adoption. The directors reported that the profit and loss account showed a loss on the season's working of £3,166 11s 10d and after deducting the amount brought forward from the previous year, £1,147 12s 4d the balance carried forward to the present year's account is £2,016 19s 6d. The expenditure of the season showed a considerable diminution on that of the previous year, and the abandonment of unprofitable land and the reduction of staff would enable the current season's outlay to be further reduced to about £5,000. The London expenses would also be considerably reduced. The directors regretted that their appeal for the subscription of debentures resulted in applications for £1,600 only, and as it was absolutely necessary to pay off the balance of loan, £1,750, secured by the Nelimunda Estate, now the most valuable estate of the company, they trusted shareholders would at once, in their own interest, come forward with further subscriptions, and thereby enable this estate to be included in the security for the debentures. To furnish also a little working capital, which is imperatively required, a further sum of £3,400 should be subscribed, and the directors would be glad to receive applications. The hopes of the directors, based at the time upon actual results, that the entire capital of company would by this time have been in course of rapid redemption by the proceeds of bark alone, had been utterly falsified by the excessive production of Ceylon and latterly Java, and there appeared to be little hope of improvement in prices until supplies showed a material falling off. This was generally expected to be the case in two or three years, and the directors were therefore anxious to keep up the planting of cinchonas, particularly Ledgerianas, as far as means would allow, in order to have a reserve in hand when needed. It was important to utilise some of the spare land of the company with a view to profit, most of it being suitable for tea. The success obtained in Ceylon and Travancore by planting old coffee estates with tea, offered every inducement to extend its cultivation in Wynaad, and the directors hoped early in the coming year to be in a position to place a definite scheme before the shareholders. The season in Southern India has again been one of abnormal weather. To this cause must be attributed some injury to the present crop of coffee by heavy rains in July and September. The first estimate of 70 tons would not be realised, and the directors could only hope for 60 to 65 tons, and about 135,000 lb. bark. The coffee had been sold for arrival at 94s. per cwt. landed terms, and at this price should more than cover the outlay of the year, leaving the bark available against the deficit brought forward.

The motion for adoption having been seconded by Mr. H. Tolputt, it was agreed to, and the proceedings terminated with the usual vote of thanks.—*H. and C. Mail*, Jan. 1.

USEFUL FOR HOUSEKEEPERS.

TABLE OF MEASURES.

Two pepper spoonfuls make one salt spoonful.
Two salt spoonfuls one coffee spoonful.
Three teaspoonfuls one tablespoonful.
Four tablespoonfuls one wine glass.
Two wine glassfuls one gill.
Two gills one cupful.
Two cupfuls one pint.
Twenty-five drops of liquid make one teaspoonful.
One tablespoonful of salt one ounce.
One tablespoonful (heaping) of brown or granulated sugar one ounce.
Two tablespoonfuls of powdered sugar one ounce.—*Florida Agriculturist.*

THE jarrah wood of Western Australia has lately been coming into great favour in Europe, principally for street paving purposes. Jarrah is a good wood as hard and durable as oak, and it will be found of use in other ways than for the laying of streets. It has a deep rich colour, something like mahogany or very old oak, and is very suited for carving and panelling. There is only one other wood at the Antipodes which is superior to it—the Fijian *vesi*, but this is comparatively scarce and hard to get at. It grows abundantly enough in the thick forests on the large island of Vanua Levu.—*Colonies and India*, Dec. 26th.

WINDING UP OF THE CEYLON TOBACCO COMPANY, (LTD.): "ENDING IN SMOKE"?—As a sombre contrast to the bright and cheerful reports of the various Ceylon tea companies published from time to time, the report of the [un] "happy despatch" of the tobacco company is startling. Personally we are no believer in tobacco culture: we object to fertile soil being rendered barren that men may puff smoke in their neighbours' faces and taint the pure air of heaven. We cannot affect grief, therefore, at the collapse of the attempt to grow the narcotic on a large scale. But really it was *not* grown on a large scale; its cultivation according to the figures being so small in proportion to tea and other products that the name of Tobacco Company seems inappropriate. Coconuts, Liberian coffee, tea and cacao preponderated; and with so much cultivation and so much valuable land, the mismanagement which has ended in the necessity of winding up must on the part of the Manager or the Directors or both have been lamentable and discreditable. The case is a disgrace to the colony and calculated to injure its interests. The blame therefore ought to be definitely fixed on some person or persons, and not left to be vaguely inferred. Mr. Borron's absurd theory, that Directors can be personally estimable and yet blameable for such discreditable consequences as have resulted from what ought (tobacco out of the question) to have been a successful enterprise, will not be accepted. Did Mr. Ingleton do justice to the interests entrusted to him? If not what surveillance did the Directors exercise? In view of the extraordinary report, people will be sure to ask such questions.

ELECTRICITY AS A POWER FOR CEYEON TEA FACTORIES.

More than six months ago we penned and put into types some interesting information we had received regarding a project for the employment of electricity on Mariawatte estate. At the special request of the gentleman from whom we had received the information we suppressed our notice, as the matter was and we believe still is only under consideration. As usually happens in such cases, the local "Times" gives to the world the information we were requested not to publish. Requests to abstain from publicity do not go for much with our contemporary. The truth is, that in planting circles the fact of the proprietors of Mariawatte contemplating the transmission of electric power generated by water at a distant portion of the property to the factory has been no secret. The expedient of removing the factory, where steam is now used, to the locality where water power is abundant was precluded, we believe, by the nature of the building, a large and ponderous iron structure. As the transmission of power was estimated to cost at least £1,000, we do not wonder at hesitation. It happens, also, that with reference to a property in which we are interested, the question of the transmission of power from the lower portion of the estate where water was abundant to the higher where for three months of the year water was scarce, became a practical and urgent one. The factory was built at the top of the estate when only a subsidiary tea cultivation was contemplated,—when most planters cherished the hope of the survival and revival of coffee. Transmission of power upwards by electricity and by belting, after consideration, abandoned as too expensive, and the factory is to be moved down to the spot where water power is abundant. The question is mainly one of comparative expense and efficiency: the factory in this case is not an iron one, and the lower position is the better in all respects. The time is at hand, however, we believe, when electricity will be so cheapened as to be largely available as a motive force and in the transmission of power.

THE CEYLON TOBACCO CO, LTD.

GENERAL MEETING.

Minutes of proceedings of an extraordinary general meeting of the shareholders of the Ceylon Tobacco Company, Limited, held on Saturday, the 28th day of November 1891, within the registered office of the Company, No. 42, King Street, Kandy, at 3 o'clock p.m., in the afternoon.

BUSINESS.

To consider the following resolution:—"That the Ceylon Tobacco Company Ld. be wound up voluntarily;" to appoint Liquidator or Liquidators; to decide on the remuneration to be paid to such Liquidator or Liquidators; and to appoint a person or persons to inspect the Liquidators' accounts. The shareholders present were: Mr. C. S. Armstrong, Chairman of the Board of Directors, who presided, Messrs. A. P. Crawley-Boevey, G. A. Talbot, D. Reid by his attorney G. A. Talbot, A. G. K. Borron, A. Van Starrex, J. Emerson, R. E. Waller, T. C. Huxley, D. Fairweather by his attorney J. R. Fairweather, Alexander Tait, A. C. Bonner, W. Megginson, T. N. Orchard, H. Drummond Deane, James R. Fairweather, Hugh Fraser, A. Philip (Secretary of the Company).

The following gentlemen held proxies for shareholders absent:—Mr. A. Fraser for Messrs. W. H. L. Murray-Menzies and Alexander Seton, Mr. C. S. Armstrong for Messrs. P. E. Radley, James Hill and William Forbes Laurie, Mr. A. Philip for Messrs. James Bisset, Henry James Vollar, George Wall, E. Dick, and Norman Wm. Grieve, Mr. H. H. D. Deane for Messrs. T. N. Christie, J. Mac Donald Murdoch and C. Minto Gwatkin, Mr. G. A. Talbot for Mr. H. K. Rutherford, Mr. J. H. Sproule for Mr. Frederick Dornhorst, Mr. A. G. K. Borron for Mr. Jas. H. Barber and Mr. J. W. Vanderstraaten, Mr. A. Tait for Mr. H. W. Ashby and Mr. G. D. Moir, and Mr. W. Megginson for Mr. S. L. Harries. The notice calling the meeting was read. The minutes of proceedings of the annual general meeting of the Shareholders held at Kandy, on the 17th day of April 1891, were read and were confirmed.

The CHAIRMAN, Mr. C. S. Armstrong, then spoke as follows in moving the first resolution, viz:—"That the Ceylon Tobacco Company, Limited, be wound-up voluntarily." The Company was originally initiated in Jan. 1889, by Messrs. H. Fraser and Rutherford. It will be remembered that it was arranged at a meeting of the promoters of the Company held on the 19th January 1889, operations should be begun on Bandarapolla estate at once under Mr. Fraser's management. Shortly after Mr. Fraser's departure to England the land at Bandarapolla was visited by Mr. Vollar and pronounced to be unsuitable for tobacco and the nurseries a failure. Your directors consider it is unnecessary here to recapitulate the steps that led to the final abandonment of the operations on Bandarapolla clearing, but would refer you to the statement of facts by both parties dated 22nd November 1890, and the agreement on behalf of the Company also the award by the arbitrators dated May 1891, together with the account resulting in an unforeseen loss of about R3,000. In the meantime the Company had arranged with Mr. Holloway to purchase lands in the vicinity of Ukuwelle, Wattegama and Katugastota with the following results:

	A.	R.	P.
The Ratwatte estate ..	314	3	10
Lands between Katugastota and Wattegama and adjacent to Mr. Vollars Mugama estate viz. Polgolla ..	57	3	09
Narangdande ..	31	2	24
Goonapana ..	23	2	26
Moolgama ..	8	0	20
	121	0	39
Land at Harrispattu near the road to Galegedera known as Oolanapitia	43	1	31
also two small blocks known as Kengalle	4	3	27
and Bocalawelle ..	2	1	30
	7	1	17
Lands at Dorakumbura now comprised in the Matale estate. ...	128	3	09

There is land purchasable and already negotiated for in the neighbourhood of each of these lots which would bring any of them up to a workable acreage and the further purchases of lands in the neighbourhood was stoped when the amalgation of Mr. Fritz Meyer's interest with this Company was arranged for. The cost of these lands to the Company is R28,276·57. The lands were inspected by your directors and approved, and they consider them most admirably adapted for cultivation of either cacao, tea or Liberian coffee.

On the 13th January 1890 your directors favorably entertained a proposal from Mr. Fritz Meyer by his representative in Ceylon Mr. Schappe to acquire his several properties at a cost of R50,275·36 of which R47,600 were taken up in shares in the Company, the lands were as follows:—

	A.	R.	P.
Meegama adjoining Mr. Vollar's Meegama ...	88	0	0
Katugastota lands ...	123	3	11
Davie's Ferry ...	93	0	0
Lewelle ...	57	0	0
Ukuwelle ...	74	2	36
	409	2	07

Dorakumbura (Matale estate) which with the 28a. 3r. 09 purchased by Mr. Holloway comprised the Matale estate Kurunegala lands.	144	3	31
Arampolla Estate... ...	505	0	0
Forest Black	168	0	0
Dugama Forest	71	0	0
	747	0	0

It will be seen from the above the acreage now owned by the company is A1,917·0·24 costing R78,551·93 besides which R3,819·35 stands at the debit of Mr. Holloway for lands advanced against for purchase. Your lands under cultivation are as follows:—

Matale Estate.—Tea	40
Cocoa	167
Liberian among cocoa... ...	20
Tobacco ,, ,, ...	37
Ratwatte Estate.—Tea	100
Ready for planting	20
Arampolla Estate.—Coconuts ...	263
Coconuts to be planted by November	20
Liberian coffee among coconuts...	175
Cleared	65

And I lay before you the Manager's report up to the 26th inst. Your Directors consider you at this date hold most valuable property and lands. The estate expenditure on the three properties Matale, Ratwatte and Arampolla amounts to R98,111·88 up to the 31st October current, of this R51,086·98 were expended this year.

Your Chairman and the Directors who were elected by you at the general meeting of the 17th April 1891 visited the estates and all other lands in May and June, they found the new cleared lands and the cultivated portions in a much neglected condition they at once communicated with the absent Directors in England and the then Manager Mr. J. K. Ingleton. Meanwhile it is manifestly advisable that the estates on which so much money had already been expended should be properly planted up large nurseries for the various products being then existent. Your Directors having every reason to hope for a large accession of funds by the sale of the tobacco crops a portion of which was to have been sent to Messrs. Gibbs, Bright & Co. at Melbourne who wrote on the 27th January 1891 as follows:—

"The 16 bales intended for the Melbourne market was sent to Colombo in July but no freight could be found for them, the shipping agents declining to take tobacco considering that it would taint the Ceylon tea shipped by them."

Every effort has been made to dispose of the tobacco crop with but little success, only 2,036 lb having been sold at this date. The crop for 1890 is 43,932 lb., that harvested for 1891 is estimated at 10,000 lb. with the sucker crop to follow or say about 6 or 7 tons in all.

On the 2nd of September your Chairman addressed the absent Directors through Mr. Christie putting before them what they considered the exact position of things with a view of endeavouring to finance the company at Home. At the Board meeting held on the 28th October it was found that the amount of unpaid calls overdue were but little altered for the better, this coupled with the uncertainty as to when the tobacco crop might be realized, and a definite reply showing the improbability of being able to finance this company at Home having been received determined the Directors in your interest in at once arranging for the extraordinary General meeting of today to consider the formal resolutions which are to be put before you and we still consider the course we advise to be the best in the interest of the company.

The expenditure as from the 1st December need be but small as the only work necessary will be the weeding of the clearings and the salary of the manager Mr. Kingsford who we considered advisable to retain till the end of December, having dispensed with the services of the two assistants on the 1st December. The amount available in the Bank at November is R6,413, and the funds necessary to carry on to the end of December would be about R6,000, should the estate be carried on for 1892 under Mr. Kingsford's careful supervision with *two* conductors to assist him. The estimated cost of upkeep is R25,000 and for 1893 of R20,000, and say contingencies R10,000, when 160 ares of tea would be in partial bearing. But though this amount would be sufficient for the carrying on of the existing cultivation, to make Ratwatte Estate a self supporting estate a further sum should be allowed for opening and bringing another 100 acres of tea into bearing. At first sight it would seem there should be no difficulty in raising the loan necessary for this purpose, but bearing in mind the long period before crops can be secured that will pay a dividend it will be understood that it is next to impossible to effect this Your directors having carefully considered the questions from all points think that voluntary winding up by a Liquidator assisted by a consulting Board to help him in disposing of the company's lands would be the best course in the interest of the shareholders who will in that case probably get a considerable return of their money.

The CHAIRMAN then moved:—"That the Ceylon Tobacco Company, Limited, be wound up voluntarily."

Mr. G. A. TALBOT seconded the resolution proposed by the Chairman remarking that the owners of Sumatra estates are ruined and that Ceylon was not peculiar in failure to grow tobacco remuneratively. The shareholders must therefore suffer; other products had unfortunately failed too and he was disposed to blame the directors and managers as in his opinion the property had not been properly managed. He supported the resolution to "wind up." It was possible that there was sufficient money to carry on for another year. There was a better chance by adopting the resolution and have the properties put on the market; further the resolution is the decision of the Board.

Mr. A. G. K. BORRON criticised the management of the Company and as a shareholder he was indignant. The Directors individually were entitled to respect but he considered the directors in this matter ignorant, imprudent and that he would rather pay 60 per cent into the sea. Sharebrokers in Colombo stated that the shares were not worth a cent. Mr. Borron proposed the following amendment:—"That a Committee of investigation be appointed to examine the books, papers, &c., of the Company, to visit and report on the properties of the Company, and generally consider the position and prospects of the Company and to advice the Company as to the best course at an early general meeting of the Company."

Mr. A. TAIT seconded the amendment.

Mr. HUGH FRASER spoke in explanation of his relations to the Company alluded to by the Chairman.

Mr. T. C. HUXLEY supported the resolution.

Mr. H. D. DEANE defended the absent directors. The directors had taken a great deal of trouble and had conscientiously carried out their duties.

Mr. W. MEGGINSON asked for some figures as to the defaulting shareholders. The Chairman accordingly gave particulars of the defaulting shareholders.

Mr. J. R. FAIRWEATHER as one of the defaulting shareholders stated that the sole reason for non-payment of calls was simply on account of the gross mismanagement of the Company; he spoke on behalf of his brother and himself. On the amendment and resolution being put to the meeting the resolution was declared carried. A poll having been demanded, Messrs. G. A. Talbot and A. G. K. Borron were then appointed tellers for the amendment and resolution respectively with the following result:—

For the amendment .. 7 votes.
For the resolution .. 134 ,,

Resolutions I and II were proposed by Mr. G. A. TALBOT, seconded by Mr. A. P. CRAWLEY-BOEVEY and unanimously carried as follows:—"That Mr. A. Philip be appointed Liquidator," and "That the Liquidator be paid a commission of 5 per cent on all monies recovered by him as Liquidator for the credit of the Company and be entitled to charge against the assets of the Company all expenses, costs and charges of the winding up."

Resolution III was proposed by Mr. T. C. HUXLEY seconded by Mr. T. N. ORCHARD and unanimously carried as follows:—"That Messrs. Armstrong, Deane, Huxley, J. R. Fairweather and A. C. Kingsford be requested to assist the Liquidator in disposing of the

effects of the Company." Before the above Resolution was put to the meeting Messrs. Deane and Armstrong declined to serve unless they were unanimously elected.

Resolution IV. was proposed by Mr. G. A. TALBOT, seconded by Mr. A. P. CRAWLEY-BOEVEY. :—"That Mr. J. Guthrie be appointed to inspect the Liquidator's accounts."

The meeting of the shareholders then dispersed.

Confirmed at Kandy this 15th day of January 1892.

(Signed) C. SPEARMAN ARMSTRONG,
Chairman.

Minutes of proceedings of an extraordinary general meeting of the shareholders of the Ceylon Tobacco Company Limited "held within the registered office No. 42 King Street, Kandy, on Friday, the 15th day of January 1892, at 3 o'clock in the afternoon.

BUSINESS.

To confirm the following special resolution passed at the extraordinary meeting held on November 28th last at the Company's registered office viz :—"That the Ceylon Tobacco Company Limited, be wound up voluntarily." The shareholders present were Mr. C. S. Armstrong, Chairman of the Board of Directors), who presided Messrs. T. C. Huxley, R. li E. Walker, H. D. Deane, J. R. Fairweather, A Phihep (Secretary of the Company).

The notice calling the meeting was read.

The minutes of proceedings of the Extraordinary general meeting of shareholders held on Saturday the 28th day of November 1891 were read and were confirmed. Read letters from Messrs. Volkart Brothers.

The following gentlemen held proxies for shareholders absent:—Mr. A. Philip, for Messrs. H. J. Vollar, F. G. Bewes, J. T. Emerson, Alexander Tait, George Wall, James Bisset, Mrs. Edith Dick, Messrs. A. P. Crawley-Boevey, W. Megginson, E. H. Hutchinson, J. M. Murdoch, Hugh Fraser, Mrs. A. P. Boustead, Messrs. Thomas North Christie, David Reid, H. K. Rutherford, T. N. Orchard, T. C. Owen, Norman W. Grieve, W. Mills and S. L. Harries; Mr. C. S. Armstrong for Mr. P. E. Radley; Mr. H. D. Deane for Mr. C. Minto Gwatkin.

Resolution proposed by Mr. C. S. Armstrong, seconded by Mr. T. C. Huxley, and unanimously carried: "That the following special resolution passed at the extraordinary general meeting held on Nov. 28th last at the Company's Registered Office, viz.: That the Ceylon Tobacco Company Limited be wound up voluntarily be and the same is hereby confirmed,

The meeting thereafter dispersed."

A. PHILIP, Secretary.

A MERCARA correspondent writes to a contemporary:—"Coffee selling at R14·8 a bushel, delivered on the estate! No wonder we are all in such high spirits. Such crops and such prices have not been experienced for years! A happy New Year indeed!"—*Madras Mail.*

COFFEE AND TEA IN JAVA.—The estimate of the Government's coffee crop on Java is, according to a telegram, 385,194 piculs. The latest reports regarding the weather in Java are favourable for the coffee cultivation. The outturn of the crop will be generally equal to the preceding one, and especially in Malay, the crop will be large. Other produce, such as sugar, tobacco, indigo, and tea, which require plenty of rain, have suffered much from the excessive drought, which has prevailed in Java.—*L. and C. Epress*, Jan. 1st.

THE SUPERB UNCERTAINTY OF THINGS in regard to the Australian pastoral and agricultural industries is being remarkably illustrated just now. A few months ago Queensland was in the darkest depths of depression. Drought, as usual, was the primal cause. Heavy and universal rains however, arrived just in the nick of time, and now the wool clip and the wheat harvest have been enormous. The increase in live stock has been proportionate. In 1886 the returns were 9,690,000 sheep and 4,071,000 cattle. The estimate for the present year is 21,600,000 sheep and 6,250,000 cattle. Such is the difference in countries subject to severe and protracted droughts of a few inches of rain at the right time.—*Pall Mall Gazette.*

COCOA AND ITS COMBINATIONS.—At the Woolwich Police-court, on December 23, Robert. Purvis, grocer, was summoned by the Woolwich Local Board of Health for selling cocoa injuriously adulterated with 56 per cent. of foreign matter. The analyst's certificate showed that the sample contained 44 per cent. of cocoa, 40 per cent. of starch, and 16 per cent. of sugar. The inspector by whom the article was purchased said he paid 1s. a pound, and that he brought some for his own consumption, and found it palatable. It was labelled "Rock Cocoa." Mr. Hughes, M.P., who represented the Board, argued that if this was sold as a mixture it ought to have been so labelled. It might be called "cocoa-starch." Mr. Forbes said that cocoa in its natural state contained 53 per cent. of vegetable fat, and this must either be removed or neutralised by the admixture of sugar or some such starch as arrow-root or sago, in order that it might easily be converted into a beverage and rendered fit for consumption. He produced a book written by Dr. Bell, public analyst at Somerset House, in which it was stated that cocoa so prepared would not be considered as adulterated so long as it was not described as pure cocoa. Dr. Bell set down 36·70 per cent. cocoa to be a fair proportion to the other ingredients. This rock cocoa which contained 44 per cent. cocoa, he contended, came under the exception allowed in the Act of Parliament to articles of commerce containing nothing injurious and nothing added for the purpose of fraudulently increasing its bulk. Mr. Kennedy, in giving judgment, said he thought that cocoa came under the exception in the Act, and dismissed the summons. —*Chemist and Druggist.*

NUTMEG-GROWING IN THE WEST INDIES.—A good deal of attention is being paid to the propogation of nutmegs in Jamaica. Large quantities of seed-nutmegs have recently been imported there from some of the best Grenada estates. One would-be cultivator has already ordered 10,000 young plants from the Government gardens, and another 5,000. The trees usually yield their first crop when nine years old, and continue to bear for seventy or eighty years. The crop depends largely upon the amount of care bestowed upon the tree, the average in the W. Indies being 10 lb. of nutmegs and 1 lb. of mace every year, but from well-manured trees ten times that quantity has been obtained. A Grenada planter writes as follows to the manager of the Jamaica horticultural gardens:—The mode adopted here for preparing nutmegs for the London market is very simple. The nutmegs are picked up from under the trees daily and brought into the boucan, where the mace is peeled off and flat between heavy blocks of wood, where it is left for two or three days, then put into a case and left till it reaches the proper colour. The nutmegs are put into receptacles (with fine-wire mesh bottoms so that the air can pass) inside the boucan, and left there for three weeks or a month until the nut begins to shake inside the shell. They are then shown the sun for a couple of hours a day for two or three days. After this they are cracked. Great care is necessary here, for if the outside shell is struck too hard it makes a black spot in the nutmeg which affects the value considerably. When cracked, the nuts are sorted according to size, put into ordinary flour-barrels and shipped. By last mail the average of my prices was about 2s 6½d a lb. In the shipment was included a case of pure rubbish—small shrivelled, worm-eate nuts fetching about 1s a lb.—*Chemist and Druggist*, Jan. 2nd.

MR. JOHN HUGHES ON "THE AGRICULTURAL VALUE OF SHODDY."

When we first heard that a manure manfactured from old rags was to be applied on the well-known Mariawatte estate, we were under the impression that the use of such a manure as a fertilizer had been at that date comparatively, if not entirely, unknown to English agriculturists. Mr. Hughes had, as we were then told, noticed the effect of the application of old rags to the olive trees of Southern Italy; and we had conceived that it was upon his attention being directed to the beneficial results of such manuring that he had entertained the idea of making essay with a manure of a similar nature to the tea estates of this island. We were subsequently informed, through a conversation had by our London correspondent, with Mr. Hughes, that a fertilizer of the character referred to was manufactured and used at home, but we had no idea that it had received such extended and lengthy application as we now learn from Mr. Hughes' letter to the *Field* it has had. This application appears to have commenced some twenty years back; and it is singular that, if it be possessed of the merit claimed for it by the Consulting Chemist to our Planters' Association, it has not long before this been tried in Ceylon. So far as we have learned, the results to the manure which has been applied on the Mariawatte estate have not yet been sufficiently developed for an opinion to be given as to the value it may possess for our leading local industry. Mr. Hughes has, however, explained that one of the most valuable characteristics of the manure is the slowness with which it yields up its constituents, and he has expressed the belief that in the course of time its relative value as compared with the other fertilsers our tea planters are in the habit of using will become manifest. If his opinion to this effect may be relied upon—and we know no expert in such matters upon whose views we should be inclined to place more reliance—the letter he has written upon the subject will be of great interest and value. Mr. Hughes applies the term "shoddy"—one of American origin, we believe,—to all kinds of woolen waste generally. This waste may be said to include the cuttings of the tailoring trade, old rags used by mechanics, and a countless number of other varieties produced in different trades. The ingredients of such waste which appear, according to Mr. Hughes' letter, to be possessed of chief value as fertilisers are nitrogen and ammonia. Upon the quantity of these constituents in the manure depends its economic and financial value, and we see that samples which contain 8·85 per cent of ammonia are valued at £3 6s 4d per ton, the quantities and value decreasing through a series of twelve samples until the lowest stage is reached in which there was present but 3·13 per cent of ammonia with a decreased value of £1 3s 5d per ton only. These figures show how imperative it must be, before reliance can be placed upon the manure purchased, that it should be subjected to close analysis and valuation by an expert. Mr. Hughes writes that it is owing to the variableness of the quality of this shoddy manure that its use in Kent, where its has been applied for many years past to the hop vines, has of late considerably fallen off. He refers in his letter under notice to the experiment made on Mariawatte, writing as to this:—"Quite recently, in Ceylon, shoddy (manufactured into a fine powder by treatment with sulphuric acid) has been tried as a manure for the tea plantations; and for these, bearing in mind its richness in organic nitrogen—it promises to prove an excellent fertilizer, if only it be properly applied and of good quality." We recollect that with reference to the sample applied on Mariawatte Mr. Hughes stated some time back to our London correspondent that unfortunately its shipment had been made without opportunity having been afforded for his making analysis to satisfy himself as to this item of quality upon which he places so much stress. It is possible, therefore, that the at all events deferred success on that estate may have been due to some inferiority in manufacture; and as two swallows do not make a summer we should be disinclined to accept an incomplete result to the sole trial it has received by our planters to denote that it has failed as a valuable fertilizer for tea. We are quite sure that Mr. Hughes would not accept such a conclusion; and from all he has written on the subject it would seem to be certain that this shoddy manure might well receive a further trial on our tea estates, care being taken that the supply to be ordered should be subject to the result of analysis of samples taken after the stuff has been placed on board ship. We should much like to hear from the proprietors of Mariawatte what opinion they have now formed as to the result of the trial given by them to this manure. We have such confidence in Mr. Hughes' judgment, that we feel sure he would not have written so strongly as he has done in its favour unless he felt himself to be fully justified in doing so.

PLANTING IN NETHERLANDS INDIA.

(From the *Straits Times*, Jan. 13th)

In Java, there is hitherto no Labour Ordinance to regulate the relations between planters and coolies though there are enactments of the kind in the outlying possessions. The Home Government thinks that such laws are only required in those parts of Netherlands India, where planters depend on imported labour. As planters in Java do not carry on business with labourers from foreign lands, there is, so it is held, no need to regulate by law the relations between them and their coolies. Java planters find this hard as sometimes labourers recruited from distant parts of the island desert, and the only remedy against the evil is an action at law for the recovery of advances that happen to be made to them at the time of desertion. Of late years, planters in the thinly peopled districts of Java find another hindrance in their way arising out of difficulties in drawing labourers from populous tracts there, as they have to contend against foreign competition in the Java labour market. There are enactments going against the recruitment of Javanese for estate labour beyond the Dutch Indies, but applications for exemption from this prohibition generally meet with a favourable answer from Government. In this way large numbers of Javanese have latterly been recruited for labour in German New Guinea, the Malay Peninsula, the Straits Settlements, Australia, and Dutch Guiana. In 1890, the Government was petitioned by the planting interest in Java to pass a Labour Ordinance there and also to forbid the engagement of coolies in Java for labour abroad, so long as their services are required in the Netherlands Indies, but the Government replied in the negative. The planters have not given it up yet and keep bringing the subject before the public. To strengthen their position, they dwell upon the alleged fact that in British North Borneo there are thousands of Javanese who have never got permission to emigrate, and that these coolies die there in hundreds. On behalf of the planters, it is also alleged that while, so much work is made to counteract slavery in Africa, a regular, though an underhand coolie slave market exists at Singapore. The latter assertion has been made on behalf of the Planters' Association at Sukabumie, which evidentlly seeks to lay particular stress on restricting coolie emgration from Java.

(From the *Straits Times*, Jan. 19th.)

Drought and scarcity prevailed so badly in some parts of Java latterly, that, in the province of Japara, the people have been driven to eat their seed paddy, so that when the time came for sowing there were no seedlings. The resident at once supplied the distressed cultivators with paddy in hundreds of piculs. Had they borrowed money for the purpose from usurers, they would have to pay about one thousand per cent in kind for the loan. In other provinces the scarcity of rice and the resulting high prices have compelled the people to have recourse to inferior articles of food. The distress is such that robbery and theft are said to be getting common in that quarter.

The drought has also resulted in great dearth of coffee seedlings on many estates in Java. Large quantities of the available stocks perished owing to the dryness of the season, during which several rivers ceased to run for months. This has proved very hard upon the planters as in consequence of expected high prices, they had cleared large areas for coffee growing. Hence a heavy demand has risen for seedlings, with small supply, and rates have risen from 1½ to 5 guilder cents apiece.

The coffee crop on the west coast of Sumatra, last year, is estimated at about 49,000 piculs.

A Government medical officer has made the discovery that at Cheribon there are six tea factories. This industry seeks to manipulate Java tea to pass for China tea.

THE MILDURA IRRIGATION COLONY.

MILDURA, Jan. 4.—The older orchards, although the trees are still babies, the majority of them being only two years old, have had a most bountiful harvest of early fruits. Apricots have been marvellously prolific, the better kinds being Morpark and Oullians, the early varieties. The local demand is particularly brisk, many growers disposing of the whole crop to the retail fruiterers. Chaffey Brothers' experts are busily engaged drying apricots, the fumigating and sulphuring process being employed. The flavour is pronounced to be delicious by competent judges, and equal to that of the Californian products. The vine harvest will be very extensive, most of the vineyards planted two years ago being of marvellous growth. Some wine will be made, but the greater part of the produce will be converted into raisins and sultanas. The more forward of the apricot-trees averaged from 50 lb. to 70 lb. of fruit per tree. Many visitors came during the holidays, and all were deeply impressed with the progress and development of the settlement, Several invested in blocks. An influx of English investors is expected within the next few months. Table grapes are already ripe.

NOTES FROM OUR LONDON LETTER.

LONDON, Jan. 8th.

Last Wednesday saw a goodly gathering assembled at Winchester House to listen to matters having important connexion with Ceylon. The occasion was an extraordinary general meeting of the shareholders of the Ceylon Tea Plantations Company, summoned partly to consider the proposals made by its directors that extra capital should be raised for the purpose of enabling the Company to commence coffee planting in Perak. A former recent letter of mine gave you full details with respect to these proposals.

The meeting was well attended, and the chair was taken by Mr. David Reid. Before the question of undertaking an enterprise in Perak came up, the business of considering resolutions to authorize the directors to purchase certain estates in Ceylon was dealt with. The Chairman stated that the Board desired to obtain tea estates at high altitudes, and the estates it was proposed to buy fulfilled that condition. Although they had paid £18,000 for the Yoxford estate, which included the highest price they had yet given per acre for tea-planted land, it would, the directors believed, easily return 15 per cent on its purchase money. Begelly was a small estate which its owner had found too small to work profitably, and as it adjoined Tangakelle, they had bought it cheaply for £1,080. As he was personally interested in the Glenlyon and Stair estates, the Chairman said he would ask his fellow-director, Mr. Rutherford, to speak about them, and he would conclude by moving the resolutions. Mr. Rutherford, when seconding these, said that the possession of Glenlyon and Stair would complete the chain of connection between all the Company's Dimbula estates; so that in the event of a factory being burnt down, or a breakdown of machinery, or a pressure of work in any particular factory, relief might at once be given. Mr. Reid was one of the Company's best customers, and if they purchased these estates from him, they would retain the manufacture of the tea from Mr. Reid's other estates. They had had two most competent and independent valuations made of the properties—one of these being by Mr. William Mackenzie, one of the oldest planters in Ceylon. Mr. Reid asked £17,000 in cash and 250 fully paid-up ordinary shares in the Company, and he agreed to plant up with tea all unplanted land at his own expense. Mr. Mackenzie's valuation was £21,290. After these explanations the purchases were unanimously approved by the meeting.

The question of entering upon coffee planting in the Straits Settlements was then taken up by the Chairman. He said the directors believed there was money to be made out of it. They had brought forward no cut-and-dried proposition, but they thought it desirable to recommend the enterprise to their shareholders. The directors had in no way, he assured them, committed themselves to the scheme. The soil and climate of the Straits were well-suited to coffee growing, and this had been proved to an extent that would remove their venture, if made, from being a pioneer one. He admitted there were difficulties in connexion with labour, supervision, and unhealthiness of climate at the time of felling the forest; but all these, he thought, might be successfully overcome, and they had a large labour force in Ceylon and men in touch with the districts on the coast of India from which that supply was drawn. At the worst, supposing the scheme did not answer full expectation, they would but have some £6,000 badly invested, for two years would suffice to make all the needful results apparent. He had himself have interested in coffee planting in Perak for three years, and from his own experience he would recommend his fellow-share holders to enter upon the venture. The last issue of preference stock made—£40,000—had been placed at 15 per cent premium, so they had £6,000 to start with.

A very full discussion followed, details of which cannot be sent you by this mail. Very divergent opinions were expressed, but the major balance of these inclined to the view that the enterprise was too speculative to be wisely undertaken, and the evident sense of the shareholders was opposed to the directors' proposals. The Chairman then said that, as it was evident his audience was not by any means unanimous as to supporting the scheme, it certainly should not be pressed; but he might confidently contradict the view expressed that it would be of a speculative character. He might say that there was every prospect of their next report fulfilling all the expectations held out by the prospectus circular of last June in

regard to the issues of preference shares, and that too in spite of the very low range of tea prices. Their estates were all doing well, and the young tea was coming on in a way that gave good promise for the future.

Your present staple has been the subject of several important articles in the newspapers this week. The leading one among these appeared in the *Daily Telegraph* of Wednesday last, and of this I enclose you a copy. I can only spare a brief space in this letter to touch upon some of its more important points. The article referred to, which occupies a column and a half, is headed "Indian and China teas: what Mincing Lane thinks—by a City man." It reviews the relative course of trade with regard to Chinese and Indian and Ceylon teas during the last few years, and brings into prominence the supplanting of the first by the two second varieties during the past two years. It says with reference to your own growth that "about 50 per cent more Ceylon tea was used in Great Britain in 1891 than in the year previous," and further states that, while the consumption of Ceylon increased in this large proportion, that of Indian tea was 3 million pounds less in 1891 than in 1890. The article also mentions that "the abnormally wet weather which prevailed in Ceylon during the first quarter of the year occasioned so rapid a growth of the leaf that production fairly outran the most sanguine estimate, and in consequence London became somewhat flooded with unexpected supplies, and a gradual shrinkage in values was the result."

Sir Andrew Clark's late statements then receive notice, and it is pointed out that that distinguished physician made no mention of Ceylon tea. It is further remarked that "speaking generally, Ceylon tea contains far more strength than Indian." As the result of an interview with a representative of the China trade, the rapid displacement of that growth is admitted. Reference is made under this head to Dr. Hale White's report on an analysis of Assam, finest China and common congou teas, but it appears that an infusion of fifteen minutes was allowed before that analysis was commenced. This report of Dr. White's was, I hear, made some years back, and the China tea which yielded so small a proportion as 7·97 per cent. of tannin was, it has further been mentioned to me, a sample which sold for five shillings the pound This, of course, was quite an exceptional tea, and far beyond the means of the ordinary run of consumers. No fair data could therefore be drawn from its analysis. There is no doubt that the general effect of this article will be good for your Ceylon industry.

A second article was published in the *Gardening World* of January 2nd, and was headed "Something about Tea." It reviewed a recent lecture delivered by Mr. Basil Holmes. This lecture dealt principally with the course of cultivation in Assam, and did not embrace any allusion to the statistical position of the several varieties. The *Chemical Trade Journal* of the same date of issue as the above gave a record by Mr. Joseph F. Geisler of the analysis of a pekoe Ceylon tea. It gives the following result to the analysis of the leaf itself:—

Moisture (loss by drying at 100° C.) ..	.. 6·20 per cent.
Soluble Ash	.. 3·77 ,,
Insoluble Ash ..	.. 1·53 ,,
Total Ash	.. 5·30 ,,
Theine	.. 5·24 ,,
Total Tannin	..22·79 ,,
Total extractive matter	..43·40 ,,
Insoluble leaf.. ..	..50·40 ,,

The specimen appears to have been of a high-class. A trial was then made of an infusion of it, ten minutes being allowed for this infusion. As the rule, however, few people allow more than five minutes for infusion of Ceylon tea, and we consider that with such a limitation very little of the high proportion of tannin shown by the analysis would be extracted. The second analysis yielded the following results:—

Theine	.. 2·44 per cent.
Tannin	..17·19 ,,
Total extractive matter	..33·25 ,,
Ash (total)	.. 3·44 ,,
Phosphoric Acid (P_2O_5) in ash	6·18 ,,

The infusion is stated to have been of a golden yellow colour and as having "a very agreeable aroma and pleasant taste." It is stated that this ten minutes of infusion took up 96·6 per cent of the total theine, 75·3 per cent of the total tannin, and 91 per cent of the soluble ash. The article was extracted from the Journal of the American Chemical Society.

With reference to the three articles above referred to, it may be useful to tell you what passed in a conversation lately had by myself with a man largely engaged in the China trade. In effect he remarked:—Admitting all you say as to the degree in which Ceylon and Indian teas are supplanting those of China, I can only say that we do not fear the continuation of the present competition by Ceylon teas. Your soil is not suited to permanent production of this, any more than it proved to be for coffee. Some years back certain Ceylon estates were noted for some specially high class teas. One never hears of such teas now on the market; nor of the high prices which were formerly obtained for such. This proves a gradual decadence in quality which in time will show itself universally." On my mentioning these remarks to a gentleman of planting experience in Ceylon, he observed:—"In one sense only was your friends right. We do *not* hear of any teas of exceptional quality from certain Ceylon estates as we used to do. But why is this the case? Firstly, because the quality of the whole export from Ceylon has, as the rule, been levelling up; and secondly, because the production of small breaks of exceptional quality did not prove to be a paying investment. If your friend had been acquainted with these two facts, he would not have inferred a deterioration due to unstable conditions of soil."

We hear that your Mr. John Ferguson has been actively endeavouring to stir up Sir William Gregory and Sir Arthur Birch to take steps to publicly refute the statements recently made by Sir Andrew Clark with reference to the superiority of China over other varieties of tea. We have not heard if he has been able to induce either of those ex-officials to take up the cudgels, but the general view is, we think, that as Sir Andrew did not specifically name Ceylon tea, it would scarcely be a sufficient object for either of the gentlemen mentioned to undertake the work necessary for the purpose of publicly refuting his uncalled-for assertions.

CEYLON TEA IN EGYPT.—The *Egyptian Gazette* of 15th Jan. says:—

Messrs. Edgar Kirby & Co. have requested us to insert in our columns, for the information of their numerous clients, that they have just received from Ceylon a fresh supply of Pekoe Sonchong as well as a trial shipment of "Orange Pekoe." Both these teas mixed together in equal proportions, will give a strong rich and delicious flavour.

JAVA TEA BEING PREPARED AND PASSED OFF AS CHINA IN BATAVIA.

Visitors to Java even more than in the case of Penang and Singapore must be struck by the preponderance of the Chinese element in the population of Batavia. To meet the tastes of this population, "an ingenious device" has been adopted by some Java Chinamen, for a brief description of which we are indebted to a correspondent, who writes:—

In the last number of the "Teysmania" which you were kind enough to send me there appears an interesting article headed "Thee-vervalsching op groote schaal te Cheribon" (Tea adulteration on a large scale at Cheribon). It is not what would be generally called "adulteration" in the ordinary sense of the term, but the preparation of inferior kinds of Java tea, by scenting it with flowers and putting it up in packages with labels in the Chinese characters setting forth that it is made in China. It is sold to the large Chinese population in Java and to the Javanese as China tea, of superior quality. As there is an import duty of 10c. (of a guilder) on China tea, this acts as a protecting duty to those engaged in the trade. The writer of the article gives a full account of the mode of preparation. If you think that a translation of the article would be suitable to the *T. A.* or any of your publications, I shall be glad to translate it, and to send you the translation. As this business must cause a certain loss of revenue it is probable that the public prosecutor will come down on the industrious, ingenious and unscrupulous Chinaman.

We shall be glad to have the translation.

THE CEYEON TEA PLANTATIONS COMPANY AND PERAK.

We could not say with truth that we regret the decision come to at the meeting of the above-named Company to abandon the idea of undertaking coffee planting in Perak. It is not that we should not wish well to any enterprise of the kind if it were undertaken by a Company that was wholly independent of planting or other pursuits in Ceylon; for it is unfortunately now the case that we have no such prospect before us of the resuscitation of coffee planting in this island that we need feel any jealousy of efforts being made to grow our former staple in any other country. But we have in former times given our reasons for deprecating the association of the name of Ceylon with enterprises conducted without its boundaries. Most of our readers will recollect that when the affairs of the Ceylon Company first became involved that Company was for years buoyed up by the large profits it was making out of its investments in this colony. All the time these profits were being made here, things were going from bad to worse in Mauritius, where the Company had had to take over a number of sugar estates on which the then Oriental Bank had made large and dangerous advances. Year after year these estates were worked at a dead loss, but the actual position of the Company's affairs was concealed by the announcement it was still able to make of substantial dividends, the entire, and more than the entire, of which had been earned in connexion with Ceylon. When the final crash came consequent upon the ill-advised stoppage of the Oriental Bank—a stoppage which we all now know to have been unnecessary and timorous—it was natural for the home public, unacquainted as it was with the full and peculiar circumstances of the case, to lay the whole onus of the failure at the door of unfortunate Ceylon. It is needless to say how seriously this misconception affected the credit of this colony at a time when the maintenance of that credit was of the most particular importance to us; and had the directors of the Ceylon Plantations Company obtained the warrant of their shareholders to graft upon their parent stem an enterprise in a comparatively untried region for coffee planting such as is Perak, we should have been in constant dread lest a recurrence of similarly damaged credit might have to be faced. It is for this reason that, as we have said, we can feel no regret that the shareholders of the Ceylon Plantations Company have vetoed the proposal submitted to them by their Board of Direction. We suspect that most of these shareholders either have, or have had, some connection with Ceylon, and in that case we have little doubt that they retain in their minds a painful recollection of the result to what we may term a foreign association with the name of this island which we have above quoted, and it is certain that their decision to refuse compliance with their directors' recommendation would have been largely influenced by such a recollection. Nor, when we come to consider other points in the matter submitted to the meeting, can we feel surprised at the disfavour with which it was viewed. The generally expressed opinion seems to have been that the suggested enterprise was of a speculative character. It was all very well for the Chairman to deny this; but all unprejudiced men will, we think, agree that the commencement of a new, or nearly new, industry in a comparatively untried country must necessarily partake of a speculative character. Into such an undertaking it was only natural that a body of shareholders secured by present investment in a known and well-tried industry should object, for this alone, if for no other reason, to see the character of their existing undertaking altogether changed. The Directors, when sending out the circular in which their proposals as to Perak were first mooted, mentioned as one of the chief inducements that they could hold out that, being already the employers of some six thousand coolies in Ceylon, they would be in a position superior to the difficulties at present attendant on the labour supply of Perak. But it must be assumed that, if the Company possesses this amount of labour, the whole of it is needed for the cultivation of its Ceylon estates. In that case it could not afford to transfer any portion of it to Perak, nor could the coolies be sent to that country without fresh and special agreements being entered into with them, and it would be at least questionable if any large proportion of them would care to have their services transferred to a new and, to them, an unknown country But quite apart from all reasons which may have actuated the shareholders towards their refusal of their Directors' propositions, there stands out prominently the one fact that, by that refusal, this Colony is saved from the chances of once again being made the stalking horse for a speculative and possibly losing investment.

EFFECT OF THE COLLAPSE OF THE FOOCHOW TEA TRADE.—The *Foochow Echo* of 2nd Jan. says:—

Accounts reach us from Kiengning-foo of most daring robberies. Bands of thirty or forty ruffians enter the houses of wealthy people, blindfold and gag the unhappy inmates, and then help themselves, and make off with all that is best worth having of the valuable contents. This is described to us as one of the results of the decline of the tea trade. Many hundreds of men (our informant said thousands), hitherto earning an honest living from it, are now driven from sheer hunger to become burglars and highway robbers.

GEOLOGISTS have proved that the diamond mines of South Africa are situated in vents or chimneys, varying from about 70 feet to 1,500 ft. in diameter, and descending vertically through the schists which form the ordinary strata of the district. These vents are filled up with fragments of silicated and magnesian rocks, in which the diamonds are scattered, and before the diggings began each was capped by a hillock, or "kopje." They are 17 in number, and run in a straight line about 120 miles.—*Fiji Times.*

THE TEA CROP OF 1892: MR. H. K. RUTHERFORD'S ESTIMATE.—Of all the estimates of the current year's tea crop from Ceylon that have yet appeared, ours (80,000,000 lb.) is the lowest. But Mr. Rutherford makes his estimate lower still. Writing to us by this mail he says:—"With regard to the estimate of crop for the year 1892, I will not venture to predict more than 74 millions. Last year upset everyone's calculation, and it therefore makes it more difficult to estimate what the present year will do." This opinion thoroughly coincides with that which have repeatedly expressed, namely, that last year's figures form no reliable guide. The total output was abnormally large, and, as there is no reason to suppose that the current season will be so peculiarly favorable to the abundant growth of leaf, the actual increase show over the figures for last season is not likely to be large. We think 80 millions is an outside estimate.—Local "Times."

COCONUT PLANTING.—During some years past, owing to the excessive and prolonged droughts killing large numbers of trees in several estates, the prospects of coconut planting in the peninsula were very gloomy indeed; and the prophets of evil to whom the proposed railway to Jaffna was at best a wild and visionary project unworthy of their support, boldly foretold and stoutly maintained that, in view of the severe crisis through which the estates were then passing, it would be idle to rely on them for any appreciable item in the calculations made of the probable traffic available for the proposed line. The planters however have now good reason to take heart, thanks to the abnormally copious and constant rains we have had during the last three months; and I have it on the best authority some of the planters themselves, that the year 1892 has dawned on them with excellent prospects. The out-turn of copperah during the first half of the present year will doubtless be exceptionally large and such as to make up, in great part, for any loss they have sustained during the trying period of recurring droughts to which I have briefly referred.—*Cor.*, Jaffna "Patriot."

OUTPUT OF TEA THIS SEASON.—A planter of many years' experience in Ambagamuwa writes to say:—'I think your estimate of our total export of tea this year high—though it is the lowest of any yet given. I very much doubt if the crop of 1892 will much exceed that of 1891, which was much increased by the extraordinary rush of leaf during the first six months of the year. It was further aggravated by shortness of labour, which compelled many to pluck very heavily, for it was a case of letting it go or making it into tea. This resulted in large quantities of inferior tea being placed upon the market. This year we are better off for coolies, and, after the weather we have had, it is doubtful if we shall have the same rush of flush again, nearly every estate going in for finer plucking, which, will result in a decrease in quantity of from one-third to nearly half. This, I fancy, will nearly balance the increase for the year and keep the output about the same. I know one place—a sample of many others—which gave over 400 lb. per acre last year and only plucked medium, but which, with finer plucking, only expects this year to make 270 lb per acre."—Local "Times."

THE INDIAN RICE CROP.—The Government of India, Revenue and Agricultural Department, have issued the following second general memorandum on the rice crop in Bengal, Lower Burma, and Madras for the season 1891-92:—The following statement gives the corrected figures of area under the crop in the three chief rice-growing provinces, compares them with the normal and past year's acreage, and indicates the estimated outturn in annas:—

Province.	Acreage.			Estimated outturn in annas.
	Average.	1890-91.	1891-92.	
Bengal -	34,577,000	32,846,000	31,254,000	9½
Madras -	4,559,000	4,582,000	4,414,000	10
Burma -	3,519,000	3,916,000	4,107,000	12 to 18
Total -	42,655,000	41,344,000	39,775,000	...

In Bengal the unfavourable character of the rainfall in the months of July, August, September, and October occasioned a considerable deficiency both in the area and in the outturn of the winter crop, to about 6 annas of an average crop. In the deltas and on the west coast of Madras the crops are fair, but elsewhere they are estimated at only half the average. In Burma, notwithstanding a decrease of area since the report published on 22nd October last, the condition of the crop is satisfactory, and it is estimated that there will be available for export about 1,030,534 tons of cleaned rice including the amounts required for Upper Burma.

COFFEE AS A BAROMETER.—A Portuguese has made a startling discovery that every time a man drinks a cup of coffee with the usual seasoning of sugar he drinks—a barometer. "Ah!" you sigh, in self commiseration, "no wonder the coffee I drank last night kept me awake until four this morning." But wait; it is not a joke. Hear what Dr. Sauvegron says on the subject. If sugar be cast into the coffee without stirring or agitating the cup, the bubbles of air contained in the sugar rise to the top of the liquid, and it is this that converts a cup of coffee into a barometer. If the bubbles form a foaming mass, keeping well to the centre of the cup, we have the indication of fair weather; if, on the contrary, the foam directs itself to the edge of the cup and remains turning like a ring, it is a sign of rain; if stationary, not large in the centre, it indicates variable weather; if it all moves, without separating, to one point near the edge of the cup, another indication of rain. Dr. Souvegron affirms that all these indications were confirmed with a holosteric barometer and another of mercury. "We have not yet made the experiment," says our Portuguese reporter, "but hope to, the Fates consenting." He adds that in order for the phenomena to be reliable the coffee must be pure.—*Phamaceutical Era.*

OUR TEA TELEGRAM.—We think our telegram from Messrs. Wilson, Smithett & Co., this week is more hopeful, or at all events less despondent, than was the last one. The market is quiet, but prices remain steady. The average is low, and the trade are evidently waiting to learn the total exports for the month of January, which they will do today from several sources. The information thus supplied to them is likely to cause some surprise, we expect, seeing that the figures are some 4,900,000 lb., a quantity *actually less than that shipped during January*, 1891. We believe this is the first time in the history of the tea enterprize of Ceylon that the shipments of one month have totalled less than the corresponding month of the previous year. It only bears out, however, what we have frequently insisted on, that the output last year was quite exceptional, and that in all human possibility the export of this season will exhibit but a small increase upon it. Tea is coming down from upcountry comparatively slowly, and we do not anticipate a heavy shipment in February. It will probably amount to 6,000,000 lb., at the cutside. This a very different result to what was anticipated. The fact is that the long-continued rain in December stopped flushes and reduced the current month's shipments; but, now we are getting warm weather, we anticipate that shipments during February will increase to something under 6,000,000 lb. When these facts become known in the Lane, they may bring about a better tone in the market, for there does not seem to be any real warrant for the present low prices. —Local "Times."

MALODOROUS SUBSTANCES AND TEA: TOBACCO TABOOED.

As it is the last straw which breaks the camel's back, so the refusal of the shipping agents to arrange freight for the tobacco they had grown and prepared seems to have been the final misfortune which led to the collapse and liquidation of the Ceylon Tobacco Company. The shareholders, most of whom are tea producers and exporters, must have cordially approved the good judgment of the shipping agents. It is nevertheless a ludicrous position for the tobacco to occupy that it can neither be exported nor sold locally. The leaf must be of a superior quality to that grown at Jaffna, and there is the objectionable distinction made by the native government in favour of Coimbatore tobacco, or we should feel inclined to say "Try Travancore." We suppose the objection to carry the tobacco in steamers which load tea is, that the former substance is in bulk. To small quantities of cigars well secured in boxes we fancy no more objection would be offered now than in the past. But stalks of leaf tobacco, in large quantity even if enveloped in gunny cloth would give out an odour pervading every portion of the ship in which they were carried,—an odour which, if absorbed by so sensitive a substance as tea, would be ruinous in its effects on the absorbent substance. It may be taken for granted that neither now nor in the future will the same vessels carry tea and tobacco; and as the production of the narcotic leaf has not reached such proportions in Ceylon as to render any quantity that can be offered for cargo an inducement to a vessel to carry tobacco to the exclusion of tea, this freight question alone seems to constitute such a "heavy blow and great discouragement" to the tobacco enterprise in our island—we are of course referring to the finer leaf grown by Europeans,—that we may look on its knell as having been sounded? We are of course sorry for those who invested money in what promised to be a profitable enterprise, and which has belied all the expectations formed regarding it by men whose sagacity is not generally at fault. The lands seem to have been far too widely separated to render good management easy and as a matter of fact the management, whether from want of attention or paucity of money and labour, seems to have deserved denunciation as disgraceful. The difficulty of obtaining freight for tobacco, even if it had been grown in quantity and of the right quality seems not to have been foreseen. We suppose we may now take it for granted that tobacco of the finer descriptions and as the object of enterprise by Europeans is not likely to rank amongst the leading exports from eylon. For that consummation we cannot personnally express regret. Soil suitable for tobacco, which must be rich in all the elements of fertility, especially potash, can be much more legitimately devoted to the growth of our really staple products, valuable for human food and economical purposes:—tea, cacao, coconuts, cardamoms, &c. Happily those of our leading exports which possess a marked odour are pleasantly odorous, and we do not suppose that any objections ever have been or ever will be offered to the carriage of cinnamon and cardamoms in the same ships with tea, such as have "tabooed" tobacco. Pepper does not enter into our exports, while coconut oil and the essential grass oils are so well secured as not to give forth their special odours. Coconut oil and tea are, however, not stowed in the same holds, we believe. The odour of cinchona bark and coffee would scarcely affect tea injuriously even if they reached it in any save a very diffused form. The only pleasant feature in the report of the unfortunate Ceylon Tobacco Company, Limited, is that which indicates the jealous care of shipping agents to prevent the presence in vessels which carry our now great and leading staple product—sensitive in proportion to its delicacy—of any substance, the odour of which might injure that flavour, on the purity of which the value of tea so essentially depends. For the emphatic assurance of this fact we are indebted to a report which is otherwise not pleasant reading.

FROM THE METROPOLIS.

THE CEYLON TEA PLANTATIONS CO., LD.

Jan. 8th.

You will doubtless hear from your regular correspondent about the meeting of the Ceylon Tea Plantations Company as reported in the *Times* and other journals. The purchase of Glenlyon and Stair estates as well as Begelly and Waverley is interesting to Ceylon readers, as also the continued prosperity of the Company, which is, I suppose, the most important and most truly representative of Ceylon and its great enterprise amongst all the Tea or Planting Associations connected with the island. For this very reason, apart from other reasons, I for one am pleased, rather than disappointed, that Sir William Gregory has been able to prevent this Company extending its operations to coffee even in the Malayan Peninsula. I cannot see any cause to doubt the good accounts given of the prospects before coffee plantations in Perak; and Sir Graeme Elphinstone, Mr. Reid, and others will, I trust, profit largely by their operations and investments there. But if there is work suitable for a Company there, let it be a new and distinct one—The Coffee-growing Company of Perak or Malayan Peninsula—rather than an extension of the institution so generally identified with Ceylon and tea. There is the example of the Ceylon Company, Limited, before us and the many years that the good name of "Ceylon" suffered through the incubus of Mauritius sugar-planting business on this old 'O. B. C." Company. It may, and I trust will, be quite different on the case of coffee and the Straits; but far better that Ceylon should have all the honour, or the blame, attending the success or failure of its premier Tea Company, than that there should be a mixing up of investments belonging to two different colonies under the name of our island. Mr. Reid and his co-directors have therefore acted wisely, I think, in listening to Sir Wm. Gregory's objection and in giving up the idea of extending the Company's business to coffee in Perak. There need be no fear that a separate Company to deal with the latter will be liberally supported if promoted by Messrs. Reid, Rutherford, and the many who have the fullest confidence in their shrewdness, experience and sound judgment as men of business well acquainted with tropical plantations. I append the report of the Company's meeting which has appeared in the *Daily Chronicle*, feeling sure that the one from the *Times* (rather different in some parts) will reach you from your regular correspondent:—

PUBLIC COMPANIES.

CEYLON TEA PLANTATIONS.

An extraordinary general meeting of the Ceylon Tea Plantations Company, Limited, was held yesterday, at Winchester House, Old Broad-street, Mr. D. Reid presiding.—The Chairman said that the shareholders had been called together in order that their approval of certain acts of the directors might be asked. In

regard to the extension and expansion of the company's tea estates the general scope of the directors' policy had been directed to increasing the area of cultivation in high altitudes, and to acquiring estates of exceptionally high quality. They thought they had so far been successful in carrying out that policy, and the purchases which they now asked the shareholders to sanction fulfilled those conditions. The highest price they had yet paid for an acre of tea-planted land was for the Yoxford, which was undoubtedly a very fine property, and well worth the £18,000 paid for it. It would easily give 15 per cent. on this outlay. Begelly was a small tea estate adjoining Tangakelly, which the owner found too small to work as a separate estate. It had been bought cheaply for £1,081, and would be a valuable addition to Tangakelly. He moved—"That the directors be authorised to purchase or acquire from the owners thereof the following estates in Ceylon:—Yoxford, containing 478 acres; Glenlyon and Stair, 638 acres; and Begelly, 48 acres, at prices not exceeding in the whole £38,581."—Mr. Rutherford seconded the resolution, which was carried.—The Chairman said he had now to invite their consideration and advice in a matter that the directors were in no way committed to, but which they thought well of. Mr. E. A. Talbot, their manager in Ceylon, who paid a visit to the Malay Peninsula in October last had come to the conclusion that the cultivation of coffee yielded results which would warrant them in extending their operations into that country. The reason the directors proposed this was that they thought there was money in it. There were difficulties to be encountered, and these were labour, supervision and unhealthiness of climate at the time of felling the forest, and the opening up; but if these difficulties were successfully met and overcome he had no doubt that coffee planting in the Straits would be a financial success. With regard to the risk, he believed they would know in two years, with nearly absolute certainty, how it was going to answer, and the very worst that could happen would be to have £6,000 badly invested. If it succeeded they would be in a splendid position to select the best land obtainable, and to develop a most remunerative industry. The whole of the last issue of preference stock, £40,000, had been placed at a premium of 15 per cent., so they had £6,000 to start with, and they anticipated that this fund would supply all the cash required for their purpose.—Sir William Gregory said he regarded this proposal as a speculation alien to the original intentions of the company. The company was doing remarkably well, and it was but common sense to let well alone. Coffee had proved itself to be a dangerous article, and he thought they would be very ill-advised to touch it.—The Chairman pointed out that the memorandum of association gave them power to cultivate any product. But that was not the question. It was whether it would be a judicious thing to do, and he need not tell the shareholders that it would not be forced on them by weight of votes, but would be dropped if here was any considerable opposition to the scheme. They had not lost their confidence in Ceylon; but this matter had been recommended very strongly to them by Mr. Talbot who had had a long experience in coffee.—After some discussion the Chairman announced that the directors had decided not to go further in the matter. They regretted it, but they wished to consult the wishes of even the smallest shareholders. He might mention before they adjourned that they had now a very fair idea of the report which the directors would be able to make to them in April, and they believed it would realise all that was put forward by the directors in their circular of June last, notwithstanding the very low range of tea prices. The estates were all doing well, and the young tea was coming on in a way that gave good promise for the future.—The meeting ended with a vote of thanks to the Chairman.

Sir Wm. Gregory spoke to me about the meeting, the day before, and I concurred in the soundness of the view he adopted, even though believing that there is a prosperous planting future before Perak and other Straits Settlements.

CEYLON TEA—SIR ARTHUR BIRCH—SIR ANDREW CLARK—MR. ELWOOD MAY, &c.

Dec. 31st.

Calling at the Royal Geographical Society the other day to see my friend Mr. Scott-Keltie, the accomplished Secretary,—of whose work, more anon,—I found myself, on leaving, opposite the Western Branch of the Bank of England and remembering that an ex-Ceylon official is at its head, I ventured on a call. Sir Arthur Birch, our former Lieut.-Governor (and who certainly by this time would have been a first-class Governor had he remained in the service) received me very kindly and quickly showed that through his reading of the *Overland Observer* as well as many other channels, private as well as official, he keeps up a full interest in Ceylon affairs. He mentioned in fact that old Ceylon friends frequently drop in to see him, and he has a personal interest in plantation property through the New Dimbula Company; and indeed the extraordinarily rapid increase in production of tea on Diagama gave the text to a conversation full of interest bearing on the future of Ceylon. Sir Arthur thinks over-production of our staple and the consequent lowering of prices to an unprofitable scale, is the one great danger before us; and, of course, with the statistics of crop and export shewn for five years past, no one can gainsay this view. Unless Australasia and America come to the rescue by taking off larger quantities of Ceylon and Indian teas, consumption in the United Kingdom (and Continent of Europe), good and growing as it is, can scarcely meet the case. There is, of course, the good hope that the China tea trade has got a heavy blow and sore discouragement this season; but it may recover. In reference to America Sir Arthur spoke in high terms of the enterprise and (so far as he could judge) the business character of Mr. Elwood May, who he certainly thought was entitled to be regarded as a benefactor to the Ceylon tea enterprise, were it only for the persistent way in which he had advertised our staple in a country where advertising was the only certain way to establish a trade. He entirely agreed with the view that the planters ought to be much pleased (in place of dissatisfied as a few at least of them seem to be) that Mr. May came forward to support and extend the Ceylon-American Company at a time when, under the old conditions, it was bound to collapse. The benefit to Ceylon of all that has taken place since is in the advertising—the making sections of the American people acquainted with our teas,—and this work is bound erelong to bear fruit; for to judge by the files of American papers, circulars, pamphlets sent across by Mr. Elwood May, he is still indefatigable in his work of advertising our staple.

I drew Sir Arthur Birch's attention to the mischief Sir Andrew Clark had done by his ill-advised and utterly incorrect utterances on Ceylon and Indian *vs.* China teas before medical students in his latest hospital address. It was no doubt corrected in different ways at the time; but Sir Andrew's reputation is high and his words continue to be most prominently placarded in the windows of China tea dealers, notably in Regent Street and other West End quarters, and once read their import sticks in the memory. In fact I have had personal experience of the fact only too often in going about. Sir Arthur Birch fully agreed—he had, in fact, intended speaking to Sir Andrew Clark, who is a personal friend, on the subject. I pressed him to do so, and that if some Dimbula tea could be given Sir Andrew to try under the proper conditions of a smaller quantity to infuse at a time, than of China, he could not fail to change his opinion. It would indeed be

worth while trying to get Sir Wm. Gregory—another old friend of the fashionable physician—and Sir Arthur Gordon, to try and bring him to reason, and a confession of error which could be as prominently advertised and placarded. This is required in order to counteract the effect of the speech, to the mischief of which several Ceylon planters at home (among others) have drawn my attention.

But as I wrote before, it is very necessary that the Ceylon planters themselves should do their part to keep up the reputation of their staple by finer plucking and more careful preparation. One proprietor writing to me from Aberdeen some weeks ago said :—

"Alas! for Ceylon tea. It seems to have fallen on an evil time. And to make matters worse I see some one writing again in the *Overland* how *cheaply* it can be made. These people are in reality a curse, as people often associate 'cheap' with 'worthless.' Several leading tea dealers here have remarked on this to me and I see an advertisement 'pure Ceylon tea 1s 6d, and pure Indian 2s 6d.' Already the grocer has made the discovery that Ceylon tea is cheap and that the consumer knows it. In my opinion the publication of these figures do a great deal of harm and *no good*. And for the most part they do not represent things properly, as sometimes the cost of manufacture (as given) would not pay a decent tea-house conductor. No doubt they will find out their mistake soon enough, but others too will have to pay for their imprudence. I saw a fair Ceylon tea lately with a genuine estate mark, that cost 4d per lb. Any good we got from the sales of fancy teas is neutralised by the idea that the balance costs almost nothing."

I quote this in order to add that the same gentleman writing on the 28th inst. has a better account to give, among other news, as follows:—

"Prices of Ceylon tea seem to be improving slightly. Let us hope they may improve still further.———— writes me from Ceylon that the planters are waking up to the danger of coarse plucking, and the necessity of finer plucking systematically. I see by last *Observer Overland* the praiseworthy approach by Sir Arthur E. Havelock to the Governor of Madras, and the ready way in which he has been met in regard to encouraging the famine-stricken coolies of the Presidency to go across and gather their share of the good things to be had for their labour on Ceylon estates. I have been reading not only your letters from Carlsbad, but the *Chemist and Druggist* had an article I took to be yours, taken, I suppose, from the *Observer* or *T. A.*, viz. an account of a visit to a quinine manufactory."

As bearing on our "tea" question, and cheapness of production, here is a paragraph from a City article in the London *Star*, which, perhaps, you may not have seen:—

THE IMPORTS OF TEA.—The shrinkage in the exports of Chinese teas—at any rate, in the exports to this country—continue. Twenty years ago Englishmen drank little but Chinese tea; China was practically our only source of supply. But since then India and Ceylon have been forging ahead, and the transfer of custom shows no signs of stopping. Whilst the imports from India and Ceylon show large increases, those from China to date show a falling off of 6,000,000 lb. The average price obtained at the public sales in November of Indian tea was 8¾d per lb., a fall of ¾d as compared with October. It used to be said by the tea planters that they could not cultivate at a profit under 1s per lb., but, like the sugar planters, they have found it possible to pay their way at a much lower minimum than that they used to think the lowest possible.

MR. J. L. SHAND—PACKAGES FOR THE SWISS PACKET TRADE OF PURE CEYLON TEA—CEYLON COCOA AND CEYLON CHOCOLATE—CEYLON TEA EXPORTS—SIR ANDREW CLARK'S STATEMENTS—INDIAN AND CEYLON TEAS—BRITISH INTERESTS IN CHINA—STAVELESS CASKS—LIPTON AND HIS TEA TRADE—GENERAL NEWS.

Jan. 8th.

Mr. J. L. Shand, who leaves tonight to catch the French steamer at Marseilles, naturally looks to North Borneo as fulfilling the requirements of tropical planters in search for new and suit able forest-land. He thinks the labour difficulty will prevent much being done in Peru, but of this we shall be better able to judge when the report from Messrs. Rose and Sinclair appears.

I have been much struck with the neatness of the packages prepared by Messrs. Shand & Haldane for their Swiss packet trade of pure Ceylon tea. They are most tastefully and conveniently made up with explanations in English, German and French, and ought to be very suitable for sale and use all over the Continent. I have suggested the addition of instructions as to the proper infusion of tea, after the very full, careful model adopted in Austria, and then all interested in spreading the use of pure Ceylon tea on the Continent of Europe may feel certain that they cannot have a better agency than the "Ceylon Planters' Direct Supply Association of 24, Rood Lane, E. C." I have also, as one quite impartial and disinterested been much struck by the good work done by this firm in promoting the consumption of pure "Ceylon cocoa" in a manner at once convenient, economical and delightfully pleasant. I do not think this branch of their business is sufficiently known and appreciated in Ceylon. Messrs. Shand & Haldane have works at Norwich, where their "ESSENCE OF CEYLON COCOA" and "CEYLON CHOCOLATE, VANILLA FLAVOURED," are prepared. The former is made up in handy tins, and is labelled, "Pure, free from all admixture of sugar or farina, and specially adapted to inalids and others of weak digestion." No doubt a good many in Ceylon know and use this "cocoa" and the green-packeted, delicious chocolate. But I am anxious to explain that this "cocoa" has all the advantages of the preparation from "nibs" by long boiling to get rid of the fat, because in its preparation the fatty substance is nearly all removed. A cup of the essence can, therefore, be prepared as quickly as a cup of tea, and as suitable as the latter for anyone's drink in the tropics. I learned that 50 per cent of the weight of the said product as grown in Ceylon comes off in fat, and Mr. Shand showed me cakes of this substance beautifully clear and free from rancidity however long kept, so that there is a demand for it (cocoa-fat) for surgical, among other purposes. I am sure all interested in the cultivation of Ceylon "cacao" should do all in their power to make known among their friends and acquaintances the Rood Lane firm's "Essence of Cocoa" and "Chocolate" as two of the very best and purest preparations therefrom.

To return to CEYLON TEA. A good deal of reference has been made to our staple this week in connection with Messrs. Gow, Wilson & Stanton's annual statement of imports and deliveries for all tea; and speculation is rife now as to the probable total export from Ceylon during 1892. I have been questioned several times in the City on this point. At the end of 1889 I put the total export of 1891 at about 61 million lb., but raised this to from 68 to 70 million lb. under the influence of the enormously developed shipments in the first and second quarters of 1891. The falling-off in the last quarter, however, teaches caution, and I am inclined to agree with the feeling prevalent among Ceylon men in the City that it will not be safe to put the total exports of Ceylon tea for 1892 above 75 to 78 millions lb. It is true this would only give an increase of 10 to 13 million lb. against the advance of over 18 millions between 1890 and 1891. But lower prices are not encouraging in regard to areas on old coffee land yielding less than 300 lb. an acre, and the bulk of

our acreage must have reached its full bearing capacity. Nevertheless, according to the Directory figures, no less than 22,000 acres of additional land were planted with tea between 1888-89, and this should undoubtedly add to the crop of the present year. The most important reference to tea in the London dailies of late has been the following from the *Daily Telegraph* of 6th Jan :—

INDIAN AND CHINA TEAS.

WHAT MINCING-LANE THINKS.

[BY A CITY MAN.]

Everybody who has any knowledge of the facts admits that the present position of the tea trade is peculiarly interesting, not merely to capitalists, speculators, planters, brokers, and merchants, but to the public at large. The consumer, however, appears to be still ignorant of points which are freely discussed in Mincing-lane, in the public sale rooms of which the auctions have recommenced. In order to place the views of the different sections of the trade upon an authoritative basis, I have consulted experts in each of the three branches, for in that way only has it been possible to ascertain the relative prospects of India, China, and Ceylon. One of the firms to whom I applied for information was Messrs. Gow, Wilson, and Stanton, whose tabular statements, issued from time to time, are regarded as perfectly trustworthy, based as their statistics are upon official returns. In answer to questions, members of the firm named said : "Our own possessions now contribute about 75 per cent of the tea we consume, and only 25 per cent is supplied by China. The home consumption in 1891 exceeded any previous record, and amounted to 202,000,000 lb. Look at this table."

The table showed that less China tea was used in 1887 than in 1866, when, practically, China supplied the whole market ; but, on the other hand, in 1887, an almost equal weight of Indian and Ceylon tea was drunk in addition to the China tea. Since 1887 the importations from China have continued to decline and those from India and Ceylon to increase. I may add to this information from figures derived from the Board of Trade returns. It appears that in 1891 the consumption of Indian and Ceylon amounted to 150,000,000lb, and that of China, &c., to 52,000,000lb, or, according to the accepted standard, the equivalent of 39,000,000 barrels in fluid tea, and it is interesting to note that it is computed that the consumption of liquid tea jumped up 2,500,000 barrels in 1891, and that of 1890, in its turn, had been 2,000,000 above the total of the preceding year.

"Amongst the features of the past year, I understand, have been the continued decline of the arrivals of China teas, the standstill in the consumption of Indian, and the remarkable growth of the importations from Ceylon ?" I suggested.

"So long as the weaker teas of China were being rapidly displaced by the stronger teas of India and Ceylon," was the answer, "the increase in the consumption of dry leaf was hardly appreciable, although a larger quantity of liquid tea was being used. The displacement or China teas during the last two years has not been very marked ; hence the greater weight of tea required to supply the gradually expanding liquid consumption. This fact, with the reduction of duty last year to 4d, is doubtless answerable for the heavy increase in the use of dry tea. There is this remarkable feature in the home consumption of the past year. For the first time, Ceylon tea has been more largely drunk than China tea. In 1887 10 000,000 lb only of the former were used, to 90,000,000 lb of China tea. In 1891 the use of Ceylon tea increased to about 50,000,000 lb while the quantity of China tea was reduced by about 40,000,000 lb, Indian tea supplying the bulk, *i. e.*, about half, of the home consumption. About 50 per cent more Ceylon tea was used in Great Britain in 1891 than in the year previous. Extraordinary low prices were current during the last few months for the lower grades of Indian and Ceylon tea, these constituting the main portion of the tea drunk in this country. They were obtainable at a lower price than was ever previously known."

"Well, what of the future?"

"During the early part of December the very low prices then current for Indian and Ceylon tea caused increased competition, and resulted in a rise amongst the lower grades, which supply the bulk of the consumption, of about a halfpenny to one penny per pound. This rise has since been maintained, and at the first sale of the year, which took place for Indian teas on the 4th, and for Ceylon teas on the 5th inst., the prices at which the year closed have not dropped. But it is idle to say whether we are likely to have tea dearer. People's ideas differ, Ceylon tea may go dearer because it appears to be most in demand. Its consumption increased 50 per cent. last year, whereas, although Indian tea fell in price, the consumption has been 3,000,000 less than in 1890. There are many things which one cannot calculate upon in forecasting the markets."

"What was the cause of the late depression ?"

"In Indian teas the year opened with very high prices for low grade teas, short supplies being anticipated both from India and China, but prices gradually fell off until the close of the year. Fine flavoured teas and teas of exceptional quality have been scarce, and commanded full rates. The general quality of the crop has not been equal to that of last year. With respect to Ceylon, the early months of 1891 were marked by high prices for the low grades. The abnormally wet weather which prevailed in Ceylon during the first quarter of the year occasioned so rapid a growth of the leaf that production fairly outran the most sanguine estimate, and in consequence London became somewhat flooded with unexpected supplies, and a gradual shrinkage in values was the result."

"Can you tell me why China, which in 1849 monopolised the supply, now occupies in this country its third-rate place ?"

"Well, China tea of the first quality is of a very delicate flavour and very fine drinking ; but the proportion of that class of tea is so small that it is practically unobtainable by the general public, except at certain seasons of the year and at very high prices. The best of the crop goes direct to Russia, but the greater part of the growth is of very poor quality, and contains a very small portion which is soluble in water. It was owing to this deterioration of China tea which caused, years ago, a demand for Indian tea, and, more recently, for Ceylon tea. Had China continued to be able to send tea of really good quality, and comprising the whole of its crop, we should probably never have heard of Indian and Ceylon teas. Then, too, the latter sell better, they go further, and, in a word, they are more economical. According to the Customs testing 1 lb. of China leaf will produce five gallons of liquid tea ; but 1 lb. of Indian tea will give 7½ gallons, or 50 per cent. more."

"What have you to say of Sir Andrew Clark's condemnation of Indian tea, which he alleges disorders the nervous system, and produces a state of tea intoxication ?"

"Ah ! he did not say Ceylon tea ! But the general mistake made by the public is to infuse Indian tea too long. It contains a much stronger body in the 'extract'—that is in the amount soluble in water—than China tea does. You obtain in five minutes' infusion of Indian tea perhaps as strong a cup as with ten minutes' infusion of China tea. Consequently, it is unnecessary to draw out the total strength possessed by the tea. Ladies should never allow Indian tea to stand more than five to seven minutes, and certainly not as long as ten to fifteen minutes. By the first method they would get the flavour of the tea without the tannin, because tannin is not so soluble in water as those constituents which give the quality and delicate taste."

"Does that advice apply also to Ceylon tea ?"

"Speaking generally, Ceylon tea contains far more strength than Indian, and the same observations apply

in an almost equal degree. The public, in purchasing either Ceylon or Indian, obtain a great deal more for their money than they did when they brought China tea, and they do not require to use the whole of what they buy. Let me add that a 'cosy' is a very bad thing, unless to keep the tea warm after it has been poured into another vessel, which is the proper way to treat tea after it is brewed."

After this interview I thought it just to the representatives of the China trade that they should have the opportunity of explaining their position, in face of the threatened extinction of this old-established source of supply.

"Yes," said one gentleman—the best authority upon the subject—"there is no doubt that Indian tea has supplanted China tea; but at the same time there are some symptoms of a reaction which is attributed to the medical aspect of the question. You have seen what Sir Andrew Clark has said. Here is a copy of his address on tea, and here also, is the report of Dr. Hale White of Guy's Hospital, upon an analysis of Assam, finest Chin a, and common Congou tea, with the result that he found in the Indian, after fifteen minutes' infusion, 17·73 per cent. of tannin, as compared with 7·97 per cent. in the best China, and 11·15 per cent in the common congou. Dr. White adds: "The result is what might have been expected, as tannin is very soluble in hot water, and nobody who has drunk Assam, or any other Indian tea, and the choicest China, would require any scientific analysis to tell him which would be most likely to disorder the stomach and nerves. It is of course, true that any tea which has been infused for some time has a more marked effect than tea which has been infused a shorter time; but this difference is due not so much to the tannin as to strength. The moral, therefore, for persons with weak digestion is to select the best China tea they can get, and not to drink it strong; to be satisfied with flavour, and not to desire intoxication. They must be particularly careful, also, to see that the tea is not blended."

"It is quite certain," continued the speaker, "that the deletrious property of tea is the tannin, and the less you have of it in the beverage the more wholesome it will be. You must bear in mind that it was not until 1889 that the consumption of Indian tea began to exceed that of China, although the Indian had been gradually displacing the letter for some years. Ceylon tea is of still more recent introduction. The doctors are beginning to differentiate between Indian and China teas, and to see there is a superabundant quantity of tannin in the teas from India and Ceylon, due to the mode of preparation. The public are not yet aware of it, and now you will never convert the masses; their taste is too degraded. No one who knows what good tea is will drink Indian. The Russians drink China tea only, and they have lately got it direct from the Ningchow District, causing a falling-off in our exports. There is a divine tea. We, as people, are notorious for our coarse taste. Do not lower clases smoke shag tobacco? Now Indian tea is a pungent, strong, coarse-flavoured article, and it has been forced upon the public and popularised because it is 'British grown' and economical. But look at this tumbler. It is full of a muddy yellow liquor—that is due to the excess of tannin, for it is an infusion of Indian tea; but see this clear port-wine fluid—quite cold—that is China tea similarly prepared."

"Where can you get good China tea?"

"Unfortunately, owing to the course of trade, there is scarcely a shop in London where you can get good China tea; for they will tell you it does not exist. Another prejudice against it is that it requires much greater care in making, and the water must be just on the boil. You cannot expect to buy China tea such as is drunk in Russia under 3s per pound retail. As much as six roubles (12s) is given at Moscow for tea per pound, and the Russian pound is 10 per cent less than ours. Russia is taking an increasing quantity of the finest teas which China produces every year, and prices are paid for it which are beyond the English market."

"Is the China tea export to England doomed to extinction?"

"Everybody who enjoys a good cup of tea should hope not. There has been a further decline during the past year, it is true, the arrivals to May 31st next being estimated at ten million pounds less than the quantity to hand during the twelve months preceding; but the shrinkage has not continued in a progressive manner, and is not so large as was expected. We hope the worst has been seen."—*Daily Telegraph.*

No fault can be found with their representative giving the views of a China tea-dealer as well as those of Messrs. Gow, Wilson & Stanton; but it is ridiculous of the former to speak of 17·73 per cent "tannin" arising from *15 minutes'* infusion of Indian tea. The simple answer, of course, is infuse only for 4 or 5 minutes and use far less of Indian or Ceylon tea and you can have as little tannin as suits your taste or as China tea yields! You see how Sir Andrew Clark is trotted out again to injure the reputation of Indian and Ceylon teas as compared with China. I got Sir William Gregory to promise this week that he would, along with Sir Arthur Birch, use his influence with their personal friend, Sir Andrew Clark, to give a fair trial to good Ceylon tea, properly infused, and to express an opinion which can be used to counteract the effects of his foolish speech as placarded in Regent Street and elsewhere. If this does not succeed, I must try to plan a "Ceylon Deputation" to sit on Sir Andrew and bring him to reason.

"The proof of the pudding is," however, "in the eating"; and as Mr. Leake put it to me the other day, the best answer to Sir Andrew and other fogies or critics, is found in the wonderful way in which Ceylon tea has gone into consumption during the past year. Still, however high the percentage of increase, it is possible 5 to 10 per cent more might have been gained, save for the foolish utterances of Sir Andrew and others deterring those who may pay attention to them.

Here is another paragraph on our teas which appears in the *Daily Chronicle* and two more from the *Daily Graphic*, a very enterprising journal to which Col. Howard Vincent is contributing letters:—

INDIAN AND CEYLON TEAS.—Mr. C. S. Hicks (member of the Ceylon Association in London) writes:—With reference to the criticisms on tea now appearing in the press, I shall be glad if you will allow me, as the largest shipper of Ceylon tea "packed in Ceylon," to say a few words on the subject. Ceylon tea is produced from both the Indian and the China variety of the tea plant, and possesses very varying qualities. Some of the Ceylon tea shipped is very near akin to Indian tea, and possesses a very large amount of astringency, while other gardens produce tea in which the China characteristics are predominant; and in all Ceylon teas which are of any value at all flavour is the great characteristic, while astringency is notable by its absence. In Indian tea, on the contrary, there is a great absence of flavour, and a great predominance of astringency and thickness. China tea is practically out of the question for the ordinary consumer (who must really be considered), as the question to be dealt with is not what the connoisseur buys, who is able, out of a very small area, to make his selection by paying any fancy price he chooses to indulge in, but what the ordinary everyday people of this country are able to pay to satisfy a demand for a really good tea. With this end in view there is no doubt that Ceylon tea at any given price will beat any China tea that is offered both for flavour, for purity, and for absence of all forms of tannin in proportion to its strength. The one great test of tea which is available to everyone who is a tea drinker is the comparison of the infusion, and there is not a tea-taster in Mincing-lane who would dare to contradict this. The leaf of all good tea, when infused, changes to a bright copper colour; absolutely bad tea, when infused, is of a black colour, or very dark brown. —*Daily Chronicle.*

Lovers of "the cups that cheer but not inebriate" will learn, without any degree of pleasure, that there is likely to be a rise in the price of tea in the London market. In consequence of the early and most severe weather, the Indian tea crop season has closed with a considerable deficiency on the estimates. There will also be a falling off in the supply which was expected from Ceylon. This was expected to reach seventy millions of pounds, but the actual export is not now likely to reach sixty-five millions, if even that figure is reached. The monthly exports have gone down steadily from the unprecedented total of 7,075,000 lb. in June to 3,678,000 in November, the aggregate export for the eleven months being 60,379,000, so that supposing four millions be added for December, the total will be considerably short of sixty-five millions. The total to this country, both from India and Ceylon in 1891, will not greatly exceed 150 or 160 millions of pounds, so that with such figures, and in view of the unsettled state of China, there is the prospect of the favourite beverage in so many families being rather dearer.

BRITISH INTERESTS IN CHINA.

By COLONEL HOWARD VINCENT, C.B., M.P.

II.—TEA AND OPIUM.

TO THE EDITOR OF THE "DAILY GRAPHIC."

Sir,—The staple export of China, and the one with which the Celestial Empire is most closely identified in the popular mind is, of course, her tea. In 1670 80 lb. of China tea were exported into England, and, despite export duties, varying in China and in the United Kingdom from 400 per cent on the productive cost, 100 per cent at the present time, the trade increased to 108,000,000 pounds in 1880.

COMPETITION OF INDIAN TEA.

Since then there has, however, been a serious decline increasing so much, from year to year, as to jeopardise the entire industry. This is declared to be mainly owing to the fortuitous development of tea planting in India and Ceylon,* and to the preference shown by the English consumer for tea of British growth. Twelve months after the Queen's accession, 400 lb. of Indian tea were sent to England as an experiment. In 1890 the consignment was over 100,000,000 lb., and Ceylon sent nearly half as much. The effect has been that, while in 1865, out of every 100 lb. of tea sold in England, 97 lb were Chinese and only 3 lb. Indian, in 1890 the Chinese proportion had fallen to about 50 per cent, and the cost to the British tea drinker was also in a like degree reduced. One reason put forward by the experts, consulted by the Maritime Customs, is that "a good stout tea, that will stand several waterings, is what suits the mass of English consumers, and this India provides much better than China." The English merchants at Shanghai and Foochow affirm, however, that this greater strength is purchased by the retention of deleterious properties.

APATHY OF THE CHINESE.

It is in vain that the attention of Chinese cultivators has been called to the condition of the tea industry by all concerned. Moreover, four years ago, the Inspector-General of Customs thus addressed the Imperial authorities:—

"To a government, its people's industries must be of higher importance than revenue. I would, therefore, advise that taxes be remitted, in order that industries may be preserved. Think for the people, and forego revenue. Export duties ought to be light, in order that the surplus production of a people may go for sale elsewhere. Import duties, on the contrary, are the duties which ought to be retained; but the use to be made of each commodity ought to be well weighed. If it is something people cannot do without, it ought to be exempt from duty; but if it is a luxury it ought to be heavily taxed. On the right application of these principles depend the nation's wealth, and the people's too."

DECLINE IN EXPORT.

Nothing whatever has been done. From Foochow the export has declined by one-half in ten years, and deprived the revenue of a million taels a year, and the people of five million taels in wages. The opinion is, indeed, general "that the gradual extinction of the China tea trade is practically assured, unless some thing retards Indian and Ceylon production, of drastic measures are adopted."

The "Shauli," or hill tax, the "Likin," or war tax, and the export duty are all maintained intact, and the unfortunate Chinese growers have to complete with the untaxed tea of India and Ceylon. What distress is likely soon to ensue may be gathered from the fact that the production of one half only of the output of the Assam Company, with its few hundred employés, affords the main sustenance of 4,500 Chinese families, or, say, about 20,000 persons. They are themselves, moreover, so apprehensive that the introduction of the machinery in vogue in India and Ceylon will diminish employment that the Government has not felt itself strong enough to protect its use.

* How "fortuitous"? We are reminded of D'Israeli's "fortuitous concourse of atoms."—ED. *T. A.*

STAVELESS CASKS.

Have you heard of the new system of manufacturing "staveless casks" after the fashion described in the London *Times*:—

STAVELESS CASKS—It is doubtless a matter of general knowledge that the bodies of casks and barrels are composed of a number of tapered staves, which are assembled together, held in posistion and hooped up. By a novel and ingenious method of manufacture, invented by Mr. Oncken, casks are now being manufactured from one piece of wood, and therefore without any staves, or, it may be said, with only one, the body constituting in itself a long, single stave. The method of preparing the body of the cask may be likened to the sharpening of a lead pencil by a pocket sharpener. The stem of the tree is first cut up into pieces or logs, of a length according to that of the barrel required, and is then boiled for two or three hours in a closed vessel to soften the wood, a current of electricity being passed through the water the whole time. From the boiler the log of wood is taken to the machine, where it is held at each end horizontally between two points, much in the same way as a piece of wood is held in the lathe. Rotation is given to the piece of timber, which is advanced towards a broad blade fixed on a frame having a slot in it in a line with the edge of the blade, just as in a plane, which the cutting part of the machine may be said to resemble. As the trunk of the tree is revolved against the blade a continuous sheet of wood is produced of any desired thickness. The wood is drawn out flat from the rear of the machine by hand on to a table. The sheet of wood thus obtained is cut transversely into pieces each of the required length for one barrel. The pieces are then passed through a grooving machine, which cuts the groove in which the head is eventually fitted. Another machine cuts narrow V-shaped pieces at intervals out of the edges of the pieces of wood, which are then easily bent round into a cylinder and firmly hooped, the V-shaped slots enabling it to assume the necessary conical form at each end. There is thus only one joint in the body of the cask or barrel. The casks are afterwards dried in a special apparatus, after which they are ready for use. A factory is in operation in Germany manufacturing these casks, some of which we recently examined at the offices of the Oncken Patents Syndicate, 10, Old Jewry Chambers, London. We were also shown a model of the machine and some samples of wood of various thicknesses, including some exceedingly thin veneers.

LIPTON AND HIS TEA TRADE.

I am sorry to see no sign of the "Ceylon tea planter" or "tea estate proprietor," Mr. Lipton, doing anything to promote the sale of *pure* Ceylon tea: a deputation to sit on him is perhaps more needed than on Sir Arthur Clark; for in the latest Lipton circular placed before me of "grand opening" of new branches, "Lipton, the largest tea dealer in the world," announces only *blends* 1s, 1s 4d, 1s 7d (the last of Ceylon and Indian) described:—

This is the finest and most delicious tea the world can produce, and is equal, if not superior, to what is sold by most tea dealers and grocers at 2s 6d to 3s 6d per lb.

While on the other side we read:—

TO ALL LOVERS OF THE FRAGRANT BEVERAGE.

Mr. Lipton has pleasure in intimating to his customers and the public in general that the extensive purchases he has made in Ceylon tea estates enable him to supply the most delicious tea the world can produce, at prices impossible for any other tea dealer to sell at.

His estates, which cover many thousands of acres of the best tea land in Ceylon, are at an elevation of 5,000 feet, where nothing but the choicest teas are grown; and, to give an idea of the labour required in the cultivation and manufacture of tea on these estates, there are several thousand natives, independent of Europeans, constantly employed.

And then the opinions of the Ceylon press are quoted—and all to promote the sale of *blends*! Too bad this, I say.

STAINING CEYLON WOODS.

A correspondent asks us if we can give or obtain information for him relative to the methods available for changing or improving the colour of some of the commoner among the many varied woods that are locally available for furniture and other purposes. It is rather a coincidence that this request should reach us just as we were advocating justice being done to Ceylon's forest wealth in the structures for the distribution of tea at Chicago. The larger proportion by far of our more valuable woods must, of course, be excluded from any list of timbers to which the use of any staining material would be an improvement; but we think it will be admitted that there are some of the commoner descriptions that would be improved by the application of something of the sort. When writing this we have particularly in our mind the jakwood from which nearly all our commoner furniture is made. But we must except in this case one particular feature in regard to that wood. Ugly as its yellow colouring is when new, there is no wood that better repays in the course of time the application of what is known among energetic workmen at home as "elbow grease." If this most valuable of applications is bestowed systematically upon jakwood furniture, in the course of time it not only deepens the colour to a close resemblance to Spanish mahogany, but imparts to it a lustre which no other application could give to it. And the beauty of this "elbow grease" is that its effects are lasting, and may be revived with but slight effort after years of neglect and lying by. But ,as our correspondent justly points out, it is not everyone who, being unable to afford the luxury of more expensive woods, would care to wait the result of this comparatively slow-acting though efficient agent. What he asks for is a suggestion as to how the results obtained by time and hard work may more quickly be secured. As to jakwood we may reply that the application of washes of thick lime water, of about the consistency of cream, will soon discharge the yellow colouring matter from the wood, and if, when dry after such application, boiled oil be rubbed on, or, better still, good varnish be applied, it will be very difficult to distinguish the results from those of a longer and more laborious process. We have seen the whole of the ceiling boards of an open Gothic roof so prepared (with boiled oil); and it was almost impossible to distinguish these in colour from the dark teak of which the principals of the roof were framed. Not long ago too, in the case of new doors to a house in Colombo, a liberal use of varnish so changed the native yellow of jak to a handsome mahogany colour, that a planter who had never previously seen such a transformation was lost in surprise and admiration. By means of a ferruginous preparation too, jakwood can be stained so as very closely to resemble ebony. We are in possession of two book-cases which more than forty years ago were made and stained under the direction of the late Mr. J. I. Strachan. They have been in our possession some thirty-five years or more; and with only an occasional renewal of the staining on much rubbed parts in polishing, they have so passed for real ebony, that yesterday a member of our family was much amazed to learn that what he had all his life regarded as ebony was a jakwood imitation. We can understand that Ruskin would include such imitations in the same scathing condemnation with stucco trying to ape stone: the world in general, however, is not so particular as to the ethics of construction and colour. The one objection to ebony furniture is its ponderousness, an objection which does not apply to stained jakwood. Then again, nadun is one of those woods in constant use that may be brightened up and the tone deepened by the use of plain linseed oil, and this if well rubbed in will secure the permanence of the improved colouring. This wood, nadun, may be constantly used when thus darkened for the repair of English-made furniture of walnutwood, especially for such items as are made of the oft-used American walnut. That itself is an artificially coloured wood, and stocks of it lay for years reserved in the London timber yards, until it chanced to someone to find out a good medium for colouring and brightening the dull grayish-looking wood. We recently described the perfect harmony of a well prepared nadun chimney-piece with the walnut framing of a mirror. The darkened jakwood we have above referred to has also been used with great success for replacing large flat surfaces of mahogany veneer which so often succumb to the influences of this climate or to the damp of a sea voyage out from home. Further than these instances our own experience has not carried us, but there are probably many among our readers who could add to the list of native woods which would repay the application of artificial colorants. Possibly there are many of our more plentiful woods which might beneficially supplant the supply of jakwood, if means were known whereby their colour might be deepened or brightened. A series of experiments on specimens of wood supplied by the Forest Department, might be tried at the Government Factory, where, we understand, a substitute for jakwood, which is becoming scarce, is greatly desiderated.

A PARASITE.

His reception was threefold.
His ambition ludicrous.
His achievement wonderful.
Deceit No. 1—That he was only a creeper.
" No. 2—That his roots were in the ground.
" No. 3—That the leaves he bore were Tea leaves

No. 1—He was a creeper inasmuch as a hangmann rope is a cravat. No. 2—His roots in the ground might have been pulled up by a red ant; but to loosen his embrace of the Tea I had to insert my knife blade, and then at varying distances I found his creeping woody stem had white-roots of a quarter inch, gimlet-like imbedded in the Teawood. No. 3—In this he told so much truth that made it quite apparent he lived at a table other than his own, for the flatterer had found a soft place in warm-

hearted Tea and firmly seated threw forth an exceeding branch, leafed a rich waxy green, and was not this a most wonderful achievement? but how ludicrous his ambition since he could not "flush"! "What manner of thing is this?" asked the planter.

And Ternströmiaceæ shouted—"Loranthus, the murderer! he lives to robe himself by robbing us of our sap."

"The juice he does. Surely botany is out of joint since I as a planter must needs turn chiropodist."

"A CREEPER."

The peculiarity of the loranthus is that it spreads over the stems and branches of trees and from the bark cells sucks out the life-blood, as the mycelium of *Hemileia vastatrix* does in the case of the coffee leaves. The leaves of this tropical misletoe do not, however, so closely resemble tea leaves as the blossoms counterfeit honeysuckle. We have seen *Acacia melanoxylon* trees withered and jak trees dead from attacks of the parasite, but we never saw it on tea. It could only occur on a seed bearer?—ED. *T. A.*]

NOTES ON PRODUCE AND FINANCE.

THE STRENGTH OF INDIAN AND CEYLON TEA.—We may shortly see a discussion by correspondents in the Press on the respective merits and strength of Indian and Ceylon tea. This is not desirable, nor will it serve any useful purpose. A rivalry between Indian and Ceylon growers, if it should take the form of puffing and depreciating, is not desirable. For instance, Mr. C. S. Hicks, a member of the Ceylon Association in London, writes to one of thedaily papers as follows:—"With reference to the criticisms on tea now appearing in the Press, I shall be glad if you will allow me, as the largest shipper of Ceylon tea 'packed in Ceylon,' to say a few words on the subject. Ceylon tea is produced from both the Indian and the China variety of the tea plant, and possesses very varying qualities. Some of the Ceylon tea shipped is very near akin to Indian tea, and possesses a very large amount of astringency, while other gardens produce tea in which the China characteristics are predominent; and in all Ceylon teas which are of any value at all flavour is the great characteristic, while astringency is notable by its absence. In Indian tea, on the contrary, there is a great absence of flavour, and a great predominance of astringency and thickness. China tea is practically out of the question for the ordinary consumer (who must really be considered), as the question to be dealt with is not what the connoisseur buys, who is able, out of a very small area, to make his selection by paying any fancy prices he chooses to indulge in, but what the ordinary everyday people of this country are able to pay to satisfy a demand for a really good tea. With this end in view there is no doubt that Ceylon tea at any given price will beat any China tea that is offered both for flavour, for purity, and for absence of all forms of tannin in proportion to its strength. The one great of tea which is available to everyone who is a tea drinker is the comparison of the infusion, and there is not a tea-taster in Mincing Lane who would dare to contradict this. The leaf of all good tea, when infused, changes tea to a bright copper colour; absolutely bad tea, when infused, is of a black colour, or very dark brown." This reference to the absence of want of flavour and predominancy of astringency in Indian tea is likely to offend susceptibilities without assisting the object of Mr. Hicks has in view. He might score off China tea to his heart's content without depreciating Indian tea.

A NEW YORK ANALYSIS OF CEYLON TEA.—A sample of the Ceylon tea sold in London at 53dols. per lb was, according to the *American Grocer*, submitted for analysis to J. F. Geisler, Ph.C., official chemist to the New York State Dairy Commission and the New York Mercantile Exchange. The result of the analysis of the Ceylon tips gave the following data:—Moisture (loss by drying at 100° C.), 6·20 per cent.; soluble ash, 3·77; insoluble ash, 1·53 (total ash, 5·30); theine, 2·54; total tannin, 22·79—total extractive matter, 43·40; insoluble leaf, 50·40 per cent. In the above data there is nothing particularly noteworthy, excepting that the per cent. of tannin is very high. An infusion of the tea was made by treating one part of tea with 100 parts of boiling distilled water and allowing ten minutes for the maceration. Under these conditions the tea yielded to water the following percentages:—Theine, 2·44 per cent; tannin, 17·19; total extractive matter, 33·25; ash (total) 3·44.; phosphoric acid (P_2O_5) in ash, ·618 per cent. The alkalinity of the ash was equivalent to 1·798 per cent of K_2O. The infusion obtained was of a dark golden yellow colour, and had a very agreeable aroma and pleasant taste. From the above it will be seen that the infusion took up 96·6 per cent of the total theine, 75·3 per cent of the total tannin, and 91 per cent of the soluble ash, data characteristic of a fine tea.

BRAZILIAN COFFEE.—The Rio de Janeiro papers contain the following respecting the prospects for next season's Brazilian coffee crops:—"The delegates of the coffee factors of Rio de Janeiro appointed to organise the estimate of the coffee crops to be exported from this market now present their opinion relative to the 1892-3 crop. By much information carefully collected, it is known that in certain districts the blossom was fair, and that in others it was abundant, but generally only a small part matured, not only from the want of strength in the trees, already weakened by the delay in gathering the preceding crop, but also from the scarcity of labour and and its disorganisation. With the data in hand, we think we may affirm that the crop in perspective should be stimated at about 3,000,000 bags, which figure is susceptible of modifications, according to the weather, up to the end of February. The delegates must also clearly point out that of the present crop, which appeared under favourable circumstances, a great part was not saved through the want of labour. This loss, which may be estimated at 500,000 bags of coffee, should be a sufficient incentive to furnish agriculture with a supply of useful and indispensable labour." A report on the course of the Rio de Janeiro and Santos coffee markets dated Dec. 8 is as follows:—"There has been a well developed struggle between exporters and factors, without a decided victory for either side. The former are apparently basing their campaign on the usual limited business in foreign markets during the approaching holidays and a consequent increase of stocks abroad, while the factors have in their favour the unsettled condition of the exchange market here. On the 4th instant, brokers advanced quotations by about 300 reis per arroba, since when there has been no change although it is easier to sell than to buy at the quotations. Shipments have fallen off, possibly because the November purchases are pretty well all on board ship, and receipts show some increase, from which results an increase of about 20,000 bags in stock."—*H. & C. Mail*, Jan. 8.

IF AN early mango crop foretells a season of drought, the prospects of the next monsoon are not bright. The royal fruit is already being hawked about Madras and can be bought for something less than two annas each. By careful cultivation it is possible, we believe, to have mangoes all the year round, but not often at the above price at this time of year.—*Madras Mail.*

THE SANITARY COMMISSIONER OF ASSAM has called the attention of Government to the fact that, owing to the absence of any system of conservancy in tea-gardens in that Province anæmia is spreading among the coolies. The malady known as *kala-azar* is also referred to the same source. The particular form of anæmia under consideration is said to be so prevalent that in one garden alone 36 per cent of the new coolies were found to be suffering from it.—*M. Mail*, Jan. 19th.

CEYLON TEA IN LONDON IN 1891.

We place below Messrs. Stenning, Inskipp & Co.'s review of Ceylon tea for 1891. In the past year, out of 59,708,000 lb. imported into London, the delivery was 53,486,000 lb. Prices had, however, unhappily gone down in proportion to quantity sent to the London market, from 1s 3¼d for 58,921 packages in 1885, to 9⅞d per lb. for 755,562 packages in 1891. The reasonable hope now is that the large amount of our teas which have gone into consumption will create a demand at better prices. Poor China is likely to be driven out of the market, as at present the favourite tea is certainly Ceylon. Our deliveries were 53½ million lb. against 10 million Indian and 50,817,000 China. The percentages now are :—Indian 49; Ceylon 25¾; total Indian and Ceylon 74¾ against 24¼ China. The latter figure is likely to become small by degrees and beautifully less.

THE COURSE OF THE MARKET.—A good demand at higher prices took place on the resumption of business, but in March, owing to indifferent quality, values receded until April, when an enquiry for teas "for prices" up to 11d took place; with heavy auctions in May the market gave way except for really good invoices; from June to August values for all but good Teas declined, the imports containing a large proportion of undesirable kinds. In September arrivals were of better quality, and more firmness was shown, the superior parcels going dearer; this position continued throughout October and November; the year closed firmly with an advance on all descriptions.

QUALITY.—The abnormal weather experienced during the greater part of the year in Ceylon caused a large yield of leaf, but at the cost of quality; still, a fair proportion of the Teas has been exceedingly good, and, in many instances, with fine flavour. The Imports generally have met a ready sale, their freshness and freedom from coarseness being in contrast with much of the China crop which it so largely supplants.

DELIVERIES IN 1891.—Although the supply has so rapidly increased, being 59,708,000 lb. against 40,012,000 in 1890, or equal to 49¼ per cent, the Delivery has likewise shown a remarkable expansion, viz.: 53,486,000 lb. against 37,652,000 lb, in 1890, or an increase of 42½ per cent. The poor quality and comparative dearness of so much of the China Crop have undoubtedly given a great impetus to the use of Ceylon growths, which, combined with Indian, are steadily forcing the produce of China out of the market; at all events, the preference on the part of consumers for Ceylon and Indian Tea is now so strong that it seems impossible China can recover any of its lost ground; on the contrary a further displacement is probable.

IMPORTS.—It is calculated that the area under cultivation is about 250,000 acres, and that the crop 1st January to 31st December 1891, will total about 67,000,000 lb., and in 1892 about 72,000,000 lb. The Imports have increased so rapidly, that it would be to the advantage of all concerned if Auctions were held more frequently in the week than hitherto, the one day and a part of another, as at present, compressing too great a quantity into that space. We would point out that much may be done by managers of gardens to ensure their Teas being more fully examined by buyers, by keeping the qualities down to four at the outside in each invoice, and thus making larger breaks.

AVERAGE PRICE

1891 ..	755,562 Packages, average	0s	9⅞d	per lb.
1890 ..	535,611	„ „	0s 10⅝d	„
1889 ..	431,043	„ „	0s 11d	„
1888 ..	303,284	„ „	0s 11½d	„
1887 ..	182,955	„ „	1s 0⅛d	„
1886 ..	101,145	„ „	1s 1d	„
1885 ..	58,921	„ „	1s 3¼d	„

INTERESTING CASE TO TEA-TRADERS.

FORGING A TRADE MARK.

Under this heading the *Overland China Mail* reports a case in which, on 30th Dec., 1891, at the Magistracy Ho Yip Chi, broker, was charged before Mr. Wise with having, on 19th Dec., falsely applied to certain packages or boxes of tea a trade mark purporting to be the trade mark of the Yuen Shun firm, of Canton, without the assent of the proprietor of the said firm. Mr. Ewens conducted the prosecution, and Mr. Pollock defended.

Inspector Stanton stated that some time ago he received a warrant for the seizure of some tea bearing the forged trade mark of the Yuen Shun firm. By virtue of that warrant he seized sixty empty tea boxes bearing the trade mark of another firm, thirty-five packages of tea bearing the trade mark of the Yuen Shun firm, fourteen bags of tea in the top floor of a house at 74 Queen's Road West. There were also three boxes containing some tea, some seals, and a number of stencil plates. The three boxes bore no mark. * * * When the tea and boxes had been at the Station a long time an application was made to the Captain Superintendent of Police for the fourteen bags of tea and the thirty-five packages. The application was for tea marked 'Yuen Sin' not Yuen Shun. The tea was not given up. Afterwards the Captain Superintendent was summoned in the Summary Court for the value of the fourteen bags of tea and the thirty-five packages. So far as witness knew nothing further happened till the defendant came and claimed the tea. He believed there was another application made before that, but he did not see it. He was present when the tea was delivered up to the defendant, who said he claimed it under a power of attorney. Defendant ordered the coolies to take the tea back to the house where it had been seized.

Inspector Haddon stated that he arrested the defendant by virtue of a warrant. He asked the defendant if the tea was his, and the defendant answered in the affirmitive. Witness then produced the warrant, arrested the defendant, and seized the tea. He seized the whole thirty-five packages of tea, one of which was produced in Court.

Chi Yu Tiu, the complainant, stated that he was the master of the Kwong Mau Tai shop in Hongkong. He was also a partner in the Yuen Shun firm and was their agent in Hongkong. The firm had been in existence for 22 years. Its headquarters are at Honam, Canton, and the firm dealt only in teas, making specialties of two kinds. This kind was known as Wan-loo tea and it was principally sold in America. Shown labels—These were not the labels of his firm. They were initiations. Shown box—That was not one of his firm's boxes. He was sure it was an imitiation. The trade mark was not put upon this tea with his consent. It had been put on without his knowledge. Shown wrappers of small parcels of tea—These seemed to be the same as those used by his firm. There was only one shop in Honam bearing the name of the firm.

Cross-examined—* * * He knew the tea produced was not from the Yuen Shun shop because the characters on the wrappers were not identical. It read the same, but the shape of the characters was not the same. The strokes on the imitation were very thin whereas the strokes on the genuine wrappers were thick. The imitation could not possibly have been issued by the Yuen Shun shop. After a minute examination of the wrappers, witness pointed out that the real wrappers and the forged wrappers could not have been printed from the same stamp. The Yuen Shun firm had only one stamp, which they had been using for several years. They had no duplicate.

Mr. Pollock submitted that the case for the prosecution had broken down, as the only thing that had been proved was that the defendant got the tea under a power of attorney.

Mr Wise said it was his opinion that there had been an attempt to swindle. This Cheun Yuk Pan was apparently guilty and he was trying to get the tea out by means of the defendant. He was not

going to convict the defendant, and if the principal did not come down from Canton within a reasonable time he would order the sale of the tea.

Mr. Ewens said he did not care whether his Worship convicted or not, so long as they retained possession of the tea

Mr. Wise (to Mr. Pollock)—If you don't produce the real owner I must sell the tea.

Mr. Pollock maintained that his Worship had only power to forfeit the tea after conviction.

Mr. Wise—Oh, no. Are you going to find the owner ? (a laugh). Under the circumstances I will discharge this man, but what I propose doing now is to give you time to produce the real owner.

Chu Yu Tin (re-called) stated, in answer to Mr. Pollock, that the trade mark of his firm had never been registered.

Mr. Wise—I don't mind telling you my opinion of trade marks in this Colony. Registration of trade marks is absolutely worthless for trade purposes or otherwise. However, all I am going to do just now is to acquit your client. I suppose you will not raise any objection to that.

Mr. Pollock—Oh, no, but I want the tea back.

Mr. Wise—But I will not give it to you.

Mr. Pollock—My objection is that as the trade mark is not registered in this Colony the tea ought to be given back. There is no charge in respect of the tea itself, and therefore the police cannot detain it.

Mr. Wise—I overrule that objection.

This concluded the proceedings.

A RETROSPECT OF THE TEA MARKET.

It is well that planters should sometimes see the position of tea as dealers view it, and we, therefore, give at some length the following summary of the tea market as it appears in the *Grocer* :—

" The world is full of surprises, and seldom, if ever, has this trade shown such fluctuations in value as in 1891, or such an upset in calculations as to stock at the end of the season. We began the year 1891 in the best of spirits as far as the market and importers were concerned. Trade was good, and deliveries for both home consumption and also export were on the increase. Supplies from China were much curtailed. The Indian crop 1890-91 failed to give the estimated extra 10 million lb., and instead we received only 100 million lb., or say one million lb. *less* than the previous season. Everything seemed to favour a big rise and absolute scarcity of supplies, as the retailers nearly to the end of 1890 had been only buying Indian teas from hand to mouth. The opening of the market in January, 1891, was buoyant at a material advance over rates obtained before Christmas. By the end of January a telegram was received from India that the export would be under 100 million lb., and prices went up with a bound. Quotations for China tea soon went up to 8d, and Indian tea to 10½d per lb. in the spring. All dealers' stocks were being bought up, until they refused to sell any more of their Indian stock. Importers were eager sellers all through, and many could not understand it, as it looked as if there would not be enough tea to go round up to the end of the season. Some large 'bear' sales of China tea soon broke that market, the 'bears' importing some big lines of Moning from America. Unluckily for China tea, export orders, which had been so good for the first half of the season 1890-91 (June to December), fell off from January to June, 1891, to the extent of nearly 4 million lb., and this fact, together with the extra supplies from America, helped to weaken the position of China terminals. Common Congou itself was scarce, but better teas had to be forced off as the end of the season drew near, so that Canadian shippers got teas at their own price, and the trade were able to fill their most modest requirements at fairly low rates. Indian teas were however considered to be in a far better position, and holders were quite confident that the trade would have to take their stock, as Indian teas could not be replaced by any other kind. Mixers and retailers decided otherwise, and Ceylons coming in freely and at a lower range of prices, they were so freely used that their consumption increased nearly 11 million lb. for the first five months of the new year, while Indians fell off considerably. Dealers, therefore, got hung up with some very dear China and Indian stock, and their losses have been very heavy. Since the beginning of the new season (1891-92) supplies have been coming in so heavily from all three countries that they have far outstripped demand, and, whereas we commenced the season with 8 millions less stock than in June, 1890, yet as the year closes we have 10 to 12 million lb. more. China has sent us this season a full supply from Hankow of very high-cost Ningchows ; the trade took a little, with a fair quantity of Kintucks, but unluckily the Russian famine has stopped all buying of high-priced teas from this market, and the consequence has been smash-out sales of all the good and choicest Ningchows at losses of from 6d to 1s 6d per lb. to the importers in many cases, or cent per cent on dealers' early purchases, some of which they still hold, whilst Kintucks can now be bought at a drop of 4d to 8d per lb. It will thus be well understood why the wholesale dealers are so depressed, coupled with the fact that they are losing a very large portion of the retail trade, owing to the enormous business some of the packet and co-operative societies are doing, and who buy direct from the market. ' Out of evil comes good,' they say, and if only the low prices of fine China teas attract the public attention, it may be the means of rehabilitating China tea for home use. Our most eminent doctors recommend it for nervous people or for those with weak digestion, and on the strength of Sir Andrew Clark's lecture many of the leading retailers find this a favourable opportunity to introduce a fine China canister at a moderate price. It may succeed with the few, but no doubt the 'million' will continue to prefer the stronger Assam and Ceylon growths for some time to come.* Speaking roughly, we may say we have had, from all quarters, inferior teas to deal with this year ; and this, together with the heavy supplies up to date, accounts for the very low rates that are now ruling. Home deliveries for the last few months have been splendid, with increase upon increase throughout the year. Export, which showed an increase at the end of the year 1890, fell off from January to June, 1891, some 4 million lb. ; but, curious to relate, this second half of the year, which takes in the 1891-92 crop, is very little behind when compared with the similar period last year, although there is supposed to be no demand for Russia, while the Continent has also wanted less owing to larger direct imports. As regards the small falling off for export from June 1 to Nov. 30, we find from Messrs. Gow, Wilson, and Stanton's circular that the *export* of Indian has increased 1,000,000 lb., and Ceylon 600,000 lb., or nearly double what it was last year in the same period. It is most difficult to see ahead, or try to give any advice. Prices are very low and look as if they must have touched bottom; nevertheless stock is rather heavy, and Ceylon promises to give us a further large increase next year. All these increased supplies from India and Ceylon are at the expense of quality ; but the trade do not want all this common rubbish.

CHINA TEA.

The total import from China for the season is expected to be about 60 million lb., or 10 millions less than last season. No doubt we shall require it all, and still be able to use up some of the old stock, as we delivered 81¼ million lb. from June 1, 1890 to May 31 1891. At the rate we are now delivering, we must reckon a falling off of some 12 million lb., thus showing a need of say 69 million lb. for the season ending next June. Total stock on Jan. 1, 1891, was 94 million lb., against 106 million lb. in 1890.

INDIAN TEA.

Consumption was very much checked by the high rates ruling for the first six or seven months

* And for all time. Persons of commonsense know what is good for them better than does an utterer of rash rubbish like Dr. Andrew Clark.—ED. *T. A.*

of the year, but the low prices of the last three months have again given them an impetus, and when the figures are made up at the end of the year we expect deliveries will be just under 102 million lb., or say, 1 million lb. less than last year. The total import for 1890-91 season was just under 100 million lb., so that there was some justification for a rise at the beginning of this year. Unluckily, speculators rushed in and raised prices so high that they drove the teas out of consumption, and got left high and dry with stock they had to take 2d. to 3d. per lb. loss on, whenever anyone could be found to relieve them of their burden. The year opened at ½d. to 1d. per lb. advance, with a splendid demand for teas for price, say 9d, per lb., while Pekoes were also 1d to 2d per lb. higher at opening. Merchants offered their teas as fast as they could, but prices continued to rise right up to the end of April, until 10¾ was reached for type grade, but good and stylish Pekoes only brought ½d to 1d per lb more. At the beginning of May undesirable teas began to waver, and from then onward prices dropped steadily, and holders were glad to find buyers at any price, so that by the end of June 8½d was about the quotation for Pekoe Souchongs, and Pekoes only a little better. It will be remembered that the crop of 1890-91 was not so good as that of the previous season, while the present crop is still worse; the bulk is *thin* with no point, and more than half of the supplies up to date (say two-thirds of the crop) has been sold under 8d per lb. One exception must be made, and that must be for Darjeelings—some of the better teas this year having fine flavour and bouquet, whereas last season they were dull and pointless. Teas under 9d per lb. are now from 1d to 2d per lb. cheaper than at this time last year, but good liquoring pekoes about 11d to 1s 2d of which we had an oversupply last season, are quite 1d to 2d per lb dearer quality considered. Fine teas are again very scarce and realise extreme rates. The new season's have come forward very fast, and we have already had some 10 million lb more than last season to date. The new crop is now estimated at 108 million lb. for this market so that we have already had more than the surplus. Prices are temptingly low, and there are already symptoms of higher prices, The first of the new season's came of in July very poor and thin, from 7½d to 8d for pekoes and pekoe souchongs, and old teas were being used instead, as showing much better value. Sales got very heavy in September, and common and undesirable teas were quoted easier every week up to the beginning of December, when there was a sudden rise of ½d to ½d per lb. On the other hand, good-liquoring and finer teas continued to improve in value and were well competed for at full prices and at over last season's rates, the rise in good Pekoes and Broken Pekoe being 2d to 3d per lb. between September and the middle of December. Before the end of the year dealers had got rid of all their old stock, and the feeling was much more hopeful, as there was a large trade doing, and a very healthy, firm market. Stock on January 1st, 1891, was 36¼ million lb, or 1½ million lb. less than January 1st, 1890, while the season ended on May 31st with 26½ million lb. stock against under 27½ millions in 1890.

CEYLON TEA.

Is unlike the 'faded beauty,' that is put on the shelf when youth and freshness are past. No rival can yet replace her, although the true rich Ceylon flavour is seldom to be met with now. The bulk of this year's crop has been very poor, and many of the teas have been raw and coarse-burnt, and often characterised as 'Indian kind.' Quality varies several times a year and often a fall of 2d. to 3d. per lb. in certain marks is no fall at all, but only an allowance for the difference in quality. Ceylon, like all powerful and successful people, is hated by its rivals, and one often hears the wish expressed that the wretched little island were at the bottom of the sea. The public are infatuated with Ceylon tea, and they never seem to grumble, although quality so often falls off. The growth of consumption this year is enormous, viz., over 15 million lb., or say 10 million lb. since June 1. The total import for the year will be about 60 million lb, and delivery about 54 million lb. Next year they talk about sending us some 76 million lb., but if quality continues to decrease as quantity increases, the day will not be far distant when they will have nailed up their own coffin. Prestige will not last for ever. Prices now, as compared with the same time last year, might be summed up as follows:—Souchongs, Pekoe Souchongs, and low-priced and inferior liquoring brokens are quite 2d. per lb. lower, good Pekoes 1d. to 2d. per lb. lower, while good liquoring broken Pekoes and finest lines are dearer and very scarce, although at two or three periods of the year they have been 2d. or 3rd. per lb. dearer than at present. The year 1891 opened with an advance of ½d. to 1d. per lb. for low-priced teas on the closing prices of 1890, and a good trade was done up to the beginning of March at always improving rates; sales then became large, and, with small trade demand, ½d to 1d drop in teas for price, 1d to 2d drop in Pekoes, and 2d to 3d drop in Broken Pekoes was registered by the end of April. During May another drop of 1d per lb. was noted. In June and July supplies were very heavy, quality very bad, and few teas to be found with any true Ceylon flavour. Souchongs were quoted at 6d to 6½d, Pekoes at 7d to 8d, and Broken Pekoes at 9½d to 10½d, but fine liquoring brokens were dearer than ever, and selling from 1s 5d to 1s 10½d per lb. Prices then kept steady, although with heavy supplies, for another month or so, when they began to fall off; quality began to improve, and prices distinctly rose up to the end of the year for all but common rubbish, which kept Indian, while even this class suddenly improved about ½d per lb. at the middle December sale. From some of the foregoing remarks we do not wish it to be inferred that we disparage Ceylon teas. When they are good we think they are the perfection of tea—they are most necessary in blending with China tea, and the two go well together, as China tea tones down the rather too highly-flavoured Ceylon growths. As long as quality keeps fairly good we do not think that any tea will supersede it. China it has almost killed, and India, no doubt, is suffering from its competition. Let us only hope that her output may increase on account of new ground being brought under cultivation. This year the increase has principally been brought about by the heavy rains and early flushings, which had the effect of producing a heavier but coarser crop. This year has been noted for several sales of small lots of golden and silver-tipped teas—the extravagant prices realised were, however, more of an advertisement, and not a representation of actual value."—*H and C. Mail*, Jan. 8th.

NOTES ON COORG.

The administration of Coorg during 1890-91 does not call for much notice. The total revenue under all heads came to R815,988, and the total expenditure to R567,828. There is an increase observable both in revenue and expenditure, the latter of which was due to the cost of the new Survey Department. Survey Works seems to have been energetically pushed on, and though men had to be procured and instructed, the skeleton survey of 278 villages, having an area of 592 square miles, and the cadastral survey of 165 villages, having an area of 276 square miles, was completed at a cost of R49,798. Great success is reported to have attended the training of local men as measurers, and nearly all the subordinates of the Department are now Coorgs, who have worked well, while their employment has done a great deal towards lessening the unpopularity which the survey was at first threatened with. The increase in revenue was chiefly contributed by the forest department, the sandalwood sales being unusually successful. The year's harvest was poor; the rice crop was generally a light one, and in some places nearly a complete failure while the coffee crop was only 2,129½ tons

against an average of 3,557 tons.. The cardamom crop was not quite so bad as the previous year, but still a poor one, and as the low prices continue, the growers of this product are becoming much impoverished.—*Madras Times*, Jan. 20th

(*From our own Correspondent.*)

COORG, Jan. 15th.—There was a harvest thanksgiving service held in the Polli-Betta Church on Sunday, the 10th inst., owing to the almost phenomenal crops that are being picked in the South Coorg District this season. Nothing like it has been seen for several years past, and with the present prices ruling in the market the losses of bad seasons will in some measure be recouped. The Rev. Mr. Malden conducted the service. In the case of one estate I hear the estimate was only 10 tons, but over 30 tons were picked off it, and there was still a little leaf. The estimate on another place was 20 tons, and nearly 40 was picked off it. The like stories come from almost every quarter of the District. I have also heard that in some places they ran so short of water for curing purposes that coolies had to be employed to carry up water in pots to wash the coffee. This could not have been very satisfactory, and I am sure the planters concerned would have been really glad if some heavy showers had fallen to help them in their difficulties. The water running short can only be accounted for by the heavy crops that had to be cured, as I believe the rainfall in the District this season exceeded the average by about 10 inches. The crops in North Coorg will not, I am afraid, turn out as well as the South Coorg ones, but it is hoped that they will all be paying ones. Of course there are several exceptions, where crops will be large. I think the reason why the crops in North Coorg were not quite so large as those in the Southern District is owing to the fact that while South Coorg was having a bad time of it during the past few years North Coorg has done fairly well. I one day visited an estate where there was a very good crop, and where the trees were looking in prime condition in spite of being heavily laden with berries. The proprietor, who was with me, pointed out a field off which he said he had on a former occasion picked 15 cwt. an acre during the second picking. I almost felt as if a Royal salute was being wafted on the breeze to me and that a Guard was presenting arms when I heard the statement.

Your Nilgiri correspondent's remarks about the colour of coffee have been most opportune. Every care should be taken to prevent coolies from picking half ripe berries ; but it sometimes happens that in spite of the strictest supervision some of them will bring in unripe fruit. I was surprised once to hear a planter of very large experience say that half ripe berries made no difference whatever in the colour of the beans. The usual mode of curing coffee in Coorg is to have it pulped directly it is brought in the evening. The pulper most in favour is Gordon's fluted barrel breast pulper; others are also used, such as the disc pulper, etc. Directly the coffee is pulped it is allowed to ferment for from 36 to 48 hours. It is then washed throughly and placed upon drying tables, where it remains for 3 or 4 days prior to being removed on to the barbecues. It is dried in all about 8 days before it is despatched to the coast coffee works. Usually at this time of the year there is no dearth of carts and there is generally therefore no necessity for storing the coffee long. If it has to be stored it is frequently turned over and given an airing in the sun once in a way. In Ceylon, where the weather during crop time is most uncertain and rain continues to fall sometimes for six weeks at a time, the coffee used to be dried by what was known as the hot-air process in stores especially constructed for the purpose. This must have been highly expensive, but some of the planters there were of opinion that it was not a complete success. It need hardly be said, therefore that it was not generally adopted throughout the country. The drying tables referred to above are constructed in different ways. There is the rough and ready one, which consists of forked sticks driven into the ground and covered over with a frame work of bamboos. Over this is spread coir matting and the coffee laid on the top of it. The breadth of these tables generally varies from 3 to 6 feet. Permanent tables are constructed in the following way. Brick-pillars are built at regular intervals, about a foot and a half square and about three feet high, and frame works of reapers and rafters are placed on the top of these when they are required for drying coffee on. When they are no longer required they are removed into the store till the following season. An ex-Ceylon planter called these tables "gims." The strangest part of it was that he used to go in for them himself!*

The coffee from Canon's Estates in Mysore has always held the highest place in the English market, and one year when prices were ruling very low everybody was surprised to note the very high prices obtained by Canon's coffee. This induced a planter here to obtain a sample bag of the coffee, to compare it with his own. No difference could be detected, with the exception that the beans were somewhat larger. It was then assumed that the estates being very old the coffee had succeeded in obtaining a good name for itself years ago, which it has succeeded in maintaining ever since. I remember reading in an old copy of *Punch*, I think of the year 1866, of the estates being supposed to be offered for sale, and a Company was at once formed to purchase them. The whole thing was a mistake, which was all caused by an illegible signature of another proprietor who offered his estate for sale. Although the estates are now of great age they are still, methinks, in a flourishing condition, and are giving paying crops to the proprietors. The soil in that part of the country is, I believe, most excellent, and almost inexhaustible, while labour is also very cheap and obtainable, locally. The working of the estates costs very much less than it does in Coorg, where permanent gangs have to be kept, as directly work is finished on these Mysore estates the local labourers is dismissed till their services are required again.

Some years ago, when the price of coffee was very low, efforts were made almost on every estate in the country to improve the colour of the beans by drying coffee under shade for a few days before putting it out in the open. Although I heard from one or two places that this had resulted in obtaining for the coffee a couple of shillings or so in excess of ruling prices, yet it was generally believed that the drying of the coffee like this in no way benefited the beans in improving their colour. I think just about that time, or a little later, a gentleman in charge of curing works at Coimbatore wrote to your paper and said that the experiment had been tried years ago and the whole thing exploded. A good outturn at curing works really means a good price. The best outturn ever known was that of Dunkeld Estate, North Coorg, which one year turned out 79 bushels of parchment to the ton! I am indebted for this piece of information to the gentleman above referred to, who was in charge of the Coimbatore curing works. Some estates give a very bad outturn amounting sometimes to as much as from 93 to 95 bushels a ton. 88 bushels to the ton is very good, but in calculating the tonnage on the estate 90 bushels is usually allowed to the ton. There was a discussion at one time as to whether the beans of coffee grown in the open had greater weight than of that grown under shade, and I think it was decided that the beans in the former case had the advantage in weight.—*M. Mail.*

AMERICAN QUININE RUMOURS.

All during the Christmas week, says the *O, P. & D. Reporter*, there have been reports current in America that a combination of the European manufacturers of quinine was about to be accomplished. Details are lacking, but the trades seems to have put some faith in the reports as the transactions during the week have

* But what does "gim" mean? Contraction of "gimcrack"? The writer seems never to have heard of "Clerihews."—ED. *T. A.*

been on a larger scale than at any time within the past six months or possibly the entire year. The most interesting feature of the rumours now current is that the Brunswick people, who have been heretofore aggressively opposed to the establishment of any understanding, have signified their willingness to co-operate with the other makers in an endeavour to improve the situation. According to the *N. Y. Shipping List* a London circular of December 11th says that it has been learned on excellent authority that a movement to combine the German factories is again at work. The proposed agreement may not be an international affair at the start, but the intention is doubtless to regulate production and realise better prices in the home markets. Some manufacturers abroad are reported as being very much surprised over recent developments and the fact that sellers have been offering quinine for the whole of next year at 9d. These offerings come from two different sources, and we thought to represent the concentrated efforts of certain parties who are trying to promote the combination idea by the usual method of bearing the market. Very little confidence is placed in the reports by members of the trade in America, with one or two exceptions. —*Chemist and Druggist.*

THE DUTCH MARKET.

Amsterdam, Jan. 7.

The cinchona-bark sales to be held in Amsterdam on January 21st, 1892 will consist of 4 758 packages—viz., 4 529 bales and 229 cases, about 417 tons, divided as follows:—From Government plantations 225 bales, 77 cases, about 24 tons; from private plantations 4,304 bales, 152 cases, about 392 tons. Druggists' bark: Succirubra quills, 107 cases; ditto broken quills and chips 135 bales, 5 cases; ditto root 37 bales, 4 cases. Manufacturing bark: Officinalis quills 24 cases; ditto root 4 cases; ledgeriana quills 85 cases; ditto broken quills 3,239 bales; ditto root 867 bales. Hybrid broken quills 241 bales; ditto root 10 bales—total 4,529 bales, 229 cases.—*Chemist and Druggist.*

FACTS WORTH KNOWING.

Egg stains can be removed by rubbing them with common table salt.

To keep flies off gilt frames, boil three or four onions in a pint of water, then apply with a soft brush to the frames.

When whalebones have become bent, they may be used again by first soaking them in tepid water for a few hours, and then drying them.

Lamp-wicks must be changed often to insure good light, as they will soon become clogged, and the oil does not pass through them freely. A clear flame will be certain if the wicks are soaked in vinegar twenty-four hours before using.

When washing windows, looking-glasses, etc., be sure to put a little ammonia in the water. This will save labor, and clean them much more effectively, giving as well a much finer polish. For general cleaning, ammonia in the water will remove dirt, smoke, grease, etc., much better than anything else.

Do not wash combs unless absolutely necessary. Water will make the teeth split and the comb rough. Small brushes, which are made for the purpose of cleaning combs, are easily obtained at little expense, and with one of these the comb may be thoroughly cleansed, wiping well and following with a soft cloth afterwards.—*Good Housekeeping.*

NOTES FROM OUR LONDON LETTER.

LONDON, Jan. 15.

Certainly, if correspondence in the public newspapers may be accepted as constituting an admirable vehicle for the advertisement of Ceylon teas, you may be congratulated on the occurrences of the past week. It was only when last writing you that it devolved upon me to notify to your readers several letters which had been published during the week then under review, and the past seven days have seen these still further added to. We believe that a letter from Mr. C. S. Hicks has appeared in more than one of the papers, but it has only been under my own observation in the *Globe* of the 8th instant. It was a very lengthy letter, far too much so far as to expect you to reproduce it *in extenso*, and therefore a reference to its general character will suffice for this letter of mine. Mr. Hicks's communication is headed "Facts about Tea," and in it he describes himself as being "the largest shipper of Ceylon tea packed in Ceylon." We understand that this claim is somewhat disputed, but with such a difference of opinion we need have nothing to do. The whole intent of what Mr. Hicks wrote was to disparage China teas as compared with those of Ceylon; and what he has written for public instruction is forcible enough and calculated to do much towards nullifying any prejudices which may have been awakened by Sir Andrew Clark's late unwarrantable and injudicious utterances.

Mr. Hicks's letter was followed up in the *Globe* of Tuesday last by further letters written respectively by Dr. N. E. Yorke-Davies and by a gentleman who subscribes himself as a "Tea Planter of Thirty Years' Standing," the identity of the latter being unknown to me. It can only be said of the last two letters that they form the clinching of the rivet driven home by that of Mr. C. S. Hicks. The perusal of them cannot be pleasant reading to those in the China tea trade, who year after year see their business narrowing more seriously in its dimensions.

The Brokers' Association is to hold a meeting today to finally discuss arrangements for availing themselves of the further accommodation granted by the Committee of the Commercial Sale Rooms for the auction of Ceylon tea. The proposal to be considered is that, from the beginning of next month, the sales of such teas shall be continued throughout the whole of Tuesday and Thursday in every week. Former letters of mine have told you as to possible difficulties arising out of the necessity some firms may be under of appointing an additional buyer to meet the new arrangements; and these, if they are considered serious, will probably find expression at today's meeting. From all that has been told to me it does not seem to me to be likely that any such possible objection would be allowed to overrule the manifest advantage the newly-conceded arrangements must prove to all and everyone concerned in the trade.

The necessity for these being conceded was very strongly evidenced by the sale of Tuesday last, which was the heaviest Ceylon auction as yet held in London, there having been no less than 20,047 packages offered. In spite of this large quantity being available, the price was well maintained throughout, and one seller informed me that though he had come the last on the list of the day's auction, the whole bulk of his tea sold for a halfpenny over valuation.

It has been told me that at the meeting of the Ceylon Tea Plantations Company, the proceedings at which were reported by my last letter, Sir William Gregory expressed himself as the most determined opponent to the project for undertaking coffee planting in Perak. Indeed, your former Governor appears to have been quite excited in his denunciations of this now abandoned scheme, he declaring that, had he believed any such investment out of Ceylon would ever have been contemplated by the directors, he would not

have touched the shares in the Company he had accepted in part payment for certain estate property he had sold to it "with a pair of tongs." Those who saw Sir William Gregory on that occasion tell me that he looked dreadfully ill and worn; and he himself confessed that his attendance at the meeting was strongly in opposition to the counsel of his doctor.

Mr. J. L. Shand did not take the mana grass tea box with him, but it has been shipped this week per "Manora" for conveyance to Ceylon to be delivered to him there. You will therefore soon be afforded the opportunity of judging for yourselves of the value of the mana-grass board for manufacture locally into articles of this nature, and of its possible applicability to even more extended purposes.

Mr. Elwood May has just sent home another specimen of the advertisements of his Tea Company that he has had inserted, under the arrangements formerly detailed to you, in the American papers. This one is contained in a paper called *The Stage*, a journal which is devoted to a record of all connected with theatrical matters, and is undoubtedly one of the best specimens of specialist newspapers we have ever seen. The advertisement is very much in Mr. May's customary style. For one of its headings it has "Ceylon Tea Aids Nutrition of the Nerves." It gives at length a highly eulogistic letter written by Mr. J. A. Bourchier, M.D, of New York, a specialist in diseases of the nervous system, in which he says that, after extended trial, he recognizes the enormous value of Ceylon Tea in dietetics, and that he is able to permit its use in the case of numerous disorders in which he had previously forbidden the drinking of tea at all. He further wrote:—"Ceylon tea aids nutrition of the nerves, and thus is not only free from injurious effects, but is beneficial as a beverage." The advertisement also quotes from Dr. Yorke-Davies's book entitled "Food for the Fat" published in London some time back, in which the use of Ceylon tea is recommended. These quotations are followed by a notification that Ceylon tea furnishes "a cup that cheers with after cheer is what an actress needs. She will find this in our Pure Ceylon Teas, Blend, Tiffin and Bungaloe." The advertisement concludes with the announcement that the capital of the Company is 1,000,000 dollars, but it does not state how much of this is paid up.

EXPORT OF TEA FROM JAPAN.—During 1891 Japan exported between three and four million more pounds of tea than in 1890.

INTRODUCTION OF THE BIRCH TREE INTO CEYLON.—Some time ago we mentioned that we had been favoured by our good friend Mr. Gammie of the Sikkim cinchona plantations with seeds of a Himalayan birch, which he described as rapid in growth and as yielding a wood excellent for fuel purposes. During our recent visit to Abbotsford we found some plants so well advanced that we cut a couple of twigs from one, which, as specimens, we sent to Dr. Trimen. In response the Director of the Royal Botanical Gardens writes:—

"Peradeniya, Jan. 4th, 1892.

"I am so glad to see the Birch, the first in Ceylon. I suppose it is *Betula utilis*; the name refers rather to the bark, which is greatly used, than to the wood though that is good also. I hope the 'Birks' of Abbotsford will thrive as those of Aberfeldy."

Not having Mr. Gammie's letter to refer to, we cannot recall the specific name he gave, but Dr. Trimen's guess may be correct; although, on referring to Gamble's Manual of Indian Timbers, we cannot find *utilis* amongst the Betulas described by him, which are *Aacuminata*, Wall., *alba*, Linn., *Bhojpattra*, Wall., *cylindrostachys*, Wall. *Jaquemontii*, Spach., and *papyracea*, Willd. The only one of these described as of fast growth is *Betula cylindrostachys*, which grows on the Darjeeling Hills and is used only for fuel and charcoal purposes, for which it is very good. It is described as an extremely handsome tree with drooping branches. In this latter characteristic it resembles the exquisitely beautiful birches of the Scotch Highlands. As yet our specimens show no signs of the drooping tendency, but we hope they will take it on when further advanced. Meantime, some of the *Eucalypti*, "red gums" especially, grown on Abbotsford and other upcountry estates are very beautiful substitutes for birches, in their drooping branches and fine foliage. If, as Dr. Trimen indicates, our birches are the first grown in Ceylon, it is something for Abbotsford to be proud of. There are English oaks, one of which has borne acorns, and seedling Assam oaks (*Quercus serrata*), to keep them company.

ELECTRICITY IN OYSTER CULTURE.—It might be thought that electricity would be about the last adjunct to employ in studying the culture of the succulent bivalve. An application of it, however, has recently been made by Mons. Lacase-Duthier, the well-known authority on oyster culture. He makes use of the electric light in examining the stages of development through which the spawn passes. A glass cylinder is mounted in a cylindrical skeleton cage which serves as a support; into this glass the water containing the spawn is placed. At the bottom is a plane, silvered reflector; the cover forms a parabolic reflector, in the centre of which is fixed a small incandescent lamp. The reflectors and the sides of the glass cylinder act in such a way that but few rays of light emerge from the apparatus directly; hence the liquid is suffused with a soft illumination which is admirably suited to the examination of the contents. This little apparatus, or a modification of it, is now being employed in various researches into the life processes of ferments and the culture of microbes, the illumination by the incandescent electric light being much more suitable for the study of these low forms of life than that from other artificial sources.—*Electrical Review.*

THE DIAMOND-BACK MOTH CATERPILLAR may be an object of interest to entomologists, but market gardeners regard it with unconcealed suspicion. Last July, swedes, turnips, and cabbages in various districts of the eastern parts of Yorkshire, Lincolnshire, and Norfolk, and Scotland were infested to an extent which excited great apprehensions on the part of the growers and attracted the attention of the Board of Agriculture. Mr. Charles Whitehead, F.L.S., was commissioned to prepare a special report upon the pest, and this has just been issued as a Departmental Paper. Mr. Whitehead shows that as long ago as 1859 this moth was known by turnip-growers to be very mischievous, while during the last ten years it has made its appearance at many places in numbers which indicate an enormous multiplication of the species. Sir Jacob Wilson pointed out to the Royal Agricultural Society last July that although there had been every prospect of a large crop of turnips in Northumberland, the attack of the pest during the previous week or fortnight had reduced large tracts to a waste desert. Swedes seem to be a favourite crop, but cabbages have suffered still more. Mr. Whitehead concludes a comparison of the remedies that have been tried, by pointing out that the application of the mixture of soot and lime in good time with the Strawsonizer is the best; but paraffin, quassia, and carbolic acid are efficacious to some extent. Nitrate of soda and other stimulants have too been found useful in forcing the growth of infected plants. Prevention, however, is better than cure, and farmers should make a note of the important fact that it is most important to cut down in the spring cruciferous weeds, such as "charlock," hedge mustard, and prickly saltwort, which serve as breeding places for the first brood of moths.—*Daily Graphic.*

FROM THE METROPOLIS.

London, Jan. 15th.

THE CEYLON TEA PLANTATIONS CO., LD.

Calling at the Mincing Lane office of the Company two days ago, I was fortunate enough to meet Mr. Rutherford, whom I had missed twice on previous occasions; but sorry to learn that Mr. Reid had left for Scotland the night before. The Chairman of the Company has, in fact, been far from well: he had a sudden and severe attack (connected with his Indian experience of dysentery), and had to cancel public engagements to speak at political meetings. He is now ordered to be very careful of himself or some time to come. Mr Rutherford, on the other hand, is in robust health—stouter and ruddier than in the Ceylon days. He gave me the news that the proposal to invest some of the funds of the Company in coffee in the Straits was solely to meet the recommendations of their Ceylon Manager, Mr. Talbot, and by no means because Mr. Reid or he himself were eager for this addition to their business; indeed, if they had been, they could easily have outvoted the opponents led by Sir Wm. Gregory. But the suggestion was simply made to see what shareholders thought of it, and it was Mr. Rutherford who quoted my remarks at the Royal Colonial Institute on the good prospects before coffee at Perak. The *Financial World* of Jan. 9th has an amusing article on the meeting of the "Ceylon Tea Plantations Co.," headed "Tea *vs.* Coffee" with an illustraton of the doughty chairman—(the future Unionist M.P. for Kinross-shire as we hope)—in full Highland costume in the act of pouring out the contents of a breakfast cup inscribed "Straits Settlements Coffee." The subscription to the engraving is "Mr. David Reid is compelled to abandon his coffee." The same journal, as Mr. Rutherford showed me, had, on 9th May last, a similarly amusing illustration on a meeting of the Ceylon Tea Company showing "how Mr. David Reid, Sir W. Johnstone and Mr. Shand enjoy their tea" sitting at the board. I mention so much; but I hope this mail will carry to you copies of the journals and "electros," so as to enable you to republish both notices for the edification and amusement of the numerous friends of those gentlemen in Ceylon. However, all concerned feel now that it will be best to keep the name of the premier Tea Company of Ceylon free of extraneous speculation or investments and if need be start a separate and coffee company specially for the Straits. When I say "premier," I think I am safe in speaking of the Ceylon Tea Plantations Company as the most important in Ceylon tea, but Mr. Rutherford tells me that the Eastern Produce and Estates Company has rather more acreage under tea, namely some 9,000 acres; but a good deal of this must be on old coffee land I fancy.

TEA PRODUCTION AND CONSUMPTION.

One subject that came up with Mr. Rutherford was the probable export of Tea from Ceylon for 1892: he is inclined to take a very moderate view of the probable increase (some 7 or 8 million lb.), considering that the enormous rise in 1891 was due very much to a very exceptional season. But I pointed out the large additional acreage in our Directory planted between 1888 and 1889 (22,000 acres), and I fancy Mr. Rutherford will agree that less than 76 million lb. can scarcely be estimated as the total export froam Ceylon this year. He is hopeful, I am glad to say, about the future of consumption, though he anticipates the possibility of even lower prices (by a shade) during the current year! Such a result could not fail to give the *coup de grace* to the China trade which, indeed, no one expects to see assume its recent importance again, so far as the United Kingdom is concerned.

CEYLON TEA IN AUSTRIA.

It is very satisfactory to learn, officially from Mr. A. Philip, that the Tea Fund Committee are to consider and, if possible, act on some of the suggestions I made in reference to pushing the sale of Ceylon teas in Austria. I am hopeful that Messrs. Shand & Haldane will follow up their trade in Switzerland by endeavouring to supply the Karlsbad market. Meantime I am gratified to have in addition to Mr. Philip's, another letter of thanks from Mr. Charles Oswald, Winterthur, for what I wrote about Vienna. He is confident that the sale of Ceylon tea will become very considerable there, by and by.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

London, Jan. 16th.

Cinchona.—The first auctions of the year took place on Tuesday. They were of small extent, but the assortment offered was a fairly good one. The catalogues comprised:—

	Packages.		Packages.	
Ceylon ...	488	of which	322	were sold
East Indian ...	600	,,	600	,,
Java	365	,,	365	,,
South American	266	,,	265	,,
African West Coast	210	,,	167	,,
	1,929		1,719	

The assortment of bark was of good average quality, yellow and grey barks being very plentiful in it, while there were also 254 packages of Darjeeling bark from the plantations in Northern India. This shipment was well competed for, though the prices it realised show a sad falling-off on those which the Darjeeling planters were accustomed to obtain for their bark wherm formed a regular feature ofthe London auctions. Fro the commencement of the sales showed a decided improvement on their immediate predecessors, and as they neared their end competition became more pronounced. Nearly he whole of the bark offered was disposed of at antirregular advance, ranging from 5 to 15 (in some instances even 20) per cent over the price of the last London auctions. The unit now stands at 1¾d to 1¼d per lb.

The following are the quantities purchased by the principal buyers:—

	Lb.
Agents for the Mannheim and Amstordam works...	112,624
Messrs. Howards & Sons	69,237
Agents for the Auerbach works	42,550
,, American and Italian werks ...	38,580
,, Brunswick works	25,165
,, Frankfort o/M and Stuttgart works	12,750
Sundry druggists..	40,859
Total quantity sold	341,765
Bought in or withdrawn...	40,635
Total quantity of bark offered	382,400

It should be well understood that the mere weight of bark purchased affords no guide whatever to the quinine yield represented by it; firms who buy a small quantity of bark by weight frequently take the richest lots and *vice versa*.

The American Quinine-duty.—From a statement in the *O., P. and D. Reporter*, it appears that the duty on quinine in the United States has been altered ten times since 1832, although the customs tariff itself has undergone about thirty revisions since that year. From July 13th, 1832, to Aug. 30th, 1842, the duty was 15 per cent *ad valorem*; it was then changed to 40c per oz. On July 30th, 1846, it became 20 per cent *ad valorem*; on March 3rd, 1857, 15 per cent; on March 2nd, 1861, once more 20 per cent; on August 5th, 1861, it was raised to 30 per cent; and on July 14th, 1862, to 45 per cent. There it remained for ten years until May 1st, 1872, when it was lowered again to 20 per cent. On July 1st, 1879, the duty was removed altogether, and since then quinine has remained on the free list.—*Chemist and Druggist.*

INDIA AND CEYLON *vs.* CHINA TEA.—The *London and China Express* of 8th Jan. says :—

Business in the Tea market reopened with good prospects, but the week closes with less buoyant feelings in view of the very large supplies of Indian in the public sales for next week. Fine China Tea, which at the close of last year was quoted at 9d to 1s, is still inquired for, but importers seem reluctant to sell and no wonder when the import cost is realised. There can be no doubt that the unfavourable position China Tea has now permeated through all engaged in the trade. Wealthy native (Foochow) teamen are reported as ruined, and very few able to withstand the times. It is Red Leaf Tea that mostly feels the competition of Ceylon and India. In the palmy days of the trade Red Leafs commanded the best prices, whereas during the current season the so-called crack chops sold but a few pence per pound over common Congou. The question for the future now is, will Chinese produce a tea to equal the old standard of strength and delicate flavour combined It could be done in the past when exchange averaged 4s 6d to the dollar, and why not now when the dollar is nearer 3s, and higher prices paid to the teamen ? Both Indian and Ceylon are increasing their supplies, the latter at a rapid rate ; but judging from the low prices for inferior grades during the past three months, planters are anything but satisfied. What can be expected, however, when production is carried on at such hazardous risks ?

DAVIDSON'S SIROCCOS.—In our issue of Jan. 4th was inserted a letter from Mr. John Ferguson, in which he stated :—

A story is current of the experience of one of the largest Calcutta firms in "tea" who had erected a great Centeral Factory with a wonderful array of Jackson's Rolling and allied machinery; but who, soon after substituted, at the instance of an enamoured manager, "Siroccos" for the other "driers," the object being to dry the tea at the low temperature which was to ensure keeping qualities, &c. The result, as the story runs, was woefully disappointing, namely a falling-off of 4d a lb. in the average (could part of this be due to falling markets ?) so that now the Siroccos are to be cast on one side and Jackson's Driers taken on—only the little experience with the less price for tea and double experience about machinery and work, is said to make altogether a difference of £30,000 to the firm in question. Of course, they must be "princes in tea" to deal in such large figures even by way of loss. "I tell the tale as 't was told to me." Possibly there may be some modifications or corrections which may reach you from the "Sirocco" side and which you will, of course, as readily publish. The story, in an apparently authentic form, in letters from Calcutta, reached Colombo as well as London. But Mr. John Ferguson rightly judged that there was another side to it, and that we should, with equal readiness, publish it. A telegram from our absent confrère has reached us, in which it is stated on Mr. Davidson's authority that not only have none of the Siroccos been discarded but that more have been ordered by "the princely" Calcutta firm alluded to. It gives us great pleasure to do justice to Mr. Davidson, whom we regard as a great benefactor of the tea enterprise and of the tea planters. He and Mr. Jackson are both able and honourable men, and the competition between them as machinists, though keen, is conducted on gentlemanly and upright principles. The new down-draught Sirocco and Mr. Jackson's Britannia Drier have, each its own merits, and the planters of India and Ceylon are very fortunate in having two such men as the inventors of these machines devoting their experience, skill and scientific knowledge to providing the most perfect appliances for the manufacture of the tea leaf. We regret therefore that such a story as Mr. John Ferguson was told should have been invented and should have received currency in our columns. An explanation is due from those who sent the story from Calcutta to London and Colombo.

CINCHONA AND QUININE.—In a very long and interesting report by Messrs. Brookes and Green that has reached our (*Madras Times*) hands, upon the quinine and cinchona bark market for the year 1891, they give it as their opinion, after stating that they have followed the movements of the articles "week by week, indeed day by day," that the "stock of quinine in the world is less today than it was at this time last year"; and they go on to say that "notwithstanding all that has been written regarding the invisible quantities of quinine in second hands, we very much doubt whether the entire stock of both quinine and bark combined, not only in London, but other markets as well, would total up more than one year's consumption." They hold the view that the world's consumption equals the world's manufacture. If Messrs. Brookes and Green's conclusions be right, it would naturally follow that any diminution in shipments from Java, or any cause tending to even a slight increased demand for the drug, would have the effect of sending up prices of cinchona bark ; and in the face of the very heavy recent exports from Java, the late rise in the "unit" to 1¼d is very encouraging. It is very possible due to the increased consumption of quinine, consequent upon the recurrence of the influenza epidemic at home, and in the interests of planters it is to be hoped that the improvements in the value of bark will be maintained, if not in the near future enhanced. Java holds the key of the position, and if she would abstain from forcing her supplies on the market, the result would be better for her planters as well as for growers of bark in other parts of the world.

TEA FLAVOUR is discussed by Mr. John Stalkartt in the *Indian Planter's Gazette* thus :—

Your late issue stated that the flavour of tea is obtained by drying it at a temperature of 130° Fahr. Flavour comes from two descriptions of tea, the China and the indigenous: it also depends upon the height above sea level, at which it grows. For this information I refer you to the oldest book we have on tea, Jacobson's Manual of Tea cultivation. The flavour of tea, and the aroma also, can be lost by bad manipulation, particularly in driving a large quantity of heated air through it, at the velocity of a tornado. Tea should not be dried in ten minutes as in the present mechanical process, but should be dried not quicker than in one hour and ten minutes at a temperature of 250° Fahr. Flavour and aroma are also lost in the process of bulking, and the grocer has only himself to thank if the tea does not come up to his expectations. A few years ago, he would not buy flavour tea: he only wanted some rasping senna variety obtained from hybrids, so that one maund would strengthen ten maunds of thrice infused China leaf. With his notions of making a fortune rapidly, he has done his best to bring tea into disrepute. He insists upon it being bulked at the gardens, that is, tossed in the air, to get rid of its good qualities from exposure, that he may buy it cheap. He then has it bulked at the tea warehouses round about Tower Hill, which locality is not famous for its good odours. He then blends it with a lot of dirty faced China tea, and then wonders that the tea is not improved: and in his wisdom states that Indian teas will not keep, whereas he has only his own insanity to thank for the poorness of his blend. The China variety and the indigenous have two distinct flavours. The hybrids do not come up to them in flavour, though they give a strong bitter tea. Planters are much puzzled what seed to sow, as the brokers follow the lead of the grocers, and will not pay for flavour. The planter looks to his pockets, and sows only that which will pay him best. I do not pretend to teach my brother planters. Each man must judge for himself.

THE EXPORTS OF TEA IN JANUARY: ESTIMATES FOR 1892 AND THE TEA FUND.

The motive of the local "Times" in representing the tea exports of January 1892 at only 4,900,000 lb., a figure which was to be telegraphed to London from several sources, was to favourably affect prices in the London market. But surely harm rather than good will result, when it is learned that the figures in the Chamber of Commerce table are materially higher, viz:—5,125,866 lb. Again, our figures from the Customs, which include shipments in vessels that have not sailed as well as those which have actually departed, are still higher, viz. 6,217,302 lb., an excess of 620,180 lb. over the export in January 1891. The higher figures are as capable of transmission as the lower. We see that Mr. Rutherford is amongst those who do not anticipate any material advance in 1892 over 1891. His opinion is worthy of all respect, and we shall be only too glad to find our own estimate of 85,000,000 lb. excessive. We believe, however, that only the general adoption of really light plucking can bring about such a result, and we shall believe in all planters plucking lightly, when all planters recognize the duty of paying subscriptions to the Tea Fund on the basis of green leaf gathered. Of course, the finer the plucking, the smaller will the contribution be. But it is no use trying to dwell in a fool's paradise. The exports of tea from Ceylon, though not on the scale of 1890, are bound to increase for several successive years yet, as land comes into full bearing, and the true remedy for over-production is a continuance, with more energy than ever, of the efforts being made, by using the Chicago Exhibition and other means to open new markets for our staple. But such efforts involve large expenditure of time and thought and money; and we cannot understand how those who shirk the plain duty of bearing their part of the money expenditure, at least, can enjoy the blessing of a clear conscience or the hope of prospering in their enterprise.

THE SALE OF CEYLON TEA IN LONDON.

The Secretary of the Planters' Association sends us the following correspondence with the Secretary of the Ceylon Association in London on the above subject:—

(*Copy.*) Kandy, Dec. 18th.

The Secretary, Ceylon Association in London, 14 Mincing Lane, London, E.C.

DEAR SIR,—I beg to acknowledge receipt of your letter of the 25th September with enclosures which have been duly submitted to the Committee of the Planters' Association at a recent meeting.

I have now further to annex for the information of your Association copy of a resolution passed by the Committee on the subject of tea sales in London.—I am &c., (Signed) A. PHILIP, Secretary to the Planters' Association of Ceylon.

Resolution referred to.

"That this Association cordially supports the action of the Tea Committee of the Ceylon Association in London in taking into its consideration the necessity of more days being set aside for the sale of Ceylon tea in view of the heavy exports now going forward and the fact that it is, as now arranged, quite impossible for buyers to give the samples proper attention."

(*Copy.*) Kandy, Dec. 18th 1891.

To Wm. Leake, Esq. Secretary, Ceylon Association in London, 14 Mincing Lane, London, E. C.

Dear Sir,—I am in receipt of your letter of the 27th ultimo with enclosures which shall be submitted to the Committee at next meeting.

I have now the pleasure of to enclose demand draft on London for £60 sterling, in payment of the grant from this Association to the Ceylon Association in London for the year 1891, and would express the hope that cordial cooperation in all matters having for their object the good of Ceylon may long continue.—I am &c., (Signed) A. PHILIP, Secretary to the Planters' Association of Ceylon.

Copy.

4, Mincing Lane, London, E. C., 15th Jan. 1892.

A. Philip, Esq., Secretary, Ceylon Planters' Association, Kandy, Ceylon.

Dear Sir,—I have to thank you for your letters (2) of 18th ultimo, and for the remittance of £60 as the annual contribution to the funds of our Association here. On its behalf I cordially concur in the hope expressed that the two Associations may long work together effectively for the good of Ceylon.

Our Tea Committee will, I know be greatly pleased at the resolution expressing approval of its action in the matter of the arrangements for the days for selling Ceylon teas. I learn that the Commercial Sales Room Committee has agreed to provide a separate room for the Ceylon sales on Thursdays, and that at an early date this arrangement will come into force. This should for a time relieve the pressure caused by the rapid increase in the quantities of your teas coming forward.

Permit me in conclusion to congratulate your Association on the astounding progress made during the past year by Ceylon tea in the Home trade. You will see by the Board of Trade returns that the consumption in the United Kingdom, of Ceylon tea has increased nearly 50 per cent on that of the previous year, while in both Indian and China teas there has been a sensible falling off in the Home consumption. For the first time too the figures for Ceylon exceed those of China, the excess being upwards of 1½ million pounds.—I am, &c., (Signed) WM. MARTIN LEAKE.

THÉ À LA CHINOISE.

We now publish the article we recently alluded to as published in the Java paper on the preparation of Java tea as China. The gentleman who has been good enough to make the translation for us writes:—

"Do you not think that in order to satisfy the tastes of the people in other parts of the world who still like China tea, it would be well worth while for some of the great companies to prepare "thé á la chinoise" for the purpose of cutting out the China article? There need be no kind of falsification or adulteration connected with the enterprize. The produce would be sold as scented tea. You see how tenaciously the Javanese and Chinamen in Java cling to the kind they have been accustomed to. The same feeling no doubt operates in some parts of Europe and in America."

In the Essay by a Nilgiri Planter which we published some years ago, full directions were given for the preparation of scented tea, and all the flowers useful for the purpose were enumerated. But neither in India nor Ceylon have scented teas been prepared on any large scale; and we suspect public opinion would condemn the imitation of a product which our genuine sophisticated teas are driving out of the market.

(Translated for the *Ceylon Observer*, by J. D. Y.)

FALSIFICATION OF TEA ON A GRAND SCALE AT CHERIBON, JAVA.

Contributed by A. G. Vorderman, Inspector of the Civil Medical Service of Java and Madura.

When in June 1891, during a voyage from Batavia in the steamer "De Carpentier" I pased the night in the Cheribon roads, I was surprised to see a considerable number of very large packages landed at that place, and was informed by the mate that they contained tea.

There could be no doubt that something mysterious was connected with this article packed in the way it

was, and sent by sea from Batavia to Cheribon; and this idea caused me to apply for information to the controller of customs, when I landed at Cheribon. This official, Heer A. K. J. Kaffer, explained to me that the landing of Java tea at his port of residence had attracted his attention, and that he had instituted successful inquiries regarding the circumstance. I learnt from Heer Kaffer that at that time there were six tea factories in Cheribon, the chief place in the Residency of that name, where Java tea of inferior quality was so manipulated that it was converted in to a superior kind of China tea, and the difference in the selling prices of the two kinds of tea forms the cause of the extent attained by this industry.

An import duty of 20 cents per kilo (or about 10 cents (of a guilder), is levied on tea from China; whilst Java tea is duty free from any port of Netherlands-India to another.

From the nature of the case the Cheribon tea alteration at Cheribon is in the hands of the Chinese.

Large quantities of the prepared produce of the tea plantations in the West Preanger and Buitenzorg districts, of a quality unsaleable in the European market, finds eager buyers in the Chinamen of Cheribon, who transport it to that place viâ Tandjong-Priok. This product undergoes a manipulation at Cheribon which improves it to such an extent that none but good tea connoisseurs can distinguish it from the inferior sorts of real China tea.

Heer Kaffer states that the native population forms the largest number of consumers of this worked-up tea, the packing of which is such that when it leaves Cheribon it is impossible to distinguish it from that which contains the tea which comes from China. For the packing there is an establishment at Cheribon where the chests are made, and another for the preparation of the leaden lining, as well as a printing press for the labels for the separate small packages; the paper in which they are put up comes from China, as well as the gilt thread for tying them. Each package holds about the tenth of a katti. The chests are packed in bamboo baskets, which contain either one chest of 20 kattis, 4 chests of 5 kattis, or 8 chests of 2½ kattis each. The last mentioned finds the readiest sale. According to our above-mentioned informant the small chests holding 2½ kattis are sold at Cheribon for a guilder a piece wholesale, and the larger packages at the same rate per katti. For superior qualities the price is naturally higher, as the Chinese, by their mode of working, obtain tea of various qualities. The profits of the China tea-alteration industry are so great that the Chinamen in the Residency of Tegal have commenced competition. In a short time already four factories have been established in Tegal for the conversion of Java tea into so-called China tea. In September last when I was on board of the "Van Goens" in Tegal roads, I witnessed the landing of about sixty large packages of tea from Batavia landed at Tegal in praus. There is no saying to what extent this industry will reach in the Eastern residencies, especially when the natives shall be induced by advances of money from the Chinese to cultivate tea for them. That the large sale of this Java-China tea, as I may call it, amongst the population has an injurious effect on the public revenue is evident. The records of the Cheribon custom house already establish the fact that the import of China tea has been of late yearly diminishing. There is nothing fraudulent in the circumstance of improving the quality of the tea by a peculiar method of preparation or re-preparation; the fraud consists in the sale of the improved article as the produce of Ching as testified by the tickets and labels on the chests and packages. The translation of these (from the Chinese) which follows hereafter, is due to the kindness of the Heer W. P. Groeneveldt. On the front and back of the chests the writing is the same, the name of the seller Chintuhun is inscribed in large letters, and in smaller characters stands "fine tea from the Thai mountains." On the top of the chest the words "fine tea, Kimhong sort"—being the name given to the sort of tea. On each small packet stands the same in black letters and above this inscription is printed in red letters "selected first quality" with the mark of the seller. In each chest on the tea lead is placed a red paper with a printed notice in black letters of which the following is a translation:—

"The undersigned, Ang Chin Chung, goes himself every year to the renowned Bu-hie mountains* in the early spring for the purpose of selecting fine kinds of tea pure and sweet in taste and smell; this tea is immediately packed to be sold far and near.

"Now there are shameless fellows (schaamtelooze kerels), who actuated by an unwarrantable thirst for gain have counterfeited my marks, and have thus deceived the public.

"I therefore request my honored customers to be pleased to note that I have, to provide against this, had a red mark printed obliquely across each packet—this is the true packing—and it is found as described, there can be no mistake. Spring of 1886.

"Respectful notification by the seller."

The Chinese of Cheribon attribute, what to their taste is, the inferiority of the Java tea first to its preparation by means of machinery, and secondly to the absence of perfume, because the flowers which serve in China are not made use of. If they could obtain the fresh tea leaves, they would be in a position to make a still closer approach to the real China tea, than they can do by working up already prepared tea. Therefore some of them have entered into contracts with certain tea plantations in the Sumedang districts for the supply of fresh leaf or leaves partially prepared to be delivered at Cheribon. Lately the following circumstance was mentioned to me:—

As is well-known the tea bush has to be pruned, when the branches become too long, the prunings serve to make manure, and locally have no other value. A Chinaman of Tegal, however, made a bid to a tea planter of the Buitenzorg district of 2½ cents for the prunings of each tree with the object of transporting the leaves to Tegal. I do not know what preparation such tea leaves were to undergo at Cheribon or Tegal.

The Heer Kaffer describes the process to which the prepared tea is subjected as follows:—

As soon as the tea arrives and is unpacked a portion of it is mixed with flowers, after which the mixture is covered over with blankets or gunny bags for one night in such a way as to exclude the outer air. The proportion of flowers to the tea is from 5 to 10 litres of flowers to 1 hectolitre of tea. These quantities mixed together are just sufficient to fill a drying basket. The day after the flowers have been mixed with the tea the whole is dried together. The drying basket in which the further preparation is effected, is of interwoven bamboo, and has the form of two truncated cones, the smaller sections being joined together, so that the upper portion is of the same size as the base, gradually narrowing from top and bottom to the middle. The basket is divided into two equal portions by a partition forming a sieve. The upper portion is of sufficient capacity to hold the mixture above-mentioned, whilst the lower portion remains empty. The whole is placed over a charcoal fire made on the floor, and covered with a thick layer of ashes, so that only a moderate warmth radiates, sufficient however to dry the tea thoroughly. The more slowly the drying is effected, the better the quality of the produce obtained. This drying lasts from 3 to 5 hours. Simultaneously with the drying of the mixture of tea and flowers in this manner, a similar process is carried on with another portion of the same lot of tea, that has not been mixed with flowers, and with which the upper divisions of three drying baskets of similar size are filled. On the completion of the drying process which occupies the same time for all four portions, the baskets are taken off the fire, and the contents of the three last mentioned are intimately mixed with those of the first, from which last the flowers have been, for the most part, carefully removed. The tea is then ready for packing. The flowers used in this mode of preparation, are the

* The so-called Bohea mountains in the Province of Hokkien (China).

same as those similarly employed in China. Those principally employed are from the *Jasminum sambac*, Ait, the well-known *melati*. (Called the Mugerine in Ceylon or double jessamine.—*Note by Translator.*) They are purchased while they are buds and used when the flowers open. They are spread out on bamboo sifters and sprinkled with cold water until they open. They are on no account allowed to be floated in cold water to cause the opening of the buds.

In the next place come the small yellow blossoms of the *Aglaja odorata*, Lowe, *A. Meliacea*, which is known at Batavia by the Malay and Indo-European population as the Patchar China, and by the Chinese as the Kembang Chulan; and at Buitenzorg the latter term is used by the native population. A Javanese of Bagelen stated that this plant was called in that district Patchar Prentil.

The dried Aglaja flowers resembling little seeds are imported by the Chinese from China for use when the fresh flowers are not to be had for perfuming tea, but they are frequently musty, and of weak perfume.

In the third place, the large white sweet-scented flowers of the *Gardenia pictorum* Hsskl, are made use of: this is one of the plants generally known here as the Katcha-piring.

Considering that the same flowers are used in China for perfuming tea, and that they do not communicate any substance prejudicial to health to the tea, the tea-alteration as practised at Cheribon does not operate mischievously in a hygienic point of view, so much as with the revenue.

However, I consider it of importance that the circumstance of the existence of the practice should be known to a wider circle; and I am therefore thankful to the Directors of the *Teysmania* for the insertion of this communication in their periodical.

Batavia, November 20th.

HOW TO ADD TO OUR FUEL SUPPLY.

Mr. Edelmann, a Pole by birth, who has been on a visit to Ceylon, has, says the local "Times," made a discovery for greatly adding to the fuel supply of the world. The starting point in connection with his scheme is that there exists near the surface of the earth a large quantity of what may be termed inferior coal, which is commonly called lignite. Lignite however, has not the chemical properties that bituminous and anthracite coal possess, and so will not burn, and Mr. Edelmann has applied himself to the discovery of the chemical properties necessary to enable it to burn. He now claims to possess the secret and has patented his discovery in all the principal countries of the world. His botanical knowledge has been of great assistance to him, for without it his idea would probably have died at its inception. A long time ago he noticed that *all* coal was formed largely of vegetable matter and that the soil has a magnetic power which draws in heat. That was one fundamental discovery on which the later results hinged. Having come to this conclusion, Mr. Edelmann spent many years in travelling over the world in search of plants that contained the elements of heat, gas, and fire in the greatest degree. These investigations he conducted principally in the forests of Russia, Germany, and other European countries, and also in Africa and South America. When he had satisfied himself as to the plants which would best serve his purpose, he made a study of them until able to extract from them the qualities he desired; but as soon as he had done so and placed them together the one destroyed the other and they disappeared. He therefore had next to find out what would prevent this disastrous evaporation of the ingredients which he had got from his plants with such toil, and this inquiry was the hardest part of his work. It took him in all eight years, but now he claims to have succeeded, and he is having works erected in Southern France, where he means to show the world the first results of his labours, and then having done that, he will sell his patents to the different countries in which they have been taken out. The process by which Mr. Edelmann says he will make this lignite into coal is as follows:—The lignite and certain chemical bodies which have first been reduced to a powdered condition in order to admit of their perfect commingling are placed in moulds and subjected to great pressure by machinery expressly constructed for the purpose, and from which the mass comes in shape, of what are termed, for want of a better name 'brickets.' These 'brickets' can be made of any size or shape—large for furnaces and small for stoves. The immense pressure brought to bear on them makes them harder than coal. The lignitie coal is smokeless and there is only one per cent of ash. The heat produced by it is greater then with ordinary coal. Lignite is found near the surface of the earth, and so the cost of mining is reduced greatly, while at the same time the supply is practically inexhaustible. The chemical bodies used are also in expensive, so that the new coal can be manufactured and sold at a much cheaper rate than bituminous or anthractie coal. Mr. Edelmann, as stated above, intends beginning work in the South of France. He knows the discovery is all right and he has proved it before a commission in America. He now wants to shew the world at large that he is correct, and then he will make the most he can out of his discovery. Mr. Edelmann has acquired a large tract of ground in Texas where he thought of putting up some of this machinery, but he has now given up that idea and intends to make a beginning with his new discovery in France. The works he is having put are on an elaborate and expensive scale and will not be finished till July.

THE RIVALRY OF TEA GROWERS.

The controversy as to the respective merits of tea from various districts has begun. The letter of Mr. Hicks in praise of the superiority of Ceylon tea over Indian has, as we thought, led to further correspondence on this subject. "A Tea Planter of Thirty Years' Standing" now writes advocating the claim of tea grown in the Himalayas. "It only remains for tea planters in Assam, Darjeeling, the Wynaad, and elsewhere to enter the lists in favour of the teas grown in their respective districts, and the tea drinkers will find themselves in a hopeless state of confusion. It will no longer be a question of Indian and Ceylon tea *v.* China, but each district, and possibly each garden, in India and Ceylon will have its own advocate in the Press. If this rivalry develops we shall see each packet tea company printed on its labels an analysis of the tea it sells and of the soil upon which it is grown, and particulars of the same sort will be expected in the sale room, a state of things which the brokers and dealers of Mincing Lane will not enjoy. Future advertisements will be in this style: 'Buy Jones's Ceylon; beats all other tea; no injury to health; on astringency;' or 'Try Giles's Kumaon; beats certain for delicate flavour; grown on high ground; light; exhilarating;' or 'If you wish to grow fat ask for Puffer's low country tea; both nourishing and refreshing; full of body; contains both a maximum of theine and a maximum of flavour.' This will be going into detail with a vengeance, and the poor consumer, fearful of losing his reason, will take to coffee or cocoa in despair."

The advocate of Himalayan tea says, in the course of a long letter:—"As I have had more than thirty years' experience in the growing and manufacture of tea, and have also visited all the best known tea-growing regions, namely, India, China, Japan, Ceylon, and Java, and made myself conversant with the various methods of curing or manufacturing the leaf in vogue in these countries, I venture to thoroughly endorse all what Mr. Hicks has so ably set forth in his letter, with this exception, that there are certain districts in India that grow as fine, if not even a finer, quality of tea than any grown in Ceylon, namely, the tea estates of the Himalayas. In China and Japan, the China variety of shrub is alone grown. In India there are three varieties of plant cultivated—the Indigennous Assam, the hybrid (a cross between the Indigenous

and the China plant), and the pure China plant; and in Ceylon, both the Hybrid and China variety. Both in India and Ceylon the Hybrid is the favourite, as giving both a large crop and a tea best suited to the present requirements of the English market—that is, a strong, thick, astringent liquor. Both the Indigenous and Hybrid varieties require a hot, humid climate; but the China plant prefers a colder and less tropical atmosphere, and is, therefore, cultivated in the Himalayan inner ranges, and the Indigenous and Hybrid at the foot of these mountains, in the low, hot humid valleys. Taken roughly, the yields per acre of the three varieties are as follows:—Indigenous, 1,200 lb; Hybrid, 800 lb; China, 250 lb. From this it will be seen why the Hybrid is the favourite with tea planters; the yield is so much larger than from the China shrub, and the tea not so coarse and astringent as that from the Indigenous although not nearly so delicate as that from the China plant. For many years past the managers of tea estates have been urged by their agents and brokers to turn out thick, dark-liquoring teas, as such alone command the market. This command has been obeyed at all gardens not growing the China variety, which will never produce these thick dark-liquoring teas, as it is deficient in tannin, but abounds in theine, owing to its nature, soil, and climate, which gives it its fine, delicate flavour, and light, limpid liquor. The demand for thick, dark liquoring teas is not far to seek; the thicker more astringent, and darker liquoring the tea is, the less quantity of it will be required for blending with cheap, low grade China teas, to give them point and flavour, and thus ensure a larger profit to the tea merchant. The fine, delicate-flavoured, but light-liquoring tea produced from the China plant is useless for blending purposes, as it is pronounced 'thin and poor' by the trade. At what cost has the public been educated by the tea trade to use nothing but thick, dark-liquoring teas? The public is assured that such teas are better value, as they go much further, taking two or three waters and still yielding a good liquor, whereas light liquoring tea will not stand more than one water. This is quite true. But what is this decoction that is so economical? A decoction of tannin, from which the refreshing and invigorating properties of theine had been eliminated, in the process of fermentation, in order to bring out the tannin, to give the much desired dark, thick liquor, at the expense of losing the volatile oils and theine by evaporation. Medical men are now alive to the injury done to health by these thick dark-liquoring teas, and are condemning their use. What Mr. Hicks claims for Ceylon teas, grown at high elevations, is still more notable in Indian teas grown in the Himalayas, where the climate is neither so hot nor humid as in Ceylon, and, therefore, growth less rank. In Ceylon the tea season is nearly all the year round, whereas in the Himalayas it is barely six months—from the middle of April to the middle of September, when frost and snow set in. These delicious teas have been virtually driven out of the market, being pronounced by brokers as poor and thin, although delicate and flavoury, owing to the low price they fetch, combined with small yield. Whereas the large yield and better price for the thick dark liquoring teas from the Hybrid plant, grown in the hot, humid low-lying valleys, command the English market, and assure their prosperity. Should the public take back into favour the delicate fine teas grown from the China stock at high elevations, and thus by its demand, improve its present unremunerative price, there is a great opening for its development in the thousands of acres of magnificent lands in the Himalayas to be had on easy terms, with abundance of cheap local labour. Mr. Fortune, after visiting China on behalf of the Indian Government, when introducing tea culture into India, selected Kumaon, N.W.P., as being identical in soil and climate to the Bohea Mountains, the finest tea district in China.

Now all this may be true, but it is a matter for experts rather than the public.—*H. & C. Mail.*

NOTES ON PRODUCE AND FINANCE.

AN OLD STORY RE-TOLD.—"Nor, in the matter of tea have the public at the beginning of the year 1892 much cause for complaint. Tea is wonderfully cheap, and, on the whole, remarkably good. It is no longer the practice to sell as tea abominable compounds of sloe-leaves and birch-broom, while the astonishing development of the tea industry in India and Ceylon has filled our markets with stimulating and fragrant products, the excellence of which, while doing no injury to the superior kind of Chinese teas, has relieved the community from the disagreeable risk of swallowing decoctions made from the sweepings of Chinese warehouses, containing a minimum of tea and a maximum of downright dirt." The above is an extract from an article on adulteration in the *Daily Telegraph*. As far back as 1879 we were alone amongst newspapers in pointing out that Indian tea was never adulterated, and that was one of many strong reasons why consumers should purchase it. (Ceylon had not then produced much tea.) It is gratifying to find that the Press and the people are now recognising the purity of Indian tea.

A BRILLIANT SUGGESTION.—A correspondent of the *Grocer*, who has read the report of the Ceylon Tea Plantations Company, writes as follows, and modestly suggests the extinction of the dealer and the planter:—"I was particularly impressed with the dividends paid, which have been at the rate of 15 per cent per annum, even with the expenses usually attending a public company. Surely this is sufficient profit to tempt business men to form a company to sell direct to the retail trade, and thus save the wholesale dealer's profit, which, with travellers' and other expenses, must add a further charge of 10 to 20 per cent, or better still, let leading retailers combine, and be their own planters." One large tea dealer is his own planter. It would help the correspondent from whose letter we quote to a solution of the problem which vexes his soul, if he could induce this large dealer to tell him whether he finds that portion of his business lucrative.

IN PRAISE OF DARJEELING TEA.—A correspondent, who signs himself "Darjeeling," says:—"In the *Daily Telegraph* of Jan. 6th 'A City Man' affirms, 'China tea of the first quality is of a very delicate flavour and very fine drinking.' This remark, I submit, applies with equal force to the delicate teas produced in Darjeeling and Kangra, in the hill districts of India. These teas are some of the finest in the world, and if Russia takes the best of the China teas, England should take the delicate teas produced in the Himalayas at Darjeeling and Kangra, where Englishmen and English capital are producing what is A 1."

PLANTING IN THE WYNAAD.—The outlook for tea in this district is considered remarkably good. Tea has been planted in small areas in anticipation of the establishment of Central factories, and a recent report upon tea gathered from two-year-old bushes on the Richmond estate, the property of Mr. Punnett, is most favourable. The *Madras Times*, *apropos* of this, says:—"The news published from Wynaad is excellent, and it seems as if the Wynaad tea planter will be able before ere long to snap his fingers at his brethren from California to Ceylon. With Mr. Roscoe Allen's grand trunk road close on completion, all fears should be removed about the preparation of the leaf when once plucked, if after a twenty miles' jaunt such an excellent report can be obtained. Mr. Punnett is to be most cordially congratulated on the success of his experiment. We can see nothing now to prevent companies devoting their large acreages of unproductive land to the cultivation of the tea bush, and under planters of practical experience, profits and good ones, should figure in their balance-sheets."

THE CHINA TEA TRADE.—Colonel Vincent, in the *Daily Graphic*, has stated that "Because the import of China tea into England has fallen off so much during the last ten or fifteen years, the tea industry in China is threatened with extinction." "A Tea-Broker" thereupon writes as follows:—"I would point out that the export by sea and land from all China reaches the large total of over 200,000,000—about as much as

she ever exported. Large quantities go to Russia, England, the United States and Canada, Australia and New Zealand; and smaller quantities to South America, South Africa, and the Continent of Europe; while even India takes 3,000,000 this year, being about the usual quantity. The falling off in the revenue in Foochow may be accounted for by the considerable increase at Kinkiang and Hankow. The reduction of the export duty might prove a temporary expedient for the importing of China tea into England; but it is better teas from China that we require. The small export duty would have little prejudicial effect in their competition with either India or Ceylon. I am of opinion that the present China tea gardens are exhausted. The tea shrubs have become rank, and nothing but replanting will bring about the consumption of China tea to any great extent in England."

TEA IN UPPER SIAM.—In his paper on the Laos States of Upper Siam, read before the Society of Arts on Tuesday, Mr. Ernest Satow, in describing his journey round the highest mountain in the neighbourhood, Doi Suthëp, said he met with some old tea plantations, where the plant reached from 12ft. to 15ft. in height. The leaf was longer and more pointed than that of the Japanese tea plant, and it was probably the same variety as that which furnished the Assam tea. The Laos did not drink the infusion, but prepared the leaf for chewing by burying the leaf in pots and salting it. No exterior trade was done with the tea, which was issued for domestic consumption only.

LAST WEEK'S TEA SALES.—The *'Produce Markets' Review* says:—The Indian tea market has been severely tested by the heavy supply, amounting to upwards of 48,000 packages, or about 4,500,000 lb. It was expected that with this heavy supply, coupled with the probability of a still larger quantity to be offered next week, prices would be forced down to a lower level, but this has not been the case as the market not only opened firmly, but closed so, for most descriptions. If importers, however, continue to force their teas on the market regardless of the ability of the trade to take them, the inevitable result will be that they must submit to a lower level of prices. The stock in the bonded warehouses under ordinary circumstances would certainly indicate a decline in values, but Indian tea is so moderate in price and the consumption so largely increasing, as evidenced by the deliveries of the past three months, which amounted to about 30,000,000 lb., that any further material decline will only be brought about by excessive supplies. At this period last year Pekoe Souchong, and in fact, all the lower grades, were from 2d to 3d higher than at present, which was due to a speculative demand, but at no period of last season were prices below those now ruling. With a continued improving demand, therefore, there is no reason why prices should fall unless supplies are indiscriminately pressed forward, in which case the decline will only be temporary. The opening sales of Ceylon teas have been smaller than was anticipated, and prices up to the present are somewhat higher than the closing rates of 1891. This result was, however, mainly due to the large buying of some of the packet companies who seem to anticipate still higher rates, a belief evidently not participated in by the dealers in general, who abstained from buying in a perfectly marked manner. The sales advertised for next week are quite up to the average quantity, and no scarcity of tea need be anticipated at present. The quality of the week's sales has shown some improvement but still leaves much to be desired.

COFFEE IN 1891.—The course of the coffee market last year may be summarised thus. It steadily advanced until the middle of March, when the highest prices of the year were reached, middling plantation Ceylon touching 110s. Importers, tempted by the high prices ruling then, offered rather freely, and value gave way somewhat, but the demand being good, especially for the finer grades, the decline was only a gradual one. At the turn of the year the upward movement was again resumed, the supplies being light and the trade demand good, but at the beginning of September the heavy receipts in Brazil and free offerings on cost and freight terms caused a considerable relapse, middling plantation Ceylon declining to 90s. A rather better demand from the trade then caused a steadier tone, and the revolution in Brazil gave an additional fillip to the market, the fear that shipments might be delayed causing holders to raise their quotations. For a time the advance was not readily paid, but with unusually light supplies exporters and home buyers were soon compelled to pay the prices demanded, and the market has continued to advance to the close, 103s 6d being now the ruling price for middling plantation Ceylon. The terminal market has been dull throughout, and at no time can it be said to have displayed any real animation. Santos has been almost entirely neglected. During the earlier part of the year prices improved somewhat, Rio standing at 82s 6d in May, but from this time the receipts at Rio commenced to increase, and as these grew the quotations dropped away until, at the beginning of October, 53s was the current value of Rio, and 56s for Santos. At this date the heavy crop movement began to fall off, and with less pressure on the part of importers to sell on c. and f. terms, prices gradually recovered. The stocks of Europe, according to Messrs. Duuring and Zoon's last returns, were 38,550 tons, against 62,750 tons at the end of last year. The visible supply amounted to 140,951 tons, against 143,491 tons last year. The landings in London during the year have been 34,157 tons, against 41,172 tons last year. The quantity taken for home consumption was 14,295 tons, against 13,642 tons, and for export 21,556 tons, against 30,932 tons.—*H. and C. Mail*, Jan. 15th.

A NEW TEA CHEST.

Under the title of the Acme Tea Chest Syndicate, a company has been formed and registered in Scotland with a capital of £8,000, in 1,100 ordinary and 500 deferred shares of £5 each, to acquire certain patent rights, held by Henry James Stewart Brown, Egremont, Cambuslang, relative to the manufacture of chests; to adopt and carry out an agreement entered into with Mr. Brown; and to carry on the business of making and manufacturing, and to sell, hire, let, and deal in metal or other chests or boxes for holding or carrying tea or other commodities, or chests or boxes of all kinds. That regulations in Table A of the Companies Act, with slight modification, to be the articles of association. The first directors are Arthur Machan, Anderston Iron Works, Cranston-hill Glasgow; John Binnie, Star Engineering Works, Moncur Street, Glasgow; William Cook, 74, Galbraith Street, Glasgow; James Couper, jun. (of James Couper and Sons), City Glass Works; Glasgow; and William Porteous, Anderston Galvanising Works, Glasgow. Mr. Peter S. Brown, late manager of the Iron and Steel Fencing and Buildings Company, Glasgow, is to be manager.—*H. and C. Mail*, Jan. 15th.

INDIAN TEA.

TO THE EDITOR OF THE "MORNING POST."

SIR,—The rapid growth of the Indian and Ceylon tea trades, not only in this, but in Russia and other tea drinking countries, appears to be causing the old traders in China teas some trouble, the rapid decline in consumption of China tea, especially in this country, obliging them to employ various methods, by advertisment and otherwise, to endeavour to prevent the drinking of the teas of British competitive growth, which are daily becoming more appreciated by the public. It is unfortunately true that much tea is being sold now under the titles of Ceylon and Indian that contain only a small percentage of either of the above being composed largely of ordinary China tea, to the detriment of the former; and several prosecutions have been successfully undertaken to stop this practice, by parties interested in seeing that the public get the genuine article. In the *Ceylon Observer*, just to hand, an article appears in which these China traders are charged with issuing

advertisements with intent unjustly to damage the Ceylon tea in the public estimation. It asserts "that it is only natural that China tea dealers should desire to preserve the trade from which they have so long profited, and had they contented themselves with exalting the merits of their black leaf China teas, their advertisements would have been allowed to pass unnoticed; but the virulent libels they contain on the superior teas of India and Ceylon, are, it believes, knowingly false. One Glasgow firm at least, who describe themselves as tea tasters of 25 years' experience, must know that medium Ceylon and Indian teas now selling at moderate prices are equal to the very finest high-priced teas which China produced in her best days;" also the statement "that India and Ceylon teas yield four to five times as much tannin as China teas" is absolutely untrue.

"There is, in the Indian and Ceylon teas, just a sufficiently larger percentage of tannin to constitute their superiority to those of China. If China tea is treated so that all the tannin is exhausted from it, the brew will be neither a pleasant nor a wholesome beverage, and no person who knows how to infuse it properly will leave boiling water more than five or six minutes over the leaves. The proportion of tannin in such an infusion of the strongest Ceylon or Indian teas is not injurious but beneficial, notwithstanding the opinion of Sir Andrew Clark to the contrary. The public know their own interests and the beneficial effect of tea, properly made, too well to be affected by the utterances of medical men or the advertisements of dealers of the class above alluded to; and in spite of medical and mercantile partisans, India, and especially Ceylon, teas will increase in favour and in consumption, to the benefit even more of consumers than producers, although, we trust, with ever a fair profit to the latter." There is an amount of truth in the above article, as will be seen from my following remarks.

China tea naturally possesses less tannin than either Indian or Ceylon tea, and if the Chinese had been able to maintain the juicy, fine pekoe flavoured teas they made 20 years ago, instead of year by year allowing the quality (with the exception of a few finest crops) to decline, the public would still support them; but the bulk of the crops the last 10 years has consisted very largely of thin liquoring and tarry teas, of the common to good common grades, and the few really fine parcels have of late commanded prices that few retail dealers could afford to pay. Meantime, India and Ceylon have steadily produced year by year larger quantities of an article containing much more flavour and point, and one which can be sold here at prices giving in proportion much better value. However, Indian teas cannot be placed (as the writer of the article referred to would have) in the same comparison with the good old China Ningchows, as Ceylon teas can. At the present time Ceylon pekoes selling at from 11½d to 1s 2d per pound in the market, are generally equal to the finest old China teas which, 15 or 20 years ago, realised 2s 6d to 3s per pound, and by far superior to the best of the same class that arrive now, and command at the opening of season on the average about 1s 6d to 1s 8d, and a few chops of exceptionally fine, 1s 10d to 2s per pound.

The rapid increase in the deliveries of Ceylon teas month by month, and the corresponding decrease in the demand for China teas, sufficiently prove this. That Indian teas have now more virtue in them than China tea is true, but the Indian are mostly more stringent and pungent than Ceylon teas, and not so suitable for drinking alone, those from a few districts excepted (namely, the Darjeeling, Dooars, and Kangras), which makes them more suitable for blending purposes. The liquors of China tea, if brewed unduly long, become bitter and unpleasant, and with other growths the same result. Consumers, when buying strong Indian or Ceylon teas, should learn that these are much more juicy than China teas, therefore less quantity need be used, and infused for at most five minutes, when it will be found they throw a stronger liquor than the same amount of China tea would in double or treble the time. The reference made in the article to the expressions of various doctors on different teas, and to the one doctor especially, who warns the public against Indian teas, is a just rebuke; they can no more stop the consumption of any favourite drink, such as tea, than they can prevent the use of tobacco, either of which if taken improperly, or in too great quantities, are injurious, and to some systems more than to others.

Sir Andrew Clark, speaking at the London Hospital, on October 13th last, stated "that tea to be useful should be first of all China tea, the Indian tea having become so powerful in its effects upon the nervous system, that those who take it actually get into a state of tea intoxication, &c. "If," he had, "you want to have tea which will not injure, and which will refresh, get black China tea putting in the right measure," &c. With due regard to such an authority as Sir Andrew Clark, who has every right to prefer China to India tea, he should not go so far without good reason to damage an important article of British trade in the public estimation. He hits the very nail on the head when he says, referring to China tea, "if the right quantity be put in the pot." Here is the pith of the matter, if people buy strong Indian tea and put the same quantity into the pot as they do of China tea the natural consequence is that the liquor draws too strong; but if the consumers understand how to brew Indian tea—viz., less quantity and less time to draw, it is just as wholesome a beverage as China or Ceylon t a If doctors instead of condemning an article like t a would learn the different properties of the various growths, and then advise their patients how to make and not abuse it by too constant use they would be doing them much kindness. It is a common thing to go into a drawing-room of an afternoon and be asked to have a cup of tea, which probably has been standing for, perhaps, half an hour or more! That this should result in causing indigestion, or as Sir Andrew Clark classes it, tea intoxication," is not to be wondered at.—Yours, &c., MINCING-LANE.

Dec. 23.

INDIAN IRRIGATION.

BY ALFRED DEAKIN, M.P. (VICTORIA.)

[In the *Sydney Morning Herald* has appeared the final paper of a most painstaking and able series, in which the late Chief Secretary of Victoria, a very promising Australian-born statesman describes, from personal observation and extensive reading, the irrigation works of India and Ceylon in their bearing on irrigation in his own great thirsty land. A few extracts from this summing up will be interesting to our readers.—ED. *T. A.*]

Much might be said on other aspects of Indian affairs, but here the series of papers relating to irrigation attain their conclusion. A large volume might be written upon the practical, scientific and commercial phases of the question for those sufficiently interested to follow them into all their details. What has been attempted in these articles has been to offer a sketch, hasty and rude, which might be of some service in any consideration of the Australian future of water supply. To illustrate the size and character of the Indian works, and their dependent interests, blue books have been freely drawn upon, and personal investigations have been employed to interpret them, with the result that the information collected and collated is probably new to many in India, and to all outside it, except, perhaps, a few retired officers of its departments.

The whole makes no pretension to be comprehensive, but only to be faithful so far as it goes. Even in regard to irrigation its scope is limited by the writer's want of technical knowledge, and by the fact, which has affected both style and substance, that his criticisms have made their appearance in the columns of the daily and weekly press of the capitals of three colonies. On the general history, finance, position and prospects of the great Government schemes they claim to be accurate and fairly complete. No publication is known to the writer having the same end in

view. His obligations to existing literature have been freely acknowledged in the course of the papers, and it would afford him unalloyed satisfaction if some better qualified person would devote to the irrigation of India the prolonged investigation and expert exposition which it deserves. The debt of obligation which the country is under to the British Government, and the British Government to its engineers, will otherwise never be known or estimated as it probably will never be discharged.

In India irrigation of some kind, probably in the first instance from inundation canals, antedates history, though it was not until the thirteenth and fourteeth centuries that any works pointing to the perennial canals of today appear to have been attempted. There are remains of large disused storages in all parts, and some still in operation are of great age, but the watering from these has never been relatively extensive. The primitive rain-filled tank, or little well, remains the chief sources of native supply outside the domain of the Government schemes. Millions of acres have been, and are, irrigated annually from them by the simplest means. It is to these, and not to the Mubal canals, or the tanks built by Muhammadan monarchs, that the people have trusted for centuries. Almost every field had its own separate supply, the task of securing and utilising it forming the chief concern of the ryot, and the title to its possession being more important because necessarily implying that to the land which it made fruitful. The cattle required to draw water from the deeper wells form on this account a chief element of the farmer's wealth, and their capital value has assisted in certain districts to make a distinction between the proprietor and his labourers. The whole agricultural system, and in some degree the social system, of parts of India have been greatly modified by the practice of irrigation, but in ways which have nothing to teach us. The solitary inference to be drawn from a glance at the Hindu experience is that similar results are certain to follow in Australia, where new principles of ownership and fresh legislation recognising a property in water is inevitable. It would be well if they were introduced at once, before more vested interests are created.

How widely the position of the farmer under the Victorian Irrigation Act varies from that of the Indian ryot under an irrigation canal should scarcely need further exposition. The ryot has no responsibility except to pay for the water when he gets it, and even then may obtain a partial or complete remission if his crop fail. This may seem an ideal condition to the resident in the Goulburn Valley, but it must be remembered that this immunity from risk is part of a system, and is purchased by serious disqualifications of another kind. This Victorian farmer within a trust area is responable, not only for the water he may purchase, but for his proportion of the difference between the sum obtained from sales and the amount necessary to pay 4½ per cent. interest upon the capital cost of his scheme, and of the national work, if any, which feeds it, after providing for working expenses. What he gets in return for this is the power of voting for or against a scheme in the first instance, and of shaping it afterwards to meet his view of present necessities with the right of managing it economically and so as to insure justice for himself and those who live near him. Finally, if he pays his sinking fund long enough, the obligation upon his land for interest will be entirely extinguished, and the whole scheme will become the property of his children who will be liable only for levies to meet its working expenses. The means of criticism which he enjoys attaches to him, it is true, not as a trust member, but as a citizen of a free community. Yet he would not have the power to make his criticism effective, as the mere unit of one constituency for each branch of the Legislature, in anything like the degree that he enjoys as the constituent of a small body in which his personal influence can be directly exercised. Local control can scarcely fail to be more effective, as well as cheaper, than control from a distant capital by political agencies

The irrigation expenditure of the British Government may be viewed in several ways. Thus, regarding works which are almost wholly new, the figures would run:—

—	Expenditure.	Acres irrigated annually.
Ajmere ...	£160,000	36,000
Bombay ...	2,500,000	85,000
Sind ...	1,180,000	150,000
Bengal ...	6,000,000	550,000
North-west ...	8,000,000	2,000,000
Madras ...	5,300,000	2,400,000
Punjab ...	6,500,000	3,000,000

The fact that native works have been more largely utilised in Madras than elsewhere partly explains the relative cheapness of its schemes. Roughly it may be concluded that British canals have cost £4 per acre irrigated and pay 3¾ per cent. on the outlay. Adding native canals utilised in Governmene schemes the table would be increased by—Burmah, 200,000a; Sind, an extra 1,000,000a.; and Madras another 2,500,000a., making about 13,000,000a. for £33,000,000, yielding 4 per cent. net revenue. In the course of a few years the totals will have risen to about £35,000,000 outlay for 15,000,000a. watered, reckoning twice cropped land twice, so that in reality the actual surface cultivated is considerably less. To this total has to be added the immense extent of country everywhere, but especially in the north-west and in Madras, supplied from well, and tanks by the Hindus themselves, and also the totals of the independent states, including Government and private schemes. There is no absolutely trustworthy record of these, but it is safe to say that they more than double the land irrigated from the canals of the British Government. There are therefore over 50,000,000a. watered every year within the Empire. with a constant tendency to increase the areas Nowadays this increase is limited by the fact that almost all the accessible supplies have been utilised, and, as in the Punjab, large schemes are required to command new territory. Neither in Bombay nor in Bengal does irrigation pay the State, but major works pay 5 per cent. in the Punjab and in the north-west, 7 per cent. in Madras and 12 per cent in Sind. It pays the Hindu everywhere, for without it some millions could not live at all, and some millions would be decimated by famine every few years. Reckoning its influence upon the railways, commerce and good government of the country, its value is simply inestimable.

The State in India means the Government in a deeper sense than in Australia, for in that country the citizens are unable to mould the Government to their wishes, having practically no political opinions, and no political privileges whatever. Instead of projects for the watering of a special area originating with the farmers, as in Victoria, and being subject to their specific approval, the Indian ryot, although in most cases he bears the same responsibility for interest upon the capital expended in providing him with an artificial water supply, is never consulted in any way or at any stage in the construction. Government initiates, designs and executes the work, offering him the water if he likes to take it, and relying only upon his self-interest to induce him to become a purchaser. In the Panjab a system of compulsory labor prevails, and in Ceylon the sanction of the natives concerned is required before Government advances are made, but in each case this has regard to minor works, in which the State is little more than a sleeping partner. Upon all "major" schemes the Government acts upon its own motion, at its own responsibility, and acknowledges no title in those who use the water to criticise its proposals. In an equally peremptory way it ignores riparian rights, or makes but small compensation for actual injury done or land taken; not that this involves injustice, but because the tenure of land is less absolute, and the property affected far less valuable than in Australia. The advantages of a despotic rule are exhibited in such cases as these, where the officers of the department are perfectly free to choose the best scheme possible, and to execute it without regard to the individual wishes of interests of their

constituents. In the colonies these would be forced upon their attention at every step, and they would require to pay dearly for any encroachment, or imaginary encroachment upon them.

Except in Ceylon the great Irrigation works of India are constructed with borrowed money, raised in London, and charged to the works at from 3½ to 4 per cent. The price need not be wondered at, seeing that the guarantee of the British Government is behind the debentures.* Though this of itself would suffice, there are the further facts that the money is spent in a populous empire, with an enormous revenue, and that the works as a whole are very remunerative In Madras, the North-west, the Panjab and Sind they yield handsome profits; in Bombay they are likely to pay for themselves, and in Bengal they are, after all, the cheapest and best means of fighting famine, and saving the public treasury from ruinous drafts in bad seasons. On the merits of the investment, therefore, the stock would be entitled to rank high, apart from its guarantee. Before the colonies can hope to see their irrigation proposals regarded in the same light they must be able to satisfy the capitalists of, the mother country that the outlay is reproductive, for quite content with the credit of the Governmentn the Briton has never really considered either Indiae or Victorian expenditure under this head. Except the directors of the Scotch companies, which hav done well in Colorado and other of the Ameri can State, the moneyed men of Great Britain knew nothing of irrigation ventures. The Madras and Orissa companies, if not forgotten, would certainly have not encouraged a favorable view, even in India. Those who lend upon colonial securities are entirely unacquainted with them, and are likely to regard State loans which are employed to benefit private lands with a considerable amount of suspicion. The debt of Ceylon is so light as to attract no attention, and the greater part of her irrigation capital has been drawn from revenue. Mildura should have an excellent influence when sufficient time has elapsed for its financial results to be gauged, but even its enterprising managers are understood to have had an unreasonable difficulty in getting their prospects appreciated by financiers here and at home. Colonial irrigation has to justify itself, and those connected with it, herefore, must be upon their mettle in order to render ts balance-sheet above reproach. This does not imply that special consideration should not be given to the enterprise in its earlier years, and while its novelty tells against it, even with the farmers, but it does remind us that the new departure is to be judged by its profit and loss account, and that this will influence not only the tax-payers who are not irrigators, but those who make advances to us for the prosecution of eproductive public works. In this respect India has the advantage. The Madras schemes are debited wth 3½ per cent and the others, except Bombay, which takes 4 per cent. as the cost of its money, reckon at about 3¾ per cent., or at least one-half per cent less than ours are debited with under the law. Judging by recent events, no very early reduction of the rate below 4 per cent is to be hoped for in Australia.

Something requires to be said of the Water Supply Department, a bureaucratic service which, though not free from faults, has an honorable record, and will certainly compare favorably with any other department in India. It adds greatly to the ease of administration, though it multiplies its perils, that the clients affected belong to a subject race, and that the vernacular journals do not appear to have yet developed that critical faculty which makes the press in Anglo-Saxon communities occasionally a means of mischief, but on the whole a most efficient and invaluable spur to administrative lethargy and favoritism. The public spirit, incorruptible integrity and tenderness to the natives exhibited by most officers is highly creditable to them and to their country. So far as can be judged by a passing stranger they do their work admirably, and considering all the circumstances of the case inexpensively also.

But perhaps the best criticism of the Indian system of sole State responsibility is to be found in the constant efforts to mitigate it. Wherever possible a village is dealt with as a whole and required to settle the distribution of water and all disputes arising from it. From Ceylon to the Punjab we find this practice pursued wherever feasible. The headmen, as they are termed, in all settlements, are invariably encouraged to become answerable for the main administration, and, as has been seen committees, or panch mahals, are especially created for the purpose on inundation canals. In every way legislation strives to throw upon the residents of each locality the task of settling their own affairs, and of securing protection to the canals as common property. Even in the independent territories similar methods of local government, on a small scale, have sprung up, testifying in the strongest and clearest manner to the necessity which everywhere exists for it in connection with irrigation. It is not too much to say that so far as circumstances permit the Indian system is being approximated to our own, though still conveying a very limited authority indeed to the ryot; that the associations of irrigators in France, Italy and America represent the development in a higher form of the same principle of local responsibility; and that the Victorian trust system as it now stands is their ideal, and the ideal of irrig aors all the world over. Advances of cheap money for the construction of works, chosen and managed by those dependent upon their supply, represents as nerl y as possible the perfect system for white farmers. iThose who oppose it seek to dimnish the responsibilit es of the people concerned, and to cast them upon the general body of taxpayers, just as members of shire s created and authorised to raise rates to make roads and bridges ask that they may be built for them by the Public Works Department. There are instances in which an appeal to the public purse is valid in each case, but they are few and special. There is no just and no sane principle for the distribution of public funds, except that they should be expended to benefit ratepayers in proportion to their contribution, or to the urgency of their special need. Local expenditure should mean local taxation, to raise the necessary sum, or pay interest upon it; any departure from this means the reduction of politics to a selfish game of grab. If the Australian is to cast all his responsibilities upon his Government he must endow it with power equal to its task, including power over himself and his property, which would render him in some respects a mere ryot. If he accept the privileges of freedom and free institutions, he must bear his burdens for himself in common with his fellows, and in conjunction with them. The alternative is to yield both burdens and freedom to the State.

In arid Asia irrigation has been an essential, and whether in Persia, Afghanistan, or the region to the north of them, and whether in ancient or modern times, has supplied in a large measure the means of maintenance to its peoples. The oasis of Turfan, according to a Russian report published in *Nature* of this year, contains colossal works of the same character as those of Ontario and other places in California, bringing the water to the surface by means of tunnels or of wells sometimes 300ft. deep. Sir Colin Moncrieff recently visited a part of the Russian territory where there are still to be seen remains of vast schemes constructed in a remote age but it is understood that his report is unfavorable to any extensive attempt to reconstruct them. The canals and tanks of India were not undertaken for profit, nor yet merely to increase an established prosperity but under the terrible pressure of necessity. Of course the production of the country cannot be indefinitely increased by such means, but it can be rendered fairly even, guarded against adverse seasons, and a reserve provided by means of an artifi-

* If Mr. Deakin means the Government of Britain, as contradistinguished from the Government of the Indian Empire, we should like to know if he is correct. Only in rare and extreme cases, such as that of Jamaica when in a state of ruin, are loans to colonies or possessions imperially guaranteed. None of our Ceylon loans have this guarantee.—ED. *T. A.*

cial water supply. Irrigation in India spells immunity from famine; there its mission begins and ends; and by this knowledge every one of its phases must be interpreted. The threatened failure of the Kaveri, and the actual failure of the Godaveri supplies, led to the initiation of works in the South, while the several stages of irrigation progress in the North were marked in each instance by the recurrence of famines. That the schemes have been made to pay on the whole, and that the expenditure taken in the aggregate leaves good interest, is satisfactory, but it must be admitted that the State is in every case more lenient than private proprietors would be, and that taking into account the charges, the frequent remissions, and the princely scale of many of the schemes, the marvel is that so favorable a result is secured.

Our own circumstances have offered but a faint reflex of these; we have had water famines, and we always shall have a considerate Government, abundantly content if it receives interest upon its advances to the farmers. But there the likeness ends, and it will not be until our population multiplied many times over, comes to press upon the means of subsistence with a terrible intensity, that we can conceive the same urgency for expenditure on water supply for agriculture as has existed in Asia. Our irrigation is undertaken to develop new cultures, and especially highly priced products, such as fruit and wine, while at the same time steadying farming generally, by guaranteeing pasture for flocks and grain for the mill, in droughts as well as in propitious seasons. This being the case there is no need for any undue haste or excited adoption of undigested projects. We have made a good start, and what remains is to develop our water resources quietly but unceasingly, on sound lines. This is not to be done in an instant; indeed, it is a work that will never be absolutely finished. The best executive officers reckon that their practice is altered materially every five years. Indian engineering is thoroughly progressive, and so keen are the wits, and so restless the energy of those employed upon it, that they are always leaving their former achievements behind, and pushing on to better things. It is not simply that each generation, brief as is its stay in the country, improves upon its predecessor, but the same officers confess that they have learned to avoid errors, to cheapen construction, and to make administration more efficient. There is now nearly a century of accumulated experience to work upon although the great undertakings have only been commenced in the latter half of it, and still there is a buoyant confidence in the accomplishment of larger successes than have yet been gained, which is in itself one of the most encouraging features of the system, and a bright augury for its future. Although State directed and State controlled, there is no visible stagnation among the professional officers of the Water Supply Department. Australia will do well, therefore, not only to secure the present experience of the empire but to take care to keep abreast of its development from time to time.

To sum up then, the legislation of India has not much to teach us, its administration little, its practices little, its relations of State department and people little, its agriculture very little, but its methods of construction, management of canals, conservation and distribution of water can teach us a great deal. The circumstances out of which irrigation began are not unlike ours, but we may hope that its final outcome with us will be very unlike that which it is reaching in Asiatic realms, where it provides fresh food fast, only to find the population increasing faster, and not permanently rising, or likely to rise, in the social, moral, or intellectual scale, to even a European standard. Given a rational and equitable riparian law, a generous encouragement to farmers who enter upon new culture, or face the outlay necessary to prepare their land for irrigation a keen supervision of trusts by the department, and an intelligent criticism by their constituents of all their proceedings, coupled with such study and practice at our agricultural colleges as shall solve local problems in a practical manner, and there need be no doubt of the future success of irrigation. The French system of small holdings, Italian skill in dairy farming, American methods of co-operation and enterprise in making markets are well worth acclimatising, as are Indian engineering designs and devices. The outcome of the writer's observations in India are at least as stimulating and encouraging as those which six years ago were embodied in his report upon the irrigation of Western America. Clearly existing systems have much to teach us, and it will be well for us if Australia, the last continent to be colonised by white men and the only one built up solely by Anglo-Saxons, should come to be noted for its openness to new ideas, its freedom from the prejudices of custom, its readiness to adopt improved practices wherever they can be found, and its progressiveness even in agriculture. Our people have been commended for the warmheartedness of their welcome to strangers. But if they can become as well hospitable in thinking, methods of working and mode of living, acclimatising and assimilating the best of all that has been and now is, they will make no ordinary history and merit no ordinary reward.

THE DUTCH MARKET.

CINCHONA.—The 4,533 bales and 229 cases Java bark in sale on December 21st at Amsterdam contain according to the published analyses, 17,350 kilos. sulphate of quinine, or about 4·34 per cent on the average, in the manufactures' bark and 506 kilos. in druggists bark.—Cocoa-butter: Contrary to their former policy, Messrs. Van Houten and Zonen, the cocoa manufacturers, have sold in the last two auctions (December and January) their produce without reserve. The price declined as far as 51c in December (average 55⅝c), and 53c in January (average 54⅞c). The market has become rather unsettled consequently, and although the buyers of cocoa-butter at the last auction could realise some profit, the present value being 58c a ½ kilo., it is probable that the market will follow the same course as in 1886, when Messrs. Van Houten sold also without reserve, until the value had gone down to 35c. It is scarcely to be expected that the consumption, which is a limited one, will increase in proportion as the price falls.—*Chemist and Druggist.*

COCONUTS in North Borneo bear in five years, and the betelnut palm in four years, but the demand is so great that coconut trees in bearing in Sandakan let for $2. a year each. We understand that Mr. Abrahamson has leased 500 acres at Kudat for a coconut plantation.—*British North Borneo Herald.*

THE SALE OF CEYLON GOLDEN TIPS IN MELBOURNE is thus referred to in the *Australasian* of 16th Jan., the tea being, however, described as *Indian*:—

Some very high prices have been paid of late for small parcels of fancy tea sent to London, and a small lot of Indian which has been sent to Melbourne was sold at auction on Tuesday by Greig and Murray Limited at the highest price at which tea has ever been sold in this part of the world. The parcel consisted of only five pounds, and was described as Indigenous Golden Tip Flowery Orange Pekoe. Four pounds was packed in a glass case, and the other pound was packed in two tins; and the selection of the leaves has been going on for the last three years. A large number of those interested in the tea trade had assembled in the saleroom. The first bid received was 10s. per pound, duty paid, followed by bids of two guineas and three guineas per pound. The next advance was to £3 5s per pound, and after successive advances, at first of 5s per pound each, and afterwards of 10s per pound, the parcel was finally knocked down at ten guineas per pound. The purchasers were Messrs. Alfred Harvey & Co., acting on behalf of the Mutual Store, by whom it is understood the tea will be kept for exhibition.

THE TEA ROLLER PATENT CASE.

(Continued from page 501.)

Messrs. Withers and Wendt appeared for the plaintiff (Mr. Wm. Jackson) and Messrs. Browne and Dornhorst for the defendant (Messrs. A. Brown and the Commercial Company). whenthe case was before the Court on 17th Dec. last Mr. Jackson underwent his examination in chief, and today he was chiefly cross-examined. As on the previous occasion there were a number of models of tea machines were on the table in front of the bench. At 2 o'clock, at which hour it had been arranged that the case should come on, only Mr. Withers and his client were present, and a conversation took place between the Judge and the former as to whether the case would be continued tomorrow and the next day. At a later stage it was understood that the case would be taken up tomorrow afternoon and Saturday.

Mr. JACKSON examined by Mr. Withers said:—Before I invented this improved arrangement for transmitting motion I had seen nothing like it in any tea machinery in or out of Ceylon, nor even read of it. I keep a record of all patents taken out for tea machinery; and I searched amongst these, and none of them disclosed this arrangement or any thing that could be called its equivalent. I now look at the defendant's machine—Brown's triple action tea roller—and I point out that the lower rolling surface of that machine answers to the square lower rolling surface of my machine (the Excelsor). The cylindrical drum or case of Brown's machine corresponds to the square case of the Excelsior. The cylindrical top rolling surface of the triple action machine answers to the square rolling surface of the Excelsior. The plain spindle of the triple action roller answers to the spindle of the Excelsior roller, which is screw cut. The bracket of the triple action roller answers to the bracket in the Excelsior in so far as it controls the central spindle and keeps it in vertical position and through which pressure is applied to the top surface. The manner in which the defendant's machine and mine is fed is identical. The leaf in the triple action roller is passed in through a hopper attached to the jacket or cylindrical drum which corresponds to the hopper attached to the square jacket of the Excelsior. Asked about the driving mechanism of the two machines he said:—In the triple action roller there is a vertical crank shaft having two cranks in it, the upper one of which is attached to the jacket or drum. In the Excelsior there is a similar vertical crank shaft, the upper crank pin in which is attached to the square case or jacket. As an expert I say that the arrangement for transmitting motion to the top rolling surface in the defendant's machine through the circular jacket that surrounds it is identical with the arrangement for transmitting motion to my square rolling surface through the square jacket that surrounds it. If the belted arrangement of the defendant's machine were taken off, the two machines would be identical in their action. (This the witness illustrated by working the models.) The use of the belt is to give a rotatory motion to the upper surface on its own axis. I have seen Mr. Brown's machine worked on estates upcountry without the belt. No one in Ceylon or anywhere else has ever questioned my right to the exclusive privilege of that invention, since the date of the letters patent in 1881. I qualify the statement I made on the previous day to the effect that since I had taken out the patent for the Excelsior I had sold about 800 Excelsior machines in Ceylon. What I meant to say was that I had sold 800 machines embodying the principle of this invention. I have sold about 126 of the Excelsior itself.

Cross-examined by Mr. Browne, Mr. JACKSON said:—I was apprenticed to Messrs. Hall, Russell & Co., Aberdeen. They are marine engineers, and I am not aware of their having made any tea-rollers. I left England and went to Calcutta in the end of 1869 or 1870. I was not more than three hours in London and did not see any tea-rollers there. I was in Assam about two years as a planter. It must have been somewhere in 1872 when I left the Scottish Assam Company. I took out my first patent for a tea-roller in 1871 or 1872, while I was still a tea-planter: it was nothing like any of these. I patented fourteen or fifteen machines in India.—The culmination of your career as an inventor in India was a lawsuit with Kinmond & Co.?—The beginning of my experience, not the culmination of it. That lawsuit was going on in 1877; when Kinmond called for two rules against us, we called for three rules against him. Each obtained two rules. (Mr. Browne then quoted the result of that suit from vol. 1 page 75 of the Calcutta Law Reports, the witness remarking that the report there was correct.) That case did not go to the Privy Council.—Well, Kinmond having beaten you in that and his specification upheld, did you acquire any of his patent rights or lease them?—Yes, he came to and asked us to continue making our machines under a license from him. The Standard machine was involved in that litigation. Kinmond could not claim that as his patent. Here I must make a little explanation. Kinmond was the original inventor of a tea-rolling machine in India. Both Kinmond and myself were novices at taking out patents. Kinmond's first invention was held to be a combination patent for a machine. The four subsequent patents—two by Mr. Kinmond and two by myself—were repealed by the Court on the ground that they claimed to be patents for new machines and not improvements on machines. Kinmond's first invention—made I think in 1865—consisted of a lower table or surface with a smaller surface superposed above it, this upper or smaller surface being enclosed in a sort of loose case or jacket. The Standard roller was held to infringe that invention for a machine on the ground that it had a lower rolling surface with a smaller one above it, enclosed by a loose case or jacket. The effect of the litigation was that I could not have continued to manufacture the Standard except under Kinmond's license for eighteen months. Only one of these Standards came to Ceylon. The profit went to Kinmond, I am sorry to say, and I want to get that money from him. I saw that Standard machine last Friday on Loolecondura estate, and I produce the name-plate which is inscribed "Jackson's tea-rolling machine, No. 387, manufactured under Kinmond's patent by Marshall, Sons & Co., Ltd., Gainsborough, England." The brass plate which was on the model of the Standard machine on Loolecondura estate, exhibited last court-day, bore "Jackson's tea-rolling machine, manufactured under patent 34." I took the name-plate off the Loolecondra estate Standard, because the machine was in dispute. I had heard that Mr. Alfred Brown had been there with his brother and photographed the machine. In Kinmond's original machine the lower table was raised up by chains and weights at the four corners.—And that is the principle adopted by you in the Standard?—In so far as the lower table in my machine was moved up and down. Kinmond's first machine had also a loose jacket and an upper rolling surface driven direct by cranks. The originality of my machine lay here. Before the Standard no machine had a trap-door for the discharge of the leaf, and there was no machine by which the bevel-wheels could be altered in proportionate size. (Mr. Withers here interposed a remark to the effect that they were trying the Indian case over again, and Mr. Browne retorted that he was testing Mr. Jackson as he was entitled to do and would do in every way he could.) The leaf was discharged through the bottom rolling surface by means of a trap-door. That arrangement was my invention and it was not in Kinmond's machine. In the Standard machine a feeding platform was put on the top through which the leaf could be inserted between the two rolling surfaces. That arrangement was not in Kinmond's machine. Kinmond had no elastic pressure on the under surface of his rolling table beyond what was given by the weights, and I put springs under my lower table. Kinmond's machine was fed by lifting up the jacket and pushing the leaf underneath. Before the Standard there was no rolling machine which had two

rolling surfaces moving at right angles to each other. I do not think any machine had the lower table traversing and the upper stationary. As I have said the Standard had the two surfaces moving at right angles to each other, and each surface being operated by a separate crank-shaft enabled me to put on wheels of uneven or unequal size to produce a varying action on the tea leaf which was then thought necessary. The Standard was the only one of my inventions, which I brought into Ceylon prior to the Excelsior for which I took out a patent in 1881. I never patented the Standard in Ceylon. I first saw the defendants' machine about May or June last year. I had not seen it at the manufacturers' in Scotland, but I got specifications and drawings about July 1890 I think. I got the specifications first and the drawings afterwards. As regards the Excelsior, what I claim as novel in my invention is the arrangement for transmitting motion to the top rolling surface through the case or jacket surrounding it, whereby the top rolling surface is left free as regards vertical movement from the mechanism operating it. The square piece of wood on my machine is the top rolling surface. In the specification it is described as usually composed of wood. It is capable of being moved up and down at the will of the attendant.—And if the attendant has no will about it but has gone to sleep or is having a cheroot outside, is not its vertical action by gravity?—is not its natural motion downward by gravity?—Yes, gravity is the natural force that drags it down. I claim for it that in this vertical action it is entirely free from the driving mechanism.—That is the pith and marrow of your claim, is it not?—No, it is not.—Then what is?—The arrangement of transmitting motion through the jacket to the top rolling surface. Free vertical movement of the top rolling surface is one of the results flowing from that arrangement.—Will you say that it necessarily flows from the subject of your claim?—I cannot add the word or keep it away. It is one of the results flowing from it, but there are other results named in the specification which may not necessarily flow from that arrangement. The machine might be badly put together. It does not follow that the result necessarily flows. I cannot say that it is a necessary result or otherwise, but it is one of the results that flows from the utility of the invention. Then you claim it only as a result of the invention and not as part of it? In Kerr's case I think you took the opposite view.—I am not aware that free vertical motion was claimed, and in speaking of this free vertical action it must be taken into consideration that this was a machine having free vertical action as against the other having no vertical action. I take it for granted that in the specification of my machine the spindle is not mentioned and in the drawing there is only shown a hole in the bow through which a spindle might pass. The spindle, itself is not drawn. In figure I. there are dotted lines from the bow to A. which represent the spindle and as a matter of fact the first Excelsior that came to Ceylon had both bow and spindle. (Mr. Browne here read part of Mr. Hutsen's evidence at the last trial.) Witness then said:—A few small hand-machines were sold without either bow or spindle for cheapness. If the chain of my machine is unhooked the rolling surface may drop down to the bottom, or if the tea gets into a lump it may force the cap to rise somewhat, but it has no automatic action. The mechanical description of it is a controllable action vertical or downwards. Describing the case or jacket of his model he said:—The case or jacket consists of a wooden case with a brass frame, to which is fixed a bow or bracket. (Mr. Browne here called the witness's attention to the description of the jacket given in his specification.) In figure I, B—the case or jacket enclosing the rolling surface—is that part of my model which is made of wood. There is no lettering in the drawing on that part of my machine which in my model is made of brass or metal. The drawings indicate that that part of my machine which in the model is made of wood is adjustable vertically within the metal frame to which it is attached: it indicates it by showing the slot-holes through which pass the bolts which secure the lining to the frame. There is no mention of the frame in my specification, separately from the jacket. There is no mention of the materials of which the jacket is to be made. I describe them all as the jacket or case. Up to the present time our largest machines of this make have wooden lining inside as all the machines at first were made. The frame round it has never been made of wood but of cast-iron. One of the objects that influenced me in improving on the Standard was, the weight of the jacket resting on the table below. The weight of the wood and iron composing my Excelsior jacket is from 6 to 8 cwt., of which the woodwork would weigh about 24 lb. The weight of the Standard jacket is about 1 cwt. 9 lb. I would explain that the Standard (Loolecondura) machine takes a charge of 125 lb. of leaf at a time and that the Excelsior takes 300 lb. We are comparing a small with a large machine. To increase the Loolecondura machine to take 300 lb. would cause its present weight to be increased twice or three times, and this increased weight would destroy the under table in no time. When the Court resumed Mr. Jackson said he should like to make a little explanation with regard to part of his previous evidence. He was then asked whether the letter "B" referred in any way to the iron (or brass as in the model) frame, and he replied "No," but he wished now to say that he referred to the whole thing as being "B." Continuing his cross-examination he said:—The power in my machines is transmitted through the pulleys, through the shaft, through the bevel-wheels and then through the boss on the bevel-wheel to the crank-shafts, and through the jacket to the top surface. That is the driving mechanism. The motion is conveyed to the pulley (R) by means of a belt. The power is then taken through the driving shaft (Q in the plan), then through the bevel-wheels (P and N), through tne crank shaft (M, L and R), K, L, M being the three crank pins on the said crank shaft. The crank-pin M is inserted in the boss of the bevel wheel marked N. The crank pin L tramsmits motion to the lower rolling surface marked G. K is the upper crank pin which transmits motion through the case or jacket to the upper rolling surface. Asked what was the furthest object to which motion was given in the machine he said:—It is difficult to say without seeing the full machine. My machine as a whole is a piece of mechanism. The crank pin L gives to the lower rolling surface G a reciprocating motion. If I remove the upper rolling surface of the Excelsior from its bearing I may then turn part of the driving mechanism without moving the under rolling surface at all, or I may put the driving mechanism in such a position that the under surface will not move at all. The motion imparted to the under rolling surface G is a reciprocating motion which is obtained by an unique crank-shaft which when disconnected from any of its bearings is utterly useless.—Is not the motion which this crank-pin gives to the lower rolling surface a circular motion, suppressed by the lower rolling surface being borne in rectilinear guides?—There can be no circular motion. It is purely a reciprocating motion.—Does a crank give anything but a circular motion?—The crank-pin is doing otherwise just now. (The witness illustrated his answer by moving the model). It is moving in straight lines revolving in its own axis. An uncontrolled crank pin travels round the crank in a radius in proportion to the size, but the pin is revolving in its own axis.—Does it give a circular motion suppressed by these guides, yes or no?—I cannot answer the question yes or no. I cannot be bullied into using words to suit opponents' counsel. I say that the crank pin transmits a reciprocating motion to the lower rolling surface. The motion which A (the top rolling surface) receives is a reciprocating motion. A reciprocating motion is a motion given in straight lines backwards and forwards. "A" has the same reciprocal motion as what I call the case or jacket has.—That reciprocating motion that "A" gets is a horizontal motion?—Horizontal when the machine is not charged with leaf. When the

machine is charged with leaf it may rise vertically under the charge of leaf. The motion transmitted to it is a horizontal motion. "A" receives its motion from the jacket or case surrounding it—What part of the jacket moves "A."?—I must explain that questions are being put to me which I cannot answer yes or no.—Mr. Browne said he would give him every opportunity of answering.—We do not make tea-rolling machines to run empty. We make them to do work and when they are full of leaf this outer case or jacket gets worn away on all sides. The parts that keep it in position on the front and back sides wear away quickly. I cannot say therefore that one side causes it to move one way and the other the other way. This outer jacket contains a surface and drives it. In the model it is the side of the jacket from which it moves that propels it forward; the central spindle keeping it steady.—I believe you do not claim transmission of motion by the spindle?—I have got a jacket on my body, but I do not describe the sleeves and the pockets, but I describe the whole thing as the jacket.—Do you or do you not claim transmission of motion to "A" by the spindle?—No, I do not specify it.—In your action against Kerr you thoroughly disclaimed that any motion was given to "A" by the spindle?—I cannot remember what I said in that action.—Did you not claim there that the spindle was simply a guiding rod?—I believe I did, as a guiding rod which I believe I explained could be so strengthened as to act as a driving rod. I also said that in the model there was not a particle of horizontal motion communicated to the top rolling surface through the vertical shaft or spindle.—"A" is dependent for horizontal motion on what it receives from the jacket. Which part of "A" first gets the motion?—It all receives motion at one time.—If I were to expand the box round "A" so as to leave say an inch of an interval how would it get its horizontal motion?—I never tried it and won't try. Is it not the edges of "A" that receive the horizontal motion from "B"? The whole of "A" receives its horizontal motion from the case. The jacket communicates the motion to the upper rolling surface "A." The upper surface is contained in the jacket and when the jacket moves the upper surface moves with it.—How does the jacket make it move? I cannot explain more fully than I have done.—Does "A" receive its horizontal motion through its edge or sides from the sides of the box or jacket?—I cannot explain it more clearly than I have done. The jacket or case is part of the machine. It may be described as a part of the mechanism or otherwise. Motion is transmitted through the jacket to the top rolling surface (A) and so far it may be said to be part of the driving mechanism. It not only drives "A" but contains the charge of leaf being operated on, and it permits of controllable movement to "A."—Is it part of the driving mechanism for other purposes than driving "A"?—There are no other purposes connected with the jacket which require driving.—The only use of what you call the jacket is to drive "A" and contain the leaf? I have already explained.—When what you call the jacket is lifted off the crank-pin and you apply the motor power will the lower table move?—The lower surface will not move unless the whole machine is in complete form. I have never applied motive power to any incomplete machine for the purpose of trying to get it to move. Mr. Jackson here remarked that the effect would be illustrated by taking the fourth wheel off a carriage and then trying to drive home in it, or taking a wheel out of a watch, and expecting it to go. One of the differences between the Standard machine and the Excelsior is that in the Standard "A" drives the jacket and in the Excelsior the jacket drives "A." In the defendant's machine the horizontal motion of what corresponds to "A" in the Excelsior is received from the spindle? That is so, the spindle being carried by a double bow or bracket attached to the cylindrical drum.—In the Excelsior "A" is a perfect working fit to the jacket that surrounds it?—"A" is placed loosely within the jacket and it is a working fit in so far as it can be moved freely up and down. In the defendant's machine there is an interval of about two inches between what corresponds to "A" in the Excelsior and the jacket round it. "A" in my machine must touch the jacket round it. I have never seen it touch in any of the defendant's machines that I have seen, and I have seen seven I think. "A" in my machine in its reciprocating motion, moves always in the same direction to and fro.—When the belt is attached in the defendant's machine to the pulley on the spindle, "A" in it is caused to revolve?—Yes, it revolves inside the cylindrical drum on its own axis. If I were to take away the woodwork round "A" in the Excelsior as it is patented the bow would go with it?—Yes, but that is a mere detail of construction.—If I were to take away the woodwork and the bow with it would not "A" be moved about by the metal work?—I have never contemplated such a state of things.—"A" would not in these circumstances have the operation you now design for it?—I do not know what operation "A" would have inside a box of that nature. I can only give my opinion on a machine that is complete. I would explain that the jacket consists of the various parts of which it is composed. If any one of these parts are taken away it would be taking away a part of the machine described as the jacket. Witness then proceeded to describe what a bearing is. It consists of a piece of turned iron, or metal inserted into a hole freely and easily, so that the piece of metal may be allowed or may have permission to revolve freely in the hole. Witness's attention was called to the second paragraph in the specification and he was asked.—Will you show on your model the bearing that connects the upper crank pin to the top-rolling surface?—To enable me to show this I must refer to the specification and drawings. I point out the bearing on the model. The specification has the following words in it "K L M" are three crank pins on the crank shaft, K being attached to the rolling surface A. through the case B. The drawing clearly illustrates how this is done. The bearing is not directly or immediately attached to "A" itself. Yes, I said that the driving mechanism in the Excelsior is connected directly to the jacket at the upper crank-pin by the bearing there.—But the metal work of what you call the jacket is part of the driving mechanism is it not?—I must speak of this as a whole. A pulley is made up of four arms and a rim to it. As engineers we speak of a driving pulley as a whole piece in the same way as I referred to the case or jacket as a whole piece. The metal portion is a part of the whole. The metal portion and other parts composing the whole may be considered a part of the driving mechanism or otherwise. One part of the driving mechanism is connected with the other by means of the upper crank pin "K." The lining of wood forming part of the case or jacket is placed inside the outer frame and secured to it by screw bolts. What I have done in my machine is simply that I have described a circle through the working of two straight lines. If I put a sheet of paper between the upper and lower rolling surface and suspend it there free from each, a pencil attached to each surface would mark straight lines. In the machine as it now stands with the upper driving belt removed the pencil would describe a true circle. If a sheet of paper were put between the two surfaces of defendant's machine independent of each of them, and a pencil were attached to each of them, each pencil would describe a circle about 6 inches. A circle would also be described on a sheet of paper put under the horn plate.—So that the motion of Brown's machine in every part throughout is rotatory?—It is not rotatory or rather it is rotatory and eccentric. The two surfaces of the Excelsior move in straight lines at right angles through each other. (Mr. Browne said that in the defendant's machine the upper rolling surface in motion was about one-third of a circle he thought behind the lower.) In your machine as patented did

"A" roll a single leaf of tea?—No single leaf of tea could have been rolled without "A." That is the same as saying that no part of the leaf could be rolled unless the machine were complete. If I were to shut the bottom of the jacket holding the leaf so as to convert it into a box and set the machine at work it would not roll the leaf, The friction necessary to impart a roll or twist to the tea leaf is obtained in the Excelsior by two superposed rolling surfaces, these two surfaces being made of a shape so as to utilize as far as possible the friction given from the surfaces to the charge of leaf being operated on. The upper surface therefore not only is made heavy to give the necessary pressure on the leaf being rolled, but it will be seen from the drawing that it is hollowed out on the under side to make it act as the upper rolling surface.—Is it more than a weight on the tea?—It is a rolling surface.--If the jacket were raised in height so as to contain a weight of tea equal to the weight of "A" would the machine roll any tea?—The leaf would be partially rolled. It would not be a successful tea rolling machine because the charge of leaf in such a deep case could not get all turned over during the process of rolling. We are now substituting convex caps for the concave ones. That is to effect better circulation of the leaf. In using the concave caps in the machine as patented I did not find that when the lid was not occasionally raised the tea blocked in the box and stopped the working of the machine. Nor did I find that it stopped the partial rolling of the tea. I never knew it doing so to such an extent that it actually stopped the motor power. Of course if the motive power is not sufficient to drive the machine when charged with leaf and the full pressure applied, I could easily understand the whole thing stopping. Would an 18 ft. by 2 ft. 6 waterwheel give sufficient motive power with a plentiful supply of water? I could not say without trying the actual experiment or working out the actual power of the wheel. The horsepower required is in proportion to the pressure applied on the leaf, the quantity of leaf in the machine and the speed at which the machine is driven. One horsepower will turn the machine at a very slow speed. Ten horsepower would drive the machine at an excessive speed if applied to it. The words in our catalogue are "about 4 horsepower would drive the machine but it is always desirable to have a good margin in motive power." My object in suggesting that margin is based on the principle that if you give a horse a full load to pull on the street every day you will soon kill the horse. The same thing will arise with an engine or other motor if it is too small or too light for the work. I have known a nominal six-horsepower engine as made and supplied by Marshall, Sons & Co., England, running three of our Excelsiors in India; I have no actual experience in Ceylon of how many machines one of these engines will drive. A nominal six-horsepower machine may develop an effective 18-horsepower or 24 if you like. So that these three Excelsior rollers you mentioned had from 5 to 8 effective horsepower each to work them? I did not say that the engine was not doing other work. I cannot therefore say what effective horsepower was imparted to each of the rollers. I should say between 3 and 5 horsepower in proportion to the work being done. The horsepower required depends upon the size of the machine, its construction, and length of stroke. I have seen several of Mr. Brown's machines at work and so far as I know they are uniform in size. I really can not give the power for them any more than I can give the power for my own machine. In this connection I would like to explain that the triple-action roller is about equivalent in size to our Universal or second size Excelsior, and I should say at a guess takes the same power to drive it. Have you known instances where estates have sold off your machine and replaced them by defendants? I know of one estate in which three of our Excelsiors were not sold but removed to another estate belonging to the same Company. I have not ascertained the reason for that, although I have an idea. Was the vertical motion of "A" first applied by you in the Excelsior to tea rolling machinery? Does this question refer to Ceylon or all over the world? It refers to an answer in Jackson *v.* Kerr. Mr. Jackson—I was the first to use free vertical movement to the upper rolling surface free from the mechanism operating it. Had Kinmond in 1877 patented a machine in which the upper table had a traversing motion and vertical motion and descended automatically within the jacket surrounding it? He has in India. I cannot define free vertical motion as a principle. There is nothing new in principle discovered now-a-days or very seldom discovered. Is it a principle or is it not? It may be a principle. I will admit for argument's sake that it is a principle. I am aware that a patent cannot be obtained for a principle. Is not free vertical motion of the upper rolling surface the object of your patent and the driving of the upper rolling surface by the jacket the means of obtaining it? My claim is "the arrangement of transmitting motion &c." as in my specification, stopping at the words "surrounding it." The free vertical motion to the top rolling surface is permitted by the arrangement described in the claim. Why did you take the trouble to specify one of the results? I cannot give any reason beyond this that the claim is clear and distinct and one of the results is given. I drive my jacket directly from the driving mechanism. The jacket is a part driven right from the crank pin or through the crank pin. The driving mechanism of the Excelsior roller may be said to end at the upper crank pin "K" which transmits the motion to the top rolling surface "A." It may therefore be said that the jacket is really not any part of the driving mechanism, but is a part driven by the mechanism. Do you claim to have patented the usual means of converting circular into reciprocating motion? Mr. Jackson—I object to the question on the ground that an importer is deemed an inventor in Ceylon. I therefore cannot disclose what I may or may not have patented.

Mr. BROWNE:—Oh I am referring to the Excelsior. Mr. Jackson.—That 's a different thing. With regard to that I refer to my third claim in the specification. And does it—the third claim—patent the usual means of converting circular into reciprocating motion? If it did that, sir, I would not have taken out a patent or applied for one. I applied for a patent for an arrangement, new at the time, for doing so. That was part of the invention described in my specification and illustrated by the drawing.

In reply to his counsel Mr. Jackson said:—The jacket of my Excelsior is the last part of my machine directly moved by the driving mechanism. Its office is to keep the upper rolling surface in position and carry it with it. Really that is the invention which I claim. Free vertical movement is one of the objects I had in view in making the invention but it is not the subject. It was by detaching the driving mechanism from the upper rolling surface of the Standard and attaching it to the jacket in the Excelsior that I liberated the upper rolling surface so as to allow it free vertical motion under control. Vertical motion is part of a process rather than a principle. In my model here of the Excelsior the wooden lining of the jacket is carried down past the iron frame just short of contact with the lowering rolling surface. If I took away the wooden lining the charge of leaf or part of it would escape. (Mr. Withers.—Then you would have to change the name of your machine to a "tea waster" instead of a "tea-roller.") To hold a large charge of leaf during operation and receive the energy communicated to it for the purposes it is intended to serve my jacket of course ought to be well braced up and heavy. In the Excelsior machine I was the first to use a bow through which a guiding rod was passed, which guiding rod is used in the Excelsior for the purpose of raising and lowering the surface "A" within the jacket "B." I could raise the surface "A" so as to enable me to feed the leaf underneath. I could see the leaf being operated on through the hopper which enabled me to charge the machine. The bow in the Excelsior as shown in the

model and as made in the machines we supply carries the central spindle which acts as a transmitter of vertical movement and a guiding rod. The size of this spindle is a mere question of degree. It could readily be made twice or three times its diameter within the meaning of my specification and drawings, in which case the upper rolling surface "A" if made the least thing smaller on the sides would become a driving rod as well as for the other purposes stated. In the triple action rolling machine we have a bow similarly attached to the jacket as in the Excelsior. This bow permits of free vertical movement to the top rolling surface for the same purposes as explained in the Excelsior machine. The central spindle is made somewhat thicker and stronger than in the Excelsior, is carried by the bow in proportionately enlarged bearings. A small piece is taken off the outer edge of the rolling surface, consequently freeing such rolling surface from actual contact with the jacket. The central spindle therefore serves in this case the double purpose of carrying the top rolling surface in the same path with the jacket, which is practically the same thing as done in the Excelsior. The jacket of the triple action machine is carried on two crank pins which support the jacket in the same way as a beam and scale is supported in the centre. If these outriggers or horn-plates, or bearings as I call them were taken away there would be nothing to prevent the upper surface getting off its horizontal path. In a similar way with reference to the Excelsior the jacket or upper surface is supported in the centre at one side. To obtain a true horizontal path of the upper surface I use two horn-plates or bearings. The object obtained by the use of the horn-plates or bearings in the triple-action machine is equivalent to what I use in my Excelsior. In the Excelsior roller there is a vertical crank shaft at one side of the machine. In the defendant's machine there is the same thing. In the Excelsior roller the upper pin of the crank shaft is coupled direct to the jacket. In defendant's machine it is precisely the same thing. In the Excelsior machine the surface "A" has a traversing motion over the lower surface exactly the same as the jacket surrounding it. In defendants' machine it is precisely the same thing. If I moved the upper crank-pin from its connection with the jacket in defendants' machine, the upper rolling surface would not operate. I took out my patent for the Standard some six to seven years before the litigation with Kinmond who sought to have my patent revoked because it comprised an invention of his (Kinmond's). I was in London during all that litigation. I did not advise it and I objected to it. The Loolecondura Standard is the only one ever supplied to Ceylon. I was not aware of the existence of that name plate on the Loolecondura machine until the models were brought into the Court, the machines being sold direct by the manufacturers in England. I discovered the existence of this name-plate by observing in Court the word "Kinmond" inscribed on the defendants' model. I then ascertained on enquiry that this Loolecondra machine had this name-plate. The model Standard now in Court was made by Marshall, Sons & Co. Gainsborough, soon after my patent was taken out in India and before the litigation with Mr. Kinmond. It was exhibited at the Paris Exhibition and that was its first journey from England. The inscription appearing on the model Standard here I have never thought of removing or altering in any way. The patent number on it is my India patent number. Mr. Jackson afterwards proceeded to explain that the hopper in his machine served also the purpose of a ventilator. In the Standard there was scarcely any ventilation, this want of ventilation being remedied in the new arrangement embodied in the Excelsior.

By Mr. BROWNE.—There was nothing said about ventilation in the specification. With regard to the defendants' machine there may be improved ventilation or otherwise in proportion to the amount of space cut away. Although the hopper is not named as a ventilator in my specification the improved ventilation obtained in the Excelsior was very quickly discovered. During my present visit to Ceylon I have been advising that the caps in the Excelsior should be ventilated, there being nothing new or patentable over what had been disclosed in the Excelsior. I have taken two and a half inches off the onter edge of the rolling surface extending to within a few inches of the four corners of the top rolling surface "A." I have also advised that top rolling surface "A" should as far as possible be made a perforated plate throughout.

Mr. WALTER LAMONT of Messrs. Walker, Sons & Co., Ltd., was then examined:—I am a mechanical engineer and served my apprenticeship in the establishmen of John Lawson & Co., mechanical engineers. Glasgow. I was a little over five years with them. I went afterwards to Lees, Anderson & Co. marine engineers, Glasgow. I was in their drawing office for about two years. After leaving them I went to Messrs. Carruthers & Alley Glasgow. There I was engaged in designing machine tools, engines &c. I was there for about two years. I came to Ceylon in 1872 as an engineer to John Walker & Co., Kandy. I am still with the company. For about 8 years I was constantlv travelling about estates in Ceylon erecting estate machinery. The first tea-roller that I remember of was imported by my firm about 1877. It consisted of three fluted rollers working two underneath and one on top like a mangle, and the tea to be rolled in it was put into a bag. The pressure of the upper rollers as it turned round rolled the leaf in the bag. About 1877 was about the commencement of the tea industry in Ceylon. That kind of machine I have described was not a success and was sent back again. There were several bag-rolling machines in use about 1879. The first tea-rolling machine which was brought into Ceylon in which the tea was rolled inside a jacket was the Loolecondra estate Standard. That, I think, was in 1879. I saw it shortly after it was erected. The model exhibited is an accurate model of the Standard. The Standard is the only one of its kind that I have seen in Ceylon. In 1881 I became manager of the Colombo Ironworks and in that year my firm imported the first of Mr. Jackson's machines called the Universal roller which is merely a smaller edition of the Excelsior. That Universal was sent up to Windsor Forest estate. Shortly after that my firm were appointed Mr. Jackson's agents in Ceylon for his machines. Our firm has manufactured about 500 of the Economic roller and imported about 300. Of the Excelsior class we have manufactured about 20 I should think, and we have imported about 120, Of Mr. Jackson's machines embodying the principle of the Excelsior we have mannfactured and imported about 800 altogether. In 1881 before this patent was taken out the most advanced kind of roller in Ceylon was the Standard. He then pointed out the corresponding parts in the Standard and Excelsior and the difference in the method of driving the top surfaces. In the Standard machine the upper rolling surface is the driven surface and is connected direct to the crank-shaft through a connecting rod. In the Excelsior the jacket is connected to the crank-shaft, and has the surface A free to vertical movement. Before the Excelsior was patented I had not seen in Ceylon any tea roller in which the driving mechanism was attached to the jacket direct, and carried the upper surface with it. The reverse is the case in the Standard. Before the Excelsior there was no machine in Ceylon in which the upper surface was free to vertical movement. Could a practical workman with the Standard before him as a model construct the Excelsior without using his inventive faculties as distinguished from his faculties as a mechanician? No. One of the advantages in the Excelsior machine is that it is much more "get-at-able." The leaf is easily fed into the machine and there is no danger or not so much danger to the attendant feeding it as in the Standard. The case or jacket is off the lower table in the Excelsior, so that there is less friction in driving and the oil used in lubricating the machine is kept clear from the rolling surface. Labour would be economised in the Excelsior. It would

require two coolies to feed the Standard machine for one cooly to feed the Excelsior. The pressure of the leaf is more easily controlled in the Excelsior than in the Standard. You cannot see the leaf being worked in the Standard roller, but you can in the Excelsior. That in my opinion is a distinct advantage in the Excelsior. There is no ventilation or very little in the Standard and in the Excelsior there is ventilation between the hopper and the cap—through the feeding mouth. It is much better ventilated. Before the Excelsior no machine in Ceylon had the distinct advantages I have enumerated. He then proceeded to refer to the parts of the defendant's machine which in his opinion corresponded to the parts in the Excelsior. The cap or upper rolling surface in defendant's machine corresponds with the cap of the Excelsior. It has free vertical motion in the same way. The jacket in defendant's machine corresponds with the jacket in the Excelsior machine. The jacket in the Excelsior is the whole jacket—the wooden lining with the metal frame. I point out the bow of the jacket. The bow is part of the jacket. The jacket is the wooden lining, metal frame and the bow. When I speak of the jacket of the defendant's machine I mean the frame, lining, and bow which I point out. The hornplates are part of it—cast with it. All these parts constitute the jacket. In the defendant's machine the jacket is driven through the crank pin to which it is attached. In the defendants' machine the jacket carries the top rolling surface; the bow of the jacket carries the upper rolling surface. If the crank pin in the jacket of defendants' machine were taken away the upper rolling surface would not roll over the lower surface. The common advantage in both machines arising from that arrangement is the vertical movement of the upper rolling surface free from the mechanism driving the machine. As an expert do you consider that the arrangement of transmitting motion to the top-rolling surface through the can or jacket surrounding it which is the invention the plaintiff claims, is adopted by the defendant in his machine? Yes I consider they are both identical. —Yes, our firm have sold several machines of the Excelsior type to the Commerciai Company.

Cross-examined :—Our firm are Jackson's agents, working for profit. Our firm is now converted into a limited Company of which I am a shareholder. Our firm sell the Excelsior, Economic, and the Rapid tea rollers as well as others. I am not the patentee of any of these but I took out a patent for a roller after the style of the Economic which is also sold by my firm. I took out a patent for a roller without considering Mr. Jackson's specification very much and afterwards I found out that this patent infringed Mr. Jackson's Excelsior in some particulars. We manufacture it under a license from Mr. Jackson. Then as a shareholder and patentee you have a personal monetary interest in this case? There is no harm in stating that? Oh! I don't know. If Mr. Jackson loses his case we (my firm) will not have to pay any more royalty for the Economic. As a mechanical engineer I say that what I call the jacket in the Excelsior is part of the driven machanism of the machine. It cannot be part of the driving mechanism. What is driven may drive. It carries the cap round with it; it drives the cap. As regards the cap it is not part of the driving mechanism of the machine. It does not drive itself. You cannot work the lower table unless what I call the jacket is connected with the crank pin at the top. The jacket does not help to drive the lower surface. When the jacket is connected with the upper crank pin it does not help to drive the lower surface. Unless the jacket is connected with the upper crank pin the machine as a whole cannot roll tea. If the jacket were taken off the machine we would have to put another bearing on the upper crank pin, in order to make the lower table work as it is now working. That bearing would be attached to the bar. What kind of motion is transmitted to "A"? A reciprocating motion. The motion comes from the crank On your oath does not "A" receive its motion directly from the inside of the jacket "B"? What directly touches "A" to move it in its reciprocating motion? It touches the side of the box and the spindle. Assuming that Mr. Jackson disclaims that the spindle gives "A" any part of its reciprocating motion then it is the side of the box or lining that moves it? Assuming that, yes. In making the machines there is a space of about one eighth of an inch between "A" and the lining—just enough to let it move up and down easily. I have seen Mr. Jackson's machine working many times. As the machine moves the side of "A" touches the wooden lining furthest from the direction to which it is moving. In manufacturing machines under Jackson's Excelsior patent we do not make the spindle strong enough to impart horizontal motion to "A." I have seen only one of defendant's machines at work and that was on some estate in Dikoya. In the working of the plaintiffs' model of defendant's machine the cap does not touch the lining surrounding it. I cannot say whether it did so in the machine I saw at work. It is about a year ago since I saw that machine in Dikoya. A year ago we knew it was probable that the plaintiff would come to Ceylon to institute this action, but I did not then examine defendant's machine to see whether it touched as described. I am the managing engineer of the firm. As an engineer I say that the horn-plates in defendant's machine are equivalent to the bearings "F" in the Excelsior on which the bar "E" rests and slides. The hornplates of defendant's machine simply rest and slide on the slide plate. They are tied down by the crank-pin. In the Excelsior the bar E is held in the bearing "F" so that it cannot jump out. If I were to substitute for F in the Excelsior straight bearings like those on the defendant's machine, the machine could not be worked because the crank-pin would pull the jacket about in different directions for want of the guide. Is there a difference between the hornplates in defendant's machine and the bearings F in the Excelsior? There is a distinction. The beating F in the Excelsior machine carries up the jacket and guides it preventing the lining of the jacket from touching the lower surface of the table. The hornplates in the defendant's machine does the same thing—it prevents the lining from touching the lower rolling surface. They rub differently. The plaintiff's bearings guide the motion rectillinearly and the defendants' horizontally so that the upper part of the machines shall not oscillate. The functions of the bearings and the hornplantes in the two machines are not therefore the same. You could not substitute each for the other in the respective machines and make the machines work. The motion of each part of the Excelsior is rectillinear and of the defendant's machine, eccentric.

Re-examined.—I said in answer to Mr. Browne that the jacket when connected with the upper crank pin does not help to drive the lower surface. Asked what does it do? He replied,—It takes the power from the crank shaft and drives the upper surface. That which gives the motion to the jacket gives the motion also to that which is inside the jacket. Motion is given directly by the crank to "A" through the jacket. If I removed the horn plates from the defendants' machine the machine would very soon go to pieces.

Mr. FREDERICK MAGUIRE deposed:—I am a mechanical engineer and have had considerable experience of tea machinery in India, Ceylon and Java as well as in the north of Ireland. I was an engineer on tea estates in India. I have been in charge of Mr. Jackson's Standard, Excelsior, and Rapid Rollers in India. I have put these machines up and taken them to pieces. The model of the Standard in Court is, so far as I see, exactly the same as the ones I have experience of in India except in some little details. I have seen the triple-action roller in operation often in Ceylon and the model in Court seems to be accurate. In most of the cases I have seen, it was worked without the belt connecting the cap and the crank spindle. I have read the specification of the Excelsior and

studied the drawings, and the model in Court illustrates that machine in every essential particular. I consider that the Excelsior has the invention specified, the arrangement of transmitting motion to the top rolling surface through the case or jacket surrounding it. In no other class of tea machine have I seen that invention except in the defendant's machine and Law & Davidson's. I do not know when the latter was made but I have seen it in Ceylon. No workman with the Standard before him could have constructed either the Excelsior or triple-action rollers, if he had not a knowledge of machine designing. He then described the differences between the Standard and the Excelsior in view of the invention claimed, and said:—The first and principal advantage in the Excelsior over the Standard is the method for transmitting motion through the jacket to the upper rolling surface, because, in the first place, it enables the upper rolling surface to be lifted, and also it enables the machine to be filled by the attendant standing in front of the machine instead of, in the older machine, having to mount to the top of the roller. Another advantage due to this method of transmitting motion to the top rolling surface is that the machine can be cleaned easier. Then again it dispenses with oiling above the upper rolling surface. I consider that another advantage in the Excelsior over the Standard is that it is a much simpler machine to make; it costs less and does more work. The invention or improved arrangement claimed is, as regards the Standard, a novel one and is the reverse of what obtains in the Standard. In the Standard the upper-rolling surface is connected directly to the driving gear of the machine. In the Excelsior the jacket is connected directly to the driving gear, carrying the upper-rolling surface with it. Having regard to the specification and drawings and the model of the Excelsior before the Court, I consider that the case or jacket as specified in the specification and drawings is as follows:—First, the outer rim, secondly the lining of the jacket, and thirdly, the bow or bracket. All those constitute the jacket together with the bolts and screws that hold these together. The arrangement of transmitting motion claimed by the plaintiff exists in the defendant's machine. The jacket in defendant's machine consists in the same way as in the plaintiff's machine of the same three parts, the casing (the iron framework), the lining of the jacket, and the bow or bracket, the whole jacket being connected directly with the main driving gear—the crank—the same as in the plaintiff's machine. The horn-plates in my opinion are parts of the jacket in the defendant's machine, serving the purpose of carrying the weight off the jacket and thereby preventing friction by scraping or rubbing on the lower rolling surface. The horn-plates in defendant's machine are mechanical equivalents to the sliding rod in the bearings of the Excelsior. More correctly speaking the horn-plates correspond with the rod in the other machine, and the bearings in the plaintiff's machine correspond with the bearings in the defendant's machine. In the Excelsior with a full charge of leaf and the top rolling surface run up as far as it can go and full pressure on, it is the jacket which carries the top rolling surface. According to the specification; in my opinion Mr. Jackson is certainly not tied down to making the central spindle of any diameter or strength; nor is he tied down to making a light or strong bearing in the bow or bracket in which it works. Nor is he tied down by the specification to making the upper rolling surface a working fit to the lining of the jacket. In the Excelsior and triple action rollers the jackets are driven but they drive what is in them. They might be considered drivers as well of the caps within them. The only thing that is really new in the defendant's machine is that the upper rolling surface revolves, which it does not in the plaintiff's; that is to say that it revolves on it own axis.

Cross-examined by Mr. BROWNE.—I worked on no tea estate in the north of Ireland. (Smiles.) I suppose that like myself when you were in Ireland you heard a great deal more of Jackson's *Te Deum* than Jackson's tea roller? I never heard of one or the other. I began my tea roller experience in the colonies. I served an apprenticeship as a mechnical engineer, was for six years with Messrs. Wm. Ewart & Sons, Belfast, and then went to Davidson & Co., Belfast, my present employers. I went to Davidson about 1888 and I was about four months in their works. I came to the colonies in the beginning of 1889—first to Ceylon, then to India (where I was six or eight months), back to Ceylon. then to Java (where I was about six weeks) and then back to Ceylon, where I am now. Nearly all the time I have been working for Messrs. Davidson. When not working for them I have been working for others, putting up and looking after machinery. Messrs. Davidson are Sirocco manufacturers. I do not consider the Commercial Company as rivals of my employers as regards Siroccos. At the recent Exhibition the Commercial Company exhibited a machine which they called a dessicator. I do not think that Company import desiccators. I think they are manufactured locally. As far as I know they sell them. They are in the same line of business as my employers. I have studied mechanics as a science in schools in Belfast for three or four years, and I am still studying. I have seen defendants' roller on Mr. Dobree's Dikoya estate. I have also seen it working without a belt on Ardlaw tea estate. I have also seen it on Waltrim and Mayflower estates. I cannot remember any more. I do not know anything about Law & Davidson's machine. Mr. Jackson does not claim any special means for the object he had in view. The transmitting of motion through the case or jacket may be obtained in different ways. Mr. Jackson's object as far as I understand is to give the upper rolling surface the same motion as is received by the case or jacket surrounding it, at the same time allowing the upper rolling free vertical movement. In theStandard the jacket of the upper rolling surface moved in the same direction with great disadvantages. One of the differences between the Standard and the Excelsior is that in the latter the upper rolling surface has free vertical motion which it had not in the Standard. The other differences are those I have already particularised. The sole or only object of Mr. Jackson was not to obtain free vertical motion in the upper rolling surface. That is not in the fore-front of his claim, but follows the transmission of motion &c., I cannot say what his principal object was. His claim I suppose is a particular means and a particular object. The means is the method of transmitting the motion and one of the objects obtained is the release of the upper-rolling table. Jackson in my opinion does not claim to patent free vertical movement to the upper rolling surface, but it is a natural consequence of the first part of his claim. (Mr. Withers interposed an objection to the effect that this was trenching on a matter of law. It was for the judge to decide what the invention was). I suppose that the clause "whereby, &c." was added to make the claim more distinct and simpler. The relation between the two machines as regards looseness (in the jacket and upper-rolling surface) is different. In the Standard the case or jacket is driven by the four sides of the upper rolling surface when the machine is working. In the Excelsior the upper rolling surface is driven by the jacket and is indirectly connected to it. Is the jacket of the Standard driven by all four sides of the upper rolling surface at one and the sametime? It would be hard to say how it is driven during any one second or instant when it is working. When pressure is on the leaf may roll it on all four sides. In practice with leaf I could not tell you which side touched it instantaneously; the bottom table might push the jacket to any side. I cannot remember the space between the jacket and upper rolling surface in the Standard. In Jackson's the space is about the sixteenth of an inch to allow the upper rolling surface to work up and down—what you may call a working fit. In the Standard the jacket was always loose. In the Excelsior the upper rolling surface is loose to a certain extent but not in the same way as in the other. In the Excelsior the upper rolling surface though loose in the jacket is

suspended from that part of the jacket called the bow. In working the sixteenth of an inch is not preserved on all sides. One side or more of the lining of the jacket is usually in direct contact with the upper-rolling surface. It is the inside of the lining that touches. I have seen some of Jackson's machines in which he has cut away the sides of the upper rolling surface for purposes of ventilation. The corners are always left and the contact is between the corners and the wooden lining. The motion which the lining gives to the upper rolling surface is a knock or push. It is first knocked on one side and then on the other. I have heard the knock on the side of Jackon's machine when working. When I have seen the defendant's machine at work, I have never heard or seen the sides of the lining strike the upper rolling surface. Defendant's upper rolling surface receives its horizontal motion from the spindle and bracket. To constitute mechanism must not two or more bodies be so connected that their motion depends on each other through cinematical principles alone? I think that means that two or more parts are connected by some mechanical principles, one following the other throughout the train. I think that is what is meant although I never heard the word cinematical before. (Mr. BROWNE: —Quite right. He then quoted the meaning of the word from Webster's Dictionary.) I have studied the introduction to mechanics but not under that name. He then traced the chain of mechanism in Jackson's machine and said it ends directly in the jacket. Betore the end of the train it transmits motion. One chain of mechanism may transmit motion at various points throughout its length. The first point may either be considered a driving or driven point. The very first point is driven from the shafting that drives it. The train of mechanism is the series of pieces which transmit motion from the driving point to the working part or through them to the ultimate object which is driven only. In the Excelsior the lower rolling surface is one of the series of pieces of its mechanism—one of the working parts. If the guides were not under the lower rolling surface of the Excelsior machine might not work as it would not be complete. If the guide bars of the upper rolling surface were away, the upper rolling surface would work, but I do not think you would have a chance of fiuding out whether it would be in rectillinear lines because the machine would break up. If you took out the crank pin or sliding bar of an engine you would probably be lying on the floor before you knew where you were. (Shown defendant's model of plaintiff's machine. I suppose it is working as a model all right. If the guide bar of the upper rolling surface were taken out in the model as is now done, the machine being incomplete would not work. I never tried the experiment before on a model. If I were to take out the same part in the Excelsior jacket would it work? If you take anything at all from any of the machines they would not work. The machine would not be complete; it would not be Jackson's machine. It would probably smash up. The engine would be pulling the machine. It would not work for the same reason that an engine would not work if you take away the crank pin. The principal function of the sliding bar of Jackson's machine is to carry the weight of the jacket. The bearing under the hornplates in defendants' machine would carry the weight of the jacket. The bearings in which the grinding bar rests in plaintiff's machine contain the guiding bar as well as support it. In Jackson's machine the bearings not only support the weight of the jacket but they also act as a guide. In defendant's machine not only an equivalent to bear up the weight of the jacket but an extra guide is supplied. In the plaintiff's machine they guide it in rectilinear and horizontal motion They make it take rectilinear motion. In the defendant's machine the horn-plates and bearings guide it into a horizontal motion. They keep it from oscillating. They have no other function as directors of motion than that.

Re-examined.—I have seen the upper rolling surface lifted right out of the case or jacket surrounding it while the machine was working, so that no part of the lining was at any given moment in contact with it. The jacket still carries the upper rolling surface. Motion was then principally transmitted by the bow to the jacket. The spindle might have helped a little.

Mr. C. A. HUTSON, Colombo, deposed:—I am a mechanical engineer and have been practising my profession for about 22 years, 6½ years of that period being in Ceylon. I have seen the Standard, Excelsior, and Triple-Action Rollers working, and I have erected the Excelsior and Triple-Action machines. I have read the specification of the Excelsior patent, and I consider the jacket of the Excelsior to be the metal frame, the wooden lining and the bracket. The fact of the bow being attached to the frame instead of the wooden lining I look upon as a mere matter of detail. The model I believe to be the same as the working machine. Certainly motion is transmitted through the jacket. In the Standard the upper rolling surface is driven direct from the shaft by the connecting rod, while the jacket slides on it; but in the Excelsior it is the jacket that is driven direct and the rolling surface slides inside of it. The jacket in the Excelsior carries the cap with it, and in the defendant's machine the upper rolling surface is moved by the jacket. I call the jacket in the defendant's machine the cylindrical box and the various parts pertaining to it. I consider the whole thing, including the bow or bracket to be the jacket. In the defendants' machine the action is the same. The jacket drives the top rolling surface. I know Law & Davidson's machine. There the upper surface is not quite free to move up and down. It resembles the Excelsior in the fact that the jacket moves about while the top rolling surface is carried by the jacket and is left free to rise and fall. I think I saw Law & Davidson's machine in 1886—a long time after the Excelsior.

Cross-examined.—A case was threatened, I think, but so far as I know Mr. Jackson has not taken action against Davidson. I gave evidence as to facts in the case Brown, Rae & Co., Hatton, *vs.* Harcourt Skrine. I was called there as a mechanical engineer to prove that I had examined the machine erected by the plaintiffs for the defendants.—In that case you gave it as your opinion "that the motor has been erected in a correct and substantial manner and that it is at the present moment, able to develop its maximum efficiency"?—Yes. (Mr. Browne, in reply to the District Judge, said that in that case the District Judge held that it was very clear that the machine was not properly erected by the plaintiffs and was practically useless. He read from the judgment.) I have never heard what the Judg ound, but I know that Brown, Rae & Co. got all the money they claimed. At one time I was employed by the Commercial Company; they brought me to Ceylon.—And dismissed you afterwards?—We never settled that point. I say they did dismiss me and they say that they did not. I describe the whole thing as the jacket, and its function is to roll the tea leaf. It does that by moving the leaf across the bottom rolling surface and causing the leaf to turn over and rub partly on the top rolling surface and partly on the sides. What I call the jacket is part of the driving mechanism of the machine; it drives the top rolling surface backwards and forwards over the leaf. It also acts as a bearing for the triple crank-shaft and thereby keeps the crank-shaft in position. If the crank-shaft were not kept in position thereby the crank shaft would not work. I can transmit motion from one crank-shaft to another by means of a belt. In the defendant's machine motion is transmitted from the driving crank-shaft to the guiding crank-shaft by the jacket. Either of them would do it; at present both do it. If either were taken off, the part of the machine that was left would work. (Shown model.) That machine is so badly made that it won't work. As a mechanical engineer and I have seen it done though not with the defendants' machine, I say that if the jacket of the defendants' machine is removed, the lower rolling surface will work. (The upper part was taken off the defendants' model of his own machine and the witness was asked to work it.) Plaintiff's mode

won't work any more than that will. The plaintiff's model is a good and true one. It is possible from one crank to drive the other by means of a connecting piece or rod, only that the one crank requires to be balanced a little bit to carry it over the dead set. That is a common motion in threshing machines at home. In the defendants' machine it is carried over the dead set by the upper crank being set at right angles to it and by the two opposing crank pins being connected. The jacket has the motion of the connecting piece or rod. The lower surface has the motion of the connecting piece or rod between the lower cranks.

Mr. A. E. BROWN, examined by Mr. Wendt, who is associated with Mr. Withers in conducting the plaintiff's case, said:—I am Locomotive Engineer of the Ceylon Railway. I have had a general training as an engineer and am an associate member of the Institute of Civil Engineers. I received my training in the employ of Messrs. White & Sons, Isle of Wight, and Messrs. Stevenson & Co., Newcastle-on-Tyne. I have been 24 years in the practice of my profession and have been in Ceylon since 1874. I do not know anything special about tea machinery. I have seen the specification of the plaintiff's machine. I consider the model in Court to be a model of the Excelsior. The case or jacket is the brass frame, the wooden lining and the bracket. In the defendants' machine I find a piece of mechanism corresponding identically with the plaintiff's machine, with the exception that the one is cylindrical and the other is rectangular. The jacket in the Excelsior gives the upper rolling surface motion. It imparts a reciprocating motion. The upper rolling surface is left free to move vertically only. The principle of free vertical motion is embodied in the defendant's machine. The fastening of the bow or bracket is merely a detail of construction, and I do not consider that it in any way alters the principle of the arrangement. It is a small detail of alteration that might have been made to give the bow more rigidity or firmness.

Cross-examined.—The claim I understand is the movement of the upper rolling surface through the jacket. There are certain things that are entailed by the movement of that jacket. By carrying the upper rolling surface in the jacket it is kept free from friction with the lower table. I glanced at the specification in Court this afternoon. The only one of the defendants' machines that I have seen at work was the one in the Racket Court. I have not read the specification of the defendant's machine. Mr. Jackson in his specification calls the jacket the wooden lining and metal surrounding. Speaking from memory in his specification the plaintiff refers in his specification to the lettering in his drawing. I do not think there is any lettering in the drawing on the brass part, but I do not consider that of any importance. I think the brass work would not be described by lettering in the drawing inasmuch as the lettering is equidistant from the perpendicular centre line of the drawing. The lettering "B" in plaintiff's drawing, figures 1 and 2, is placed upon the drawing of the woodwork. I see no reason for putting the letter "B" on the metal part. There is no reason for not doing so. That is a matter for the draughtsman. Draughtsmen would not repeat the lettering. I should imagine that for the purpose of transmitting motion from the driving crank-shaft to the guiding crank-shaft the jacket and the lower surface acted as guiding rods. Both must be working to get the proper motion on either. It is necessary that the driving motion of the Excelsior may be effectual that both the jacket and the lower rolling surface should be at work at the same time. The lower surface (after examining the model) will not move without the upper surface. It is also necessary that the jacket should be attached to the sliding bars at the opposite side to the crank-shaft in order to make the upper surface work. It is also necessary that the jacket should be supported by the sliding bar which acts as a guide for the bearings on the jacket to work on. The jacket is acting as a connection between the bearings on the rod and the crank-shaft. If you take away the jacket the machine is incomplete and therefore will not work. The function of the jacket is to give motion to the upper rolling surface, and to the best of my knowledge that is its only function. It also carries motion through and assists in the working of the lower table. I should think that it was placed there for the purpose of holding the leaf. It carries the leaf to and fro across the lower rolling surface. To a degree the hornplates in the defendants' machine do the same work as the bearings in the other. In defendants' machine the hornplates guide the jacket laterally and in plaintiff's laterally and vertically.

Mr. JACKSON was again examined by Mr. Withers for the purpose of having recorded that what he said had been quite understood in the case. He deposed:—In strict accordance with my patent specification and drawing I have constructed three sizes of machines: the Excelsior, the Universal, and the Ceylon. It is these three classes of machine that I complain has been infringed by the defendant's machine.

By Mr. Browne.—The defendant's machine is nearest the size of our Universal; it is between the size of the Universal and the Excelsior. The area of the Excelsior box is 900 square inches. I have not worked out the cubic contents; it all depends upon how high you make the jacket.

It was then understood that the plaintiff had closed his case, with the exception of some documents which would be put in and perhaps one or two questions.

Mr. WITHERS put in his documentary evidence—letters patent, specification and drawings all of which are filed with the plaint. He also read in evidence the specification filed with the defendant's answer.

Mr. BROWNE objected to this latter point on the ground that it could not be read in evidence against them as to whether the defendants had infringed or not. He pressed this specially as regards the case of the second defendant company, that paper not being signed by them and did not bind them—any more than the report of any of the gentlemen of the press. The defendants would be judged by what they had done and not by what anybody else had said they had done. In other words the issue was not what defendant had patented or plaintiff had manufactured, but had defendants' machine infringed that for which the plaintiff got a patent.

Mr. WITHERS said there might be something in that objection if the defendants had made separate answers. They had put in a common answer and any admission that one of the defendants made was surely evidence against all of them. The plaintiff also produced the models as part of this evidence.

Mr. BROWNE said the defendants objected to the plaintiff's model of the Excelsior on the ground as was admitted by plaintiff, the bow or bracket was in the model attached to the metal frame whereas in the specification of patent it was attached to what was woodwork in the model.

The JUDGE also recorded the admission by the defendants that the defendant company had under the license of the first defendant sold the tea leaf rolling machines alleged by the plaintiff to infringe his invention and that these rollers were represented by the models. With this the plaintiff closedh is case.

Mr. BROWNE then began his address in opening the defendant's case. He said he should have desired, if it had been possible as regarded the convenience of the Court, that a longer time could have been available to him to digest the mass of evidence that had been led ere he ventured to address the Court, but they were hurried here from one case to another, from defamation to infringement, and he could only hope that the remarks he made that day whereinever they might be imperfect or even incorrect, would be supplemented and corrected by the evidence of the skilled expert witnesses to be placed before the Court. At the commencement of the case for the defence it was agreed between him and Mr. Dornhorst who with Mr. Loos appeared with him, that he should undertake the responsibility of learning as far as he could the views of his clients as regarded the mechanism of the different machines and of expressing them to

the Court and extracting information in that respect from the different witnesses. One got very rusty over mechanics—almost as rusty as mechanism itself got in this tropical climate. He had had one mechanical case in 1885 in that the Court and another —he thought it was a year or two ago—in the District Court of Kandy, and beyond that he did not know what questions of mechanism had arisen in either Court during the last 20 years. They were at a greater disadvantage here than specialist counsel in London were to whom such cases were a matter of every, day occurrence. However, they had to do their best; and for his own part, in his branch of the case he had to acknowledge his very great indebtedness to his client who sat on his right (young Mr. Brown) whom he might call his mechanical junior for all his assistance in the case. He could not have played any part at all if it had not been for his help. In this matter it was hard to know where to begin. His Honour had been at the trouble for the last four or five days of taking down a mass of evidence that he thought had run to over 100 pages of writing, and now it was his duty to explain to His Honour what the defendant's theories were—they were very simple—in regard to the whole of this case, and to apply the evidence to the whole case and to apply the evidence to them. First let them get as true an idea as possible of each inventor's work, and he thought the result of such an enquiry would be to establish that the two machines were as diametrically opposed to each other in every principle and action as they possibly could be —so opposed that it was almost impossible to think that there could be any similarity, and certainly such a similarity as to amount to an infringement. Mr. Jackson had given a history of how he arrived at what he called the invention of the Excelsior. He had told them that after a training as a mechanical engineer—he (Mr. Browne) took that to be that he was more of a practical than a scientific engineer—he proceeded to Assam. Like Mr. Lamont he seemed to have studied his art in manufactories at home, which, though they had a great deal to do as marine engineers with the rolling sea, had nothing to do with rolling tea. After that experience he came out to India and began life there apparently as a tea planter. Then he directed his attention to tea machinery. He told them that there were already rollers in existence, and as far as he (Mr. Browne) could see by what Mr. Jackson had told them and by passages in the report of one case to which he, as Mr. Jackson mentioned, was an unwilling party, most of the principles of the Standard machine were in existence before he took out his license. The patent for the Standard was taken out in India, and Mr. Jackson came here as an expert, and in direct examination told Mr. Withers "I invented the Standard, I took the patent in India for it." He posed before the Court in all the glory of an original inventor, and if his evidence stood uncontradicted without cross-examination the Court would look up to him indubitably as an authority of weight in the matter. The production of the Calcutta Law Reports and his own admissions there were, however, quite sufficient to overthrow that status to which he had raised himself in his direct examination. The one word "Kinmond" on the defendant's model showed him perfectly well that they knew the fallacy of what he (Mr. Browne) might call presumptive assertion that he made in his direct examination. Mr. Jackson admitted that that very machine was involved in the patent case in Calcutta; he admitted that the principle of that machine was one not of 1875 or of 1871 but was one of the year 1865 when Kinmond first brought out his idea, although his upper rolling surface was smaller than this one. Mr. John Brown would tell the Court that he saw that machine of Kinmond's or some machine on that idea which he surmised to be the same as the patent in 1865 or 1868; so that to him it was very clear that there was no warranty for Jackson posing as the inventor of the Standard. Counsel then proceeded to quote the remarks of the judges in the case of Kinmond *v.* Jackson (Calcutta Law Reports page 73) with regard to Kinmond's second specification, to the effect that the two important alterations in his original machine which were described in the second specification were the central cavities or recesses and the motion given to the under table as well as the upper, and, that to give motion to the under as well as the upper plate was no doubt an improvement, and had the specification been limited to that it might have been good, but the specification being for the whole combination and not for the movement only it comes under exclusive privileges. This Mr. Browne looked upon as indicating that even in 1877, in the age of the Standard and when the Excelsior was still a thing of the future, both under and upper tables in tea rollers had been given independent motion of each other. Next he referred to Jackson's improvements on Kinmond's machine, and said they consisted of three things. The machine was fed differently, the leaf was discharged differently, and there were springs underneath to minimize the vibration, Mr. Browne supposed, or to make the pressure more automatical. That was the invention; it was nothing more at the best than an improvement in three details, and Mr. Jackson, whatever credit he was entitled to as an improver, could not take up the high stand of genius of the absolute original inventor. With so much credit attaching to him and no more—he was discounting of course Mr. Jackson's value as an expert witness and he was afraid—afraid for his sake —it would be found that by his evidence Mr. Jackson had discounted himself a great deal more in this case— the first, Loolecondera Standard, came out to Ceylon and was not patented. Henceforth in Ceylon every inventor or improver was perfectly at liberty to use any part, or any principle he might say, of the Standard machine in his invention. The Standard was never patented in Ceylon.

Mr. WITHERS.—We admit it was public property; common property.

Mr. BROWNE continuing said that was very important as regarded one thing. In the Loolecondera the upper rolling plate was driven direct from the driving mechanism; and what did Jackson do? Jackson said this was a cumbrous machine, he could not get at it to feed it properly, and therefore he said he must devise something else, and went to work to produce a different machine. That was one of the reasons that influenced him. Another was the heavy weight of the loose jacket on the under table when it was moving backwards and forwards tearing it all to pieces. He wanted to design something lighter, simpler, and cheaper, and accordingly he went to design the Excelsior roller. He was afraid that the very designing of the Excelsior roller discounted Mr. Jackson's genius a little more. It was, he ventured to say, a very cumbrous way of arriving at a result. As they knew from Goodeve's Manual of Machines, circular motion was of a compound character and capable of resolution into its elements. Circular motion was produced by two forces which acted as he illustrated by the movement of his hands, transversely. Mr. Jackson got the two forces acting as Counsel had illustrated—a rectilinear force at right angles—and thus, in a quotient to the tea roll, got circular motion. His machine was of rectilinear action throughout. By putting a pencil on it at any part, and using a sheet of paper to record the motion of the pencil, it would be found that the pencil made only straight line. It was a very ingenious idea of his learned friend to suggest to Mr. Jackson that if he attached a piece of paper to the lower rolling surface and put a pencil down a circle would be marked when the two surfaces moved together, and the same thing being done on the other machine it did the same, *ergo* the two were the same.

Mr. WITHERS was understood to disclaim the credit of that and to say that it was his client who told him.

Mr. BROWNE continuing said it was a very clever suggestion for Mr. Jackson to make to his counsel to put to him, but it was not presenting the case to the Court in a proper way. It was leading the Court aside from the true construction of the two machines. What Mr. Jackson admitted to him in cross-examination was that if each of the two parts recorded its motion

separately it would record it only in right lines; whereas if each in the other machine recorded its motion on a separate piece of paper it would record it in circular or eccentric lines. That was the truer way to put the different characteristics of the two machines before the Court. Mr. Jackson went all that way round to get a circular result, or, should he say, all the way square to get a circular result. To affect that mechanism, he thought it had been abundantly shown, every part must be attached and in operation—that one part would not work without the other. It had been repeatedly shown in Mr. Jackson's own machine that if that upper part were removed and an attempt made to move the machine, it would do one of two things: it would either get into a position in which the crank would run round without doing anything at all or it would get into a more jammed position in which the crank would not move at all. This he proceeded to illustrate by a model the inventor of the triple-action roller had made, contending that in order to make the whole machine work harmoniously there must be a connecting rod. It mattered not whether the connecting rod was a rod of greater or lesser thickness, square, oblong, or anything else, so long as it made the connection between the one point and the other—between the sliding bar and the crank pin. Mr. Jackson's machine required that principle of the connecting rod, and when Mr. Jackson went into the witness-box and practically asked the Court to believe that this upper metal frame and the wooden box that holds the tea was the jacket and nothing but a jacket, and was not part of the driving mechanism, he was contradicted by his models, by all experience and by his own witnesses. Counsel then referred to Mr. Jackson's evidence on this point to show, as he put it, how completely Mr. Jackson had given himself away, directing the Judge's attention in passing to the circumstance of how often Mr. Jackson answered "Yes" or "No;" how often he began his answers by "I must explain;" how often he gave them as it were a small lecture on a mechanical point, and in the end saying he could give no answer at all. If there was another thing which would tend to discount Mr. Jackson as an expert he submitted most emphatically it would be the way he had evaded his questions. He thought he had two "yeses" and one "no" from him in five hours' examination. He tackled Mr. Jackson three times on the question of the upper rolling surface being a connecting rod and a part of the driving mechanism, and the Judge would see on reading the evidence how he went from bad to worse and in the end actually said it was not a driving mechanism but a thing driven. Counsel quoted several passages in plaintiff's evidence, and subsequently alluding to the deposition of Mr. Lamont confessed he was surprised to find that gentleman agreeing with Mr. Jackson, adding in the concluding part of his reference to this witness's statements that Mr. Lamont's answers were each a refutation of his assertion. Mr. Lamont said the jacket drove the cap but was not a part of the driving mechanism. He said he could not drive it without it and yet that it was not part of the driving mechanism. Surely it must be so. They wanted the driving mechanism to drive every part of the machine, and if they could not do it without this part surely it must be part of the driving mechanism. The other witnesses had gradually progressed for, so far as his memory served, they had admitted this principle. The fact of the matter was that this machine not only resolves circular into rectilinear motion but, if it might be so called suppressed circular motion. Naturally the cranks in moving would have a tendency to engender circular motion and where the guide opposite was of a corresponding nature circular motion resulted, but when the guide was made rectilinear—and this guide was made rectilinear—and the form of the crank was slightly altered circular motion was suppressed into rectilinear. The crank pin that seemed to be going round was really moving backwards and forwards in straight lines. Even MaGuire showed how the guide operated to make Jackson's machine work in a rectilinear motion. Hutson advanced the position much further and Brown even further still. He next quoted from Rankine's applied mechanics the definition of what was called link work to the effect that the pieces which are connected by link work if they rotate or oscillate are shortly named crank beams or levers. The link by which they are connected is a rigid bar which may be straight or any other figure. The straight figure being the most favourable to strength is used when there is no special reason to the contrary. The link is known by various names under various circumstances, such as coupling rod, connecting rod, crank rod, eccentric rod, &c. It is attached to the pieces which it connects by two pins about which it is free to turn. Now he argued that what Mr. Jackson called his jacket was not a true jacket, and that the metal work of it was a connecting rod in the driving mechanism of his machine. Jackson knew what was coming; he had known of it all along in this case; he had known that it was open to the defendants to take their power off the driving mechanism. He might divert the driving mechanism into as many streams as he liked, and that was the reason Jackson would not admit it. Jackson had gone so far as to do that which his witnesses had contradicted—to assert that it was driven and not driving mechanism. He wanted to take it out of the driving mechanism of his machine, for he knew what was before him, and for the third time when he pressed him Jackson actually jumped over the precipice and said it was driven mechanism alone. Jackson said that the jacket part in the Excelsior was the last part of his machine directly moved by the driving mechanism and its office was to keep "A" (the upper rolling surface) in position and carry it with it. Was that its only office? Well suppose they took it off would the rest of his machine go? Oh, he said, he could not tell. He was like one of those musicians who could only compose a piece of music with the keys of the piano before him and gradually stumbled into the proper chord and harmony. He could not take a sheet of foolscap and sitting down under the shade of a green tree there write down chords of perfect harmony that no mortal ear had ever heard. He was only a practical man and was in the position of Mr. Brown of the Railway who thought the thing would go until he took the machine to pieces and found it would not go. Mr. Jackson's invention was not only a roundabout way of getting circular motion; it resolved circular motion into its component parts and brought them together; but it was mechanism throughout and the jacket was part of the mechanism, and a material part. Mr. Jackson might deny that, but it was patent to the eyes, patent by the evidence, and patent by Jackson's specification. Did Jackson in his specification claim the link or connecting rod of metal as part of his jacket? He never did. The lettering on the drawing showed this; he submitted that it did not lead anyone to suppose or imagine that when Jackson spoke of the case or jacket loosely surrounding the upper rolling surface he meant the metal work. The specification was silent about that, and the reason was that it was the connecting rod, a necessary part of the mechanism which it was unnecessary to describe because it was as inevitable that there must be a connection between the two points as it was that the sun would shine that there be day. The lettering was done entirely on the upper part—on the actual container of the tea leaf and the immediate surface surrounding the upper-rolling surface,—and therefore Jackson's specification did not warrant the inference he deduced from it, but on the contrary, taken in conjunction with their reasoning applied to it, with the principles of mechanics, and with the evidence of the expert witnesses, showed that the metal work was not part of the jacket but had the function of a connecting rod.

The JUDGE:—Can't it be both?

Mr. BROWNE:—Possibly; as a connecting rod it is utilized to carry the top surface; but even if it had a double function, one of its functions was to act as part of the ordinary driving mechanism, namely a connecting rod for which he had taken out no patent and which it was perfectly open to the defendant to utilise in the way he had done. Mr. Jackson said he wanted to get something light in weight and

light for the planter's purse as well. On a comparison of the weight of the Standard and Excelsior it would be found that there was practically no difference, and what he said was that Jackson got his lightness of weight in the woodwork, only he made his connecting rod of such strength—he supposed Mr. Jackson thought it was necessary—that the whole aggregated up to the weight of the Standard. The great difference between the Standard and the Excelsior was that Jackson took the driving crank off the upper rolling surface which he left free to vertical motion by its own gravity, and getting rid of the top part that was controlling it put it on to the jacket. Instead of moving the jacket about by the upper rolling surface as in the Standard he did the contrary, the advantage that he thereby gained being that he got motion applied directly in the plane whereever it might be at the time whether high up or low down. What the defendants said was Jackson's object in this patent was to release the upper rolling surface and leave it to descend automatically within the case or jacket surrounding at so that he might apply weight to it and use it with much more convenience. The other results following upon that were as Mr. Jackson had stated. Mr. Jackson denied that that was the pith and marrow of his invention, but the proof that it was his object was in his own claim of novelty. "I claim for my novelty the transmission of motion to the upper rolling surface through the case or jacket surrounding it, whereby the upper rolling surface is left free as regards vertical movement from the mechanism operating it." If it was for ventilation, for inspection of the leaf, or for any other of these five or six general purposes that this invention was designed, thought out, matured and put into practice, why were not all those purposes specified in the claim of novelty instead of only the one which was put in the fore-front of his claim, and the one with which they had mainly to deal, namely "whereby &c."? Jackson foresaw that there was all this difficulty before him, and in his plaint he had left out the words "whereby" &c. He read Jackson's claim, and he asked the Court to read it as a claim for the release of the top rolling surface into automatic action and the transmitting of motion to it when in that state; but he had left out the words "whereby" &c. in his plaint because he saw that not for a single moment was the defendant's machine automatic, being controlled in every part. The defendant's never contemplated free action; they never got rid of the top gear as Jackon did; nay more they retained the driving of their top rolling surface from the driving mechanism of their machine, —and they were free to do that as the Standard had never been patented—and it never touched the surrounding part. Jackson's upper rolling surface was made with a margin of a sixteenth of an inch all round, but in actual motion that sixteenth of an inch was not always preserved and this surface got its horizontal motion by the impact of the case upon it. One of the witnesses stated that when one of Jackson's machines got a little worn he had actually heard the knock as the thing rattled in the box. In the other machine there was in actual working an interval of two inches between the rolling surface and the jacket, and that space was invariably preserved. When Mr. Brown came to look at this machine of Jackson's he saw all its defects and saw how a much better machine could be constructed on entirely different principles. Jackson said there was want of ventilation. Why, Jackson had been copying from Brown's since he came to the island this time by cutting off pieces and leaving only the corners which were necessary for his impact. What he called his upper rolling surface might to a certain extent help the rolling of the tea, but it was not the true principle of rolling. It was really an upper weighting surface on the lower rolling surface, but insocar as the tea was rolled between them it might by fourtesy be called the upper rolling surface. Evidence could actually be called to show that unless it were raised from time to time to relieve the tea, the tea would what they called "ball" underneath and "ball" to such an extent that not only would this particular part not work but put such a strain on as that it might, as in the case of Bogawantalawa he thought, actually stop the turbine. Mr. Brown saw that much better could be done and studied, in all fairness to Jackson and in all due protecion of his own interest, how he could do it without infringing Jackson's in the slighest. Jackson, he saw, gave motion to his upper surface by impact of the jacket, but that surface had that this defect, that it did not assist in the rolling beyond being a weight. Jackson's, he said, was a single action roller, and he set to make the triple action machine with the one table going round or waltzing round the other and the chain of mechanism built up so that motion was imparted to the upper surface by the spindle direct from the mechanism of the machine. Jackson's jacket he said was part of the driving mechanism; it was a connecting rod with the case for the tea sunk in it; and the defendant instead of using the case for holding the tea leaf, to impart motion to the upper rolling surface, took the motion direct from the mechanism which he had a perfect right to do, and discarding motion by impact kept his upper rolling surface two inches away from the case. He bore his jacket in the connecting rod and Jackson had not taken out a patent for that. The more they looked into these machines the more they saw their diversity from each other—diversity in construction, diversity in design, diversity in action, and diversity even in original principle; and, taking as an illustration the working of an ordinary pump handle in comparison with the working of a circular handle for the purpose of showing that by its continuous action the latter avoided the loss of power that there was in the former, he appealed to the Court whether he was wrong in describing Jackson's machines as cumbrous by going back to the original principle of resolving circular motion to attain it again instead of beginning with circular motion and conserving it or rather multiplying circular motion. The two machines he contented were wholly diverse, every motion of the one being rectillinear and every motion of the other circular, or, as the other side called it rotatory and eccentric. What Jackson had patented was the transmission of motion, and that motion was obtained by impact, while in the defendant's machine there was no motion by impact, the driving mechanism being continued right up the whole machine and down through the spindle into the upper rolling surface. Of course the contention on the other side was that the whole thing was the jacket and that therefore motion was transmitted to the surface per the spindle, per the jacket. His contention, however, was that what the plaintiff called the jacket was two things; it was the connecting rod—part of the driving mechanism—and the wooden lining was the true jacket. The mere part which was wooden in Jackson's model was the only part that really resembled the jacket of Kinmond's machine; and what he had done was to put that down in the middle of his connecting rod and place a bracket across it simply for grinding purposes. Where Jackson was wrong and misleading was in describing the attachment of the jacket. The attachment of the jacket to the driving mechnnism was by the bolts which passed through the slot holes by which, when the jacket was originally made and put in, it was fitted. Some of the witnesses said that the motion of the metal work was the motion of the crank pin, but that was not so, for the crank pin had not only a motion backwards and forwards when suppressed by the connecting rod, but it had a circular motion also on its own axis which circular motion was not imparted to the connecting rod on the top of it. Jackson wanted to make out that the top surface got its motion from the crank pin through the metal frame. He treated it as something like Pyramus giving Thisbe a kiss through the wall. That was not so. He used the word there more as if it were through the strata of the upper rolling surface. In other words the jacket directly moved the upper rolling surface when the lining hit the upper rolling

surface. Was that the way in which the upper surface in the defendant's machine was knocked about from side to side in the horizontal plane? Manifestly not; there was no impact on it at all. That was the gist of the whole matter. The description of the metal round the wood was as great a misdescription as Mr. Jackson himself made in the very opening of his specification. Mr. Jackson excused himself for the patent action in Calcutta on the ground that Kinmond and he were novices in drawing out patent specifications, and consequently they fell foul of each other. Mr. Jackson apparently was as great a novice in drawing out a specification as regards the Excelsior as he was at Calcutta He said: "In carrying out my invention I employed a zig zag crank shaft having three crank pins on it. This shaft I place in a vertical position and connect the upper crank pin to the upper rolling surface by means of a suitable bearing, and in a similar way I connect the immediate crank pin to the lower rolling surface, and the lower crank pin to a wheel or disc turning in a fixed centre." Now in direct examination—there might be no record of the expression because it was so hurriedly or *en passant* uttered—Mr. Jackson, holding his hands for a moment over the machine, said "in fact this is all the upper rolling surface"—treating not only "A" but what he called his jacket as the upper rolling surface too. That was what he meant in the beginning of his specification because the bearing was not connected with this in any way. "K" had only an attachment to this like the attachment of Pyramus to Thisbe, through the hole in the wall; but it was not an actual attachment; it was only a sentimental, a quasi—(Mr. DORNHORST:—A Platonic)—or Jackson attachment. His description was singularly unfortunate in that respect unless they regarded all as the upper rolling surface. One of his first questions to Mr. Jackson was—what is the upper rolling surface?—is it A? to which he answered yes, because he (Mr Browne knew that when they came to read that with the admission Jackson would be non-plussed when he (Mr. Browne) said where is the attachment of "A" by a suitable bearing, when the question was put there was one of the usual lengthy answers. Mr. Withers in his opening address used words to the effect that the dis-similitude of machines might not prevent one being an infringement of the patent of the other. In a similar way he (Mr. Browne) might say that the similitude of machines might not result in one being an infringement of the patent of the other. For his machine however he claimed that it was wholly dissimilar to Jackson's in every respect. The witnesses had tried to prove various points of similarily, but by his comparison of the models he contended that they were quite dissimilar. When they said that the whole thing was the case or jacket they were really describing the connecting rod and the jacket, and it was clear that Jackson's bearings were not the same as the horn-plates of the defendant. Really Messrs. Brown and Hutson had proved the defendants' case in proving that the frame was a connecting rod. Of the inventor of the triple action roller he thought it would be sufficient to say that he had been, he thought, since 1848 in the colony; at least he began his work out here in 1848 on the hills of Uva, and practically he was directing his attention to Sirocco—he dared say Mr. MaGuire might faint if he were in Court—and other drying machinery at a time when he supposed, to borrow a phrase from Mark Twain's toast of "the Babies," Mr. Jackson had no other thought engaging his mind as to the transmission of motion and the purpose to be subserved thereby than how to get his big toe into his mouth to suck it as he lay in his cradle. Mr. Brown who was a C. E. saw the grand father of Jackson's machine in 1865 in London—if the Standard was the parent the original idea of the Standard must be the grandfather of Mr. Jackson's machine—and setting to work as a mechanical engineer he soberly devised a machine which he said in no respect infringed Jackson's. He had utilized nothing except what was common property to all inventors, especially Ceylon inventors—the driving of the upper surface by a crank taken from the driving mechanism. Because he saw it was useful he had retained what Jackson had discarded because he thought it was useless. The design was in his mind for months,—(Mr. BROWN:—Years) for years; and in the end the idea struck him to gear at the train of mechanism a stage higher, put a pulley on it and a corresponding pulley on the central vertical shaft, and the thing was done. With his experience he did not start rashly in life with an action against Kinmond and then practically buy Kinmond's shoes to walk about the world in as an inventor, as the plaintiff did. He started absolutely with his own inventive faculties and inveted a machine which he said was original and in no way infringed Jackson's because it did not impart motion to the upper rolling surface through the case or jacket. He believed he would have the advantage of calling as witnesses two gentlemen who were thoroughly scientific mechanics. One of them in his early career passed, he believed, first out of Woolwich, and the other though he was the younger won what might be called the blue ribbon of science at Woolwich in the shape of the Whitworth scholarship. These two witnesses were not merely men of hammer, file and vice, but men who had really studied mechanics thoroughly, and if necessary Kemlo, Skrine and others might be called who he thought would bear out Mr. Brown's contention in this case. The first defendant in the case, Mr. Alfred Brown, was at present entitled to a verdict because nothing had been proved against him. So far as he could see the gentleman had needlessly been made a defendant in the case. It was said that he had patented a machine out here and issued a license to the second defendant, to make or use or sell machines, but he did not know that the issuing of that license constituted any cause of action. They had not proved that he had imported or sold a single machine, and on being called he would state that he had done neither of those things. Counsel was ready to admit that Mr. A. Brown had issued license as pantentee in Ceylon to others to use the machine, but that was not alleged as a cause of action against him, nor if it were alleged would it make a cause of action against him. In the concluding part of his address Mr. Browne referred to a question of law arising out of Mr. Jackson's affirmative reply to the question that he had applied for an arrangement now at the time of converting circular into reciprocating motion. Well, the defendant's machine did not convert circular into reciprocating motion, and therefore there was no infringment in that matter. Further if Mr. Jackson had patented a particular means or method of arriving at a result he only patented that means, and it was open to the defendant to attain the result in any other way he liked.

Mr. BROWNE concluded his address at 3-15, having spoken for three hours.

Mr. DORNHORST followed on the legal aspect of the case. According to Edmond's work on patents page, 217, "an infringement is an act which comes within the terms of the prohibition in the patent," and a patent was "a monopoly granted and contains a prohibitory clause." In order to find out what Mr. Jackson claimed as his peculiar monopoly they had to look at his statement of claim, and there it appeared that he claimed to have discovered a means of transmitting motion to the upper rolling surface. He must stand or fall by that claim and prove that the defendants in their machine transmitted motion in the same way, which he had entirely failed to do, for Mr. Browne had shown that in the triple action the motion was transmitted to the upper rolling surface through the gearing above, and it did not matter whether that idea was borrowed from the Standard or not, as that was common property. As had often been said by Judges of eminence, if the mere fact that certain parts of one machine resembled certain parts of the alleged infringing machine were to be grounds for regarding the attached machine as an infringement of the other, invention would stop; there would be no more improvement in anything. It was necessary in the order of things that there must be certain

things common between two things which tried to attain one result, and the infringement only consisted in one man robbing the other of the particular method which that man's mind had discovered to attain the particular result. The question for His Honour to decide here was whether there had been that piracy on the part of Mr. Browne—whether he had in any way robbed Mr. Jackson of the fruit of his industry and thought by adopting the process for which he had obtained a patent. He then referred the Judge to the case of Curtis and that reported in the *Times* Law Reports, Good-Pive's Patent Cases in 3, Law Reports (Chancer Division) and I Law Reports (House of Lords). As we read that case what it laid down was that where an invention consisted of a particular means of attaining a known result the invention of other means to attain that same known result was not an infringement. Applying that principle to this case what the Judge had to decide was whether Brown had employed the same means as Jackson to attain the known result. He also referred to the case of Bovill, 11 Exchequer, a summary of which was given by Edmond and which was on all fours with this case. The next case he quoted was that of the Automatic Weighing Machine Co., *v* Knight, P.O.R., also referred to by Edmond; and also Cushmand and Greener (Griffin's Patent Cases), and Goswell and Bishop. These were the special authorities he wished to put before the Court, and as showing the principle which always guided Judges in these cases he might refer to Crossley *v.* Potter in McRorie's Patent Cases, namely confining the patentee to the strict words of his specification and to the strict description of the particular invention which he claimed as his own, so that other improvements might not be obstructed and other ingenious and enterprising members of the community might distinctly know what they were prohibited from doing. The guiding principle of courts had been to protect that particular form of property which a man made his own by patent but at the same time not to make that a sort of stumblingblock in the way of future improvements and inventions. He submitted that the means by which the machines in this case arrived at the known result were totally different.

EVIDENCE FOR THE DEFENCE.

Mr. JOHN BROWN examined by Mr. Dodwell Browne deposed:—I was brought up as a C. E. I had a great deal of work to do in engineering. Besides my experience in civil engineering I had to do with railways, being assistant to Mr. Gibb on the Aberdeen Railway. That was about 1844-45 and about 1846 and 1847 I was employed by the famous house of Miller, 132, George St., Edinburgh,—in their Edinburgh and London offices—who made about one-half of the railways in Scotland. In 1848 I came to Ceylon. I came out entirely for engineering work originally and have continuously had to do with mechanical engineering since then. I was for six years engaged erecting what was known as the Rajawella Waterworks. In coffee machinery I think I effected nearly all the improvements of any importance which were ever effected upon it. I also have the credit of being the author of "Drying coffee by heated air"—the only process that was ever found successful; in fact desiccating it. I took up the practice of aerial tramways now established in the Uva country in Ceylon, which have proved a great success. I designed the triple-action roller. I did not patent it myself in Ceylon, but I made my son a present of it. I first directed my attention to tea rolling machinery about 1865 or 1866. That was in London. There was no tea in Ceylon then that I knew of. Between 1848 and 1865 I first saw Kinmond's machine in London—a full size machine. Practically it had all the component parts, though not fully developed of the Standard, a model of which I see in court. I first saw the Excelsior roller in 1885 or 1886; that was full size and in Ceylon. I had began to design tea rollers after seeing that one of Kinmond's in London. In 1884 I had drawings of the triple-action but they were not anything like complete. About 1866 Mr. Williamson one of the pioneers of tea in India had spoken to me to see if I could not assist him in tea machinery. The completed triple-action roller was brought out in 1888. Practically I had the idea of tea-rolling machinery since 1866. It took me about three years to see how I could drive the upper rolling surface—to give it rotatory motion revolving on its own axis. In the end I gave it the rotatory motion by seeing that the crank pin if extended had the same motion that I required for the upper rolling surface. It had the same rotatory and circular motions. When I completed my designs for the triple-action roller I was well acquainted with Jackson's Excelsior. The first time I saw Jackson's specification of the Excelsior was I think in 1891. When I saw Jackson's machine first at work on the estates I thought it was wrongfully designed to make a good tea roller. I took particular exception to the method of driving the upper rolling surface because it limits its horizontal motion to that imparted to the case or jacket. I also took exception to the mechanism as being wasteful of power and difficult to arrange. It was my idea that the horizontal motions of the top rolling surface and the case or jacket being identical, was a mistake. The fixed upper rolling surface holding the leaf under pressure prevents the machine from performing its functions. If charged with leaf and a hard rolling pressure applied the charge will not circulate in the box, the top of the charge being held by the stationary lid or upper rolling surface. I have often seen the Excelsior working, and the effect of what I have been saying is that it is necessary to raise the upper rolling surface from time to time to allow the charge to be broken up. If the lid is rapidly raised after rolling under pressure for some time a print (an impression) of the underside of the upper rolling suface will be seen on the top of the charge, proving that the leaf or charge did not move or circulate under the stationary lid. In fact the machine has no top rolling surface. That is not the case in my triple-action roller; it has totally different motions. The top rolling surface in it is continually changing its position both horizontally and vertrically and it would therefore be impossible for it to leave a print on the charge—horizontally giving forth circular and rotatory motion. The mechanism of the triple-action is as follows: One of the two pairs of crank shafts are driven by a pair of bevel wheels, and the two opposing cranks on each shaft are connected by strong castings, termed connecting rods. He showed on the model what were the connecting rods, and said everything connecting crank pins are connecting rods; it did not signify in what form or shape, The one connecting rod will not move without the other. That is the mechanism as regards the case or jacket or lower rolling surface. As regards the upper rolling surface the mechanism of it is that the connecting rod imparts circular motion through the double bow bracket which carries two bearings; the bearings impart circular motion to the spindle, to the lower end of which is attached the upper rolling surface. The upper end of the spindle is attached to the lever which regulates its vertical movement. Between the bows of the bracket is a pulley driven by a belt from another pulley carried on the extension of the upper crank pin of the driven crank shaft; the belt connecting the two pulleys imparts circular motion to the upper rolling surface through the spindle. I claim that my upper roller is not free as regards vertical motion from the mechanism operating it. Through the spindle I convey all the movements which the upper rolling surface possesses, both horizontal and vertical, and no part of the upper rolling surface or any of its adjuncts comes into contact with the case or jacket in any way whatsoever. If it did come into contact with the case or jacket I could not drive it; it would cause so great friction that it would practically not be a working machine. By removing from the model of my triple-action roller as I now do all above the lower rolling surface I leave in the model only the lower connecting rod with the lower table resting upon it, and also the hornplates or slidebars which simply

carry the weight which would otherwise fall on the cranks. The horn plates are in no way whatever guides even as regards oscillation. The crank pins would keep the lower table from oscillating. Every pair of cranks connected by a connecting rod has two dead centres. The single connecting rod has also its dead centre over which it will not pass without the assistance of a fly-wheel, (He illustrated this by removing the upper connecting rod in one of his models). Adding to my model the upper connecting rod its mechanism so far as it goes is perfect. The driving shaft has now in its power to convey motion to the guiding shaft. Putting on the upper connecting rod, the other parts of the model except the circular case or jacket round the tea leaf the double bow bracket rests on the upper connecting rod carrying the bearings which carry the vertical spindle. The upper rolling surface there has its horizontal motion complete, also its rotatory motion. The mechanism is complete without the case or jacket and I can now impart motion to the upper and lower rolling surfaces without the jacket. The circular motion is derived from the upper connecting rod through the double bow bracket, thence to the spindle, and thence to the upper rolling surface. The rotatory motion is conveyed to the upper rolling surface through the medium of a belt and the spindle to the upper rolling surface. The principle of the connecting rods is involved in the mechanism of the Excelsior but not in the same manner as in the triple action. The difference is that in the Excelsior the connecting rod is used for converting circular motion into rectilinear motion. In Jackson's machine (Excelsior) the crank driving the connecting rods is a peculiar one in this respect that it has no crank shaft. It consists of three crank pins and two cranks driven by a bearing in the boss of a bevel wheel. The middle crank pin drives the lower connecting rod which carries the table or lower rolling surface. The circular motion of that crank is converted into rectilinear motion through the intervention of guide bars sliding in grooves. It cannot deviate from the rectilinear movement, it is compelled to move in a rectilinear way. The upper crank pin is connected to the upper connecting rod. The circular motion of the uppermost crank pin drives the upper connecting rod, which is forced to move in a rectilineal line by the intervention of this guiding bar which cannot move otherwise but in a straight line. The two upper crank pins are connected to the two connecting rods in such a manner that those connecting rods may move in their respective rectilinear lines, being in no way fixed to the frame of the machine—the deed part of the machine. The metal framework round the jacket is part of the driving mechanism of Jackson's machine; it must be so. What Jackson calls his jacket, metal and wood combined is really two distinct parts, namely the connecting rod with its guiding bar giving motion to the case or jacket, and the upper rolling surface which is driven by the case or jacket. If I were to remove the lining with the upper rolling surface the mechanism would not be complete; there would be nothing to drive the upper rolling surface. If the wooden lining were taken away and the metal frame left the mechanism would be complete as regards the lower rolling surface, and ready to drive the jacket when it was put back on the machine. I have read Jackson's specification in connection with his drawings. Reading Jackson's specification and plan together I understand the jacket to be the woodwork as delineated in his drawings. The motion which the upper rolling surface gets is the same motion as the woodwork, backwards and forwards. It receives the motion from the sides of the jacket which are in the line of its motion. The first part of the upper rolling surface that receives motion is the edge of it that is furthest from the direction in which it is being moved. It receives its motion from the inner side of the case or jacket immediately adjacent to it. It moves it by impact—by push. You hear the impact in almost every machine after it has been in work for some time; that is when the upper rolling surface gets a little wear and tear, and I have myself heard it in most of the machines I have seen working. I do not think I have seen above six or eight of the Excelsior itself, but I have seen a good many of the others that are worked on the same principle. Jackson has patented the transmission of motion through the case or jacket to the top rolling surface, and I must decidedly regard that as motion by impact, through the sides of the case against the outer edges of the upper rolling surface. My upper rolling surface receives no motion whatever by impact with anything surrounding it. I call the case or jacket of my machine the wooden portion in plaintiff's model of my machine, surrounding the upper rolling surface.

Cross-examined by Mr. WITHERS:—I could not say that the Kinmond's machine I saw in London was the subject of the Indian litigation, but I understood it was Kinmond's first patent. Mr. Kinmond has gone over that law suit with me but he did not tell me the arrangement with Jackson. He did not tell me that Mr. Jackson bound himself to him to sell 80 Standards during eighteen months he at the same time having the exclusive sale of Kinmond's. Would you be surprised to know that Jackson sold not 80 but 160 of that Standard and not one of Kinmond's has been sold since? I do not know about that. I met Mr. Kinmond in London. I am largely interested in tea in Ceylon and have been so for seven or eight years. I am the Managing Director of the second defendant Company. I have had practically the control of machines imported into Ceylon by the Company during the last eight years. My son receives some royalty from the Company (second defendant). Between 80 and 90 triple-action rollers have been sold in Ceylon. Until this law suit was commenced there has been no difficulty I know of in selling them in Ceylon without a guarantee. They guarantee them against Mr. Jackson calling upon them for a royalty I suppose. I never heard of patentees issuing guarantees with the machines. I suppose that the reason is that if Mr. Jackson gained the law suit the purchasers thought they had no guarantee that Mr. Jackson would call upon them to pay a royalty. I say that the description of Jackson's machine in the specification is not a true description. I do not see how you could make it a true description in any circumstances. Assuring that the frame B is part of the case or jacket it is a true description. It would make no difference, assuring that, if the guiding rod were in the centre (drawing of the triple-action produced by Mr. Withers—a copy of the one filed with Browne's specification in the patent office). This is not a correct drawing of the machine as made as regards details. I cannot say whether it is a correct copy of the drawing filed with the specification. (Mr. Withers said that the machine that existed now was different from that on the plan in the specification office). Witness was shown the plaintiff's drawing and deponed. The dotted line inside the jacket represents the top surface "A." He added—Not the whole of it. Only the upper horizantal dotted line and the two bent lines represent the upper rolling surface. The dotted line running up from the centre of "A" represents the main spindle the lower end of which may be attached to "A," "C"—the chain indicates that the top-surface is to be moved up and down. The sides of "A"—the upper rolling surface are a working fit. Assuming the drawing to be 1½ inch scale the top rolling surface measure on the plan 4⅜ inches. Is there anything on the drawing to show that the jacket could not be made round? The drawing is a drawing of a machine having rectillinear motion. The jacket or case itself might be made round. There is nothing in the drawing that "A" could not be made round in the case or jacket but it would be another machine, a drawing is a drawing and represents only what it represents. The letter 'N' inside figure 1 of plaintiff's drawing is marked on the extended boss of the wheel but I would not understand it to mean the wheel. It is put there for a purpose and I would apply it to the boss. If the man wh

drew that plan put the letter N to represent the wheel he is not an engineer. (Mr. Withers remarked that in the specification 'N' is the wheel.) A specification ought to refer more particularly to the class of material make the machine, I know what a drawing is, I have been at drawing for 40 years and the man who put it in the boss and meant it to be wheel was not an engineer. It appears to me that the boss was extended for a purpose was why N is put where it is on the drawing. I say that although in the specification N is described as the wheel. I forget where my first machine was sent to in Ceylon, and I cannot say what number was on it. I recognise a drawing of my machine, but it has evidently been got up for the purpose of a photographer; it is a picture rather than a drawing. (Mr. Browne said he would put Jackson in the box so that the drawing might be identified. Mr. Withers indicated he would not put it in evidence.) In the drawing the upper surface is a working fit, but no machine of mine has ever been made like that, having contact. I know Mr. Jas. Sinclair of Bearwell estate where there is a triple action roller. He never suggested to me that there should be a clear space of two inches all round between the case and the upper rolling surface. If he did I have entirely forgotten, I am perfectly clear that none of my machines was ever made a working fit. The only thing that the drawing disclose is that they were never meant to come in contact with the jacket. At first before it was known the idea was that the lid must rise up between the edge of the upper rolling surface and the jacket so that there was a small space made but no contact. Do the drawings in Colombo or in India disclose anything else but a working fit? Do they show anything to indicate two inches clear space? They do not disclose two inches clear pace. At that time we did not know that two inches space would be allowed. A working fit means in relation to the work that it has to do, and the work that this has to do is to revolve inside the case. Had there been contact it would not have been driven. In your drawings in India and Ceylon what space is indicated? About a sixteenth of an inch all round. Mr. Withers—just like the Excelsior. Was there anything in the plaintiff's specifications and drawings to prevent him making the whole upper part of the roller, that is to say, the bow bracket, the lining, and the shell of the upper rolling surface in one piece if he desired so to do. There is everything against it in the specification and in the drawings. Firstly the drawings represent the case or jacket by four letters B. Those letters refer only to that part which is commonly made of wood, and no practical engineer if he had meant to refer to the whole piece would have made the mistake of putting them on that portion. There was, on the other hand, a very good reason for his putting the letters where he did, for he had to arrange for the case or jacket being raised or lowered vertically within what I call the connecting rod. No practical engineer would have called this connecting rod the case or jacket. If the case were in one piece the case would be immovable within the connecting rods. I say that the connecting rods and the wooden parts are two distinct portions each having different functions. My definition of a connecting rod is a bar of iron or any other strong material which may be shaped in any fashion to suit the circumstances in which it is employed. They are of various forms. In the Excelsior it takes the form of being attached to a revolving crank pin at one end and to a guiding rod so that it may be the means of converting circular into rectilinear motion. It could have no other name in machines. In the Triplex the connecting rods are used to transmit a revolving motion from one crank shaft to another. There are dozens of connecting rods. The best definition is to be found in Ranken's applied machines.—*Q.*—Your definition does not correspond with anything that Ranken says.—However you say he gives a good definition and you subscribe to what he says?—*A.*—Yes, if he had given the definition I have given his book would have been ten times its size. (Laughter.) I say that this connecting rod in the tea roller has all the elements of the connecting rod of a locomotive. It has the elements and resembles it in structure—I won't say in appearance because that depends how you look at it. My definition of a "connector" is anything that connects two shafts but it may not be a connecting rod—it may be a belt or a chain. There would be no crank pin involved with a chain or belt whereas you must have a crank pin with a connecting rod.—*Q.*—Now, how comes it that in your son's specification the word connecting rod is not used at all?—[Mr. D. F. BROWNE objected on the ground that what they had written was *ultra vires*—the question being what they had actually manufactured and also on the ground that the witness was being asked a question as to what somebody else had done]—*A.*—I did not write the specification.—*Q.*—Did you draw it up or assist in drawing it up?—*A.*—I handed over the drawings to a patent agent in London in order that he might draw up the specification as there are legal formalties about which I know nothing. I was called to see the specification on mail-day and I was very busy and I did not read it through very carefully before signing it. I simply looked through the claim and saw that was correct. I admit that in the body of the specification the Patent Agent should have been more careful. The drawings are correct: I made them. There was no need to mention the connecting rod in my specification,—the drawings represented it. It would have been useless to put it in the specification (witness shown drawing). Will you tell me how you came by this drawing?—I believe it is my private property. Mr. WITHERS:—It is a certified copy from the Patent office. WITNESS:—There was a drawing put in and taken back. Mr. WITHERS:—Well this is a true copy, certified by the Patent office.—WITNESS: That was withdrawn from the Patent Office. It was put in by mistake.—*Q.*—Looking at the specification and plan what in your specification is lettered as "K" is it not a hollow cylinder all through?—A.—Well it could not be, if the specification said so the specification is not correct: In the plan the letter "K" is on the connecting rod. Well, the central portion of the connecting rod is a hollow cylinder, and it receives the case or jacket. I don't think this plan is a right one. I cannot tell where it came from. The crank pins here are shown all wrong; as far as I know not one of my machines has gone to India, but the Roller is patented there. The Ceylon specification was made about April 24th, 1888. My son got the patent about the 24th of October. The delay occurred in our withdrawing one plan and putting in another. It may be that my application for a patent in India was not made till the 28th of February, 1889. I don't remember. I cannot say that I have read my Indian specification. A Patent Agent made it out for me and I signed it and sent it. The Ceylon specification was withdrawn with the plan, and a new specification filed. If the Indian specification differs in wording from the local one which you have it is due to that.

Mr. WITHERS said it differed *in toto*.

The Indian specification was never withdrawn; but the Ceylon one was. Oh, I remember, there is a very good reason for it. When that specification for Ceylon was first sent in the leading partner of the house was away from home, and the junior partner, I think, wrote that specification. It was done hurriedly, and when the senior partner came home I think that he and I must have seen these errors and made the specification right. I admit that the language in the two specification is different but they both relate to the same machine. *Q.*—I think you will be surprised to hear that the plans sent to India were not the same as those sent to Ceylon? Would you be surprised to hear they are entirely different?—*a.*—That is an utter impossibility; it could have been nothing of the sort.—*Q.*—Well, look yourself (Handed plans) Those are not identical?—*a.*—The machines are identical but the cranks are shown differently and the hornplates are slightly different, but they serve the same purpose.

Mr. D. F. BROWNE said the plan alleged to have been

filed with the Indian specification now produced by Mr. Withers was printed in Aberdeen. Had the other side a certified copy of what was filed in India?

WITNESS:—I always understood that both plans and specifications were the same. How this comes to be printed this way in the Indian specification is a very strange thing. There has been foul work going on here.

Proceeding, witness said:—I don't know if this is a correct plan but this seems to me to correspond with the plan that I believe to be deposited in Ceylon. (Model of the Rapid Roller produced.) This machine embodies the principle of the Excelsior in a way. The upper rolling surface is driven in the same way.

Mr. WITHERS was proceeding to quote from Mr. Brown's alleged Indian specification when

The COURT asked what Mr. Withers was reading from?

Mr. DODWELL BROWNE:—Jolly & Sons' pamphlet, sir. It is a pamphlet printed by Jolly & Sons of Aberdeen.

Mr. WITHERS, holding up a MSS. copy. We have here a more formal copy.

Mr. BROWNE:—Is that a certificate copy of the Indian specification?

Mr. WITHERS:—Yes, it comes from the Indian Patent Office.

Mr. BROWNE:—Is it a certified copy?

Mr. WITHERS:—It accords with the law of Indian evidence.

Mr. BROWNE:—Is it a certified copy?

Mr. WITHERS:—It does not purport to be.

Mr. BROWNE:—Then it is no better than Jolly's pamphlet.

Mr. WITHERS (to Witness):—Is that a correct description of your Indian specification?

WITNESS:—It may be or it may not be. The portions of the specifications now read must refer to the Standard or to the Excelsior,—not to the Rapid. I have seen Mr. Jackson's agent, Mr. Dalgarno, but never spoke to him. I once saw him riding down the road near Bearwell. I never had a conversation with him about tea rollers—never in my life. I saw him and was told who he was when I asked but, I never spoke to him.

Mr. WITHERS said he had no more questions to ask, and the witness was then re-examined by Mr. BROWNE and said: As regards the relation of the jacket and the top rolling surface to each other the Rapid is the same as the Excelsior. Whether the interval between the edge of my upper rolling surface and the lining is two inches or only the sixteenth of an inch there is never contact—there is always an open space all round. I did not sign the specification in Calcutta, I remember now I appointed an attorney there. I don't know by whom it was signed. The plan "ZZ" produced by Mr. Withers is a working drawing specifying the measurements from the office of Messrs. Jas. Abernethy, engineers, Aberdeen. *Q.*—It is to erect the machine? *A.*—My private property. *Q.*—Never mind that; who makes your machines for you? *A.*—The Agents named in this drawing, James Abernethy & Co., Aberdeen. *Q.*—And did you ever authorise them to issue such a drawing as this? *A.*—Never.

The next witness called for the defence was Mr. HARCOURT SKRINE, who said—I am the owner of Osborne Estate, Dikoya. I have been planting since 1882. I know Jackson's Excelsior machine, but had never used it. I have used a No. 2 Rapid and also plaintiff's Little Giant Roller. I worked the latter about 2½ years and the Rapid for 19 months. In those machines the upper rolling surface was pushed by the inside of the lining and so got its motion. I bought a Triple Action Roller in 1889, in London, and it was put up here in January 1890. In the Triple Action there is now an inch and three quarters space between the lid and the box. When I had the Triple Action Roller first it would take as a fair charge about 225 lb. of withered leaf. Now, it takes about 270 lb. The maximum quantity the Rapid would take was 150 lb. and the Little Giant about 50 lb. The power necessary for the Triple Action Roller was about the same as for the Rapid. Witness also gave evidence on one or two points concerning the mechanism of the Rapid stating that the upper rolling surfaces did not roll the tea. Cross-examined, witness said that formerly the space between the upper rolling surface and the lining of the T. A. Roller was only about an eighth or sixteenth of an inch. Afterwards a brass jacket was supplied in place of the wooden one and then an inch and three quarters interval was left and this allowed for a greater quantity of leaf being rolled than formerly when the wooden lining was very thick. —*Q.*—What made you keep a useless machine like the Rapid for 19 months?—*A.*—A useless machine? I did not say it was useless.—*Q.*—I think one would gather that from your answers to counsel in examination in chief.—*A.*—Extreme questions were put to me. I said if the Rapid was carelessly or hurriedly revolved the leaf would not revolve.—*Q.*—I certainly understood and gathered from your several answers that the Rapid was quite a useless machine? Then it was a useless machine!—*A.*—Certainly not. —*Q.*—Did you not get a guarantee with the defendant's machine. I got what I considered to be equally good, I have the assurance in writing that in the event of any contingencies arising I shall be protected. *Q.*—Did you ask for that? *A.*—Yes, I asked for it. *Q.*—Why? *A.*—Because I had heard a good deal of talk about some litigation likely to arise out of rollers.

Major DAY, R.E., was next called. He said: I am a Major of the Royal Engineers. Mr. Goodeve was our lecturer on mechanism at Woolwich, where I completed my study as an engineer. I left about December 1867. I took second place on leaving. I got gold medal which is given for the most distinguished cadet of season. I have had a scientific training therefore, in mechanics. Our practical course we went through the Royal Arsenal. I was in charge of the printing and lithographic machinery at Chatham when I was Secretary of the Royal Engineers Institute, that was from 1884 to 1889, when I came out here. I had a soda-water manufactory once with all the machinery, and in addition to that I was sent as one of the Travelling Inspectors of Science Classes for the Science and Art Department, South Kensington. This took me to the manufacturing districts a good deal, and I used to meet manufacturers, and generally they went over their works with me, so that I saw their machinery while in the Arsenal; they make everything—from big guns to percussion caps and all kinds of machinery. I have read the specification and studied the drawings filed by the plaintiff in taking out his letters patent from the "Excelsior" machine, and I examined his models and also the model of the Triple Action Roller. In the "Excelsior" the upper rolling surface is moved backwards and forwards by the box by coming in contact with it. (Model of the Triple Action machine pointed out.) The upper rolling surface in the defendant's machine does not receive motion like Mr. Jackson's machine. It receives its horizontal motion by the continuation of the crank-pin upwards, which is fixed to a pulley, and that drives the second pulley by means of a band, and that drives the upper rolling surface. Working the machine as I do not know that it receives two motions. You have got to roll the tea in the box, and it is necessary that you must give the box and the upper rolling surface an isochronous motion, that is moved in equal time; then you also impart this rolling motion by means of these two pulleys and the band. Witness next described the train of mechanism in the Triple Action Roller, and said that with Defendant's Roller it did not matter if the jacket was used or not; the machine could be worked all the same; but with the "Excelsior" the case was different, and the machine would not work without the jacket. In his opinion as an expert motion was not imparted to the upper rolling surface in Jackson's "Excelsior" and Brown's Triple Action in same way; the upper rolling surface of the "Excelsior" would not act if it did not come in contact with the jacket: the hornplates in the defendant's machine were not equivalent to the bearings in Jackson's machine, and could not be

substituted for them. In Jackson's machine there was a guide bar which guided the machine into rectilenear motion.

Cross-examined.—Mayor Day said he was the acting referee to Government as regarded patents, so far as regarded mechanical arrangements. He advised Government on these points, but he had given no opinion to Government about the Triple Action Machine. The train of mechanism would be a gearing which would convey motion from the motor to the object to be moved. The word "Driving" means communication of energy or power to something. That is a good definition. Driving and driven are relative terms, and one implies the other. The jacket in the Excelsior machine is driven as well as driving. It is driven as part of the connecting mechanism. He called the metal frame round the jacket a connecting bar. It was really one. This was driven. *Q.*—Would you really call this a connecting rod, Major? *A.*—Certainly that is a connecting rod. *Q.*—I am talking of the whole of this great piece here. Do you solemnly and sincerely say that all that is nothing more than a connecting rod? *A.*—You can call it a connecting plate if you wish if you do not care to call it a connecting rod. It performs the same function. *Q.*—Would an ordinary mechanic or skilled workman speak of this to his friend as a connecting rod? *A*—He would call it a connecting rod, bar link, on a plate. *Q*—Would a man say "Just tilt over that connecting rod' I want to clean the upper rolling surface"? *A*—He would say probably move up the box because that is really the thing that he has any view of when he is going to work inside the work. *Q.*—Will he say "Tilt over the connecting rod?" You say no. He will say "Move the box." *A.*—You are only taking a part of it. He would say that because he is going to work inside. *Q.*—How do you know he is? *A.*—You said opening it to clean it. *Q.*—Suppose he wanted to turn it over to see if it worked or if there was any stiffness about it. Would he say "Tilt over the connecting rod"? *A*—He would probably say "Tilt it." (Laughter)." I do not suppose a workman would call it a connecting rod. When a man is working with tea, he calls by quite different names from what a fitter would. The under plate in plaintiff's machine is driven. It is not a connecting rod. The slides in the Excelsior machine restrict cicular motion in one direction. They hold the machine tight, so that it cannot go round. It must go in a straight line.

The next witness was Lieutenant FRANK BROWN, of the Royal Artillery, who said that he had gone through both practical and theoretical mechanics in Woolwich Arsenal. He never went through the Academy, but his commission was presented to him for special qualifications. He obtained the Whitworth Scholarship which was open to all the British Empire, for practical and theoretical knowledge in mechanics, engineering, and science generally. It was the blue ribbon of science in England. He had studied under Mr. Fell, of Queen Victoria Street, Patent Agent. He had designed more or less all the Ordnance in the British service under General Maitland. The 380 powder guns, or 23 ton guns now being erected at Colombo were from his designs and he had been sent here specially for their erection. He had studied the specifications of plaintiffs machine, and examined models. Jackson's upper rolling surface was moved by a push which was not the case in the Triple Action machine. If there was contact in defendant's machine, the friction would be too great. Witness next described the difference between technical "rotary" and "revolving.' What plaintiff called the upper rolling surface in his machine he called a weight which could easily be dispensed with increasing depth of the box and filling up the box with tea, the increased head of tea being equivalent to that weight. The jacket was part of the driving machanism of the machine, and it would not be correct to say that it was part of the driver mechanism. He called the metal work the connecting rod, it did not matter what the form was.

Mr. WITHERS had no question to ask in cross-examination.

Mr. Alfred Brown was called and sworn. He deposed:—I am the first defendant in this action. My father made me a present of the patent of the invention so that I could take the patent here. I am employed at present in the office of the second defendant company. I have not personally imported any of these machines and I have not sold personally any of these machines. I have sold them for the second defendant company as their servant. In my private capacity as patentee I have licensed the second defendant company to do so.

Cross-examined by Mr. WENDT.—I have sold these as the agent of the company. I have a pecuniary interest in the machinery. The license I have given the defendant company is in the form of a letter on condition that they pay a certain sum of money on every machine sold. I believe it was given somewhere in 1888. I think that was before anybody imported these machines, but, can't say positively. It is after the date of the specification filed. I read the Indian specification yesterday afternoon in the Court, not before. I have not seen the Indian drawings. I know these drawings; they are not yet certified by anybody in the Patent Office here.—Are those the drawings which you filed with your specification in Sep. 1888? I thought they were, until I heard yesterday to the contrary. Shortly after the specification was filed, I applied to the Patent Office to alter them. There were difficulties raised against my doing so, and the things were left in an unsettled position. My application to be allowed to alter the drawings as far as I can recollect was about six months after the filing of the specification in Sep. 1888. No difficulty was raised on the original plans in consequence of my application to alter the plans. I never had a definite letter giving me leave to alter the plans, or I should have done so. I can't swear that the drawings filed with my answer have been filed at the Patent Office. I saw the certified copy shown to Mr. John Brown yesterday, but did not look at them. (Z 1 shown) I can't give you any opinion one way or the other as to the correctness of the drawings. I should be rather surprised to see these were the drawings filed with my specifications. I have never seen a machine like the one shown in this plan, that is as regards the frame and one or two other details. My experience in any drawings was very little at the time I filed my specification. (Attention to the letter K was drawn.) Hollow cylinder K. No. 3—does the drawing represent what you mentioned in your specification? I have no recollection whatever on these points. I did not refresh my memory because I was told that my specification would not come to Court at all. Were you aware a copy of your specifications and drawings was filed with your answer in this action? I did not know that this drawing had been filed. I knew the specification was. I myself supplied the tracings to be filed with my answer. I sent half-a-dozen copies of the plan now filed with answer to Messrs. Loos & Van Cuylenburg. I do not recollect any difficulty of any sort raised regarding the grant of a patent to me. Messrs. Loos & Van Cuylenburg only did the legal business, but I did not employ any patentee for the purpose of taking it. My application for leave to file specification was on the 28th April 1888. I filed my specification on the 28th of Sept. 1888.—What was the cause of this delay?—I think that was the usual delay so far as I am aware. There was no reference to me made between the application for leave to file and the filing of the specifications, from the Patent Office.

Mr. WITHERS in addressing the Court on behalf of the plaintiff in this case, at the close of the evidence on Saturday, proposed that they should go direct to the issues in the case, leaving behind them such charming creations of his friend's exuberant fancy as Pyramis and Thisbe working out cinematics across a tea machine and, while continuing to guide their conduct in rectilinear paths suppress any natural tendency there might be on their part to move in a vicious circle. A curve might be more beautiful than a straight line, but it must be admitted that there were advantages in going direct to a point. Assuming that the plaintiff had proved his invention, namely the transmission of

motion to the upper rolling surface through the case or jacket surrounding it, he contended there was abundant proof of its novelty and usefulness. Those competent to speak on the subject had admitted that there had never been in Ceylon before any tea rolling machine which had the same arrangement as this one, the arrangement being the very reverse of that existing in the Standard which had been proved to be the most advanced machine of the class at the time Mr. Jackson took out his patent; and the utility of the invention had been equally well established. The admission had been made by witnesses on the other side that the Excelsior was a useful machine, and witnesses on the plaintiff's side had thoroughly proved its usefulness in respect of the almost total absence of friction, of the upper rolling surface being free to vertical motion, of being more easily fed, and better ventilated, and of being more economical as regards time and labour than any other machine that had preceded it, all these forms of usefulness being derived from the improved arrangement. Asking the Court, as far as it possibly could, to place itself in the position of a mechanical engineer who was offering to the public a machine of a particular class, in language suited to workmen of ordinary skill who were conversant with that particular class of machine, he proceeded to quote from a judgment of, he supposed, the greatest Patent lawyer that ever lived, the late Sir George Jessell, master of the Rolls, in the case of Hinks *v.* The Safety Lighting Company (Law Reports, Chancery Division 667) to the effect.—"I am anxious, as I believe every judge is who knows anything of Patent law, to support honest *bona fide* inventors who have actually invented something novel and useful, and to prevent their patents from being overturned on mere technical objections, or on mere cavillings with the language of the specification so as to deprive the inventor of the benefit of his invention. This is sometimes called a benevolent mode of construction. Perhaps that is not the best term to use, but it may be described as construing a specification fairly with a judicial anxiety to support a really useful invention, if it can be supported on a reasonable construction of the patent," That was how His Honour had to read the patent. The same learned judge in Clark *v.* Adie (Law Reports to Appeal Cases) said—"In construing the specification we must construe it like all written documents, taking the words and seeing what is the meaning of those words when applied to the subject matter"; and Lord Justice James confirmed that when he said, "Of course in ascertaining the meaning of words used, you endeavour to put yourself as much as possible in the position of the person using them." That was what he asked His Honour to do in this case—to put himself in the position of plaintiff when he or his draughtsman wrote the specification in 1881. Mr. Browne had asked the Court to hold that the plaintiff's invention consisted of what he had left out of the plaint, contending that the pith and marrow of plaintiff's invention was expressed by the words "whereby such rolling surface is left free as regards vertical movement from the mechanism operating it," and that the defendant had not infringed that because he did not allow any freedom of motion to his upper rolling surface. The language itself showed that that could not be the invention that plaintiff claimed. What plaintiff claimed was "the arrangement of transmitting motion to the upper rolling surface through the case or jacket the clause whereby" &c., meaning that what it stated was one of the results or consequences flowing from the arrangement. His learned friend said it was singular that plaintiff should be silent in his specification as to other useful results. Well, if the Court read the specification it would find that all the other useful purposes served by this improved arrangement were mentioned. It was stated "enclosing the rolling surface A so that"—this was the result—"it can be weighted to give the required pressure to the leaf." In the Standard they could not give the required pressure to the leaf but in the Excelsior they could in consequence of this new arrangement. Another useful result mentioned in the specification was that the machine was fed through the hopper; and then it was stated that "owing to the jacket being carried just clear of the table"—that was also a necessary part of the improved arrangement—"friction, wear and tear is thus reduced" that being another useful result. As to the interpretation of the phrase "transmitting motion through the case or jacket," he could not understand why *through* should not receive its ordinary meaning of "by means of," and he should be very much astonished if the court held, as Mr. Browne contented, that *through*, must mean in a transverse sense—straight through preserving the upper rolling surface always in the same plane as the jacket surrounding it. The "dead centre" in the case round which they could not both move harmoniously was the jacket. That was really the only problem the Court had to solve, and that was the reason why he had said and honestly believed that the Court had no need of assessors. The experience of a civil engineer and a military engineer had not necessarily settled the question. Which the Court had to settle was what the engineer who drafted the specification meant as the invention, and it really resolved itself into the little word "jacket." The passages he would read from the specification would show, he argued, that it could only mean what the plaintiff said it meant, namely the whole of what had been called the lining—the frame-work from side to side, from crank pin to bar, and all that was attached thereto, including the bow bracket. Any workman conversant with tea machinery of this class in Ceylon at the date when the specification was filed could not possibly read it in any other sense than the sense in which it had been read by the plaintiff and his witnesses who were mechanical engineers. He quoted. "In carrying out my invention I employ a zig-zag crank shaft having three crank pins formed in it. This shaft I place in a vertical position and connect the upper crank to the top rolling surface by means of a suitable bearing." Now, the little error in that expression in itself illuminated the sense of the word "jacket." The Court would find that this imperfect way of expressing it showed it more clearly almost than if it had been most accurately expressed. He would show the Court how, directly. They knew, and even the other side would admit, that the shaft was in no way connected to the top rolling surface, and, to show what was meant in that connection he would go on to another part of the specification, to the part where it said:—"A" is the top rolling surface usually composed of wood; "B" is a case or jacket loosely enclosing the rolling surface "A" so that it can be weighted to give the required pressure to the leaf and can be raised or lowered within the jacket by means of the chain "C" for the purpose of feeding the machine from the hopper "D" "E" is a bar firing attached to the case "B" and arranged to slide in the bearing "F," while, together with the crank pin K carries the case "B." and prevents it bearing its weight on the under table at any time, although the case B actually come nearly in contact with it." From this the Court could see exactly what the top rolling surface in the first part meant—it meant the whole of the machinery that was superposed above the under table which it came nearly in contact with, in fact, there was no doubt that when the Court read through the specifications it would come to this conclusion. He should refer to it again when he came to discuss the question so much pressed about as to whether it was a part of the driving mechanism, and the one part carried the leaf about in its rectilinear progress to and fro, backwards and forwards, helping to circulate the tea in the course of rolling while the pressure and weight upon it came from the actual lid, or upper rolling surface, but, considered as a whole, the whole of the superstructure, with its lid, frame, box and bow was the upper rolling surface of the machine. This part of the specifications showed conclusively what was meant by the jacket, and there was the last passage he could quote:—"Friction wear and tear is thus reduced, and by slackening the screw S the rolling surface A with the jacket B can be titled over." He thought that was conclusive as shewing the sense in which Mr. Jackson used the word and as all working

people would understand it who knew any thing about this class of machinery at the time. The other side desired to confine the word "jacket" simply to the lining. They argued that the lining was as much an integral part of the machine as any other part. But let the Court look at the drawings or at the machine in operation. Let the Court remember that even a hostile interest had said that the lining was merely a collection of loose pieces of wood bound up. It really was almost absurd to say that a bundle of loose pieces of wood could constitute an integral and independent part of the machine. As a matter of fact there was no reason why the whole superstructure should not be cast in one piece. The learned judge might just as well say that the silk lining of his dress waistcoat was the waistcoat and not the cloth outside it, and, according to the arguments of the other side, he might just as well say that the cloth outside it was a connecting rod between the silk lining and the coat outside the waistcoat. The court would remember that in the Standard the driving gear was fixed firmly to the top rolling surface and carried the loose jacket, which actually rested on the lower surface, about with it and of course tore the machine to pieces. To reverse that arrangement and drive the weighted lid through the jacket, it was necessary in order to reduce friction to carry it in suspense just above the surface of the under rolling table and the court would remember that Mr. Jackson had said why he had to make so strong a frame—because it now had to bear all the energy communicated to the driving mechanism, and it had to be made heavy on account of the large quantity of leaf it carried about in circulation, now all the difference between the Excelsior and the triple action machine, reading the word "jacket" as he asked the court to do, was that, whereas Mr. Jackson had thrown the strength of his jacket in that body, they (the defendants) had thrown the strength of their jacket on the top of the jacket so that they might drive it from above. The defendants simply drove from the top of the jacket and the plaintiff from the bottom. The defendants had to drive from the top because they wished to give an independent motion to the rolling surface. The defendants had made much of their improvements, and had even called their attention to the improvement in their machine that this upper rolling surface had a motion round its own axis, while at the same time it had an eccentric motion with the jacket and imparted by the jacket. Let the Court look at the defendants' specification. This was their language there:—"Causing it to revolve inside the hollow cylinder 'K.' while at the same time it has the eccentric motion imparted to it by the hollow cylinder 'K.' They wanted now to alter the word 'by,' in that, to 'of'—a very pretty alteration that would be indeed. The Court would see for itself how clearly that motion was imparted by their jacket as much as it was in the Excelsior. The other side, too, now laid stress on the fact, that the spindle drove their upper rolling surface and he would invite particular attention to the fact that really and truly, even in the Excelsior, the bow not merely guided the upper lid through the spindle but drove it as well. It must be so. (Mr. BROWNE: Jackson denied it.) Even Mr. Jackson could not deny the fact. It must be so, because the lid was constantly coming in contact with the spindle, and therefore it imperceptibly drove it as well as guided it. But this was not enough for their purpose and therefore they put the chief driving power below. In the defendants' machine they had made a proportionately stronger spindle so that the upper rolling surface could be entirely driven through it, then, if the Court held that plaintiff was right in his acceptation of the word "jacket" it was clear that the defendants machine was driven as regarded the eccentric motion of the upper lid by the jacket in precisely the same way as was done in the Excelsior—"though" the jacket or "by means of" the jacket, only the upper part of it instead of the lower. He thought he had finished now the kernel of the question. Now a famous question had been often asked, and Mr. Browne had said that for five hours he could not get an answer from Mr. Jackson, as to whether the jacket was a part of the driving mechanism. If Mr. Browne were to ask Mr. Jackson till Doomsday he would not get an answer, for one was asking the question on the supposition that what Mr. Jackson meant by the jacket was simply the wooden lining, whereas Mr. Jackson was answering on the assumption that the jacket consisted of the whole superstructrue: the Court could see how true their witnesses were in saying that this whole upper part was not a part of the driving mechanism, but was the driven part; what was wanted with the machine was to drive the upper and the lower rolling surface over one another so that really these were the driven parts. Defendsnts might just as well say any carriage between two other carriages in a railway train was a part of the driving mechanism; because it communicated motion from the carriage in front to the carriage behind it. But was not the driving mechanism of the train the locomotive? What was the object of the locomotive except to drive the carriages? And what was their machine built for except to drive these two rolling surfaces one over the other in a transverse direction? They might just as well call an intermediate carriage in a train a "connecting rod." Fancy asking a guard to "place your bag in a first class connecting rod"! Would the guard understand the request? It would be absolute nonsense. Of course, if the Court interpreted jacket in the same way as defendants did, they would have been talking sense. He was not going to criticise the mechanics, he was perfectly incompetent to do so. Another point on which emphasis had been laid was that plaintiff's invention was simply the use of a connecting rod, which had been known ever since any sort of machinery had been constructed. If this was so, how was it their great rival, Mr. Brown, had not stepped in under the Ordinance and asked the Court to ask the patent authorities to revoke his patent on the ground that all he had patented was an ordinary connecting rod? That would have relieved them of all difficulty; then they might have patented their machine without giving any guarantee. Now, the tea industry was not a thing of recent date. It began late in the seventies, and now they were in the nineties, and he thought they might regard this question from another point of view, and he hoped this would conclude it. He should like to know what Mr. Brown senior had been doing all this time between 1877 and 1888. When they remembered that from 1848 to 1865 his inventive genius was flashing with a series of corruscations in coffee machinery—in fact he understood Mr. Brown today that there was not an improvement in coffee which was not the work of his hand; then he went to the famous Rajawella water works and then flew over to Uva and spun tramways in the air just like a spider—and after that—he did nothing! His client—to quote the language of his learned friend was allowed to come to Ceylon and sell hundreds of machines of this principle and not a movement would be made by his rival, Mr. Brown. How were they to account for that? Did the court not think it might be accounted for in this way:—He thought Mr. Brown had told them his interest in tea estates and machinery began about 6 or 8 years ago. That would bring them to about 1884. At that very time his inventive faculty awoke. They could not get out of the language of mechanics; but the movements of his interest and of his inventions became "isochronous"—they began to vibrate at the same time and then did the Court not think that the desire to have a good machine out and to make money by it would have spurred on his invention and would have quickened his inventive faculties? But no: from 1884 to 1888, he had told them, he was solving the great mechanical difficulty of getting a part of his machine to have the same eccentric motion as the jacket, and to invent pulleys and a strap to give the part an independent rotary motion of its own. He thought there was a little ring of false modesty about that, and he thought that what Mr. Brown was trying to do during these 4 years—and which he unfortunately had not succeeded in—was to escape between the Scylla of the Excelsior, and the Charybdis of the Rapip,

and bring out an invention that would clear the two, and now he thought he had done so because he had made his roller round instead of square, as they had made their's but chiefly on acount of two things, namely, the eccentric motion of the jacket and the upper lid together in the same plane, and the independent motion round its own axis of the upper lid by means of the pulleys. They would give defendants' machine this: they would admit that plaintiff's machine had no eccentric motion, and their upper lid had no independent rotatary movement of its own; but that did not give the defendant's any right to patent their machine. For the purpose of argument, he would admit that defendant's machine was very muchs uperior to the Excelsior; and that the differences were improvements, but this was all irrelevant. Defendants must not take over plaintiff's leading principle and improve on that. They might be useful improvements and they might be patentable, but if defendant's were going to patent them, they should take care to distinguish their invention from that described in a prior patent, and claim only what belonged to them. Of course that would not be enough because they would have to get a license from plaintiff or lay themselves open to an action for infringement. They had patented their invention—perhaps these improvements had carried the day for them and they had got their letters patent; but defendants must not use their machine in public without plaintiff's leave if, as he asked the Court to hold, they had taken the leading principle of plaintiff's machine. With the exception of the eccentricity of the motion of the jacket the upper lid and the independent rotary motion the machines were precisely the same. The Court could not look at them without seeing this, and assuming that the Court concurred with the specifications in the way that he said any ordinary intelligent man would construe them, the only authorities he would ask the Court to refer to except the passages he had read in Johnson's Patented Manual, was the well-known case of *Procter* v. *Bennis*, in Law Journal Chancellor's Reports, vol. 57 and there the question was an arrangement for the automatic feeding and a furnace. As the Lord Justice said, furnaces had been fed ever since the world began, so the object was a well-known object; they had been fed in all kinds of ways, and so long as the way of doing it was new, that was enough. Lord Bowen perhaps put it more concisely; he said "what is the substance of the invention were? It is a machine which produces a successful intermittent retiring stoker," and so on, and wound up by saying "the simple question is not whether the addition is a material one or whether the ommission is material, but you must go back again and ask yourselves whether what has been taken is the substance and essence of the invention." The Court must put all likeness aside. The machines might be exactly like one another, as his learned friend had said, and yet the leading principle might not have been abstracted from them and they might be very different in structure and yet contain the leading principle. If that were so, no matter what the difference were, no matter what was left out of the Excelsior or added to the triple action —if the same idea was in both—then the Court must take the plaintiff's part and prevent defendants from using his machine till plaintiff's license expired. He also asked the court to bear in mind the circumstances under which Mr. Jackson came to Ceylon. He was the pioneer of useful tea machinery in Ceylon, and the Excelsior was a pioneer invention and he asked the Court to bear that in mind. The Court was not to think of India or Java. He asked the Court if this patent had been taken over by defendants as a pioneer invention, and that was a very important point. As Lord Justice Bowen said "Now I think it goes to the root of the case to remember that this as was described by one is the counsel was really a pioneer invention, and it is by the right of that that it seems to me we ought to consider the question. Whether there have been variations or omissions and additions which prevent the machines which is complained of from being an infringement of the plaintiff! With regard to the variations, I take precisely the same view that the Lord Justice has taken and I will not travel over the matter which he has gone over in detail. With regard to the additions and omissions it is obvious that additions may be an improvement, and that omissions may be an improvement, but the mere fact that there is an omission does not enable you to take the plaintiff's Patent. He had now a very few words to say as to the first defendant's liability. The other side had tried to exempt him from any liability, but by his own mouth he had condemned himself, for he had said he was the agent of the Company to sell the machines, which they imported under a license from him. (Mr. BROWNE: Pardon me, not the agent for a special purpose. He has not admitted that. He is one of the *employes* of the Company.) Never mind whether he was one of a hundred or the solitary agent; it was well known in law that an agent could not plead his agency—he was equally within his principal a *tort feasor*. It was within his knowledge that these machines had been sold, and he had joined with the Company in their answer, and instead of putting in an independent answer saying he knew nothing about it, he joined with the Company in putting the issue before the Court. If there had been infringement or not it was impossible to say, if the second defendant was guilty that he was not equally guilty.

With this counsel resumed his seat, and the Court reserved judgment.

SOME INTERESTING QUININE STATISTICS.

The following figures show the quanties of cinchona-bark offered at the auctions in Amsterdam and London during the year 1891:—

In London (24 auctions) 17,121 packages Ceylon, 17,152 ditto British Indian, 1,493 Java, 1,113 ditto S. American Calisaya, 4,827 of various kinds; total 41,706 packages.

In Amsterdam (10 auctions) a total of 42,520 packages bark, almost exclusively from Java.

The equivalent of sulphate of quinine represented by the total quantity of cinchona sold to manufacturers at the London auctions of 1891 is estimated at 96,378 kilos., and that sold at the Amsterdam auctions (including 15,663 kilos. represented by a large private sale of bark) at 135,395 kilos. The total quantity of quinine bought by all the makers in Amsterdam and London last year is therefore approximately 231,773 kilos., or 8,181,000 oz. With regard to the quantities of quinine in the bark bought by the various manufacturers, the Amsterdam statistics alone offer a fairly reliable guide. They disclose the following result:—

The Auerbach work bought 29,467 kilos. quinine; the Brunswick works, 26,132 kilos.; the Mannheim and Amsterdam works, 16,147 kilos.; the Philadelphia factory, 15,148 kilos.; the New York factory, 12,969 kilos.; Messrs. Howard & Sons, 6,737 kilos.; the Frankfort-on-Main and Stuttgart works, 6,190 kilos.; Pelletier's works, 2,872 kilos.; Taillendier's works 1,700 kilos.; various other makers, 2,370 kilos. To these figures must be added 8,964 kilos. purchased by the Auerbach works, and 6,699 kilos. purchased by other German works by private treaty in Amsterdam. In considering these figures it must also be borne in mind that if the figures for London could be added to those given, the result would reverse the positions of several buyers. The Mannheim factory, for instance, buys more than one-third of the bark sold at the London auctions, whereas the purchases of Auerbach and Brunswick in this market are comparatively insignificant.

The statistics we have given show that Germany bought 93,599 kilos. or 69·1 per cent, of the quinine in the bark sold in Amsterdam. Including the bark ob-

tained in London, German factories purchased 162,010 kilos. quinine during the year—in other words, they would make 5,750,000 oz. of the 8,200,000 oz. of quinine forming the total supply—that is, 70 per cent. This total does not include the direct supplies of bark from the Soekawana and Djajagiri plantations in Java consigned to Brunswick. As already announced, these are now about to be stopped. It may cause considerable surprise, but the statement seems, nevertheless, well founded, that the total consumption of quinine in Germany does not now average over 8,000 kilos, or 290,000 oz., so that at least 95 per cent of the total German quinine-production is exported. The consumption of quinine in Germany has for several years been seriously on the decrease, a circumstance attributed to the persistency with which sundry new antipyretics are advertised in that country. The German factories complain greatly that, in spite of the reduced value of cinchona bark, the railway tariffs for this article have not been lowered, and are about double those of tanning barks, the intrinsic value of some of which is actually greater than that of cinchona. The stock in Amsterdam at the end of the year was 5,279 packages (of which 2,281 were Government bark). The average proportion of quinine (sulphate) in the bark sold in Amsterdam last year was 4·08 per cent, against 4·00 in 1890 and 4·12 per cent in 1889. But among the barks offered in Amsterdam last year no less than 1,000,000 kilos, or nearly two-sevenths, contained less than 3 per cent quinine. The Java planters are strongly advised not to harvest such bark in the future, or, if it must be taken off the trees, to burn it upon the plantation rather than ship it.—*Chemist and Druggist*, Jan. 16th.

CHINA TEAS IN THE SEVENTEENTH CENTURY.

If "you want to have," says the pronouncement of Sir Andrew Clark which has lately lifted up the hearts of despondent chaaszees, "tea which will not injure and which will refresh, get black China tea, putting in the right measure—the old-fashioned teaspoonful for each person and one for the blessed pot. Then pour on briskly boiling water, and within five minutes you must pour it off again, or it will become wicked instead of good." Thus summing up the experience of two centuries and his own, as to the virtues of *thea Bohea* Sir Andrew bade his hearers beware of the interloping, nerve-destroying Indian plant—advice which, if they are wise, should cheer but not inebriate our teamen of Foochow. While we wait to mark the effect of his most excellent brave words on Mincing Lane, it is amusing if not instructive to turn back to the beginning of those two centuries, and see in what light tea was regarded by the primeval teamen, its first introducers to the West. Many of their judgments have been collected for us by their contemporary Nieuhof, whom Ogilby a few years later translated by folios. This is the result of the observations and experiments of one Athanasius Kircher:—

"There is a plant called *cha*, which not being able to contain itself within the boundaries of China hath insinuated itself into Europe. The leaf being boiled and infused in water the Chinese drink very hot as often as they please. It is of a diuretick faculty, much fortifies the stomach, exhilarates the spirits, and wonderfully openeth all the nephretic passages or reins. It freeth the head by surpassing of fuliginous vapors, so that it is a most excellent drink for studious and Sedentary persons, to quicken them in their operations. Albeit at the first it seemeth insipid and bitter yet custom makes it pleasant, and though the Turkish coffee is said to produce the like effect, and the Mexican chocolate be another excellent drink, yet Tea, it the best, very much excelleth them, because chocolate in hot seasons inflameth the blood more than ordinary, and coffee agitateth choler; but this liquor in all seasons hath one and the same effect."

The members of the Dutch Embassy of 1655 6 bore very similar testimony. "Such," they noted in their diary, "especially find the benefit thereof who have overcharged their Stomachs with eating, or discomposed their brains with too much strong drink: for it is a very great drier of gross Humours, and dispels Vapors occasioning sleep. It strengthens the Memory, but increases Gall if drunk in too great quantity. In brief, they extol the virtues of this drink infinitely, and attribute their not having the Stone or Gout to this (as they term it) *Most Noble Drink*; which we may believe the rather, because in all our Journey forward and backward we met with none that were afflicted with these distempers."

A latter writer, commenting on tea after its introduction into Europe, is equally enthusiastic: "To drink it after meals takes away all indigestion and rawness of the stomach, and causes digestion, makes those that are inebriated sober and restores them fresh power and senses, removes giddiness and pains of the head occasioned qy excess of drink, and they that are called upon to vigilancy, by drinking the same expel their drowsiness and become very vigorous and fit for business. It prolongs life also, fortifies the sight, and is commended by the famous physician Nicholaus Tulp for the wholesomest plant that grows," They did not then believe in the "slow poison" theory. But there was (Sir Andrew Clark might answer) no Indian tea in those days.

An impression which even the twenty-years-in-the-country speak-the-language men imbibe is rudely dispelled by these early orders, the impression, to wit, that the Chinese do not take, and never have taken milk or sugar with their tea. The Dutch Ambassadors went to call on "the Third Governor" of Nanking, or rather he sent for them. His wife, by the way, was with him,—"a bold virago," the Dutchmen call her. "The room was presently filled with Tartar gentlewomen, who belonged to and waited on this lady, and brought a great silver kettle full of *Thea*, mingled with milk and salt, placing it in the middle of the chamber and serving it wooden ladles to all the company." Of course it will be objected that these Manchu dames were but following the Mongol fashion of bricktea and butter; and other writers in Ogilby's collections plainly declare that "some Chinese prepare it with milk, and a little salt mingled with water, though, to be sure, they add "this is not so well approved" as the orthodox method. That method is not quite Sir Andrew Clark's, but approximates to it. The Japanners, it would seem, "beat the Leaves to a powder and mingle it with boiling water in a cup, which they afterwards drink off. But the Chinese put the Leaves whole into a pot of boiling water, which having lain in step for some time they sip off hot without swallowing down any of the Leaves, but only the Quintessence thereof extracted.

"Lord Tulp" it appears is responsible for the statement that "the Chinese boyl the leaves with a little salt and sugar to take away the bitterness," but the also admits that thby "put a Handful of *The* leaves in a pint-pot, then pour it full of scalding water, and about two or three minutes after drink the some very hot." Modern Chinese by the way do not always conform to this last most salutary, and if we may so speak Clarkly system but often brew their 'pint-pot' of tea in the morning, and leave it to stew through the day, taking toll of it every half hour or so. They declare that the practice is harmless, because they do not, like the wasteful foreigner, crowd in the tea-leaves. One spoonful suffices for the family, heads are not counted, and there are no tender leanings towards "the blesed spot."—*N. C. Herald.*

WHAT FARMING IS COMING TO.

AN AMERICAN DREAM OF THE FUTURE.

In the *New England Magazine* for November, Mr. C. S. Plumb, vice-director of the Purdue University Agricultural Experiment Station, publishes a fanciful paper. It describes the future of agriculture, an account of which he places in the mouth of a director of an Indiana experiment station delivered in the year 2,000 as a telephonic lecture to the students of the National Agronomic University of France.

ALL SMALL HOLDINGS.

The following is his description of what farming will be when science has revolutionised agriculture:—"Our farms are all small holdings, the largest being fifty acres, while the ordinary size is ten acres. Each homestead is located about ten rods from the asphalt roadway, while the barn (we have but one barn on a farm in America) is located in the centre of the farm. A pneumatic tube running under ground connects the cellar of the house with the barn, so that when having no other means of transit, except to walk, persons may enter the pouch of the tube and be conveyed to and from the barn with electric rapidity. Horses are used by some farmers, but generally vehicles having pneumatic rubber-tired bicycle wheels, with ball bearings, are conveyed from point to point by means of electric motors stored beneath the wagon bed.

ELECTRICITY AND AGRICULTURE.

The influence of electricity on our farming occupation is exceedingly great. Every farmer has an electric plant in his house, which connects with the whole establishment, and not only materially lightens the labour of the women, but assist in farm-work in many particulars. In the house the rooms are lighted by electricity; doors and windows are opened and closed by pressing an electric button; butter extractors are operated by electric power; an inverted brush-box with a handle, worked by a motor, is passed over the floor to sweep, requiring simply the guidance of hand power; dish-washing machines are run by the lightning-like fluid, and likewise the elevator in houses two stories high; all cooking is conducted in electric stoves; and all clothing is washed and ironed by simple, inexpensive machinery, run by electricity.

On the farm, electricity serves many important purposes. Barn doors are operated by electric power; and electric fork conveys the hay and fodder from the wagon to the barn, and from mow to manger; automatic electric shovels clean out the manure troughs behind the cattle; the farm bell is rung by electricity; ploughs, mowing machines, hay tedders and rakes are operated by electric motors; and all animals are slaughtered by means of electric connection. It has been demonstrated that electrically grown vegetables are of superior quality and tenderness. Lines of electric wires distributed through the propagating pits, and even in the fields on the farm, have greatly increased the yield and early maturity of crops, while destroying all fungus growth and insects adjacent to the wires.

INSECTICULTURE.

Everybody possesses apparatus for spraying plants for the destruction of injurious insects and fungi and he would be considered a singular farmer at the present day who neglected to use his insecticides and fungicides. Injurious insects, however, are held in check by many farmers by the use of beneficial insects. On every well-regulated farm are mall pens for breeding beneficial insects. Farmers propagating beneficial insects train them to come at the call of a whistle, so that the trained ones are easily collected in the field whenever desired.

The care of our live stock has been reduced to such a science, that seemingly a maximum of profit is secured. Animals of all classes are fed on a scientific basis. By following the directions of the Henri Prescription Book, one is enabled to deposit alternate layers of lean and fat upon the animal carcass, or entirely one or the other. Through our knowledge of the effects of food upon the animal system, we are also enabled to secure nothing but pure cream from our cows, if we see fit, or the reverse.

Automatic milking machines are commonly used here now. None of our American cattle have horns, though two hundred years ago hornless cattle were uncommon.

GROWING MANURE.

Perhaps one of the most important discoveries yet made by one of our stations is the method of producing root nodules on clover and other leguminous plants, which contain nitrogen. By a careful system in-and-in breeding we have produced a number of nodule-bearing varieties of clover and alfalfa that yield us great quantities of nitrogenous fertiliser.

The roots, differing from those of ordinary varieties, grow near the surface, like potatoes. At the proper time of maturity they are ploughed out, and the nodules which are of good size are uncovered, dried and ground, thus furnishing a most important source of nitrogen. In consequence of our excessive care and judicious use of manures at the present time, we gather an average of fifty bushels of wheat per acre, where we grew but twelve a century ago, and shell two hundred bushels of corn per acre, where we formerly harvested but forty.

FOUR STRAWBERRIES ONE QUART.

On the same area of land, with a smaller number of plants, to-day we can grow a far larger crop than could be grown one hundred years ago. The plants have been bred with such wisdom, and the soil fertilised with such care, that each plant develops its maximum growth. Our strawberries are of delightful flavour and flesh and colour, and four or five average ones make a quart. The seeds have all been eliminated from our cultivated raspberries, blackberries, currants, and goosberries. Their fruit is marvellously delicate in flavour, especially so the two former.

In all the centuries man has discovered no more nutritious, stable food than milk, and to-day our dairy interests, with our population of five hundred millions, are vast.

In their relation to the people, the farmers of America occupy a high position. As our constitution provides that the various industries shall be represented in our legislative halls according to the proportion of the people engaged in each the farmers have a leading voice in the construction of our laws, and the social, moral, and financial conditions resulting from their supervision and influence are eminently satisfactory, not only to the farming population, but to the body of our citizens as a whole.

A farmer is not satisfied that a hen lay one hundred eggs of two ounces weight each in one year, eating one bushel of grain to do the same. He rather aims to make the hen produce three hundred and sixty-five eggs in one year, each weighing one-half pound, eating one-half bushel of grain to produce said eggs.

We may as well stop here.—*Review of Reviews*

Colonies and India, in its last issue, published the following remarks:—"It must be gratifying to our planters to find that Ceylon and Indian tea is rapidly driving the Chinese article out of the market in Australian colonies, and Ceylon tea particularly is rising in favour at the Antipodes, and the Indian producer has now much to fear from the competition of the Ceylon gardens. Before long, it seems probable that both John Chinaman and his staple export will be practically excluded from Australian shores."

MANA GRASS BARRELS.—Mr. C. E. H. Symons has sent us for inspection, at the request of Mr. Martin Leake, a small barrel made of paper composed of mana grass pulp mixed with 15 per cent of old waste paper. This is the barrel referred to by our London correspondent recently, which Mr. J. L. Shand was to have brought with him. Mr. Leake thinks that the Ceylon Government should start a small experimental factory for the conversion of native grasses into boards. Our London correspondent and we ourselves have so often referred to this matter, that we need only say that we quite approve of Mr. Leake's suggestion. The barrel is strong and light, and might be utilized for many purposes.

FACTS ABOUT TEA.

(To the Editor of the Globe.)

SIR,—You were kind enough to insert some time ago a letter from me on the above subject, in reference to Ceylon tea. This letter has been quoted and commented upon in most of the Eastern papers, and I trust, has been the means of calling public attention to the merits of Ceylon tea. I see the subject is again being discussed in your columns, but what I should suggest is that a number of samples of Ceylon, Indian, and Chinese tea should be submitted for analysis to some analyst of repute, and their respective proportions of tannin and theine correctly given. I saw in your papar what purported to be an analysis of those teas in a letter of a correspondent, but I should be sorry to take his *ipse dixit* on the matter, as I believe he was not an analyst. As your correspondent Mr. Hicks says, unless tea is properly made, that is infused for the proper time, the tannin and bitter extractive are brought out. My experience is that Ceylon tea should infuse for seven or eight minutes, but no more. There are many brands of Ceylon tea that can be procured pure, and, as Europeanintelligence and improvements are used in harvesting this tea, it should surely compete with that imported from an Empire that looks with jealous eyes on Western ideas, even when they are good ones. I have no doubt Indian teas will find champions, but they cannot compete with those of Ceylon.—Yours truly, N. E. YORKE-DAVIES.

January 11.

SIR,—I have read with much interest the letter in your issue of yesterday from a "Tea Planter of Thirty Years' Standing," which throws quite a new light on the question of some of the Himalayan growths of tea, and it is very satisfactory to hear that quality free from the excessive quantity of tannin as found in the lower districts of India and in Ceylon can be produced on the hills of India. So far it has generally been supposed that the difference in preparation between China and other kinds accounts for the freedom from tannin in the one case and excessive quantity in the other, and all lovers of really good tea, with the delicious "tea flavour" possessed by the better kind of China, will be glad to know a similar beverage can be produced from Indian products, but unless the mode of preparation is more assimilated in the process in China, which expresses most of the tannin before the "firing" take place, I am very doubtful if this desirable result can be attained. Nevertheless, it is worth the serious consideration of Indian and Ceylon growers to see what they can do in this direction, if they wish to preserve their valuable industry, for the time cannot be far off when the medical profession will step in and forbid the use of these unwholesome pungent tannin-laden teas now being let loose on the public at the expense of nerves and digestion. Tea must necessarily be tanniferous, but the less we get of this deleterious property the better, and until they learn in India and Ceylon to get rid of as much tannin as possible during the process of manufacture commend me to the delicious tea flavour and bouquet found so far only in China growth, such teas as you get everywhere in Russia, but so seldom nowadays in this country.—I am, sir, your obedient servant,

January 13. M. R. L.

SIR,—While Mr. Hicks appears desirous of placing certain "facts about tea" before the public in his letter to you of the 6th instant, he has omitted to record other facts which may interest and enlighten your readers. He says that "all good tea is, when infused, of a bright copper colour in the leaf"; this characteristic, however, which is indicative of faultless manufacture, must not be looked for by the consumer unless he pays a fair price. A tea with a bright copper coloured leaf after infusion cannot be got first hand under eight pence to nine pence per pound (ex-duty four pence), and such tea if sold in its purity will not be offered to the public under 1s 8d to 1s 10d per pound; but it must be remembered that a considerable portion of this margin has been swallowed up by the various middlemen who intervene between the grower and consumer. Then, again, in comparing one tea with another, the consumer invariably overlooks the fact that he buys by weight and uses by measures. The trade are alive to this fact, and scarcely any, if any of the best Pekoe Souchongs and Pekoes reach the consumer as imported. The leaf is passed through a mill, which reduces the original size to any desired degree, and it can readily be understood that after this process a much greater quantity can be taken from the caddy with the traditional caddy spoon than would otherwise be possible—in other words, the milling process increases the specific gravity, and the consumer is unwittingly using a greater weight of tea than if he purchased an "honest tea"—*i.e.*, that which has not been tampered with.

The comparative strength of tea can only be determined by weighing equal quantities, and infusing them an equal given time in the same quantity of water, as practised by experts. By measure a tea sold at 1s 6d which has been milled to half its natural size can be shown to be better than another which has not been milled, at 2s per pound, as judged by the strength of infusion, simply because a greater weight of the former has been used. Of course, milling the leaf will not affect the flavour of any tea, whether it be China, Ceylon, Darjeeling or Assam. So far as Ceylon tea is concerned, I rejoice to see that it has made much rapid strides during the last few years; but it is a curious fact that, although grown almost wholly from Assam Valley indigenous and hybrid seed, it has assumed the characteristics of the best Chinese tea, due to soil and altitude, its superiority to China being due as in India, to its cultivation being superintended by Europeans, and the best approved machinery, whereby the leaf is only touched by hand in picking it from the bush, all subsequent processes being achieved by machinery as opposed to manufacture wholly by hand, which in addition to being ineffective, is the reverse of cleanly. Ceylon teas stand out as a class tea in common with Darjeeling, Neilgherry and Kangra Valley tea, and by reason of their flavour and delicacy appeal to the classes who consume but a small quantity. Assam and Cachar teas being full of body, and astringent, appeal to the masses who are they tea-drinkers and the tea-growers' friends. Statistical show that while Ceylon tea has gone up in consumption to the detriment of John Chinaman, Indian growths have also made a sure and steady advance for 30 years past. The immediate danger to Ceylon tea and Indian is the ever increasing out-turn and no expansion of markets, the result being a yearly fall in prices. From a market report before me I find that in 1888 Ceylon tea as sold in Mincing-lane averaged 11½d.; for 1889 the average was 11¼d.; for 1890, 11d.; and for 1891, 10d. per pound. Indian teas also show a falling off, but not in such a marked degree. I travelled through Ceylon during the past summer, and cannot at all agree with Mr. Hicks in his concluding paragraph wherein he says that Ceylon tea is grown on virgin soil; almost all the tea there is being produced on defunct coffee plantations, and where coffee still exists tea is being interlined, only waiting for the death of the coffee to assert itself; and it is sheer nonsense for Mr. Hicks to assert that Ceylon tea has "beaten out of the field . . . the heavier and more luscious Indian tea," but of its class, I am quite prepared to admit that Ceylon does produce as good tea as any other part of the East.

The fact of a packet bearing the words "Packed in Ceylon" is no guarantee of its purity, nor does it carry any guarantee that such is actually the case. There are far more packets of Ceylon tea "packed in Ceylon" in the neighbourhood of Great Tower-street than ever are packed in the island, and since the duty on imported tea there is 25 cents per pound, the chances of adulteration are very remote, as the pure article can be produced at a less cost. I must apologise for the length of this, and having no desire to use your columns for an advertisement, I enclose my card, and subscribe myself, A TEA PLANTER.

January 15th.

INDIAN GUTTA PERCHA.

The Panchotee tree, *Dichopsis Elliptica*, grows plentifully in the Wynaad and yields an abundance of milk, and some of the planters have been asking for information on the subject and enquiring whether it could be made into a commercial article. The milk has been known for some years to afford what was called Indian Gutta Percha or Palm Gum, and has been used as an adulterant of Singapore Gutta. General Cullen brought it to notice about thirty-five years ago and Dr. Cleghorn when Conservator of Forests wrote an interesting memorandum on the subject. It was reported upon by experts in London who found that it was unfit for water-proofing purposes as its solution in coal tar and turpentine dry up to such a brittle consistence that the fabric is quite useless.* Mr. Hooper, the Government Quinologist, says, "it could be used as a birdlime or cement, and keeps well under water, as a cable insulator, especially if mixed with some genuine gutta and that by boiling the milk of the Panchotee tree, a white mass separates, which can be kneaded by the fingers, but which becomes hard and brittle by the cold." The brittle character of this substance Mr. Hooper says "is due to a large proportion of a crystaline substance found in the true gutta and called crystalban, or alban. Crystalban, according to Payne, occurs to the extent of from 18 to 19 per cent. in the best of gutta percha, but I have extracted as much as 69·2 per cent. of crystalban from the secretion obtained from the Wynaad. The presence of a large quantity of crystals in this gum of course, would interfere with its utility but crystalban is easily removed by boiling alcohol, and the residue consists of a very good and pure "Gutta Percha." Mr. Hooper adds that he cannot see why this process could not be used to purify the Indian Gutta Percha and so obtain an article similar to the Malayan gum."—*South of India Observer*, Jan. 23.

INDIAN GOVERNMENT QUININE.

The report for the year ending March 31st, 1891, of the Government cinchona plantations in India * has just been published, and we gather from it that the Naduvatam quinine-factory has emerged successfully from the most critical period of its existence, though it has been by no means exempt from the usual trials of infancy. In the spring of 1890 all work was temporarily suspended, owing to an outbreak among the workmen of an influenza epidemic, an affliction which one would hardly look for in a quinine-factory. Then it was found that part of the new plant erected in the works was in such a bad condition that it was necessary almost to remake it before it could be used, a circumstance which seems to prove that the curse of scamped work, so rife among certain Government departments at home, is not unknown in India. After these difficulties had been surmounted a good part of the year was gone, and in the meantime the stock of bark in the Government warehouses had become so large as to cause serious inconvenience. Then came another adversity. The Government had made a contract in Hamburg for the supply of 20,000 lb. of fusel oil for the works, and by some means or other the shipment of this requisite was inexplicably delayed for many months. Similar delays occurred in the supply of caustic soda and sulphuric acid, and, by the end of June, the charcoal and filtering-paper alone of all the requisites ordered had been received at Naduvatam. When the fusel oil began to arrive, at last, it was found to be packed in drums instead of casks, a needless outlay of over 40*l.* being thereby caused upon the first shipment alone. After long waiting, caustic soda and sulphuric acid had to be purchased in India at a cost much exceeding that which would have been incurred had the responsible individuals, whoever they were, been more alive to their duties. "A private firm in Madras," says Mr. Lawson, complainingly, "would have obtained the goods within four months of their writing for them"—as good a commentary as can be made upon the inability of our State departments, as now constituted, to compete against private enterprise. However, even official delay comes to an end; and in the second half of the year the factory was fairly started. Its present capacity, calculated upon the basis of uninterrupted work, is 4,000 lb. of sulphate of quinine per annum; but the total output for the financial year ending March 31 last only amounted to 2,928 lb. in addition to 1,050 lb. of febrifuge. It is now proposed to increase the capacities of the factory, experience having shown that the possibilities of increased consumption of quinine among the poorer classes of natives are practically unlimited. The present output could be almost doubled by a slight extension of the vats and steam-pans. Many improvements in the plant have already been effected, and everything is ready to increase the usefulness of the factory as soon as the necessary funds are conceded by the Indian Government. The grinding room has been separated from the boiling and crystallising room. The macerating vats and stills have been lodged in a separate building, and a second drying-room has been erected, which is heated by steam. A second boiler for heating the stills was also purchased during the year. A well has been sunk and a reservoir put up. The Naduvatam quinine is sold exclusively in India. In July last the first quarterly supply of 200 lb. was forwarded to the Medical Stores Department in Colombo, the superintendent of which expressed himself in no flattering manner about the drug. "The appearance of the quinine," he said, "is very much against it, and I hope that future supplies will be better crystallised. Unless this point is attended to, it can never compete with Howards & Sons' or other well-known quinine." These candid observations were rather hard upon the Naduvatam people, especially as they had evidence to show that the quality of their quinine was excellent so far as freedom from impurity was concerned. They explained to their Ceylon critic that the crystallisation was really very good and the bad appearance due to the drug having been partially dried by pressure instead of by absorption in consequence of which the crystals had been broken. Since then the process which gave rise to the criticism has been abandoned, and the quinine supplied leaves no further room for criticism. Mr. David Hooper is now at work upon the acid sulphate process used in Holland and Germany, and by means of which, upon second crystallisation, nearly the whole of the cinchonidine is eliminated from the quinine. Particulars of Mr. Hooper's investigations are not given, but they seem to have been satisfactory, for we are told that the process will probably before long be adopted when working upon red and hybrid cinchonas.

The greater part of the quinine produced at Naduvatam is supplied to the Government medical stores in Madras, Bombay and Colombo; but we gather that it is hoped that in coming years the factory will find its principal outlet among the natives, to whom it has lately commenced to supply the drug in 5-grain powders through the medium of certain petty local officials. Packets containing 100 such powders are supplied to these officials at 1 rupee 8 annas each. They retail the powders at 3 pies each, and have a selling commission of 1 anna per packet for themselves. Of the nine officials to whom supplies were sent by way of experiment two disposed of the whole lot, and earned from 3*l.* to 4*l.* commission each. Several others have shown great apathy, but they are being stirred into activity; and it is hoped that the villagers will gradually be brought to appreciate the boon which the Indian Government are extending to them, and which was the underlying consideration which led to the establishment of the Indian Government cinchona plantation and of the Naduvatam factory. But it seems that, at present, the native appreciation of the 3-pie packets is interfered with somewhat by the fact that the Hindoos by walking to the nearest town dispensary, and appealing there *in formâ pauperis*, can get a quinine powder gratuitously. The walk to town is often a long one, and the native is naturally indolent; but coppers, on

* Southern India.—ED. *T. A.*

the other hand, are scarce, and economical conditions generally triumph.

A great increase in the sale of quinine might be looked for, it is believed, if it were given in a form less objectionable to the palate than that of a powder. Might not this difficulty be overcome by compressing the drug into easily-swallowed tablets? Another step in the direction of supplying a cheap drug for native consumption has recently been taken by deciding upon the distribution, at cost price, of purgative powders, composed of quinine and of jalap grown in the Indian Government gardens.—*Chemist and Druggist*

TALGASWELA TEA COMPANY.

The following is the Directors' Report for the year ending December 31st, 1891 :—

The Directors have pleasure in placing before the Shareholders their Fourth Annual Report. together with a duly audited statement of the Company's affairs and financial position as on 31st December, 1891.

During the past year the Company's property has been visited twice by Mr. E. S. Grigson, in the absence of the Managing Director. Mr. Grigson's first Report upon the property, a very full one, was printed and circulated amongst the shareholders. His second Report was read at the extraordinary General Meeting held on December 29th, 1891.

Mr. W. Agar became disqualified to act as a Director and resigned his seat at the board Mr. Loos having left the Island, and resigned his seat, Mr. VanCuylenburg was elected a Director in his place.

In consequence of the larger acreage of tea planted on Talgaswela than was originally intended, 681 acres instead of 500 acres of the immediate necessity for steam power which was not originally contemplated, and of the increased factory expenditure necessitated by the larger acreage, a debit balance of R19,519·16 remained at the close of the year 1891. A further expenditure on factory and machinery has also to be faced during 1892. Realising that to charge all this capital expenditure against present revenues was to postpone unduly the payment of dividends to the shareholders, the Directors called an extraordinary general meeting on December 29th to submit a proposal for raising the necessary extra capital (R30,000) by the issue of 7 per cent preference shares of R100 each. The proposal was carried unanimously and its confirmation will be asked for at a special meeting immediately following the annual general meeting on Febraury 23rd next.

The Managing Director's estimate for 1892 shows an expenditure of R46,616·80, estimated crop 180,000 lb. At a price of 40 cents, a little over R25,000 profit will be realised. This should allow for a dividend of ten per cent after paying interest on the preference shares. Should it be possible to do so, the Directors will recommend the payment of an ad-interim dividend during the year.

The slow rate at which the construction of the Railway Extension to Ambalangoda has been proceeded with has caused general dissatisfaction.

Messrs. T. W. Hall and H. Van Cuylenburg retire from the Directorate by rotation and offer themselves for re-election.

COFFEE ADULTERATION: A CRUEL FRAUD UPON THE POOR.

TO THE EDITOR OF THE ROSSENDALE DIVISION GAZETTE.

Sir,—I have read with equal pleasure Sir Thomas Brooks' address to his constituents in the valley and his speech at Rawtenstall last evening, when as the Unionist candidate, he opened the ye-election campaign in a very decided manner. Coming to the subjects mentioned in his address, he referred, I was glad to see, in the first place, to "temperance." In the coming general election hundreds of speeches will be delivered to the electors of the United Kingdom on the same subject by scores of candidates for their suffrages, and rightly so too, for it is distinctly a very pressing question, much more so than that of Home Rule for Ireland, and one that will not brook of any further delay. This is now admitted by the leaders of both parties.

I now come to the subject matter of this letter, and in order to do so as briefly as possible, will feel obliged by your giving publicity to the following extracts from letters which have lately reached me, viz. :—

From the Secretary of the London Chamber of Commerce.

"I am fairly conversant with the question of coffee mixtures. Messrs.———, one of the largest distributing firms in the heart of London, and who confess to the introduction of 75 and 85 per cent. of chicory in their tins without the slightest intimation to consumers as to the extent of the adulteration, have, for years, declined to sell coffee mixtures at all, and have only given way lately owing to the pressure—if not the necessity—of supplying the demand for them, as the trade generally continues to sell them in tins as mixtures only. As regards the purity question you are right in assuming that this Chamber was interested in the matter, and some years ago, when Mr. Gladstone's Bill, to which you refer was passed, we did all we could in Parliament to get the exact proportions of the different ingredients indicated on the labels.—The president of the Chamber, at that time, Mr. Magniac, M.P., brought in an amendment to this effect, but the Grocery interest which preferred that no indication should be given was too strong for us and we had to accept the compromise contained in the Act as it now stands. I will, however, consult the commercial legislative committee of the chamber with the view of considering whether sufficient time has elapsed to move for an amendment of the old Act."

From Alfred W. Stokes, F. C. S., F. I. C., Public Analyst for Paddington and other London Parishes.—December 23rd, 1891.

"I entirely agree with you as to the idiocy of the present exemption (practically) of coffee (?) from the Adulteration Act. I have tried to bring public opinon to bear on the matter, but it is only from outside pressure that we can hope to have the law altered. —Again, under date 5th January, 1892, Dr. Stokes wrote to me as follows :—"I could not send you the particular report referred to by the *Standard*,—vide the leading article on coffee adulteration in that paper under date 12th November, 1891, because I had not one left. I sent you, however, another that covered the same ground. In my opinion there are a great number of people who have never had the chance of tasting pure coffee, so universal is the adulteration, I am very very pleased to see the vigorous way you are trying to rouse the public conscience in the matter.

Would that I could rouse the conscience of Mr. W. E. Gladstone, for he it was who under pressure of the Grocers' vote, not only gave them licenses to sell intoxicating liquor, but at the same time under the Coffee Adulteration Act, 38 and 39 Vict., c. 63, permitted free license to Grocers to adulterate coffee to any extent, even to 99 per cent of chicory if the presence of one per cent of coffee could be proved, provided the vile compound was labelled simply "coffee mixture" and "sold as a mixture of coffee and chicory" on alternate sides of the tins or packets. Moreover even although "Coffee" should be asked for, and a tin, of this vile mixture be proffered the public analyst is under this truly vicious law, unable to exact any penalty whatever, the magistrates ruling that the words printed on the tins were under the Act, a "sufficient defence." *Vide Standard*, November 12th, 1891. I cannot better describe this truly shocking state of things than by quoting some of Mr. W. E. Gladstone's own words in his last speech in London before departing for Biarritz:—

"I indicate it with feelings of pain, of recoil, almost of horror—no word short of horrible is fit to describe it. We have to blush for such a state of things. We must let every man know what is and what is not an offence by clear enumeration. I look forward to the issue with cheerful faith when the population may sit down under the shadow of beneficent legislation, and with confidence in the Legislature to live and die in contentment and in peace."

These be grand words, my Rossendale friends, which, when you weigh them up and analyse them thoroughly you will find they much resemble a "coffee" (?) mixture containing 85 per cent of chicory. Vain is the snare set in the sight of any bird. Do what I will, I cannot rouse up Sir Wilred Lawson on this chicory question—nor do I find any response from the leaders of any of the great temperance leaguers—either church or secular. Peradventure they are all asleep and must be awakened. The press too, seems almost culpably indifferent to the question. Is it because the grocery interest is so very strong in this country that editors are afraid of meddling with it? Out and out cases of poisoning, &c., &c., or of some dreadful scandal have a free run of the press but a case such as I have produced surely merits equal publicity. Certainly everyone is entitled to know to what extent they are being robbed, and if the sale of "coffee mixtures" should, under a new Act of Parliament, still be legalized, they should bear in unmistakable type and figures a true "Enumeration" as to their contents. Chambers's Encyclopædia has the following on "chicory."—"It has a long carrot like root of a dirty or brownish yellow colour—it grows in waysides, borders of fields, &c.—it contains a good deal of sugar, but otherwise does not serve to supply the animal economy with any useful ingredients. It gives off a dark brown colour to water, when an infusion made, and hence its main use in coffee."—"Oak-bark tan, logwood and mahogany dust, and even the livers of horses and bullocks, are said to be employed in its adulteration." What "adulterated chicory" may cost per pound I know not, but the finest "Bruges" chicory is worth, wholesale, in London, about 33s per cwt., or about 3½d per pound.

Need I say more? I have already trespassed somewhat severely upon your space, but the subject is surely deserving of it. Lancashire people are known to be the hardest working people in the whole world, but if they are to give up taking unadulterated beer, for heaven's sake let their "non-intoxicating beverages" be equally pure and above all suspicion. Tea is now credited with being positively pure, but what says the editor of the *Produce Markets' Review*, on December 19th, 1891, under heading "Tea":—"It would be better if many of these very objectionable parcels were stopped by the Customs from being offered for home consumption." Here is work to "undo" for the Gladstonians, and "work to do" for Sir Wilfred Lawson and all TEETOTALLERS.

5th January, 1891.

P.S.—The Secretary of the London Chamber of Commerce, in his letter quoted above, refers to their acceptance of a "compromise"—whatever could the "original" bill have been like? if I remember correctly, Mr. Gladstone promised a "fair field" to both coffee and tea—under pressure. Parliamentary history records how, practically speaking, he, at the last moment almost, threw the bill to the wolves! Last year, the Emperor of Germany kicked out of his empire every bogus coffee bean making machine and every bogus coffee bean.

PLANTING IN JAVA.

Mr. G. P. Hill writes from Ayer Dingin, Karangsäan, Java, 21st Jan.:—

Here we have just (Oct. 1891) polished off a 6,000 odd piculs (clean) crop and looking forward to 5,000 piculs this season. Size of estate 500 bouws say 800 acres about. Last dry season lasted six months which seems to suit the coffee trees. At any rate at this elevation 3,000 to 3,300 ft.

Coffee is here grown under shade. The dadap is preferred but for some years past we have had our trees killed by some unknown disease. The only nother kinds of shade trees used in Java are the *Albizzia moluccana* or Sengon (*Albizzia stipulata*) nother much liked the A. M. especially on account of its being very brittle, (and some other sins). We are trying *Ficus glomerata* and *Grevillea robusta* both strongly recommended by Mr. J. P. Hunt in a letter to the *T. A.* in Nov. 1889.

After considerable time and some correspondence the seeds were got from Colombo. The silk oak (G. R.) is quite unknown this end of the island, and the knowing ones object to the *Ficus glomerata* because it belongs to a bad tribe, they say, the Ficus family being surface feeders, viz., throwing up numerous rootlets along the surface of the soil, eating up all moisture and "humus." However, the *F. glomerata* is also a stranger here.

Most of your space in the *Tropical Agriculturist* i (very naturally) taken up with tea. I think, however coffee should not be forgotten, and if you could pu me in the way of learning more about the *Ficu glomerata* and other kinds of shade trees, I should be much obliged.

[*Ficus glomerata* is a favourite shade tree for coffee in India, and of *Grevillea robusta* they say in some parts of Southern India that this beautiful and valuable tree is actually a remedy for leaf disease. The masses of leaves deposited must have a fertilizing effect.—ED. *T. A.*]

INDIAN TEA DISTRICTS ASSOCIATION AND TEA FREIGHTS.

A meeting, which was largely attended, of the Association was held on Tuesday to consider the question of ocean freights. The Chairman (Mr. R. B. Magor) detailed the negotiations that had taken place between the sub-committee and the representatives in London of the steamer companies that run on the Brahmapcotra stating that the latter had assented in great measure to the proposals of the sub-committee in relation to a further agreement for a period of five years, and had accepted some of the modifications with the committee considered fair in the schedule of rates. The committee had heard, however, with some surprise that the steamer companies, ignoring the negotiations with the sub-committee, had been offering to the members of the Association individually a form of agreement in which nearly all matters were decided in their own interest, asking them to bind themselves to the companies for a period of seven years (or nearly a lifetime). He was glad to find that this step had not met with much success, and he hoped that members would refrain from accepting any form of agreement other than that approved by the committee. He thought that the committee had just grounds of complaint against the steamer companies for lack of straightforwardness in the matter. Resolutions pledging the meeting to uphold the action of the sub-committee were unanimously passed.—*H. and C. Mail*, Jan. 22.

PLANTING IN MALAY STATES.

Mr. Watson at Bentong has planted abou twenty acres of land with Liberian coffee, and the experiment would appear to give the greatest promise. With this exception, however, very little or nothing has been effected by European planters with a view to testing the resources of the country for agricultural enterprise. Little doubt can exist, however as to the fertility of the soil, and from the few facts in our possession there would seem to be every reason to believe that planting might be successfully carried on in the State, if labour could be obtained in sufficient quantities at reasonable rates of wage. The Pahang Exploration and Development Company has erected saw mills, and has done substantial work at Kuala Pahang. The company has not, however, been altogether successful in its arrangements with native wood cutters, and frequent misunderstandings as to prices, measurements, &c., have caused the Malays to lose confidence and to be reluctant to work for the company. This difficulty will no doubt be eventually overcome, and as the property

is undoubtedly a fine one the enterprise should end by proving successfu .—*Acting British Resident at Pahang*, March 31st 1891.

If the Malay Peninsula is ever to be a great coffee-growing and exporting country, the importation of labourers under contract from India is a necessity, and if a great forward movement in agriculture could be reckoned on, the Government should do what is possible to facilitate and cheapen immigration. But at present the number of planters and of estates is very small and as long as a few hundred men are all that they can absorb, the question is not an urgent one. It is easy to allege that capitalists are deterred from embarking in agriculture because of the difficulty in obtaining and keeping a labour force, but general statements of this sort must not be accepted. If planters in sufficient numbers were to start operations in Selangor, the labour question would soon simplify itself. To make elaborate preparations to provide labour for agricultural purposes when the employer is as yet an absent quantity is somewhat premature. In the meantime, the alleged scarcity of labour will continue to furnish to land speculators an excuse for not opening tracts of forest land obtained on easy terms from Government ostensibly for agricultural purposes.—*British Resident at Selangor*, March 31, 1891.

NOTES ON PRODUCE AND FINANCE.

THE TEA TRADE OF CHINA.—Col. Howard Vincent writes in reference to his remarks, which we quoted last week, some of which have been challenged, about the decay of the China tea trade:—"I am not surprised that some of the statements of fact in my recent articles have been challenged, as they are contrary to beliefs sedulously fostered at home. It is not necessary for me, I hope, to say that they were not expressed on the authority of my brief sojourn in China, but entirely from official data, supported by the personal views of the experienced residents to whose acquaintance I was admitted and tempered by a not untutored observation. The expression 'the tea industry in China is threatened with extinction' to which 'A Tea Broker' takes exception, was borrowed from the report of a very old-established firm. It applies, of course, particularly to the tea trade with England. Your correspondent, moreover, himself endorses it in the sentence 'I am of opinion that the present China tea gardens are exhausted. To remedy this state of affairs the efforts of the Inspecor-General of Maritime Customs must be supported by the united strength of all persons interested. They are not at present, I am informed on good authorty, even associated together.

TEA FREIGHTS.—This question was discussed at a recent meeting of the Indian Tea Districts' Association; and it is evident, from the remarks of the chairman, Mr. Magor, that the steamer companies have made an effort to get at the planter individually, rather than tackle him in conclave, as they should have done. If the planter be wise, he will decline to discuss the matter in his individual capacity, but will refer all negotiations to those who represent the general body of planters. That union is strength is an old maxim; but it is as true today as it has ever been.

CEYLON TEA.—Referring to last week's sales of Ceylon tea, the *Produce Markets' Review* says:—One of the largest sales of Ceylon teas on record has been held this week, but prices have, notwithstanding, been wonderfully well-maintained. In the case of fine parcels both of Pekoes and broken teas, competition has been particularly keen, and higher prices have in many cases been paid; for medium grades also the position has been favourable for sellers but common sorts show a distinct decline, and these are now as low as they were during November. The quality of the teas now coming forward is still considerably below what it should be, and it seems highly probable from present indications that the old excellent standards of quality of two years ago will scarcely be again equalled without the liberal use of artificial manures. This subject will have to be duly considered by planters if Ceylon teas are to maintain their present position as the favourite teas of the British public. There has been no diminution in the supply of Indian teas (says the *Produce Markets' Review*), the quantity brought forward at public sale having even exceeded that of last week. Monday's auction was the largest on record, consisting of nearly 26,000 packages; but, notwithstanding the large total, the supplies meet with general support, while teas with point and quality in many cases showed an advance. As might be expected, however, some irregularity was noticeable, and lower prices had to be accepted for the common and inferior sorts. With smaller supplies coming forward a firmer market may be expected, and, as the trade have evidently been waiting the result of the late heavy sales the demand for home consumption will no doubt increase, more particularly as prices are now at a comparatively safe level.

LAST WEEK'S TEA SALES.—Says the *Grocer*:—"'Beating the record' is an expression frequently used in describing the increasing extent of the supplies of Indian tea by auction, but it has never been more applicable than in the present week, during which about 49,100 packages have been submitted for public sale, involving an amount of time, labour, and fatigue in tasting and valuing the teas and pricing the catalogues such as the dealers would not relish very often, and which culminated on Thursday in a feeling of exhaustion, not unmixed with a sense of relief that the severe and continuous strain was over for another week. Competition was liveliest on Monday's sales, when the assortment was largest, and strong-liquoring kinds of favourite growths were taken at firm to rather high prices; but teas thin and poor in cup were, as a rule, avoided by the trade, and were disposable only on easier terms, which became still more so towards the end of the final series yesterday, and though the bulk of the supplies in auction has found buyers, the tone of the market at the finish was uncommonly tame, as if the wholesale men had overbought themselves and needed breathing time to work off their surplus stocks. About the largest sales yet held of Ceylon tea have taken place this week, amounting to nearly 25,000 packages. The number of samples to be examined was great, and small breaks formed a good proportion of the general total. The efforts made to curtail the trouble involved in the latter seems of little avail. Tuesday's auctions occupied the greater part of six hours. Prices, especially for common, are mostly lower. The biddings lacked a continuance of spirit, and the market closes with a flat tone. The pressure of Indian, along with the haste to sell, has quite altered the aspect of the market during the past week, and some low rates have to be recorded, the presence of low teas also helping the depression. The week's imports have comprised:—The Glenshiel, 7,100lb.; Orion, 166,300lb.; Orient, 397,900lb.; Junera, 215,500lb.; total, 786,800lb.—*H. and C. Mail*, Jan. 22nd.

THE AUSTRALIAN IRRIGATION COLONIES OF MESSRS. CHAFFEY BROS., LTD.

In the fifth annual report of the Victorian Minister of Water Supply, which was lately presented to both Houses of the Parliament of that colony, we find it stated that the progress of these settlements is giving striking proof that the arid waste lands of Australia can be tilled and brought to sustain those who settle on them, thereby affording what is so much needed in these days of over-stocked labour markets and congested centres of populations—greater scope and more opportunity for working capacity. It is, by its example and teaching, assisting to develop a comparatively new but most important industry, by which the resources of the colony will be greatly increased, and it demonstrating to the farmers and fruit-growers of

the country what irrigation properly employed can accomplish, and how best to make use of it. The progress that has been achieved is, without doubt, largely due to the liberal manner in which the Messrs. Chaffey have interpreted their obligations. According to the agreement with the Victorian Government, under which the Messrs. Chaffey entered upon the occupation of the present area, they were bound to expend on the land the sum of 35,000*l.* during the first five years. There has actually been expended up to the 30th June 1891, 275,000*l.*, though the colony was not four years old until October, 1891. In addition to that it is estimated that the settlers themselves have spent, in improving their land, 100,000*l.* The population has increased to about 3,000 and continues to increase. Fully 6,500 acres are already cultivated, about 6,000 acres being devoted to vines or fruit trees, the remainder being under feeding stuffs such as sorghum and lucerne or cereals.

The foundation stone of the projected Agricultural College in the colonies was laid by His Excellency the Governor in April, 1890, on a prominent site in the principal thoroughfare—Deakin Avenue. Its erection is being pushed on, the contract for one wing having been let at 5,000*l.* The importance of this institution—fully endowed as it is, one-fifteenth of the entire value of the land having been set aside for that purpose—not only to Mildura, but to Victoria cannot be over-estimated.

There are now constructed 125 miles of main channel and 200 miles of subsidary channels; 50 miles of various channels are surveyed, and, as the surveying parties are pushing beyond the 25,000 acre limit, are being daily extended. The engineering works and the foundry have been greatly enlarged, and afford occupation for a large staff in these works and the other work of the settlement. The company's pay-sheet shows a disbursement of 7000*l.* per month. Every possible fruit has been found to flourish amazingly, with the exception of apples, but Mildura oranges will yet become a feature. The early and large returns which have been obtained are due not alone to the quality of the soil or the character of the atmosphere and climate, though these aid, but also to the methods of irrigation and cultivation practised and advocated by the Messrs. Chaffey through their staff of experts.

Mildura is a veritable *urbs in rure*. On the one hand, its salubrious climate—its proportionate death-rate is the smallest in the world—picturesque situation on the banks of a noble river, its surroundings of fresh green orchards and rolling meadows, give it all the attraction of a pleasant country village. On the other hand, the nature of the society, the close manner in which the land is settled (rendering possibilities of social intercourse as easy as in town), the institutes, libraries, museums, and the various societies—horticultural, settler, etc.; and clubs—tennis, football, rowing, dramatic, debating, pedestrians—add to it the convenience and social characteristics of city life, and make up a most desirable and attractive condition of life.

From recent reports in the leading Australian papers we learn that, at the half-yearly meeting held in Melbourne of the shareholders in Chaffey Bros., Ltd., Mr. Levien, M.L.A., Chairman of the directors, presiding, the statement of accounts showed that the profits for the half-year, together with the balance brought forward, amounted to 39,158*l.* 1s 9d. The chairman, in moving the adoption of the financial statement, said that the directors had pleasure in being able again to furnish a most encouraging record of the progress of both their colonies. The area of land sold had been greater than in any previous like period, and the population had been considerably added to by an exceptionally good class of settlers. The fame of their young but great colonief was attracting much attention in the United Kingdom as an eligible field for capital and enterprise, and a goodly number of settlers and investors were arriving from abroad. The trade and commerce of both colonies were assuming large proportions, and two additional steamers had been put on the river from Swan Hill and Morgan. Buildings both for residential and business purposes were being largely multiplied, and the substantial character of the new structures afforded perhaps the strongest evidence of the confidence felt in the future development of the resources of the settlements. Efforts were being made to push on the surveys as rapidly as possible. Additional town sites were being surveyed to meet the requirements of new settlers, and two or three villages or minor townships were being surveyed meet suitable localities. Leviathan pumping plant at Psyche Bend, one of the most powerful in the world, was being erected, and would soon be completed and at work. Main channels had been extended some twelve miles, and the subsidiary channels about forty miles; the channelling now completed commanded some 30,000 acres. The several industries established by the company were in a satisfactory condition, and the making of the water pipes from paper, an industry quite new to the colonies, had been started and was in active work. The employment of open flumes was giving place to the more economic method of distributing water by this new process. The steam brick works were being rearranged, and the manufacture of porous fire-bricks or terracotta lumber, the local demand for which was considerable, had been added. The plantations appeared healthy and free from blight and insect pest, and the public health was excellent. Altogether the condition and development of the colonies left nothing to be desired. He congratulated the shareholders upon the excellent balance-sheet and the result of the Company's business for the past half-year. The subscribed capital had been increased by 42,780*l.*, brought about by the sale of 4278 shares at par, upon which the sum of 7250*l.* had been paid. The net profits for the half year amounted to 28,032*l.* 3s. 9*d.*, or equivalent to 12 per cent. upon the paid up capital which now stood at 465,662*l.* 19s. 3*d.* The directors proposed to place the sum of 25,000*l.* to the reserve fund, increasing it to 115,000*l.* The quantity of land sold during the half-year was 2759 acres at Mildura, and 445 acres at Renmark.—*British Trade Journal.*

NEW OPENINGS IN NEW GUINEA.

AN INTERVIEW WITH SIR WILLIAM MACGREGOR, K. C. M. G.

One of the ablest and most energetic men in the service of the British Empire at this moment is undoubtedly Sir William Macgregor, the Administrator of British New Guinea. His official title of Administrator gives, however, very little idea of his multifarious activities. During the past four years he has explored and mapped the greater part of the territory, reconciled savage tribes, enriched the scientific world by his observations, and laid the foundation of a good Government in that vast island in the Southern Seas. He is also an intrepid mountaineer, and in 1889, with less than six followers, he reached the summit of the Stanley Mountain, the highest point attained being 13,121 feet. A previous expedition, led by Mr. Cuthbertson, and assisted by 200 natives, only reached 8,000 feet. Sir William Macgregor has recently been on a visit to Queensland, and our Brisbane correspondent sends us the following account of an interview on behalf of the *Pall Mall Gazette*:—

SIR WILLIAM "AT HOME."

Imagine a big man, over 6 feet high, with a sweet brown face, a low, gentle voice, with a Scotch accent; a man of great attainments, who speaks fluently three or four European languages, and about twenty Papuan dialects. "I have been with him," said the Hon. Hatton Richards, his late private secretary, to me the other day at the Queensland Club, "when our lives were in imminent danger: nothing saved us but the noble self-possession and supreme courage of Sir William." The seat of the Government and Government House

are in Port Moresby, but Sir William lives in the open air, or sleeps in a boat or under a "fly" tent in the wilds of New Guinea. He is a man of great physical endurance; he resists all the fogs and fevers of that uncivilized land, and is daunted by no danger or difficulty.

The little steam launch "Merrie England," which was such a terror to the savages on the banks of the Fly River during the memorable expedition in 1890, arrived the other day in the Brisbane River, bringing Sir William and Lady Macgregor (who had gone to Cooktown to meet her husband), the Hon. M. H. Moreton (his Excellency's private secretary), and the Hon. F. E. Lawes, Secretary for Native Affairs in New Guinea.

"Is Sir William at home?" I inquired of a bright Australian girl who answered my ring at St. Helen's, the residence of Lady Macgregor, which stands on the bank of the Bris River. "Yes, sir," and, having delivered my card, she led me into a room the appearance of which makes me feel as if I had been suddenly translated into one of the Government offices in New Guinea. Sir William sits at a table in the centre, stooping over a map of the Kiriwina group; the floor is littered with papers, and the walls are hung with maps with unpronounceable names. Lady Macgregor and her little daughter are watching Sir William making corrections in his map of these comparatively unknown islands.

New Guinea and the Newspapers.

Sir William spoke of England's ignorance of New Guinea. "Nothing but lies! Nothing but lies! Here is a paper with a leading article on 'the terrible atrocities perpetrated by Government officials in Papua.'" And he handed me a journal which undertakes to enlighten the English people on India and colonial affairs. It had dropped across an item in the "funny column" of one of the Australian papers, and, taking the statement as gospel truth, it had written a leading article on the subject which was to the effect that Sir William and his party were shooting Black fellows in lieu of partridges in New Guinea!

A Planter's Paradise.

"But you want to know something for the *Pall Mall* about the actual state of New Guinea?"—"Exactly. Do you consider that it will ever be a good field for immigration?" "For the small planter who really means work I know of no better opening anywhere. In the Mekeo country near the middle of the coast of New Guinea, where the tribes have been living on such terms of hostility that if any one crossed from his own country into that of a neighbouring tribe he would lose his life, the only land that is available is the neutral zone between the different tribes. The small settler who is willing to go there with the intention of planting tobacco or coconuts or coffee or any other tropical product will find abundance of land in the neutral zone. Between the two tribes he will have the native labour at his hand. The native population are extremely large, and, what is more, they are born agriculturists. We wish to get the settlers there, too to give employment to the natives, to teach them what can be done by systematic cultivation, and to introduce among them new products. But we hope the natives will be large producers in the course of time and thus create an export trade from the colony."

Cheap Land and Cheap Labour.

"What is the price of labour?"—"We can supply the cheapest labour in the world. Settlers in the country can obtain labour from one end to the other of New Guinea. But no natives can be taken outside the territory of the possession; so that the whole of the labour force will be retained for the exclusive use of the settlers. The people, I think, will be good workmen, and our experience is that they abide well and honestly by their contracts. At present they obtain their living by agriculture, and many of the coast tribes are making splendid boatmen and seamen. What the planter wants is cheap land and cheap labour. These he can have in New Guinea, a country which has this grand advantage—it is never visited by hurricanes."

No Room for the Speculator.

"And at what price would you be willing to dispose of the land?"

"The purchasing price we put on land is merely nominal, when it has attached to it conditions as to improvement. Settlers can obtain the land at 2s 6d an acre, on agreeing to carry out certain specified improvements within a reasonable time."

"Are fresh-water springs as rare there as in Australia, Sir William?"

"No, the country is well watered. In regard to rainfall, there is a great variation in different districts, so that the land would be found to be suitable for all the different kinds of cultivation. But we do not want the speculator," he added quickly; "we can alienate no large districts, because the country is well peopled by the Papuans. Hence we do not tempt the big speculator to come to New Guinea. We do not intend to unsettle the Papuan in order to settle the Europeans."

"But the country is very large."—"Yes; I should think it is—larger than England and Scotland—and the population is not less than 450,000."

Fevers and Flesh-Pots.

"What about the New Guinea diseases?" I said. "A young German who was running for his life from the country told me there were enough diseases in the Kaiser's territory to eat up all Germany."—"There are no diseases in the country worth speaking of, except fever. I speak only of British New Guinea. Since I went to the possession in 1888 only two deaths have occurred in the Government service—one a weakly boy, and the other a Polynesian. There have, of course, been many cases of fever."

"But there is another matter, Sir William, which perhaps more directly concerns the European. Is there not a possibility of the settler waking up one fine morning to find himself laid out as a dainty dish for his dusky neighbours?"

"Cannibalism, which was once the terrors of the trader and the adventurer in the islands," he said, "has been almost stamped out by the missionary and the Government in the country where we are offering to the European. In this backwood land (pointing to a large blank upon the map), to which we have not as yet penetrated, there may be, and there are, no doubt, man-eaters. The settler, however, need have no fear of the flesh-pots of New Guinea; he is almost as safe there as in Australia."

The First Market.

"Where do you expect to find a market for your products?"—"In Australia, we are going to try to establish a subsidized line to connect us with Cooktown and to visit all the northern ports and the southern coast of New Guinea. The Government is itself cultivating a great many coconuts, and we have planted about 16,000 trees; we are trying to get the natives to plant largely also, so that we hope in a few years to be able to export by direct shipment to Europe such things as coconuts, coconut oil, tobacco, tea and coffee, and other tropical products; but our first market will be in Australia, until we have sufficient to justify a ship to Europe."

THE SOIL.

"What is the nature of the soil?"—"Of all possible kinds. We have alluvial soil, coral soil, volcanic soil, and soil formed by the decomposition of vegetable matter; sandy soil, surface soil, in fact, any sort of soil desired. We have granite islands and volcanic islands, areas covered with dense forests and large patches covered with long grass or weeds. The eucalyptus flourishes in portions of New Guinea, and hardwood can be found in any quantity from the Dutch boundary to the Louisiade group."

A PORTRAIT OF THE PAPUAN.

How few in Great Britain have any conception of what travelling is in a country which has never been touched by the foot of a white man! Since the island first "rose from the dark swelling flood," Nature has had mostly her own way in New Guinea. The dusky inhabitants have lived in a primitive state, tilled their gardens, drunk the milk of the cocoanut, caught fish in the streams, and with the spear and bow and arrow hunted for men and beasts over the wild woods and rugged mountains of Papua. They have learned to carve and to dance, and to build castles in the air—supported by trees—and, standing in their frail canoes, to row with amazing agility. They have no knowledge of the art of writing, and their only attempt at drawing, so far as has been discovered, is a representation of a human figure, done in colours—red clay and charcoal—which Sir William found on a palm leaf while exploring the Fly River. Their languages, or dialects, are closely related, so it is clear that they have sprung from the same stock; they love—platonically, paternally, and fraternally—as no other people love; they believe in some districts that when the soul leaves the body it sinks "into the utter void of nothingness," in other places that it takes refuge on a remote island; and a large section holds that the spirit takes up its habitation on the tops of mountains. They believe that all spirits are bad, but they worship no gods, fear no devils, and acknowledge no Creator. They have no vehicles, consequently they have made no roads; and in trying to pierce this strange, untracked, and picturesque land the experiences of Sir William Macgregor, its pioneer and apostle, are almost as adventurous as those of John Hanning Speke in his efforts to discover the source of the Nile.

TRAVELLING IN DARK NEW GUINEA.

The preparations made for travelling are simple enough. "We prepare some tea and sugar, rice, and tinned meat, arms and ammunition, a fly and mosquito net," said Sir William. "Then we have carriers and men to cut the roads. We walk all day; horses cannot travel, and camels would be useless to us, the country is so rocky and precipitous. At night time I and my attendant lie in our little tent, and the natives sleep under the trees. We start again early in the morning. In this way we travel from day to day. When one of the party gets footsore he is left behind. A stock of medicines is always carried, with tonics for the fever-stricken. [Sir William is an M.D.] Travelling is very slow. I have travelled as little as a quarter of a mile in one day, being very hard at work to that. One of the hardest days I have ever had was in doing 1,700 ft. The scrub is sometimes excessively dense, and it is often difficult to find a passage over the rocks and precipices. We have to get our baggage across rivers. Only one bridge, I think, has been found in New Guinea." At present the natives do not give explorers much trouble, but they put signals on the trees as a warning to strangers not to approach their villages. Great difficulty is often experienced on new rapid rivers.—*Pall Mall Gazette.*

THE *British North Borneo Herald* in reviewing the past year holds that the tobacco industry there has fully asserted the fact that the country can grow a quality of tobacco equal to, and even superior to that of Sumatra, and dwells upon the alleged fact that Borneo has beaten Sumatra by at least 30 per cent in prices; and that in addition Borneo tobacco is now being anxiously enquired for.—*Straits Times.*

"ALL ABOUT COFFEE" in the *Queenslander* has the following introduction:—

That the coffee plant has found a congenial home in Queensland has been amply demonstrated in almost all the Northern coast districts, and recently in the Buderim Mountain district, where the crops promise to be phenomenal. In the North the driest season seemed to affect the plant but little, judging by the luxuriance of its dark green foliage when that of most other plants was yellow, and by the unusually heavy crops of cherries produced.

On which we have only to repeat the remark we have so frequently made: coffee will grow well in Queensland, but without cheap labour it will not pay.

MILK OF ELEPHANTS.—The following is extracted from the *Calcutta Gazette* of Thursday, 21st Nov. 1816:—

"The following advertisement appeared in a late English paper. The scheme of converting milk into pills, is not the least curious part of the nostrum. The astonishing effect of the *Milk of Elephants* has seriously attracted the attention of the medical world; by which mercury, that *deleterious poison*, which has swept millions of unhappy wretches to their graves, is totally superseded and *abolished for ever*. Mr. Campbell, of the Royal College of Surgeons, No. 29, Marlborough-street, London, is appointed to conduct this medicine. The poor are cured of the most dangerous diseases for 5 shillings. The medicine is sold at 11 shilling the bottle, or in pills at 2s 9d, with directions, whereby any person may *cure himself* most effectually, in cases of deblity, &c., &c. —To be had, if ordered from all medicine sellers throughout the Kingdom."

PADI CULTIVATION IN THE MALAY NATIVE STATESS.—The Governor of the Straits Set lements has directed a letter to the Residents of the Native States on the subject of the rice-supply of this Colony, which is published in the Peark *Government Gazette* for the information of Members of the Council of States, District Magistrates and others. It says:—

While aware that the Residents of the Native States have not by any means overlooked the importance of promoting the cultivation of padi, His Excellency is of opinion that the time has come for renewed and perhaps more sustained efforts in the same direction: and he will be glad, therefore, if the subject should engage the earnest attention of the Perak State Council.

Before, however, this is done His Excellency desires that the District Officers be called on to report as to available land and as to the steps necessary to get it opened up.

With the body of information thus obtained, taken together with the knowledge and experience of the Sultan and other Members of the State Council, His Excellency considers that it ought to be practicable to improve the existing state of affairs, and largely extend the cultivation of padi throughout the Peninsular, and I am to say that if the Government can assist in the way of getting good seed padi from places outside the Colony the necessary steps will readily be taken.

I am to add that the opportunity might be taken of considering the question of introducing the cultivation of some of those grains, such as dholl and ragi, which are in general use among the Indian population.—*Singapore Free Press.*

Correspondence.

To the Editor.

"SUBLIME TOBACCO!" "QUID RIDES?"

Jan. 24th.

SIR,—No one will regret more than Ramasamy the collapse of tobacco cultivation in Ceylon, for to him the *poghaelli totum* was a veritable paradise. *There* he could enjoy his *otium cum dignitate* undisturbed by all influences of an intrusive and discomforting character. His affection for the "Smokeleaf" estate was unbounded, for besides enjoying the blessings of an easy life, he was about the only party who made anything out of the concern. How very prominently Matale has lately been figuring as a burial place for many British sovereigns. First we have the Government dropping, year after year, a goodly number of rupees (equivalent to many sovereigns) on a badly fed railway. Then we have the lately revealed fiasco in connection with the Ceylon Tobacco Company. And, last of all, we have been told that the Ceylon Land and Produce Company have found it absolutely necessary to write no less than £8,038-10-8 off the value of their Matale properties! There surely must be something wrong in all this, and, perhaps, Mr. Fairweather's remarks at the late meeting of the Ceylon Tobacco Company may admit of a wider application than he meant them to do. Anyhow, economy seems to be a more necessary precursor to success in Matale than in any other district in the island. Let superintendents be bound down to produce their crops at the minimum cost, and Matale may yet prove to be a safe district in which to invest the money of a sometimes over-confiding public. But, before deciding, let investors take a hesitating mental glance backward, into those abysses of financial death which have engulfed many of us, and which may be open and engulf many more. They should never fail to be guided by a wise foresight in making all preliminary arrangements, or to take soundings of the most minute and careful kind.

Tobacco growing is never likely to be repeated in Ceylon on a large scale. Anyone venturing to do so is not likely ever to be in a position to invest in the purchase of a carriage, or to print on its panels the punning motto recommended by Theodore Hook to a successful tobacconist, viz. QUID RIDES.

LORANTHUS AND HEMILEIA.

SIR,—In an editorial note on a letter in your issue of the 29th instant, you say that the Loranthus "spreads over the stems and branches of trees, and from the bark cells sucks out the life blood, as the mycelium of *Hemileia vastatrix* does in the case of coffee leaves," Loranthus and Hemileia may be both classed as parasites inasmuch as they both subsist upon a host, but there is this distinction between them, viz., Loranthus sends its roots into the wood tissue of the host and absorbs the crude sap consisting of water with substances in solution that have been taken up from the soil, not yet manufactured into organic material, the manufacturing being done by Loranthus itself as is evidenced by the fact of the latter containing chlorophyl or green colouring matter. Hemileia, on the other hand, absorbs the elaborated sap from the bark (or more correctly the bast) tissue: that is to say, it does no manufacturing itself at all, but robs its host of the manufactured or prepared food—and hence it needs no green colouring matter. To express this distinction in another way:—Loranthus does not forage for itself, but robs its host of its (the host's) supply of raw materials or uncooked food. Hemileia on the other hand waits, as it were, till the raw material is prepared, and robs its host of the "cooked" food. Thus Hemileia is the greater, meaner, more cunning and, withal, more dangerous thief!

And so some botanists distinguish between these two kinds of parasites as *partial* parasites (such as Loranthus) and *true* parasites (such as Hemileia).

—Yours, &c., T.

[We are much indebted to our accomplished correspondent for this interesting note, but we are puzzled by the representation of Hemileia feeding on the juices of the "bast" or "bark." If so, we have learned something utterly new to us about the *leaf* fungus. Our impression was that the spores never penetrated the bark of the coffee bush, but entered through the stomata of the leaves, the mycelium then breaking up the cells and feeding on the elaborated juices.—ED. *T. A.*]

FINE *vs.* MEDIUM PLUCKING.

DEAR SIR,—A letter by "W. A. R.," a "well-known" planter, has appeared in the local "Times" on the above "time-worn subject," (as the editor rightly calls it): and, except for the heading, which is in bad taste (*spes mea in te*), and which is supposed to contain a joke, there is absolutely nothing new in the way of information conveyed to the reader. A few figures are given, which are utterly worthless except as a multiplication sum for boys of the first standard, as they are not founded upon fact. 600 lb. per acre cost, *say*, so much: profit so much: 400 lb. per acre cost, *say*, do do do. Therefore, much better get an average of 1s for your tea *if you can*: Q. E. D. The fact is that the conditions under which tea is grown in Ceylon are so varying and variable, that no general law can be laid down with regard to any of the processes of cultivation and manufacture that will be applicable to the whole country, or even to neighbouring districts. What each individual planter must strive to do is to find out his own district's peculiarities of soil, climate, &c., to a T, act accordingly, and allow no *rubbish* to leave his factory.—Yours KAROLY FÜRDÖ.

[Our correspondent has failed to notice the main point in the letter, viz., the wonderful assertion, contrary to the opinion of all experts, that fine plucking exhausts tea bushes less than ordinary plucking!—ED. *T. A.*]

TEA IN PERSIA.—The British Consul at Meshed (Persia), in his report on the trade of Khorassan for 1890-91, states that the Chinese tea imported was all purchased from British traders at Bombay. There being a doubt about this last year, the value of Chinese tea was excluded from the total of British imports in last report. The value of green tea imported during the year 1890-91 fell by £7,933, being only £117,781, as against £125,714 in 1889-90. But the value of black tea imported amounted, on the other hand, to £28,269, or £11,126 more than in 1889-90, when the total was £17,143. It may be noted here that all tea imported from Bombay by the Persian merchants of Yezd goes direct to Russian territory, via Sabzawár. Of the green tea about £111,016 worth was Chinese tea purchased in Bombay, against £118,571 last year. The value of Indian green tea was £6,765 worth, against £7,143 worth last year. Of black tea £28,269 worth was imported, of which £19,706 worth was Indian against £12,000 last year. Of the green tea about £98,365 worth passed on to Russian territory.—*L. and C. Express*, Jan. 22nd.

GARDENING BEET.

This useful salad plant luxuriates in just such a soil and situation as suits the carrot, viz, a deep and warm light sandy loam, rich and sweet, and in an open and sunny spot. The roots abstract a good deal of potash, soda, carbonic acid, and chloride of sodium (common salt) from the soil, which should therefore be rich in these principles. Hence salt, kainit (which supplies potash), nitrate of soda, and, soot or any kind of charred or burnt material, are the best manures for this crop, and may be freely applied either to the soil before sowing, or after the plants are up, in the shape of a top dressing. For all ordinary purposes the first week in May is quite soon enough to sow beet; if done much before this the roots are apt to become too large and coarse. For small gardens, Dell's Crimson and Nutting's Dwarf Red are perhaps the best kinds to grow, and a new variety known as the Cheltenham Black or Green-top has lately been attracting much attention. In lifting beet take particular care to avoid breaking the roots; if any of even the smaller fibres are injured the roots bleed, and both the colour and quality suffer. The best way is to dig a deep trench, and take the roots one by one out of the flat side or wall of it.—*S. I. Observer.*

TEA.

Continuing his remarks, already quoted in the *Liverpool Mercury*, R. M. writes:—

In the strange Republic of Chili, with its Indians and Europeans, its narrow seaboard and wild plateaus, the Natives drink mate. Sitting in their windowless houses on a bleak night, with all airholes stopped up, they sing strange songs to the sound of the guitar, and the dark-eyed girls dance, castanets in hand, while the old, blear-eyed women sit and suck mate. They do not drink it as we drink tea, but they suck it through a tube like a pipe stem. A black, fire-smoked jar stands on the earthern brasier all the time, and in the intervals of the song and dance the jar is passed from hand to hand, each one using the tube in turn. The taste of the liquor is disagreeable at first, but it soon grows pleasant, for it contains the essential of tea, and all the poor people use it. The methods of imbibing mate are repulsive to us, but when we live in Rome it is best to do as the Romans do, and so we soon acquire the Chileno habit, and take our tea under new conditions. It is this widespread yearning after tea which made the ever-green plant take such a deep hold on humanity. Dharma carried the seeds of the plant to China long ago, and the Chinese cultivated it in every spare place. They did not give it the best ground; that was reserved for rice and vegetables. They planted the seeds of the ever-green on hillsides, on embankments, and in places where little else would grow. The plant was hardy, and survived all its ill-treatment. It lived through hoeing and pruning and insect plagues, and became a strong defiant plant. It will grow to be a tree 30 feet in height, and a foot in diameter, if let alone. The leaves of the Chinese tea plant wi l expand to four inches in length, and some of the Indian tea plants grow to nine inches, but they are not allowed to develop into trees. They are set out in rows in a garden, and suffered to grow to three, four, or even five feet in height, but that is all. The flower of the tree is whitish, or aromatic, and pretty; the leaves resemble the willow, but closer is the relationship it bears to the camellia; and more of that anon. They have about 1,500 tea plants to the acre, and this produces in a year say 300 pounds of tea, though it is almost needless to add that tea gardening varies with districts, countries, and climates. The plants are dug up every twelve years, and a new seedling is planted, which is ready for picking in about four years or less, according to the conditions. The Chinese had a monopoly of tea for centuries, though our first shipments came from Java, and it was well on in the 10th century before we ever heard of it. It will be an interesting story to tell how tea was first introduced to England, and we will come to that later.

The Indian people seemed to have forgotten all about tea, and nobody dreamed that India was the real home of the plant. It was in the year 1820 that Mr. David Scott sent some leaves from a northern province of India to the Government at Calcutta. These leaves were said to belong to the wild tea plant, and Mr. Scott wanted the Government Botanist to examine them. Now, Botanists are very clever people as a rule, but it is perfectly astonishing to find how little discernment many of them possess. Botany seems to reduce a man's mind to the smallest possible technical limits, and the few great-souled botanists only go to prove the rule. This botanists at Calcutta said the leaves were those of the camellia, the familiar ornamental flowering plant which grows so heartily in our hot houses in England today. Such faith did Mr. Scott and his allies have in the botanist, that the master was dropped out of sight. The gold mine of the tea trade was coolly passed over and forgotten, and the leaves from Kuch Behar and Rangpur were no more remembered by the wise men of Calcutta. It was in the year 1834 that another man, more determined than Mr. Scott, said that "Camellia or not, these are tea leaves," and then began a new era. The leaves of the tree were indeed those of the ever-green, which had filled China with the wealth of Europe. It was discovered that in the deep, pathless, tiger-hunted, fever-cursed jungles of Assam, the tea tree grew wild. We never saw wheat grow wild, the Chinese never saw tea grow wild; but here, in the poisonous jungle, the tea plant was growing wild. It was a startling discovery, for Nature seldom makes a mistake. If the tree had been an alien it would not have flourished so through long centuries, unknown and uncared for in this Burmese jungle. Men were sent to China to seek out the implements and the gardeners for the cultivation of this indigenous tea plant, and the work was begun in England's mighty colony. The tea fever seized the people just as the gold fever has taken hold of other races, and everybody who could raise money or interest went into the trade. In 1836 a pound of tea was sent to England from the indigenous leaves of the Assam tea plant. In 1840 the great Assam Tea Company was formed, and the trade has gone on ever since with strange fluctuations. Indian tea was better than Chinese tea, but English palates had grown accustomed to the flavour of the Celestials' plant, and a new taste had to be acquired. We reject tea which is much superior to what we have been in the habit of drinking, simply because it is strange to our taste. Then, too, the tea planters, in their haste to grow rich, forgot the old laws of Leviticus, which are founded in adamant. The "shall not" of the law-giver was rooted deep in Nature's heart. The growers went into the moist depths of the hitherto untrodden jungle, and brought forth the seeds of the tea plant, and set them in well-prepared gardens. But the new conditions were not favourable to the moisture-loving plants of the jungle, and the evergreen became delicate and difficult to rear. Fortunes were lost in the undertakings of foolish people who dreamt not of the undying nature of law. Fire burns, water drowns; and no policemen are ever required to see that they obey the law. "Thou shalt not," if based on truth, is eternal. The Indian tea was a failure until the wise men saw what was needed. The Indian plant could not succeed on the broad garden lands of Assam, because the jungle had been swept away. The Chinese plant had contrived, through long centuries, to live under hard conditions, and now it was brought back to its ancestral home. To live under the new conditions, would soon have told injuriously on the hardy Chinese tree, for it was not used to be coddled and cared for in an equable climate; but it learned how to share its rugged hardiness with its Indian kinsmen, and the result was wonderful. The Assam tree, the indigenous plant, was hard to rear; but it was strangely good. The Chinese relation was strong and wiry and easy to rear, and the hybrid product of the two made

a healthy and tasteful plant. The deep valley of Assam, where a mighty river flooded through trackless jungles, became a smiling garden, where hundreds of Europeans and thousands of Natives lived and worked constantly through the years, and the tea plant blossomed abundantly. Year by year the cultivation spread, until it reached even to Ceylon. The Coffee planters in that beautiful island looked on in amazement, and saw the tea trade coming from China to India. Then, in 1876, there came a failure of the coffee crop, and Ceylon figured in the market with its tea.

Now come two or three hard facts. In the midst of the struggles of the Indian plant to get a hold in our market, the Chinese methods of adulteration reached a maximum. Some of the methods adopted were simply poisonous, and others were startling from their very audacity. One sample analysed in London gave the results of 40 per cent. of iron filings and 19 per cent. of silica. The adulterations were truly shocking and the Customs authorities found power to examine all imports and to control such things within what might be called reasonable limits. Then the planters of India went to work on a scientific basis, and raised good tea, sending the unadulterated leaves to our market. But Englishmen are slow to change. Habits once acquired grow to the tenacity of religious beliefs, and the adulterated China products held their own in our market for many a day. Then came the wise men who saw what was required.

It is amusing to note the manner in which Indian tea has stolen in on us, in spite of ourselves. Take Liverpool as an example. A shrewd man saw that the Chinese tea could be "blended" with Indian tea, to make a pleasant beverage. He taught the grocers how to do it, and a revolution was effected—or is being effected—on purely evolutionary methods. The public liked the new blend well, for the Indian teas are strong, and the Chinese teas are weak, and an ounce of Indian tea will make almost as much good liquor as two ounces of Chinese tea, and so the grocers found it to their advantage to use the new imports. Slowly we change; slowly the planters change; slowly the trade changes. But all is changing. The Indian tea gardeners are using hybrid plants, crosses, between Indian and Chinese. English people are drinking hybrid teas, and we are all slowly learning to appreciate the good qualities of the wonderful liquor which the old woman so mysteriously sold in the Chinese market place so long ago. It would not be surprising to find a school opened soon, to teach the girls of the artisan class how to make tea. It would be worth doing, for the liquor of the evergreen tree is marvellous in its quality, and the smell of the "tea-cans" of working men makes one shudder. We import good tea, but only the few know how to brew it. Good China tea comes to us, but only the rich use it. Indian tea is coming to us in ever increasing volume.

To look over the returns of the tea traders today gives one a start of surprise. Statistics are not as a rule good reading, but the meaning of the statistics of the tea men lies so close to the surface, that they are interesting to all. The figures here quoted are not for the entire year, only for the months between January 1 and September 30; but they show two things, first the enormous importation of tea; second, the direction of the trade.

CHINESE IMPORTATION, IN POUNDS.

1888.	1889.	1890.
148,426,476 ..	133,843,124 ...	139,887,122

INDIAN IMPORTATION, IN POUNDS.

1888.	1889.	1890.
66,955,507 ..	75,369,066 ..	89,133,628

The steady increase in the latter figures is suggestive. One more statement, and I must close for today. The amount of tea imported into Liverpool in one year is about three million pounds, and careful men have calculated that this means an average consumption of 80 ounces per head, per annum. It will be found on examination, that most people consume a deal more than that; but the estimate certainly errs on the side of moderation, and may, therefore, be accepted by all parties. The more tea people drink, the less intoxicants they will require; and the sooner we have classes to teach how to use tea to the best advantage, the better it will be for us all.—*Madras Times.*

DONATIONS TO THE PHARMACEUTICAL SOCIETY'S MUSEUM.

BY E. M. HOLMES, F.L.S., CURATOR.

JAVA.

Some months since, at the time that Professor Dunstan was investigating some of the wood believed to be the product of *Celtis reticulosa*, a specimen of which had been handed to him from the Hanbury collection, I wrote to the Director of the Java Botanic Garden to inqure, 1st, if several other trees which were known to the Malays by the same or a similar name had the same peculiar fœcal odour or were likely to contain the same principle, skatole; 2nd, if it would be possible to send for the Society's Herbarium specimens in fruit of the plants yielding the various false cubebs that have entered into commerce; 3rd, if anything was known of the trees producing the Penang and Palembang benzoins of commerce, which differ in physical characters and odour, and are probably obtained from different species of *Styrax;* 4th, if the method of preparing the beautiful bright red dragon's blood in sticks from Pontianak was known. Some of the last named product was exhibited at the Paris Exhibition in 1878, and was considered by an artist to whom I showed it to be of sufficient value as a colour for inquiry to be made, if it could be regularly obtained in commerce. In reply to these inquiries I received, a few weeks ago, the following specimens and the accompanying letter from Dr. M. Treub, the Director of the Government Botanic Gardens in Java.

"Dear Sir,—I have the pleasure to inform you the despatch of a wooden case containing the following objects for your Museum:—

"1. Several pounds of ki-taai or kayoe taai from Java. [Preanger Regencies.] (A beautiful drawing of the *Celtis reticulosa* accompanied this specimen.)

"2. Dried herbarium specimens of *Cubeba mollissima*, *C. canina* and *C. officinalis*, with dried fruits and fruits from the latter in spirit.

"2. Benzoin [Palembang] as sold at Java.

"4. A piece of the wood of *Styrax Benzoin*, with the benzoin on the surface of the bark and a dried specimen of the plant.

"5. Dragon's blood from Borneo.

"*(a)* Djernang-koekoe, 3 pipes of dragon's blood with a fruit.

"*(b)* Djernang-mandai, 8 fruits in a little box.

"*(c)* Djernang beroewang, 3 fruits.

"*(d)* Three cakes of dragon's blood wrapped in leaves.

"*(e)* Two flat cakes of the same not wrapped in leaves.

"*(f)* A small piece of dragon's blood said to be quite pure. [in a box].

"*(g)* Dragon's blood from Sumatra.

"The ki-taai or kayoe taai had been found to be the wood of *Celtis reticulosa.*

"Dr. Gustroff, who made a study on the subject, informs me that all the other plants said to yield skatole [*Premna corymbosa*, *Premna foetida*, *Saprosma arboreum*] do not contain it. They are only called ki-taai [stinkwood] by the Javanese because they all smell very bad.

"As to the origin of the false cubebs sent to me, I am sorry to say that they are not known to me except the 'keboe-cubebs,' which seems to be the fruit of *Cubeba mollissima*, Miq. [Miquel commentatio de vero pipere cubebe. Leiden, 1838—1839]. I believe the others are not from here.

"From the benzoin enclosed in the case together with the dried specimen of the plant yielding it, you will see that there is no difference as to the botanical origin between the Palembang and Penang varieties. The en-

closed benzoin is sold at Java and is the true Palembang Perhaps the Palembang benzoin in our Museum is old. If fresh it has the same colour as the Penang, and not that translucent appearance of the specimens you send me. It has quite the same colour and pale spots as your Penang. The piece of wood comes from Palembang.

"About the dragon's blood from Borneo I got the following information from the Resident of Pontianak.

"1. The cakes about three inches wide, a quarter of an inch thick and three inches long are not known at Pontianak. The Resident believes it is made at Singapore, and that from dragon's blood coming from Pontianak.

"2. The dragon's blood is brought in commerce in three forms:—

"*(a)* in flat cakes from very different dimensions.

"*(b)* in small cakes from about three or seven inches long and one inch wide.

"*(c)* in long pipes.

"The Resident had the kindness to send me the fruits of the trees from which it is obtained, and these being of different size, it is evident that there are at least three species of calamus which can be said to be the mother-plants of the dragon's-blood.

"The smallest fruits give the most dragon's blood. This is said to be beautiful red of colour, but the tree is rare and the blood high in price.

"It only comes in very small quantities in commerce under the name of Djernang Mundai. The pipes inclosed in the case are from the fruits of greatest size. This is called Djernang Koekoe.

"The third variety in flat cakes from thee by one inches is the Djernang Beroewang.

"The fruits are of moderate size. For obtaining the powder the ripe fruits are shaken in a basket (as enclosed in the case). Mixed with water the powder is pressed in moulds and then melted.

"To give it more weight it is nearly always mixed with the milky juice of *Garcinia parrifolia*, Miq.

"The Resident believes that all the cakes and pipes are so prepared except the specimen 1 *c*. which is said to be quite pure. I am indebted to Dr. W. Burck, Assistant-director and keeper of the Buitenzorg Herbarium and Museum, for the information contained in this letter.

"I remain, dear Sir, yours faithfully, TREUB.

"Director of the Government Botanic Gardens."

CUBEBS.

The specimens and information sent by Dr. Treub indicate that the keboe cubebs presented to the Museum some months ago is the fruit of the *Pothomorphe* [*cubeba*] *mollissima*, but that the large blackish cubebs with long stalks and the false cubebs generally referred to *Piper crassipes* are probably not exported from Java but from elsewhere.

BENZOIN.

The specimen of Palembang benzoin sent by Dr. Treub is scarcely a typical sample of the product as met with under that name in the London market. It has lost the opalescent translucency on the outer surface, but has the same lustrous fracture as Palembang benzoin, although darker in colour, as if it had been kept and exposed to the light for some time. It contains two or three white angular tears like those of Siamese benzoin, but the latter do not show any evidence of exposure to light.

The interesting point about Palembang benzoin is that whilst it has the same odour as ordinary "Sumatra" benzoin, it is more translucent and appears to contain a considerable amount of moisture, freshly broken specimens readily becoming mouldy when placed in a closed glass vessel. So far as I have been able to learn only one species of benzoin tree is commonly known at Palembang, and that, judging from specimens presented to the Society's Herbarium by Mr. R. Jamie in 1883 is undoubtedly *Styrax Benzoin*, Dry., as well as from the specimens from Java sent by Dr. Treub, since they have the globular fruits characteristic of that species. If the Palembang and Sumatra benzoins of commerce are derived from the same tree there is probably some difference in the mode of preparation; the Palembang variety may perhaps be melted into blocks in hot water, and the Sumatra by artificial heat, and this might account for the moisture present in the former and the larger percentage of benzoic acid that it generally affords, but I have not been able to learn any facts tending to confirm this suggestion. The specimen of benzoin sent by Dr. Treub has the same odour as the Palembang and the ordinary Sumatra benzoin.

The odour of the Penang benzoin is so characteristic and so strongly resembles storax, that I cannot doubt it is produced by a different species. It is pointed out in the 'Pharmacographia' that *Storax subdenticulatum*, Miq., occurs in W. Sumatra, and therefore in the province in which Penang is situated, and that this tree bears the same native name, "kajoe kemingan," as *S. Benzoin*, as if it yielded a bezoin. There is also a fragmentary specimen of another species from Penang in the Society's Herbarium, viz., *S. Porterianum*, but I have no evidence to offer that either of them yield Penang benzoin. The subject needs further investigation, and I hope that Mr. H. M. Ridley of the Singapore Botanic Gardens, with whom I have also been in correspondence on the subject, may be able ultimately to clear up the matter.

Attached to the Java specimen are, some very curious galls of a cornucopia shape, developed at the expense of the flowers. These galls are produced in Java in such numbers that the production of fruit is much lessened thereby and consequently the spreading of the tree is considerably diminished. The insect producing the galls has been quite recently described as a new species of aphis by Dr. A. Tschirch (*Ber. der deutsch. Bot. Ges*, 1890, p. 48), under the name of *Astegopteryx styracopila*, Tschirch. The interesting account he gives of these galls is accompanied by illustrations, both of the insect and of the structure of the galls (taf. iv.).

The specimen of the stem in section showing the gum resin exudiug, does not bear evidence of the application of heat, although it has been stated that it is formed, under the stimulant action of applied heat, benzoic acid not existing naturally in the bark. Neither in this specimen nor in that of the Siam benzoin tree, presented by Mr. Jamie seven years ago, is there any evidence of treatment beyond the application of an axe or adze to gash the bark.

I may here take the opportunity of pointing out that the Siam benzoin, which has a distinct vanilla odour, is also the product of a different species of styrax. The leaves, examined in section by Mr. Shenstone, of Colchester, some years ago, showed sufficient difference from those of *S. Benzoin* to indicate that they probably belong to a different species whilst the drawing by Dr. Pierre in the Herbarium of this Society of the ovary of a species of *Styrax* from Luang Prabang in the Laos States, where the Siam benzoin is produced, shows an oval or elliptical outline, that of *S. Benzoin* being spherical.

DRAGON'S BLOOD.

Respecting the dragon's blood the information sent by Dr. Treub is both new and interesting. The dragon's blood of the best kind is evidently the produce of a species of calamus, different from that affording the inferior qualities. It may be hoped that the information thus obtained may lead to the cultivation of this rare species, and the production on a larger scale of so beautiful a product in a perfectly pure state. The species of calamus yielding the resin appear to be imperfectly known. The colour of the specimens in flat cakes, three inches long, one inch wide, and about a quarter of an inch thick, is brighter than in any of the other commercial forms of the article.—*Pharmaceutical Journal.*

POTASH FERTILIZERS.

The potash salts, which are used for agricultural purposes, are either directly or indirectly the products of the mines around Strassfurt, Germany. These salts are imported now in considerable quantities (last year's importation alone reaching a aggregate of 150,000 tons, an amount that will h

entirely inadequate when the true value of potash fertilization becomes better understood by the agricultural community). The potash salts, with the exception of kainit and sylvinit which are crude mining products, are concentrated articles.

The following presents a list of the various potash salts and their average composition:

Potash salts containing Chlorine.	Contents in pounds per 100. Pure Potash (K_2O)	Magnesia (MgO)	Chlorine (C_1)
1. Kainit	12·8	13·1	31·1
2. Sylvinit	16 to 19	9·0	34·4
3. Muriate of Potash	53 to 58	0·3	46·0
Potash Salts free from Chlorine.			
1. Sulphate of Potash	50 to 53	1·1	
2. Double Manure salt	27·2	15·8	

Whenever a soil is deficient in potash, it is necessary to resort to artificial fertilization to supply this deficiency. Sand and peat soils are always wanting in potash, while heavy clay soils, as a rule, are less deficient therein. And yet, by continous exhaustive cropping, even these soils deteriorate and artificial application of potash becomes necessary, as the following table illustrates, which represents the amount of potash annually removed by a crop of various plants:

	Pounds of Potash.
Corn	113
Wheat	39
Barley	43
Rye	50
Oats	68
Peas	50
Clover	154
Potatoes	137
Tobacco	103
Grapes	88

These figures show to what extent even a rich soil gradually becomes deficient in this particular element, and how necessary it is to replace it, considering at the same time the requirements of the plant to be fed. Some plants with a strong appetite for potash have also the faculty of supplying their requirements in this direction from the soil, while others of a more dainty turn demand that their food be provided for them in an easily soluble form. To this latter class belong the cereals (wheat, rye, etc.) and also many fruit bearing plants, such as the vine, orange, peach, etc. Special attention should be given to the fact that, no matter how abundant the insoluble potash may be in the soil, soluble potash must be supplied in order to have the crop benefited by it. Consideration should likewise be given to the magnesia contained in some of the potash salts. Magnesia is a necessary element of plant food, and many soils are insufficiently supplied with it, as Professor Grandeau has recently shown.

The Magnesia salts are also the active agents of potash fertilizers when used as manure preservers.

The success of potash fertilization depends, of course, largely upon the proper application of the various potash salts and the following principles should be kept in mind:

1. Posphoric acid, nitrogen and lime, are, as well as potash, essential to plant growth.

A one-sided fertilization does not pay, except in very rare instances, and it is absolutely necessary to supply all these elements essential to plant life.

2. Leguminous plants do not require nitrogenous fertilizers.

Beans, peas, clover, vetches, and other plants belonging to the class of leguminosæ, possess the property of absorbing large quantities of nitrogen from the air, and therefore do not require nitrogenous manures.

3. Green manuring saves Nitrogen and brings profit.

The use of fertilizers frequently proves unprofitable through the great expense incurred in buying costly nitrogenous manures. This expense may be entirely avoided, if green manuring with leguminous plants is practiced. When peas, clover, etc., are liberally fertilized with potash and phosphoric acid, they grow luxuriantly, and when plowed under, the large amount of nitrogen absorbed by them from the air suffices to insure a large succeeding crop. The abundance of organic matter, produced by green manuring, moreover adds humus to the soil and improves its chemical condition. Green manuring is consequently the best and cheapest method of restoring fertility to worn-out soils, and of making sandy soils productive. Green manuring by the use of leguminous plants (especially cow pea, vetch and crimson clover), in conjunction with potash-phosphate fertilization is sure to prove profitable and hence is of great value to the Eastern and Southern farmers in particular.

4. The use of lime should not be forgotten.

Soils, especially sandy soils, which are deficient in lime, even when overlaying a calcareous soil, r quire that it be supplied to them, if one wishes to obtain the benefit of other fertilizers.

5. Apply potash early and never use it as a top-dressing.

The potash salts are easily absorbed and held by the soil. If applied as top-dressing, they do not mingle with the soil, but remain near the surface beyond the reach of the roots. They should therefore be plowed under to the depth, to which the plant-root will reach, and this should be done a considerable time prior to the planting of the crop.

6. Thorough cultivation is essential to success with fertilizers.

A plant can only do its best, when the elements upon which it feeds, are presented to it under most favourable conditions. If by neglect of proper cultivation, a soil becomes hard, it offers resistance to the growth of the roots, and can neither absorb nor retain the moisture necessary to plant growth; under such conditions artificial fertilizers will prove of little benefit. To the objection, sometimes made, that artificial fertilizers stimulate the growth of weeds, it is only necessary to remark that the weed, as a robber, revels in a certain soil, and that what promotes the growth of the weed, renders the rightful owner of the soil also strong, and more profitable to the planter.

7. Potash salts must be applied intelligently.

An excess of chlorine in the soil injures the quality of certain crops, such as potatoes, tobacco, sugar-beets and oranges. Kainit, sylvinit, and muriate of potash, which are rich in chlorine, should therefore be avoided for such crops, and where a direct application is necessary, sulphate of potash and double manure salt should be used in preference. All objectionable effects, however, can be avoided, and all b nefits retained, by applying potash ferti izers containing chlorine, a considerable time before the crops are planted, or better still, to the preceding crop. Either of these methods would prevent the injurious effect sometimes noted where the seed in planting comes in direct contact with crude fertilizers.

Observations especially important in the use of potash salts:

Cereals.—Potash-phosphate fertilization for cereals is particularly remunerative when practiced in combination with green manuring through nitrogen-gathering leguminous plants. The nitrogen obtained by plowing under a heavy crop of cow peas, lupines or clover, suffices to produce a full crop of cereals if properly supplied with potash and phosphoric acid. An average quantity per acre is 200 to 458 pounds of kainit (or 50 to 120 pounds muriate of potash, and 400 to 600 pounds of 12 per cent. acid phosphate). A larger amount of potash, is better for barley. If nitrogen is not supplied by manuring, a nitrogenous fertilizer must be used; 100 pounds of nitrate of soda per acre (or 2000 pounds cotton seed meal) is an average quantity.

Meadows.—The effect of potash on meadows is very marked, increasing not only the quantity of grass, but replacing the mosses and valueless herbs by nutritious grasses, (such as timothy, Italian rye grass) and other very desirable leguminous plants. The latter class of plants, to which various clovers and vetches belong, produces a very nutritious hay, and by their decaying roots, which contain a good deal of nitrogen, they furnish this valuable substance to the nitrogen consuming grasses. It is to be observed that the best results can be ob-

tained only when potash is used in conjunction with phosphoric acid; sour meadows likewise need a supply of lime. A normal amount of fertilizer per acre is 400 to 600 pounds of kainit (this salt is preferable for meadows) and 250 to 350 pounds of 12 per cent. acid phosphate. This application should be repeated every year, while the amount of phosphate given per acre may last for two years. The best time of applying is the fall. The best effect of fertilizers upon meadows rarely appears the first season, but one should not become discouraged for the benefit is a lasting, which will show more in the second than in the first season.

CLOVER, PEAS, LUPINES, AND OTHER LEGUMES.—Potash-phosphate fertilization will suffice to supply the needs of these plants which directly acquire their nitrogen from the air. They should receive 400 to 500 pounds of kainit per acre (or 100 to 130 of muriate) and 300 to 400 pounds of 12 per cent. acid phosphate. The lupine needs no phosphoric acid for fertilization; the power of the roots of this plant to assimilate phosphoric acid from the soil is so great, that a phosphate fertization is apparently without effect, and potash alone will produce large crops.

POTATOES.—Care should be exercised in applying potash salts to the potato crop, otherwise damage will ensue by the chlorine, lessening the amount of starch contained in the mature tuber. This injury can be avoided either by using the more expensive sulphate of potash, or by applying the potash fertilizer to the preceding crop, or it can be lessened by spreading broadcast the previous autumn, by which the chlorine has time to wash into the subsoil during the winter. An average potato fertilizer is the following; 140 pounds of sulphate of potash (27-per cent. potash), 300 pounds acid phosphate (12 per-cent), 125 to 250 pounds nitrate of soda, or 250 to 500 pounds of cotton-seed meal.

TOBACCO.—What has been said about the potato applies equally to the tobacco, *i. e.*, that chlorine works injury to the quality in respect to combustibility and flavor. The difficulty is to be avoided in the same manner as in that of the potato, while no really good tobacco can be grown without the use of potash. The quantity per acre is 275 pounds sulphate of potash (low grade), 250 pounds acid phosphate (12 per cent.), 100 pounds sulphate of ammonia.

GARDEN CROPS AND VEGETABLES.—Potash is important in gardening, especially upon sandy soil. The requirements of different crops and soil are so varying that no universal formula can be given. For asparagus it is well to note that a heavy application of kainit (1,000 pounds per acre) together with a large amount of nitrate of soda has yielded large profits of a large and excellent crop.

FRUIT TREES.—Potash fertilization pays well in fruit culture as is well understood by every intelligent producer, and upon sandy soil a marketable article is impossible without it. The quantity may be varied as conditions vary; on an average 500 to 1,000 pounds of kainit (or 130 to 250 pounds of muriate of potash, or 240 to 470 pounds of low grade sulphate.) The quantity of acid phosphate (12 per cent.) may be varied from 300 to 600 pounds per acre. Nitrogen is chiefly supplied to orchards by manuring with lugominous pants (cow peas, vetch, crimson clover) combined with an occasional liming. Nitrogen fertilizers must be used where green manuring cannot be practiced—in strawberry culture, for example.

POTASH SALTS AS MANURE PRESERVES.

All kinds of animal manure when exposed to the elements lose a considerable part of their organic matter and nitrogen by decomposition. This loss, which usually amounts to about 25 per cent. of the nitrogen, can be entirely prevented by the use of kainit, which has the property of absorbing and retaining nitrogen and preventing a harmful fermentation, which likewise causes a loss of organic matter. In the use of kainit for this purpose, it is to be sprinkled daily in the stable, 1½ to 2 pounds for every full-grown animal being a fair average. By this proceeding not only a large amount of organic matter and valuable nitrogen is retained, but the manure produced is also enriched by potash.

POTASH SALTS AS INSECTICIDES AND FUNGICIDES.

The Experiment Stations of Texas, Louisiana and North Carolina and many observant farmers have directed attention to the use of kainit upon cotton fields, and its effect in materially checking the much dreaded disease of cotton blight. Some fruit growers think that the use of potash salts prevents rot and certain fungus diseases of the peach and orange. An interesting bulletin of the New Jersey Experiment Station (Bulletin No. 75) lately issued, gives the results of experiments, indicating that potash salts, and kainit in particular, destroys scales upon pear trees, grubs and cutworms in corn, plant lice, wire worms in potatoes, and cabbage maggots, and that no injury follows their judicious use.

WOOD ASHES, COTTON SEED HULL ASHES AGD TOBACCO STEMS AS POTASH FERTILIZERS.

These materials are valuable for their contents of potash, and may be used as sources of this plant food in place of Strassfurt Salts. An objection to their use consists in the inequality of the composition, especially that of wood ashes. Their contents in potash varies from 3 to 8 per cent., while there is no difference in appearance to indicate the difference in quality. The contents of potash in cotton seed hull ashes range from 17 to 42 per cent., that of tobacco stems from 4 to 9 per cent. The great variability in composition of these fertilizers should therefore caution the farmer to buy only from the basis of a chemical analysis.

B. VON HESFF.

Washington, D. C.
—*Florida Agriculturist.*

MR. D. HOOPER, the Government Quinologist, has drawn attention to a report sent to the Board of Revenue on the *Vinca pusilla*. This plant is allied to the British Periwinkle and is called in Tamil *Mulakapoondoo*. It is said to be an excellent remedy for lumbago and is used largely on the western coast as an external remedy for such. The ryots of the South Arcot District say that if cattle graze upon it they become giddy and die. The sample forwarded by the Board for analysis to Mr. Hooper proved that the poisonous property of the herb was an alkaloid. *Vicine* is proposed by Mr. Hooper as the name of this new alkaloid.—*Madras Times*, Feb. 16th.

CHEWING TEA IN UPPER SIAM.—In the paper read by Mr. Ernest Satow, C.M.G., before the Society of Arts on 12th Jan., on "The Laos States of Upper Siam," the following occurs:—

Just at the bottom of the hill we passed a plantation of *mieng*, or Lao tea. The natives call these plantations *pa-mieng*, or tea-forest, if *pa* be rendered literally, this term causing it to be generally supposed that the *meing* grows wild. Laos tell you that it is found growing in commixture with other trees, which are cut down, leaving the tea-tree to benefit by the additional air and sun. But this account seems doubtful. It is possible that the Laos of Chiengmai, when the country was resettled, found old tea-trees growing in this way, and cleared them from the jungle which enveloped them, but the arrangement of the trees is too regular to allow of our supposing that they were planted by the mere hand of nature. Many were twelve to fifteen feet high, with stems two-and-a-half to three inches in diameter, and they were evidently not pruned. Some were in bud or flower, and others bore the half-ripe berry. The leaf is longer and more pointed than that of the Japanese tea-plant, and the foliage is less dense. But of its being a species of tea there can be no doubt whatever. The Laos do not drink the infusion, but prepare the leaf for chewing by burying it in pits, and it is one of their indispensable luxuries. You see a man put a lump of the fermented leaves in one cheek, which he leaves there while he proceeds to chew betel or smoke a cigarette, looking for all the world as if his face were distorted by the mumps.

COFFEE IN BURMA.—At the annual meeting of the Agri-Horticultural Society on Saturday, writes the *Rangoon Times* of the 1st inst., Dr. Stephens compared a sample of coffee from Mr. Petley's estate in the Karren Hills with some coffee grown in the Society's gardens. The latter was so small that Dr. Stephens considered it was not advisable to propagate it, but advised the society to purchase Arabian coffee seed from Mr. Petley and Liberian coffee seed from Mr. Watson of Tavoy and to distribute plants at cost price and to encourage coffee growing as much as possible. Dr. Stephens considered that some of the Liberian coffee trees in the Society's garden which are 25 feet high should be sawn down, and a sucker allowed to grow up to 5 feet and then topped, as they will then give more crop, and it will be easy to gather. Ceylon was made by its planters, and the Straits Government is encouraging the planting enterprise as much as possible, but nothing is being done by our local Government to attract planters, or to induce the natives to cultivate coffee, &c.—*Pinang Gazette*, Feb. 10th.

THE TRAVANCORE GOVERNMENT AND JAFFNA TOBACCO.—We have in previous issues referred to the action of the Travancore Government in reducing the duty on Coimbatore tobacco, while maintaining the duty on Jaffna tobacco, the consequence of which has been the entire demoralie zation of the Jaffna tobacco trade, and the threatened ruin of thousands of cultivators. The Travancore Government, it seems, acted in anything but a straightforward manner, denying again and again that they had any intention of reducing the duty on Coimbatore tobacco, and then suddenly doing so. The influential memorial of 17th Dec. last from the leading residents in Jaffna to the Maharaja has brought no reply; and the memorialists therefore now intend addressing H. E. the Governor on the subject. It is almost a matter of life and death for Jaffna, Travancore being practically the only market outside of Ceylon for Jaffna tobacco; and we have no doubt that Sir Arthur Havelock will do all that he can to get justice done to the tobacco cultivators and traders of the north.

CINNAMON FOR INFLUENZA?—*The Produce Markets' Review* of Jan. 16th has the following:—

Cinnamon has long been known as a delicate spie of which the exquisite flavour and stimulating properties are insufficiently appreciated here, though they are far more valued on the continent. It has now, however, a fresh claim on the public attention, for M. Chambelland, of M. Pasteur's laboratory for the study of germs, has discovered that essence of cinnamon is the most powerful germicide as yet known, being even stronger for this purpose than corrosive sublimate. The following from the Paris correspondent of *The Daily News* gives the particulars as yet published:—"There would pretty certainly be a cinnamon boom if the experiment made with that spice by Mr. Chambelland in M. Pasteur's laboratory were generally known. Our ancestors, it appears, hit upon the best preservative from the infectious microbe when they used to drink mulled wines and other beverages in which strong doses of cinnamon were infused. Mr. Chambelland now says that no living disease-germ can resist for more than a few hours the antiseptic power of essence of cinnamon. He looks upon it as not less effective in destroying microbes than corrosive sublimate. Even its scent kills them, and it does no harm to human beings. A decoction of cinnamon is often good to drink in localities where typhoid fever or cholera is rife." To combat the approaches of influenza by adding ground cinnamon to puddings and tarts would certainly be a pleasant way of taking antiseptic precautions against the prevalent epidemic. Stick cinnamon burnt in the sick-room has long been known as an agreeable deodorant, but in the light of the above it may very probably be that it was originally its real antiseptic use which suggested the idea. Essence of cinnamon in various forms is, of course, familiar to us all, when added to conceal the taste of physic; but the essence itself, as a medicinal germicide, would be an agreeable cure. On the continent, cinnamon is much more used in cookery than with us, and it is also supplied ready-mixed with sugar for sprinkling over cooked fruits pastry, &c.

BRITISH VEGETABLES.—Most of our vegetables are of foreign parentage. Many, like the sprout, onion, and bean, still bear the name of the places from which they were imported. Few can put it to their credit that they were born Englishmen and none can trace their descent through an unbroken line of British sap to the Norman conquest. Vegetables ranked much higher with the Greeks and Romans. Sparta's standing dish was the black broth, a vegetable soup, and a parsley crown was the prize of the winners in the Isthmian games. Many great Roman families took their names from the commonest vegetables; the Fabii from a bean, the Lentuli from a lentil, Scipio from an onion, and Cicero from a pea. Some people fancy that the Roman Church christened Lent from the lentil. The Egyptians made a god of the onion, and the comic Romans of the period sneered at the race which grew their divinities in their back gardens.—*—Inverness Courier.*

CEYLON EXPORTS AND DISTRIBUTION, 1892.

COUNTRIES.	Coffee, Cwt			Cinchona	Tea.	Cocoa.	C'moms.	Cinnamon.		Coconut Oil,		P'bago.
	Plantation	Native	Total.	1892 B'nch &Trunk lb.	1892 lb.	cwt.	lb	Bales lb.	Chips lb.	1892 cwt.	1891 cwt.	1892 cwt.
To United Kingdom	8907		8907	576529	9638887	6472	33152	97126	28090	12197	7240	16790
,, Austria	3980		4139		38694		11134	2100	1400	4913	951	
,, Belgium	15	159	15	230757				12600	14000	705	200	3328
,, France	115		115		45			38500				683
,, Germany					6769	90	1724	36300	64216	4816	1304	1343
,, Holland												
,, Italy					316			5100	5824	505		
,, Russia								10000				
,, Spain					600							
,, Sweden												
,, Turkey												
,, India	109	94	203		102230		34242	410	764	12400	15053	82
,, Australia	1775	383	2158		432916						603	
,, America					35649	261					11011	23146
,, Africa					1414					4014		
,, China			23		5555			200				
,, Singapore					2876					21	1025	
,, Mauritius		16	16		3250					510		
,, Malta					900							
Total Exports from 1st Jan. to 29th Feb. 1892	14940	636	15576	807286	10261321	6823	80262	204136	104314	40081		45372
Do 1891	16057	938	16995	1123 9	9708301	7759	55109	310338	17111	37389		65655
Do 1890	33322	744	33966	1198231	6094478	4768	80479	255937	57748	7837		44147
Do 1889	20580	1660	22260	1615314	404699	5396	70270	307217	36919	65126		78035

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current. London, February 11th, 1892.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY	QUOTATIONS
ALOES, Socotrine	Good and fine dry liver...	£7 a £11 15s
Zanzibar & Hepatic	Common and good ...	40s a £6 10s
BARK, CINCHONA Crown	Renewed	3d a 8d
	Medium to fine Quill ...	4d a 7d
	Spoke shavings	2d a 4d
	Branch	1d a 2d
Red...	Renewed	2d a 7d
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow ...	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to fine	£5 5s a £6
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine..	1s 6d a 3s 4d
Malabar	Good to fine plump, cliped	2s a 2s 6d
Ceylon, Malabar sort	Fair to good bold bleached	2s 4d a 3s
	,, ,, medium ,,	1s 6d a 2s
	,, ,, small	1s 3d a 1s 6d
	Small to bold brown ...	1s a 1s 6d
Alleppee and	Fair to fine bold ...	2s 2d a 3s 3d
Mysore sort	,, ,, medium ...	1s 6d a 1s 10d
	,, ,, small ...	1s a 1s 4d
Long wild Ceylon...	Common to good ...	8d a 2s
CASTOR OIL, 1sts	White	4d a 4½d
2nds	Fair and good pale ...	2½d a 3d
3rds	Brown and brownish ...	2½d a 2⅝d
CHILLIES, Zanzibar ...	Fair to fine bright ...	45s a 50s
	Ord'y. and middling ..	40s a 45s
CINNAMON, 1sts	Ord'y. to fine pale quill...	6½d a 1s 3d
2nds	,, ,, ,, ,, ...	6½d a 1s
3rds	,, ,, ,, ,, ...	5½d a 11d
4ths	,, ,, ,, ,, ...	5d a 10d
Chips	Fair to fine plant ...	2½d a 7d
CLOVES, Zanzibar	Fair to fine bright ...	3½d a 3⅝d
and Pemba.	Common dull and mixed	2½d a 3d
,, STEMS	Common to good ...	¾d a 1d
COCULUS INDICUS ...	Fair sifted... ...	11s a 11s 6d
COFFEE	Mid. Plantation Ceylon	103s 6d a 105s
,, ...	Low Middling ,, ,,	96s a 102s
COLOMBO ROOT... ...	Good to fine bright sound	22s 6d a 30s
	Ordinary & middling ..	16s a 20s
CROTON SEEDS, sifted...	Fair to fine fresh ...	15s a 24s
CUTCH	Fair to fine dry ...	24s a 34s
DRAGONS BLOOD, Zan.	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah & Turkey	Fair to fine dark blue ...	65s a 75s
	Good white and green ...	55s a 6s
GINGER, Cochin, Cut ...	Good to fine bold ...	90s a 100s
,, ...	Small and medium ...	60s a 7 s
Rough...	Fair to fine bold ...	50s a 5 s
,, ...	Small and medium ...	40s a 48s
Bengal, Rough	Fair to good	35s
GUM AMMONIACUM ...	Blocky to fine clean ...	50s a 90s
ANIMI, washed ...	Picked fine pale in sorts,	£11 a £12 10s
	Part yellow & mixed do.	£10 a £11
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£9 a £10 10s
	Medium & bold sorts ...	£6 10s a £10
scraped...	Good to fine pale frosted	
ARABIC E.I. & Aden ..	sifted	55s a 80s
	Sorts, dull red to fair ...	35s a 5 s
	Good to fine pale selected	45s a 55s
Ghatti ...	Sorts middling to good...	25s a 33s
	Good and fine pale ...	65s a 90s
Amrad cha.	Reddish to pale brown ...	25s a 50s
	Dark to fine pale ...	15s a 50s
Madras ...	Fair to fine pinky block	
ASSAFŒTIDA	and drop	60s a 140s
	Ordinary stony to midling	20s a 50s
KINO	Fair to fine bright ...	70s a 72s 6d
MYRRH, picked	Fair to fine pale ...	£4 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 9d a 2s
East African Ports, Zanzi-	White softish ditto ...	1s 6d a 1s 9d
bar and Mozambique Coast	Unripe root	10d a 1s 4d
	Liver	1s 2d a 1s 9d
	Sausage, fair to fine onsticks	1s 6d a 1s 9d
Assam,	Good to fine ...	1s 6d a 2s
	Common foul & middling	9d a 1s 5d
Rangoon	Fair to good clean ...	1s 7d a 1s 9d
Madagascar, Tamatave,	Good to fine pinky & white	1s 10d a 2s 1d
Majunga and Nossibe	Fair to good black ...	1s 6½d a 1s 9½d
ISINGLASS or	good to fine pale ...	19d a 2s
FISH MAWS Tongue.	dark to fair ...	1s a 1s 6d
Bladder Pipe...	Clean thin to fine bold...	1s 6d a 3s
Purse ...	Dark mixed to fine pale	8d a 1s 4d
Kurrachee Leaf ...	Common to good pale ...	1s 8d a 3s

EAST INDIA *Continued* East Coast Africa. Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet...	3s 10d a 5s
	Ordinary to middling ...	3s a 3d 8d
Kurpah	Fair to good reddish violt	3s 2d a 3s 6d
	Ordinary and middling...	2s a 3s
Madras (Dry Leaf).	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 8d a 2s 4d
IVORY—Elephants' Teeth		
65 lb. & upwards ...	Soft sound	£68 a £75 10s
over 20 & under 60 lb.	,, ,,	£55 a £70
40 a 100 lb. ...	Hard ,, ,,	£44 a £56
Scrivelloes	Soft ,, ,,	£33 a £48 10s
,, ...	Hard ,, ,,	£21 a £30
Billiard Ball Pieces 2¾ a 3¾ in	Sound	£85 a £93 10s
Bagatelle Points ...	Sli. def. to fine sound ...	£70 a £80 10s
Cut Points for Balls	Shaky to fine solid sd....	£57 a £66
Mixed Points & Tips...	Defective, part hard ...	£45 a £54 10s
Cut Hollows ...	Thin to thick sli, def to sound	£35 a £56
Sea Horse Teeth— ¾ a 4½ lb.	Crvd. crkd & close stright	1s a 4s 7d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	11s 3d a 13s 6d
	,, II, fair pickings	8s a 9s 6d
	Jubblepore I, good & fine pale	10s 6d a 11s 6d
	,, II, fair rejections ...	8s a 9s 6d
	Vingorlas, good and fine	9s 6d a 10s 6d
Madras, Upper Godavery	Good to fine picked ...	10s 6d a 11s 3d
,, ,, ...	Common to middling ...	8s a 9s 6d
Coast	Fair	10s a 10s 6d
Pickings ...	Burnt and defective ...	7s a 8s 6d
MACE, Bombay ...	Dark to good bold pale...	1s 10d a 3s
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,, ...	65's a 81's	211s a 3s 1d
	90's a 125's	9s a 2s 8d
NUX Cochin, Madras	Fair to fine bold fresh	10s a 11s
VOMICA and Bombay	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour..	¾d a ¾d
LEMONGRASS ...	,, ,, ,, ...	1½d a 1¾d
ORCHELLA WEED Ceylon ...	Mid. to fine, not woody	20s a 25s
Zanzibar ...	Picked clean flat leaf ...	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy...	3½d a 3¾d
Alleppee & Tellicherry	,, good ,, ...	
Tellicherry, White ...	,, ,, ,, nom	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 22s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 8s
RED WOOD	Fair and fine bold ..	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	60s a 80s
	Ordinary to fair ...	40s a 55s
	Inferior and pickings ...	20s a 30s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs ..	Fair to fine flavour ...	£35 a £60
,, ,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	50s a 90s
SENNA, Tinnevelly ...	Good to fine bold green...	8d a 1s
	Medium to bold green...	5d a 7d
	Small and medium green	2½d a 4d
	Common dark and small	1d a 2d
Bombay ...	Ordinar to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—bold clean...	92s 6d a 95s
	medium part stout	90s a 105s
	oyster and chicken	80s a 95s
large	BOMBAY—good to fine thic	0s a 10 s
medium part stout	clean part good color	102s 6d a 112s 6d
chicken part stout	,, ,, ,,	75s a 92s 6d
oyster part thin	,, ,, ,,	6 s 6d a 72s 6d
Mussel ...	bold sorts	50s a 62s 6d
	small and medium sorts	0s a 48s
Lingah Ceylon ...	Thin and good s out sorts	4s a 11s
TAMARINDS	Mid. to fine black not stony	10s a 12s
	Stony and inferior ...	6s a 8s
TORTOISESHELL ...	Sets goosmo tle pa heavy	14s 6d a 20s
Zanzibar and Bombay	Pickings thin to heavy	9s a 14s 6d
TURMERIC, Bengal ...	Leamish to fine plump finger ...	18s a 20s
Madras ...	Fin. fair to fine bold brgt	24s a 30s
,, ...	Mixed middling... ...	20s a 24s
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	6s a 16s
Mauritius, 2nds...	Foxy & redd sh 5 to 8 in.	5s a 10s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	3s a 5s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for March :—

RICE.

The growth and preparation of rice for the market is dealt with in a bulletin issued by the Brisbane Department of Agriculture. With regard to its value as a food, it is stated that the nutritious value of rice has hitherto been considerably underrated, that one pound of rice cooked for the table gave up 88 per cent of it back as nutriment, whereas the same quantity of beef only gave 25 per cent, and further that boiled rice was digestible in an hour, while roast beef (costing three times its price) took 3 hours. The following is the general composition of rice: water 13·7, flesh-forming substances 6·5, non-nitrogenous substances 79·4, ash ·4 per cent.; while analysis shows rice to contain of starch 86·9, gluten 7·5, fatty matter ·7, sugar and gum ·5, epidrmis 3·5, ash ·9 per cent. The following comparison between rice and potatoes is interesting, as showing the former to contain three times as much nutriment:—

	Rice.	Potatoes.
Water	13·0	75·0
Flesh-formers	6·5	1·4
Starch, &c.	80·0	22·6
Total Food	86·5	24·0

Thus 1 lb. of rice is equivalent to 4 lbs. of potatoes. Rice contains 70 per cent of starch. The great and rapid digestibility of starch, and the large percentage of carbo-hydrates or heat-producing substances it contains no doubt accounts for the fact of the coolies of our planting districts being able to perform so much work while subsisting on an almost pure rice diet.

To prove the prolific nature of rice, the result of an American experiment (which those who cannot conceive how paddy could give a return of 500 fold, would do well to note) is given. A single grain is said to have produced more than ninety for the first crop, and over 110 for the second. After removing the imperfect grains, the whole number of grains from the one original grain was found to be 25,706!

Thrashing, to separate the grain from the straw and stalks; hulling, removing the outer skin or husk; separating, removing the trash and any unhulled grains; and finally, polishing, to complete the process of rice-cleaning for the market by removing the inner cuticle, may all be done by machinery, which can be purchased in sets or separately for either hand, animal or steam power. A complete set of hand-power rice-cleaning machinery, with a capacity of from 300 lbs. to 500 lbs. per day, will cost £53 2*s.* 6*d.* in New York; a set for animal power of the same capacity, £87 10*s.* The best known manufacturers of rice-cleaning machinery are George L. Squier Manufacturing Company of Buffalo, New York.

Such machinery is a great improvement on the primitive methods adopted for cleaning rice in Eastern countries. The mode of thrashing paddy by trampling with bullocks, and winnowing the grain by dropping it from a height in a light breeze are too well known to need description. The hulling or husking of paddy is, however, done in more than one way:—1. The implement most commonly used by the natives of India consists of a heavy beam of timber about 8 feet long, into one end of which a short shaft shod with iron is fitted at right angles to the log. The centre of the beam rests on a cross bar, to which it is fixed, resting upon two uprights sunk into the ground. The iron-shod shaft rests in a wooden cup sunk below the level of the ground. The implement is worked by one or more persons pressing the free end of the log down with one foot, and letting go, when the shod ends drops into the cup holding the paddy. 2. A second im

plement is in reality a pestle and mortar made of wood. This is commonly used by the natives, and a modification of the first-mentioned implement as well as the second are used also for smashing rice and for pounding it into flour. 3. Another system of husking is to pass the paddy through a small pair of millstones or cylinders of the same shape, made of hard wood, set on end and grooved on the working surface. The distance between is regulated, so as to remove the husk by friction without breaking the grain, the grain and the chaff being afterwards winnowed. After husking in this manner the inner skin covering the grain has to be removed by pounding in a mortar. This implement is a modification of the stone mills used for grinding paddy and gram for feeding horses. The greater portion of the paddy prepared for the market in India is said to pass through a steaming and soaking process before being husked, to facilitate the removal of the husk and minimise breakage. The paddy is steeped in water for 48 hours, and is then put into another vessel with a small quantity of water and placed over the fire; just sufficient water is used to merely steam the contents. After this it is dried thoroughly in the sun for two or more days and then pounded in the mortar before mentioned. It will thus be seen that all three process are slow and tedious; but with the use of a modern hulling machine, the thrashed paddy has only to be put into the machine, and it is delivered clean rice. Our poor paddy cultivators cannot of course be expected to purchase patent machines, but their wealthier brethren might well import a few and set then up in central places, so that the goiyas round about may benefit by them. A huller alone can be procured from America for £16 13*s.* 6*d.*

OCCASIONAL NOTES.

On another page will be found the beginning of a list of names of the varieties of paddy grown by the natives of Ceylon. Some of these are no doubt different names for the same variety, as has been found to be the case with the large number of specimens of paddy stored at the School of Agriculture. Of these a collection of 240 distinct varieties have been made up for the Imperial Institute. The list which is being given in this Magazine furnishes the largest number of names we have been able to collect; and for that reason it will be of some interest.

A parcel of seed has reached us from Brisbane, having been sent for experimental cultivation. The seeds which are those of a salt-bush (most likely *Artiplex Spongiosum*) are as small as mustard seed, but flattish, and are contained in a spongy covering. The salt-bushes are used as fodder, and are specially suited to dry saline soils—the only specimen indigenous to Ceylon being *A. repens* mentioned by Thwaites as occurring in the north of the island. *A. spongiosum* is described as being particularly good for sheep pasture. *A. Nammularium* is one of the tallest, most fattening and wholesome of the salt bushes for sheep and cattle. Sheep feeding on it are said never to be affected by liver fluke, and to get cured it suffering from the distorma worm and other allied parasites. *A. Halimoides*, a common dwarf shrub in Australian deserts, is also a good forage plant, while *A. Vesicarium* is described as the most fattening and most relished of all these salt bushes, holding out in the utmost extremes of drought. The seeds which have reached us from Brisbane have been sown and have germinated well, but the seedlings look very weakly, it may be owing to the excess of moisture they have been supplied with since they have been put into the ground.

A very "catchy" advertisement has been appearing in the *Ceylon Times*, referring to *Lathyrus Sylvestris*, which is being grown experimentally in the School of Agriculture grounds. Since our note about this fodder plant in our last issue, our hope in the success of *L. Sylvestris* has not increased. The plants that have come up in good soil are looking by no means flourishing, and do not seem as though they were going to survive the two years after which they would be fit for cropping. Only two plants, specially cared for in a flower pot, with the object of securing a blossom, can be described as vigorous growths. Those planted in a sandy soil have all died out. Considering that the extravagant theory of Mr. Reeves, as to plants deriving all the elements of their food (both combustible and incombustible) from the atmosphere, was founded on the fact that *Lathyrus Sylvestris* flourished apparently independently of what the soil contained in the way of plant food, it seems strange, to say the least of it, that this "air plant" should need so many luxuries in Ceylon.

The *Kew Bulletin* for October and November last contains a paper on Chinese fibres. *Abutilon Avicennæ*, an annual, belonging to the order Malvaceæ, produces a fibre which is sometimes found to be as much as 15 feet in length. In Ceylon we have six species of Abutilon, viz., *A. Polyandrum*, *A. Asiaticum*, *A. Indicum*, *A. Graveolens*, *A. Crispum*, and *A. Muticum* (*A. Tomentosum*). These are all spoken of generally by the Sinhalese as *Anoda*, a name which, however, properly belongs to *A. Asiaticum*. *A. Leschenaultianum* also occurs as a weed, but is it doubtful whether it is indigenous to the island. *A. Indicum* which yields a strong fibre that can be worked into ropes, is known as the country mallow, and is used medicinally in the same way as the English mallow. *A Polyandrum* also yields a long silky fibre resembling hemp. The product of *A. Avicennæ* is known as Chinese ute.

Corchorus capsularis is another-fibre-producing plant of China, belonging to the order Tiliaceae. It is found in Ceylon together with *C. Olitorius*. *C. Urticæfolius*, *C. Fascicularis*, *C. Tridens*, and *C. Acutanguls*. *C. Capsularis* is the plant which produces Indian jute. Besides the gunny bags made from the bark, the stems of the plants themselves are used for charcoal for gunpowder, fences, basket-work, and fuel. Drury mentions that the fragments of the stem which are cut off nearest the root are shipped to America from Calcutta for paper-making, preparing bags and such like purposes, and even for making whisky.

C. Olitorius called Jews' mallow (owing to the Jews, like the Indians, eating the tender leaves and stem as a vegetable) also yields a fibre used for making sack cloth, cordage and even paper. The fibre is said to be long and fine, and such as might well be substituted for flax.

Pandanus Odoratissimus produces a fibre of poor quality, which is used in Fiji for making mats. This plant occurs in Ceylon, and is very abundant near the sea. It is known among the Sinhalese as Madu-keyiya, and commonly spoken of as the screw-pine. There are three indigenous varieties of Pandanus in Ceylon—*P. Odoratissimus (P. Fascicularis)* already mentioned, *P. Humulis (P. Foetidus)* the Sinhalese Dunn-keyiya, and *P. Furcatus*, the Sinhalese Okeyiya, all of which are more or less used for mat-making by the natives. The two latter are common hedge plants for paddy-fields in the warmer parts of the Island.

Boehmeria Nivea is the rhea fibre or China grass out of which most of the so-called grass cloth is made. In Ceylon we have *B. Malabarica* (Sin. Mahadiya dool) which is very common throughout the island. The bark of this plant is used by the Sinhalese for fishing lines. *B. Platyphylla*, with its varieties *Macrostachya, Zeylanica*, and *Rugosissima* are common in the Central Province up to an elevation of 6,000 ft. *Sterculia platanifolia* produces a fibre from the bark of young trees which is used for making cordage. In Ceylon we have *S. Balanghas* common in the hotter parts of the island producing the Nava hemp, *S. Fœtida*, the Sinhalese Telamboo also very common in the warmer parts of the island, *S. Urens*, the Tamil Kavali, *S. Guttata* found in the Ambagamuwa district, *S. Coloraba*, and *S. Thwaitessi*. *S. Acuminata* affords the Kola of the Africans.

TWO CEYLON GRASSES.

Cynodon Dactylon, a common grass in Ceylon, especially in the warmer parts of the Island, is known among the Tamils as Arugampillu, in Southern India as Huryalee, and in North India as Doob. It is considered to be a splendid fodder, and is generally sought for by sellers of natural grasses. Isa Tweed, the author of a work on Dairying lately published in Calcutta, says it is by far the best grass for cattle in India. *C. Dactylon* is also found in England and other parts of Europe, as well as in China, Thibet, Australia, South and Central America, and Cape Colony. Sir William Jones mentions that it is said to be the Agrostis of the Greeks, and that its usefulness, (being the sweetest and most nutritious pasture for cattle) added to its beauty when in flower, induced the Hindoos to look upon it as a sacred plant. In the New South Wales *Agricultural Gazette* for May last, it is figured and described as Couch grass or Bermuda grass. It is there mentioned as a most valuable pasture grass which stock of all kind eat greedily and fatten on. Its underground stems are said to possess some of the medicinal properties of Sarsaparilla, the juice being also used as an astingent and diuretic. The following is the chemical analysis of the young grass: Albumen 1·60, Gluten 6·45, Starch 4·00, Gum 3·10, Sugar 3·60 per cent.

Some months ago we applied to the Government Agent of the Northern Province for some seed of what is known as Delft grass, that is the grass common to the Island of Delft, and which we have heard spoken of as an excellent fodder. In answer to our request we received a few plants of the grass, with the promise that we shall have the seed when it was available. The plants sent us as Delft grass have come up well and are now in flower, and Dr. Trimen, to whom we referred specimens for identification, thinks the grass is *Andropogon Versicolor* (a variety of *A. Schoenanthus*), a kind of small mana grass, with a peculiar scent in the leaves. Thwaites mentions that the grass is found in the more elevated parts of the Central Province, that the inflorescence when crushed has a rather aromatic odour, and that the essential oil appears to be situated principally at the base of the spikelets. Mr. William Ferguson mentions the grass as one very common at Wilson's Bungalow, and says that specimens grown in Colombo had a light green colour, and when bruised in a fresh state had a strong small of anise. These qualities are just what characterize our own specimens at the School of Agriculture. The grass, says Ferguson, may be called the Anise-scented grass. It is curious that none of the authorities quoted above make mention of Delft in connection with *Andropogon Versicolor*. The grass seems rather coarse, and altogether strikes one as not being a grass that cattle would care to eat much of. In order to make sure that *Andropogon Versicolor* is the true Delft grass, specimens of those growing at the School of Agriculture are being sent to Jaffna for comparison with the grass as found growing in the Island of Delft.

INDIGENOUS FOOD PRODUCTS: CULTIVATED AND WILD.

By W. A. De Silva.

Labiatae.

64. *Leucas Zeylanica*, Br. Sin. Getatumba, is a low shruby plant growing in uncultivated places and waste lands. The leaves are small, lanceolate, and of a bright green colour with a hairy surface. Small flowers, with a cup-shaped calyx, and a white corolla, are borne in a raceme with compressed peduncles. The leaves when bruised have a peculiar smell. These leaves are often eaten along with rice, either boiled or made into curries. They possess rather a bitter taste which some however like. The plant is much valued as a medicinal one, for the boiled leaves are an excellent remedy in bowel disorders. It is also used in mild fever aused to indigestion, and to relieve pain due to intestinal worms. Externally the bruised leaves are applied in dog bite.

Nyctagineae.

65. *Boerhaavia Diffusa*. L. Sin. Pitasudupala.

This is a herb growing in waste lands, and especially in fertile spots, such as the sides of

drains or on rubbish heaps. The plant is much branched and the stems and branches are of a succulent nature. The plant is covered with succulent ovate leaves, and the under surface of the leaves is of a whitish colour, whilst the upper is green. Owing to this peculiarity, the Sinhalese call it Pitasudu, or white-back. The plant bears small flowers with pinkish corollas. The leaves and the tender stalks are used as a food made into curries. This plant is much relished by cattle, and might with advantage be cultivated as a fodder. Native medical practitioners ascribe to this plant the property of helping digestion.

Amarantaceae.

66. *Amaranthus Speciosus. L.* Katutampala.

This is a plant found growing as a weed in cultivated places, especially in vegetable gardens. It is also frequently met with in waste lands on fertile soils. It is a green, succulent herb, generally much branched, and growing to about two feet in height. The leaves are small and are of a green colour, and the stem, at the nodes, contains small prickles, which are very abundant in the tender parts. On account of these prickles, the plant is often known as the prickly Amaranthus. The leaves and the tender stalks are used as a vegetable for curries. This plant has attracted some attention in India and elsewhere as a probable source of good fodder. Mr. J. Howard De Rinzy, in his evidence before the Vegetable Products Commission of Victoria says, that the Prickly Amaranthus grows freely in cultivated land, on waste or stony patches; that it is highly lactiferous, and is given to milch cows largely, mostly boiled with pulses; and that the tender tops are said to be a good vegetable. He has recommended the plant as suitable for cultivation for small farmers, especially as a fodder crop for milch cows.

THE CULTIVATION OF THE COCONUT PALM.

It is of course perfectly clear that *ceteris paribus*, the richer the land the finer the trees and the more generous their yield. In the Eastern Province, and especially in the Batticaloa district, the most successful estates are those which were established on wild-mango forest land with a rich compost of decayed leaves and twigs some feet deep. The wild mango is a tree with a soft bark which is annually renewed, the old bark dropping down to the ground and generally supporting a growth of vari-coloured saprophytic fungi. Nearly every estate has its bad patches of land, where the water lies stagnant, or the soil is sour, with useless and objectionable grasses and other weeds which are troublesome to get rid of. The marshy parts of an estate must of course be drained by means of channels cut to carry the water into a tank or pond in the lowest ground, or if practicable, into a river or stream. Marshy plots will at first show slow growth, but in after years when the palms are well established they seem to flourish amidst their humid surroundings and bear profusely. On Chandivelly, Carativo, and Linsogoor estates in Batticaloa and in many other places I have noticed this, and the same results are seen in the case of the palms which grow on the seashore. I am inclined to think that salt in moderation acts beneficially on the coconut tree, and large trees watered with salt-water showed apparently good results. Arially estate, in Jaffna, once the property of the late Mr. Price, was liberally and solely manured with seaweed, and bore crops that delighted the proprietor's heart.

It is unwise to clear a young estate of grass or weeds and shrubs in the hot season. Such growths afford shade, moisture and perhaps nutriment to the young plants, but in the rainy season weeding may be done with impunity. The natives follow this plan, which they have found by experience a good one. On newly-opened properties, they even go the length of cleaning the ground along the rows of plants, encouraging the growth of shrubs along the middle line.

It may be taken as an agricultural axiom that one small shower of rain does more good than one month's tedious watering, but when the plant or tree is in need of water, it should never be allowed to go without it at any cost. It is most necessary to fence new plantations till the trees are above the reach of depredators. This can be done with the forest timber, but it is advisable to put in at the same time seeds or slips which will grow into live fences which give little trouble except that of binding the trees horizontally. There are many trees suitable to form live fences, but in the Eastern Province aloes and fence-crotons are put down. Here as well as in Jaffna, palmyra seeds in two or three rows are put down at the same time as the coconuts, and will in time grow into a magnificent and impenetrable fence, as the spines on the leaf stalks are sufficient to keep away intruders as effectually as patent barbed wire fencing. Another advantage which however is very slow in reaching the proprietor is that the palmyra will yield a magnificent supply of timber for buildings or selling. The fruits (which cattle are very fond of) and other products of the palmyra, moreover, are not to be looked down on; not the least valuable of these being the jaggery or coarse sugar prepared from the toddy.

R. Atherton.

VARIETIES OF PADDY.

The number of varieties of the paddy plant (*Oryza Sativa*) is so great in that it has baffled the most careful student to make anything like a correct list of them. Besides these, numerous varieties are known in different countries, and even in different districts of the same country, by widely different names; hence it is almost impossible to make anything like a complete list without at first procuring samples from all rice-growing countries. The largest number of varieties of paddy brought together at the Colombo Agri-Horticultural Exhibition was two hundred, for which a Gold Medal was awarded to the exhibitor, and the collection made in Ceylon for the Imperial Institute numbers about 240.

A prize was offered in the December number of the Sinhalese Agricultural Information Leaflet for the best list of paddies grown in Ceylon with the approximate periods of growth. In response to this more than thirty lists have been received, the best of which gives about 460 varieties. There are no doubt many repetitions in this list, but it is still valuable as a collection of the largest number of names of the varieties of Ceylon paddy—

The list is as follows:—

		Months.
1	Pihatuwi	5-6
2	Kahatahamba	
3	Vilmadoluwa	5-6
4	Kalukarayal	5-6
5	Ajantawi	4
6	Askarayal	4
7	Tanayalel	5
8	Kaluel	5
9	Kaluheenete	4
10	Bálakuruwi	3
11	Gireshandiram	5
12	Kaludeney karael	5
13	Sududeny karael	5
14	Heentavala	3
15	Mádoluwa	6
16	Mahakirinaran	5
17	Podikirinaran	5
18	Sudumádoluwa	5-6
19	Podimádoluwa	5-6
20	Kalumádoluwa	5-6
21	Bála Suduwi	3
22	Maha Suduwi	3-4
23	Denikarael	5
24	Wediratawi	
25	Madatavala	3-4
26	Bálamukalawi	3
27	Marian	4
28	Handiran	5-6
29	Heendikki	4-5
30	Hetadáwé	2½
31	Podisayan	
32	Sudumookalawee	5-6
33	Ratamáwee	6-7
34	Indurukarayel	5
35	Kaluwel	4
36	Podirattel	4
37	Kotahamba	4-5
38	Kalukandawee	4
39	Sudukandawee	4
40	Kuruelwee	5
41	Suwandel	5
42	Sududahanahala	4½
43	Tummaswee	3-3½
44	Kombilel	
45	Rattel	5
46	Elwee	4-5½
47	Kaluwee	5-5½
48	Heenati	3
49	Sudukurumawee	5
50	Kalukurumawa	5
51	Kurumadikwi	5
52	Dasayawakara	4
53	Galkadayal	4-5
54	Hinkurumawi	6
55	Hintawalu	3
56	Penati	4
57	Maddumasuduwi	4
58	Balamadoluwa	3-4
59	Malwaran	3
60	Kolal	3-3½
61	Balamáwi	3-7
62	Carolina	5-5½
63	Godamawi	5
64	Hâtel	6
65	Galapawi	4
66	Sudukiriwi	4
67	Suduhineti	3
68	Mahakahatamba	4
69	Hin Polayel	
70	Nandumawi	
71	Mahasuduwi	5
72	Úruwi	5
73	Mahadikwi	4-5
74	Hindikwi	4-5
75	Ratkarayal	5
76	Heenkarael	5
77	Ratakareel	5
78	Gires	4-5
79	Dahaelelwee	5
80	Dewereddiri	6
81	Ratasuduwee	6
82	Kahanaran	5
83	Matigathwalayawee	5
84	Mahamookalawee	6
85	Kirinaran	5-6
86	Sudukarael	5-6
87	Andukarael	5-6
88	Ahaskarael	5-6
89	Mahakarael	5-6
90	Kalukarael	5-6
91	Oruwee	5
92	Kurulutudu	5-6
93	Sudumeepateli	6
94	Ratumeepateli	6
95	Pokurumeepateli	6
96	Kohumadoluwa	6
97	Manelwee	5
98	Heenpulukhamban	5
99	Heen-el	4-5
100	Talamalel	4-5
101	Maharatkundawi	5
102	Podimawi	6
103	Mahakaharamana	4-5
104	Bajjankaharamana	4-5
105	Denikaharamana	5
106	Hindenikaharamana	5
107	Bálawi	3
108	Hin Carolina	5-6
109	Sudukiwulhandiran	5
110	Kalukiwulhandiran	5
111	Hinsuduhatela	4-5
112	Hinkaludahanahala	5
113	Mahásududahanahala	5
114	Podisududahanahal	4-5
115	Hindewaraddiri	6
116	Kalukumarawi	5-6
117	Hinmuckaluwi	6
118	Nandumaharatawi	6
119	Nandukaluratawi	6
120	Nandukalukirinaran	5
121	Nandumahasudukirinaran	5
122	Mahahatiel	5
123	Suduhatiel	5
124	Kalukahatamba	5
125	Sudukahatamba	5
126	Mahawekolael	4-5
127	Kahatael	4-5
128	Nandumahagalpawi	4
129	Nandumukalawi	5

		Months.
130	Kalutherawi	5
131	Ratahandiram	5
132	Suduhandiram	5
133	Sudukarael	5-5½
134	Sudu Ratawi	5
135	Kalukarael	5-½
136	Mahabamkottel	5
137	Kaluboraluel	5
138	Podisulawi	5
139	Kalukerawi	4
140	Sudukarawi	5
141	Kalukarawi	5
142	Karawe	5
143	Kalu Gires	5
144	Sudu Gires	5
145	Kaluhambuheeneti ..	5
146	Suduhambuheeneti ..	5
147	Heenpanneti	5
148	Podikaluheenete ..	4
149	Ratuheeneti	4
150	Gambodaheeneti ..	4

(*To be continued.*)

FRAGRANT PLANTS.

Many plants belonging to the order *Labiatæ* are characterised by a pungency and odour (not always pleasant) about their leaves. Among fragrant or aromatic English plants of this order may be mentioned Lavender, Mint, Peppermint, Pennyroyal, Basil, Thyme, Marjoram, Savory, Sage, Palm, Rosemary, Wild Thyme and Sage. Of the family *Ocimum* (belonging to this order) we have in Ceylon, *O. Canum* (Heen-talla) and *O. Basilicum* (Sweet-Basil) are common about native gardens, *O. Gratissima* (comnwn in the warmer parts of the Island), *O. Suave* (not common), and *O. Sanctum* (Holy Basil), known as Madooorootalla among the Sinhalese, who use it much as a medicine and for keeping away insects (madooroo). And these are more or less fragrant and aromatic, and some (as the first two mentioned) are used for seasoning dishes. The family Plecthranthus includes *P. tuberosus* (innala) the tuberous roots of which form a delicious aromatic vegetable.

Coleus aromaticus is the Sinhalese kappra-walliya. Roxburgh says that every part of the plant is delightfully fragrant, and that the leaves are frequently eaten with bread and butter. *C. Barbatus* also possesses a strong but not disagreeable smell; its roots are pickled and eaten by the natives of Bombay.

Patchouli (*Pogostemon Patchouli*), of which Drury says :—"The odour is most powerful, more so perhapsthan that derived from any other plant," is not unfrequently met with in Ceylon, though not indigenous to the Island, but *P. Heyneanus*, which is indigenous and common enough, is probably merely a variety of *P. Patchouli*, and is known among the Sinhalese as gang-kolang-kola. Other varieties of Pogostemon found in Ceylon are *P. rupestris* and *P. reflexus*. The leaves of Patchouli, powdered and put into bags, are said to prevent clothes from being attacked by moths; by the Arabs the leaves are used for stuffing matrasses and pillows, as it is thought to be efficacious in preventing contagion and prolonging life; it is also used in India for mixing with tobacco. The essential oil was at one time very valuable, but the scent seems to have gone out of fashion somewhat. A small quantity of leaf is even now exported from Ceylon.

GENERAL ITEMS.

Mr. P. B. Kehelpannala writes:—The Eramadu or Erabado, also known as the Indian Coral tree (*Erythina Indica*) is useful in many ways to the natives of Ceylon. In the north of the Island the leaves are used as food for cattle, but in the Sinhalese provinces they are only given to calves and rabbits. The leaves are also pounded with coconut, turmeric, &c., and the juice expressed from the mixture is used medicinally to prevent parasitic attack, and for this purpose is applied to the naval of newborn calves. The leaves are even eaten by the poorer classes, in the form of a dry curry. Stumps of the tree are used for live fences, while the wood of the trunk, though by no means durable, is used in constructing dwellings. The tree is grown as shade for cocoa, and as betel and pepper-vine supports. The tree begins to blossom about the time of the New Year, and this fact is referred to in Sinhalese poetry, for instance: *Auruddut Kittui, Eramadu mal-ut Kuppei;*" The year is close at hand, the flowers of the Eramadu are budding. By subjecting the seeds to pressure an extract is got which is used as an ointment that is applied to sprains, and is also recommended in cases of wasp-bite. It is said that the wasp when he drinks the sweet nectar of the bright and attactive scarlet flowers, gradually loses its vital powers and ultimately dies.

In *Nature* for November 5th, 1891, Mr. W. B. Hemsley, reviewing two German works on coast vegetation, says, on the authority of Mr. C. B. Clarke, that in such localities the "milk" (coconut water?) of the coconut is so salt as to be undrinkable.

Australasia imports annually nearly 20,000 tons of rice, worth £250,000.

Professor Wallace, in his address on Egyptian Agriculture, states that the chief crops are cotton ("by far the best paying crop"), maize, birsem (*Trifolium Alexandrinum*), a kind of large-growthed clover with a white flower, beans, wheat, and barley: Sesame (sēsamum or gingelly ?,) sorghum vulgare (Tam. cholum), sugar-cane, and rice are also grown; and potatoes have been lately introduced and found to be a great success.

Cattle are very fond of the tender parts of the dhall plant (*Cajanus Indicus*) both in a green and dry state. The dry stems are said to be excellent fuel and well-adapted for producing fire by friction. The leaves rubbed with pepper cleanse the gums and are also given in tooth-ache. A drink is also made from them and administered to small-pox patients.

The stud bull at the School has had a bad time of it with an attack of foot-and-mouth disease, but with care the valuable animal has recovered, and the disease was kept away from Mr. Jayawardene's milking stock.

The Agricultural Improvement Society met on the 1st Friday of February, when Mr. Attepattu read an instructive paper on coconut cultivation.

A Training School and Practising School (for training Government School Teachers) have been established at the School of Agriculture. Mr. C. Silva, Muhandiram, late headmaster of the Bentota Training School, has been appointed headmaster of the latter, and Mr. D. A. Silva has taken up duties as headmaster of the Practising School, with Mr. Gabriel as his assistant.

Mr. W. A. De Silva, 2nd assistant teacher at the School of Agriculture, leaves for Bombay in May next, to go through a thorough course of Veterinary training at the Veterinary College there. Mr. De Silva will hold a Government Scholarship while prosecuting his studies in India.

Mr. Seneviratne, a passed student of the School, has been appointed Science teacher at the Buddhist College just started in Galle.

A fairly large piece of the new land granted to the School has been put under dhall. It would be an excellent thing if the poorer section of natives in Ceylon took to the cultivation of dhall in their little patches of land. Our agricultural instructors have been instrumental in introducing the plant as a valuable food product to the people of many districts. On the poor soil about the School we are growing it, (1) because it grows well even in a poor soil, (2) because it will improve the soil—as we have known it to have done before—being a leguminous plant, (3) because it forms a palatable and nutritious article of diet, and (4) because we shall be able to supply our agricultural instructors with fresh seed.

Ground nut, areca-nut, Singapore pepper and cocoa have also been put down in the School grounds. The first-mentioned, which it is intended to grow more of, is now in fruit.

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DICTIONARY OF MATERIA MEDICA.*

ONE of the characteristics of a true-born Briton is said to be an innate love of physic. Whether this be true or not, it is certain that a large proportion of the British public are habitual medicine-consumers. Excluding those who have no choice in the matter, and who passively swallow whatever is prescribed for them, a good many it is well-known are only too fond of experimenting on themselves without leave or license from any orthodox authority, especially since the homœopathic craze has rendered amateur doctoring so easy. They believe only too readily every puffing advertisement of every patent "certain cure" if it be only judiciously backed up by pretended, or, it may be, genuine testimonials from patients who had been *in extremis*, or had gone the round of the faculty without experiencing any benefit, or had been bedridden for 20 years, &c. &c.; and the very victims who are thus deluded become unwittingly the baits with which new traps are set for the unwary. Only let two or three of the leading members in a community be persuaded—it does not matter by what means—to use a quack drug, and its success thereafter, as regards the general public, is only a matter of time. Now it is not quite so difficult a thing as some believe to "catch your hare," to secure a few prominent men, in order to puff a quack article into notoriety. The ignorance shown by so-called educated men in such simple matters as the structure or functions of their internal organs, the laws of health and disease, the processes by which morbid conditions are overcome, the mode in which medicines act in aiding, altering, or counteracting these processes, is so extreme, that the quack who is only too cognizant of this fact, as well as of the child-like credulity which most men evince in matters with which they are not familiar, is ready to take advantage of such ignorance and simple faith, by clothing his appeals to their vanity and self-conceit, or it may be to their avarice and self-interest, in a tissue of scientific jargon and cunningly disguised fallacies, which seldom fails in its object. It is so pleasant to think that one can at a bound scale the heights of medical knowledge which the orthodox disciples of Æsculapius have reached only after a toilsome life-long journey, or peradventure have not reached at all. So pleasant, for instance, to correct any indiscretion one may have been guilty of in diet or drink, and to stave off the symptoms of a congested liver, or the warnings of an impending fit of rheumatism or gout, by a dose of Cockle's Pills or Mother Sairey Gamp's Syrup, unfettered by the vexatious restrictions on one's favourite tipple which the ordinary medical attendant imposes as a rule when he assumes charge of the case. And besides there is no question but that some of these quack remedies do sometimes benefit some patients. Most of these infallible cures have an aperient action; and there are few diseases which are not relieved at some stage by aperient medicine whatever its composition. Others again get well while using these remedies, and even in spite of them, thanks to the wonderful self-reparative, self-restorative powers of nature. But as there is no fallacy which so easily imposes on the lay mind—or for that matter on the professional mind when untrained to logical reasoning—as the *post hoc ergo propter hoc* fallacy, the cure is attributed to the remedy last used, and thus new advocates are gained to plead in its favour, new testimonials made available to puff it into still further notoriety. *Populus vult decepi et decipiatur.* The public bud themselves to deception only too readily. Hence the enormous fortunes made by men like Holloway, Morison, &c. Hence too the astounding fact that no less than £225,701 was received for stamps on patent medicines alone last year by the Inland Revenue authorities; an amount which, considering that the stamp on a shilling bottle or box of medicine is only three-halfpence, represents some millions of bottles annually sold to the public in the United Kingdom only.

But the craving for medicines is not confined to the British public. It exists everywhere, and indeed seems instinctive with all races. Drugs of some kind seem to have been a necessity from all time—as imperative almost as food. Rhubarb is mentioned in a Chinese book 2,700 B.C. and a fragment of a cuneiform Babylonian inscription deciphered by J. Halévy (Records of the Past, Vol. XI. p. 159, London, 1878) shows that at least a thousand years before the time of Moses and the first recorded notice on the subject of medicine in the Bible (Exodus xxx, 25, 35) the Babylonians or rather the Accadians had already attained a considerable amount of pharmaceutical knowledge.

One would have to go very far back indeed into the history of the past to trace the origin of physic. Most probably it was instinctive (hence the supernatural origin ascribed to it by the earliest nations), just as it is at the present day among the lower animals. Dogs it is well-known have their hereditary knowledge of herbals. In most folklore stories various animals are believed to have a special knowledge of remedies for various diseases and injuries—especially antidotes for poisons, &c. It is by imitating them perhaps that man gradually came to acquire a knowledge of the medicinal virtues of various plants. Chance and observation and experiments added to the original stock from time to time, while with the extension of commerce and international

* Dictionary of Materia Medica and Therapeutics. A Résumé of the Action and Doses of all Official and None-Official Drugs, with their Scientific, Common and Native names and Synonyms, and in many instances their French, German and Indian Equivalents. By C. Henri Leonard, A.M., M.D., and Thomas Christy, F.L.S., etc. London: Baillière, Tindal and Cox, publishers, 20 and 21, King William Street, Strand, London 1892.

trade and intercourse, and the development of natural science, botany and chemistry chiefly, still further additions were made, and are being daily made to the Pharmacopeia of each nation, until at the present day, notwithstanding the process of elimination which is constantly going on of every article in the Materia Medica, which is tested in the crucible of experimental science and found worthless—the task of keeping even fairly abreast with the most valuable novelties which are gradually finding a place among officinal *i.e.* authoritatively recognised remedies, is almost hopeless to the busy practitioner of medicine, who is expected to prescribe them or the chemist who has to keep them in stock.

It is chiefly this difficulty which the volume before us is intended to meet. "In scope and design it is totally distinct from any other work (on Materia Medica); for it embraces not only a very full account of the uses of the drugs handed down by the North American Indians to the medical men in America, but it brings up the list of drugs and chemicals to a late date, at the same time furnishing sufficient information on each to enable a medical man to see at a glance its probable value in any case in which he may require to employ it, or at any rate to decide in his mind if it is worth further research."

The Index is a special feature in this volume; as every drug has its botanical, native and common names given to it and in many instances their French, German and Indian equivalents, and will be found equally useful to the chemist and student of medicine as to the botanist and dealer in drugs.

The book is the joint production of Dr. Leonard of Detroit, America, who presides, we suppose, over the medical portions of the book and Mr. T. Christy, the well-known author of "Commercial Plants and Drugs," whose name alone should be a guarantee of the excellence and accuracy of the botanical portion.

As far as we may judge from casual references to drugs both new and old, the book is fairly reliable and the information given quite up to the latest date. It would be unreasonable to expect it to contain every new remedy—the name of which is legion—but it has included within its 387 pages, we believe, nearly every principal drug in the three Pharmacopeias of Great Britain, the United States, and India and a great many others non-officinal which have stood the test of time.

Of our island plants referred to in the body of the work and in the appendix we notice the *Anacardium occidentale* (caju) figuring in an aspect that is new to us. It is here called the *Diabetes bark tree*, and is recommended for the non-saccharine form of *diabetes*. We are not aware that it has any great local reputation for this affection, though we believe it is often prescribed by vedaralas as an astringent. Another plant which according to Thwaites is not uncommon in the South of the island (*Andrographis paniculata*, Wall.)—and which Mr. Thomas Christy claims to have introduced into European practice, and which is identified by its specific appellation (given above) and its common Hindustani name "Kariyat or Creyat"—is surely none other than our well-known *Hin bin kohomba*, the true *Chiretta* of the bazaars, according to Balfour—in common use all over India as a febrifuge and tonic and a cheap substitute for cinchona in every hospital in the East. It has been known for ages, and is the principal ingredient in the "*Drogue amère*" so much esteemed in France, the plant having been introduced into Southern India, according to Ainslie, from the Isle of France and cultivated in Tinnevelly, though it is found wild in Bengal, Ceylon, the Peninsula and Java. We are surprised that this plant which is officinal in the Indian Pharmacopeia should have been included among the new remedies as "introduced by T. Christy, F. L. S.," while no suspicion seems to have crossed his mind (notwithstanding the affinity of the Indian name *Kariyat* or *Creyat*, derived from the Sanskrit *Kairata* whence *Chiretta*) that it was one at least of the sources of the well-known Chiretta of the Indian bazaars, which he describes in its proper place in this book as obtained from the *Ophelia Chirata*.

Another Ceylon plant is the *Cassia alata*, the winged cassia or ringworm shrub, which though not indigenous is now naturalized all over the island. It is a favorite with the Tamils for ringworm, the fresh leaves, bruised and mixed with lime juice, being used for the purpose. Also as a remedy for various skin diseases, in poisoned bites, &c., and as a general tonic. This shrub with its gaudy yellow flowers may be found growing almost wild both in Colombo and upcountry and would be worth introducing more freely among the Tamil coolies who appreciate the value of *simi agati*.

Holarrhena or *Wrightia anti-dysenterica*, better known as *Tellicherry bark*, *inderjow seeds*—the *suddu-idda* of the Sinhalese—*veppalei* in Tamil—is reputed as a remedy in dysentery, but it has no special action in this disease like ipecacuanha, and is only a good astringent and tonic.

Hygrophila spinosa or *Asteracantha longifolia*, well-known locally by its Tamil name *nirmulli*, is far better deserving of a place in any Dictionary of Materia Medica. It is not only one of the best diaretics known to the vederalas, but is superior to any known in European practice for the treatment of cases of dropsy complicated with diarrhœa or dysentery.

Of medicinal plants used for lung diseases, bronchitis, asthma, &c., we are pleased to find *Justicia adatoda* mentioned (*adhatoda*), *Tylophor a asthmatica* (*binooja*), and *Euphorbia pilulifera*, or snake-weed (*bohodada-keeriya*)—all common plants, much used in native practice, and of deservedly great repute.

Still another is the *Cassia Fistula* or purging cassia (*ehela-gas*), which, to judge from the villainous mutilations constantly practised on the few beautiful specimens which (thanks to the late Mr. W. Ferguson) exist in the Cinnamon Gardens, seems to be in great demand among the Goths and Vandals who infest our streets.

It would not be difficult to pick holes in a Dictionary which aims at being at once comprehensive and succinct, but when the book reaches a second edition we would advise the printers' devil to be more careful of his orthography and to avoid such blunders as CARVUM, CARDIMOMUM, SULPHOROSUM, &c., while reserving a little more space for such useful well-known remedies as Calcic Sulphide, Aristol, &c. Phenacetin is surely deserving of a more detailed notice than "one of the European patent medicines prepared as a substitute for antipyrin, antefebrin, &c., used as an antipyretic." As far back as 1887 its chemical composition was described by Messrs. Hinsberg and Kast in the Pharm. Zeit. Berlin, as an acetyl derivative from Carbolic Acid having the formula $NH_2C_6H_4O$ CH_2COH_2—and its physiological effects are already as well known as those of antipyrin, &c.

But, trivial omissions of this kind apart, the Dictionary appears to us to really supply a much felt want, while its moderate cost (five shillings, in beautiful cloth binding), and its dainty appearance should recommend it still further to medical men and vendors of drugs equally.

RUSSIAN TEAS: THEIR IMPORTATION INTO EUROPE.

A CRITIQUE ON THEIR QUALITIES, SPECIALTIES, ETC.

(Specially contributed to the Ceylon Observer.")

A Russian engineer and traveller sojourning on the Riviera recently read an interesting paper before a select circle of listeners—both fair and firm—on the importation into, and distribution over, Europe of Russian teas, or, rather, of teas grown in China, and exported into Europe *via* Asiatic Russia by painful routes of immense distances, so vast and long that the journey, once undertaken, seems as though it will never end. There being no railways yet over the regions, everything is borne either by camels, sledges or canals—generally, all three methods of transit in succession. Nearly a year elapses ere the apparent "destination without end" of unknown fatigue and weariness is gained; before the historic frontier stone is reached, where on one side is chiseled ASIA and on the other side EUROPE; and ere finally the railroad at Nijni-Novgorod is come up to.

A partial translation will now be given of the leading features in this practical and instructive essay; and the faithful rendering into English will even preserve some of the peculiarities of expression of the original.

The teas of Russia, of which we occupy ourselves more especially in this study, are nothing else than the best crude teas of China. They are, in some sort, for the teas in general, what the Châteaux-Laffite or the Châteaux-Yquem brands are for the wines of France,

The plantations are, since nearly two centuries, engrossed or monopolised by the Russians or by their correspondents on the Chinese markets, and particularly at Hangkow, which is their veritable quarter-general. The Russian merchants at Moscow (the chief tea-dépôt of the European east) have numerous buyers in China, on the same spots of production, and cause their different teas to come by caravan.

The convoys which are formed at Tientsin are sent in a northerly direction, after which the camels transport these merchandises across the great and grand desert of Gobi, arrived at Maï-Ma-Tchin and then at Kiachta, ville situate on the Siberian frontier.

It is in this neighbourhood that are centralised equally the teas of the septentrional provinces of China, which the inhabitants exchange for Russian merchandises and some manufactured objects. It is at Kiachta also that are found established the premier bureaux of sale and of re-expedition of the principal Russian Houses, who control carefully the merchandise, take the quantity necessary to the needs of the country, then put the cases in an envelope of cowskin of which the hair is turned to the interior, and send them to Irkoutsk.

In this latter ville exists a new tea exchange, or comptoir, which takes the provision necessary for the commerce in tea of this country, and then causes to follow or forward the gross-bulk of the cargo train upon Tomsk and on Irbit.

Naturally, in this country, covered with snow pending the major part of the year, the sledges, chariots, and horses have replaced the camels.

It is at Irbit where each year has placed the grandest Asiatic fair, when myriads of nationalities flock together to do business, and when an important sale of teas is made; after which the convoys traverse the Ural gaining the Volga, in leaving a certain number of bales in each ville encountered on their route.

Once arrived at Nijni-Novgorod by the way of the grand river, the cases, of which the number is now much diminished, pass into the railway waggons, which conduct them to Moscow, from whence they are repanded or distributed in all parts of the nigh boundless state of Russia, as well as to abroad.

The caravans, of which we have come to indicate the itinerary, part from Hangkow in the month of May, arriving at Irbit (in the Asiatic part of the Government of Perm) about the middle of February of the year following, and, after having mounted in sledges the congealed course of the Volga, they attain Nijni-Novgorod in March, and Moscow in April.

That makes 11 months of voyage to traverse China, Siberia, and the orient of Russia.

Russian tea is an excellent tonic and nutritive drink. These two qualities are due in part to two elements: the theine and the tannin. More the tea contains the theine, more it will be of value; further, —a detail to note,—is that the tea is more nutritive than coffee, because it is always more rich in theine than coffee is in cafeine.

Other than its native superiority, that which has made the Russian tea what it is and will be always —the best of all the teas—is this: that, coming by land and not being exposed to the atmopshere humid and warm of the holds of ships, it has no need to undergo the preparations indispensable to all teas coming by sea.

Among the different varieties of tea the most liked by the amateurs, we must cite, in the black teas, for example the Ki-Chin; in the flower-teas, the Si o-Faioum; in the green teas, the Van-Kedzi; and in the yellow teas, the Ven-Ki and the Ta-tchou.

There may be signalised as a great specialty of the leading Russian houses, the tea in tablettes (a brevetted system). This is a product of excellent quality, compressed in a fashion guard concentrated all its force and all its aroma under the most petty volume possible. The voyagers, the chasers or sportsmen, the soldiers of all conditions appreciate it much in Russia, where they have named these tablettes "plitochni."

One must not confound these "plitochni" with the tea in bricks, of inferior quality named "kirpichni," of which use is made by the Kalmoucks, the Tartars, and the classes the most poor of the Siberian populations.

The tea in tablettes, which is broken in several morsels, is cast into boiling water the same as when making tea by infusing the leaves. A tablette suffices for making at least 120 cups of tea quite strong enough. It is prepared very rapidly, and possesses the same aroma and the same hygienic qualities as the different species which we have just cited higher up.

In resumen, owing to the powerful organization of this enterprise, we believe that the Russian teas, of which the price is not much superior to that for Chinese teas properly styled, or of the English teas, have their place marked in all the families of continental Europe, and in all the establishments of consumption cafés, hotelsl, restaurants, where, in becoming a favorite drink, they take range among the most precious auxiliaries of the public health.

Of course, everybody to their tastes: many persons of judgment there are who do not care for Russian teas.

We know, among our friends, some resolute amateurs of tea, a petty number of adversaries more or less decided and a quantity of gents indifferent or undecided, recognising themselves incapable, after some contradictory experiences, of declaring for or against the famous infusion adored by the Chinese, the Russians, and the English.

This is, according to us, exclusively due to the multiple frauds of which tea is the object, that one has to attribute the hesitations of the public to pronounce in favour of certain infusions more or less faded and disagreeable, which he is made, to take or has passed off on him for some Chinese tea or Russian tea.

Such is the veritable cause which, unto now, has prevented in France the consumption on an extensive scale of these different products.

The subject is of interest not only to the general public, but also to business people. Some practical and edifying information has been given, such as seldom the community is made acquainted with. L. A.

OUR PORTRAITS.

MR. CHARLES ARTHUR TURTON.

We are always glad to be able to add to the list of portraits which have already appeared in this journal any that are of persons who have claims to public notice, and this we think the subject of our portrait this week, Mr. C. A. Turton, has, in that he is the inventor of one of the most useful inventions relating to tea manufacture that has perhaps ever been before the public.

Mr. Turton is the son of the late Rev. Henry Turton, M.A., of Sugnall Hall, Staffordshire, Vicar of Betley in the same county, and was born on the 8th of January 1847. He was educated at Bradfield College, Berkshire, and on leaving school he went to a private tutor as he was intended for the Home Civil Service for which he had a nomination. This however he threw up and elected to go into business in Liverpool. He remained in Liverpool during a continuous period of seven years in the service of one of the largest mercantile houses in that city. During the depression in the cotton trade in the year 1870, brought about chiefly by the Franco-Prussian war, Mr. Turton suffered some pecuniary losses, and seeing little prospect of obtaining a partnership in any good firm in Liverpool, he elected to emigrate to the Shining East, and selected Assam as the field for his future operations.

Being offered an appointment in the service of the Assam Company he left England to take up his new duties. He remained with the Assam Company for five years and left them to take over the management of the Sukwah Tea Company, in which capacity he acted for a period of 14 years, and of which company he is at present a considerable shareholder. He has now resigned the appointment under this company, and is engaged in pushing the invention of which we have made a cursory mention above.

This invention, a tea leaf withering machine, which he has named the "Cyclone," like many other inventions, has taken years to bring to anything like a state of perfection. He had not the opportunities that many inventors have of having all their time to devote to their one object, and of having workshops to experiment in; but he had to find out step by step the faults and failings of his system, and, as he says himself, but for the assistance of a neighbouring planter, who took an interest in the machine from the first and who introduced it into his company, he doubts whether the invention would ever have attracted the attention it has now. From all we can hear of this invention, and judging from the highly satisfactory testimonials we have had an opportunity of reading regarding the work performed by the inventor's latest improved machines, we have little doubt that it has a great future before it. We do not purpose entering into a detailed description of the machine, but from what we can gather the inventor has produced one that will practically do away with large withering houses. It aims not only at economy of space but economy in labor, as the largest machines can be worked by half a dozen boys. The machine itself is of the most simple discription, there being no complicated parts or machinery about it to get out of order, or that a factory carpenter could not put right at the shortest notice. It performs its work thoroughly in all weathers or conditions of atmosphere, preventing night work, and every planter knows what that means. It also produces the leaf withered to any extent desired with such perfect regularity as to keep the Tea Rollers and other machinery, &c., steadily at work from early morning until the wholeof the leaf has been worked off. Perhaps the most urprising thing to learn about it is, that leaf whichhas been plucked off the trees a few minutes before the gong strikes at noon, and brought into the factory, often dripping wet, is passed through the machine within two hours and carried off to the rolling tables perfectly withered. This to practical planters might at first produce the impression that the leaf would suffer by such rapid withering, and that it must be necessary to wither it at a high temperature; but such we are assured is not the case, as by means of the new system adopted, the leaf is taken out of the machines quite cold, and, as those who have had opportunities of testing these new machines declare, "Withered to perfection." That the "Cyclone" witherer has at last begun to attract attention is proved by the fact that a considerable number of orders have lately been received for Assam and Cachar; one company alone will have six of them at work this season.

We hope to see the machines more widely patronized than they are already, as an invention of this kind, reducing the expense of labour and performing its work in a manner far superior to any of the other methods commonly in use, deserves to have given to it a prominent position in public favor.

Before closing these notes we might add that Mr. Turton in his younger days was a bit of a cricketer. His best year was in 1869 when he distinguished himself at Birkenhead Park against the All England eleven, receiving a presentation bat for his performance against them. He also kept up his interest in cricket whilst in Assam and captained the Nazira Team for many years in many a hard fought contest against their Jorehat and Dibrughur opponents. He was also an enthusiastic Volunteer. He began in his youth by serving as a private in the Dorsetshire Administrative Battalion, then as Lieutenant and Captain in the 4th Lancashire Artillery Volunteers, and finally as Captain of "A Troop," Sibsagar Mounted Rifles, which corps he was chiefly instrumental in raising, and which has since increased so materially both in number and efficiency under its late popular commander Lieutenant-Colonel Buckingham, C.I.E., who had to resign this command to be promoted to the higher command of the Assam Valley Administrative Battalion.—*Indian Planters' Gazette*, Feb. 20.

POPPY TEA.

The reclaimed land grows the most splendid and abundant crops of corn. I have walked between two stacks, each 100 ft. long. But the land that grows corn grows also weed rankly; the drills are made nine inches apart, and gangs of women are employed with hoes to weed between the drills, two or three times in the year. With them goes a ganger to keep them to their work and prevent chattering. Time was when the ganger was armed with a sharp goad, with which he progged the hoer between the shoulder blades. The demand for female labour has this disastrous effect—it draws the mothers away from their children. One thing may be seen in the Fens that is not pleasant, and that is the little plot of white poppy grown in the cottage garden. That plot means a good deal of evil. It means the making of "poppy tea"—in another word, opium to be administered to the babes while the mother is out at work. The little child is given its poppy tea in the morning, and the mother locks the cottage door, knowing the babe will sleep like a log till she returns at sunset. Children thus drugged have a dazed look through life, and have not their wits properly. They are heavy, with only flashes of intelligence. But it has another evil effect. It induces a craving for opium. The chemists could tell a tale that would cause surprise, if they chose, at the amount sold by them to the fen folk on market days. There is a little shyness about asking blankly for opium, and the received formula is: "I'll trouble you, sir, for an ounce of *that*." The chemist knows well what *that* means.—*Daily Graphic*, Feb. 15th

INDIAN TEA AT CHICAGO.

At a meeting of the Indian Tea Districts Association held this week, a proposal received from the directors of the recently-formed Palais Indian Tea Houses, Limited (Paris), for undertaking the work of exhibiting Indian tea in an appropriate way at the forthcoming Chicago Exhibition was considered. It was explained to the meeting that prodigious efforts were being made by Ceylon planters, assisted by liberal grants both from the Ceylon Government, the planters themselves and the commercial houses in Colombo, to have a thoroughly representative exhibition of their tea and a strong propaganda of its merits throughout the United States generally. It was felt that, although the work done by Ceylon would eventually help Indian tea also, it was hardly compatible with the dignity of the Indian planters to leave the work altogether to their neighbours, and that India also should be represented and the interests of Indian tea planters promoted. To work on the lines of the Ceylon planters would imply a larger disbursement of money than it seemed likely could readily be obtained. The case might be met, however, by accepting the proposals of the "Palais Indien" Company—a company which, it was well known, had been got up and subscribed for almost entirely of the chief London representatives of the tea companies and estates, but the small capital of which had been entirely absorbed by the work of introducing tea into France.

The proposal of this Company was that the tea planting community in Calcutta should raise a guarantee fund of, say, £3,000 or £4,000, endeavouring, if possible, to get the Indian or Bengal Govern-

ments to contribute some portion, and that, if that minimum sum were found, that the company would take any further risk upon their own shoulders, giving the benefit of their staff and organisation free of charge. A draft plan of the detailed proposal, with a diagram showing the proposed Indian palace for Chicago, designed by Mr. Purdon Clarke, together with a form of guarantee, were unanimously adopted by the meeting for distribution both among planters here, who had not already given their support to the Palais Company, and also among planters and others in India. A resolution was also passed urging the Calcutta Association to use its utmost endeavour to obtain the requisite funds, to ensure the work being carried out, and that promptly.

The matter is a most important one, and our readers will not be tardy in helping to open up this large and important market for Indian produce.—*H. and C. Mail*

THE RICINUS, OR CASTOR-OIL PLANT.

The Ricinus, like the Croton, is named after an objectionable insect, owing to the resemblance the seeds are supposed to bear thereto. The insect in this case is the cattle-tick, or as it was called in olden times, and probably is to this day in other countries, *kik*. The plant is also known as Palma Christi, though the origin of this name does not seem very clear. I find equal difficulty concerning the origin of the word castor, as applied to the well-known medicinal vegetable oil obtained from the plant, especially as this is the generic name of the beaver, and castoreum or castory is the name of the peculiar liquor found in the beaver's groin; to say nothing about gemini, the fiery meteor occasionally observed on a ship's rigging. Owing to the name Castor-oil Plant, the seeds are also sometimes called Castor Beans. Strange as it may appear, Latin writers named the plant Cucurbita and Hedera.

Gerarde gives some interesting particulars concerning the misnaming of the plant, which he says, "Whereof mention is made in the fourth chapter of Jonas, and sixth verse." And he proceeds to say:—"Saint Augustine recordeth in his Epistle to St. Jerome where in effect he writeth thus:—That neme Kikaijon is of small moment, yet so small a matter caused a great tumult in Africa. For on a time a certain Bishop having on occasion to interest of this, which is mentioned in the fourth chapter of Jonas (in a collation, or sermon, which he made in his cathedral), said that this plant was called Cucurbita, a Gourd, because it increased unto so great a quantity in so short a space' or else (saith he), it is called Hedera. Upon the novelty and untruth of this his doctrine, the people were greatly offended, and thereof suddenly arose a tumult and hurly-burly; so that the Bishop was inforced to go to the Jews, to ask their judgment as touching the name of this plant. And when he had received of them the true name, he made his open recantation, and confessed his error, and was justly accused for a falsifier of the Holy Sriptures."

Gerarde, moreover, considered the Ricinus was indigenus in America, and goes so far as to name it Ricinus americanus, though it appears to be of African and Indian origin.

Before I leave this old author, I may add his advice concerning the value of the plant as an antidote to sciatica, which so many gardeners suffer. He says, in effect:—"The broth of the meat supped up wherin the seed hath been sodden is good for the gout, and for and against the pain in hips called sciatica."

Reverting to America, it is considered moles will not remain where Ricinus seeds are sown. If this be the case, to any practical extent, the fact may occasionally be turned to good account in gardens, when, as sometimes happens, these singular creatures periodically visit newly-planted Celery in the trenches Onion, Carrot, and other small seeds when sown, amongst which they create great havoc, and with difficulty are caught, or kept away. The difficulty being greater during aird periods in summer, when their runs are deep below the surface, and trapping is next to impossible. It would be well to drop a few seeds into such injurious runs should they occur, and thus test the statement fully.

Seeds are offered by all seedsmen and at reasonable prices, and apart from such considerations as the above, they are so easily germinated and grown, as to be adapted for amateur culture, whether to grow on in pots, or for planting in open borders for summer decoration of a "tropical" kind. A pot, with seeds, placed inside a sunny window with a square of glass over it, quickly gives pleasing results, and they germinate upon a shelf in the greenhouse, sown about April.—WILLIAM EARLEY.—*Gardeners' Chronicle.*

QUININE AS A MEDICINE AND AS A PROPHYLACTIC.

Messrs. C. F. Boehringer and Söhne write:—

Waldhof bei Mannheim, Feb. 20th.

QUININE.—Lecturing on the 'influenza' at the Verein für innere Medizin in Berlin, Professor Gerhardt recommended quinine at the beginning of the illness, it being easier digestible than the more recent antipyretics. His experience also shows that if with the cessation of the fever a plentiful expectoration manifests itself, terpinhydrate may be taken to great advantage.

QUININE AS PROPHYLACTIC.—Mr. Rhodes, the well-known Prime Minister of the Cape Colony, reports that during his journey to Mashonaland he took plenty of quinine in order to resist the malaria fever. Thanks to this, he and his party got through the wilds without any of them being laid up with fever, and although they felt feverish, they succeeded in keeping it at bay.

We already in Nov. 1889 called the attention of the public to the prophylactic properties of quinine, in a pamphlet giving the result of observations by Dr. Binz, Dr. Graeser, Dr. Buwalda, Dr. O. Schelling and Dr. Tschirch showing that quinine guards against, and effectually prevents, malaria fever, and that it it *alone* possesses such priceless efficacy.

NOTES ON PRODUCE AND FINANCE.

THE ART OF ADULTERATION.—Tea has an advantage over coffee and cocoa in that it is sold pure, and not manipulated by the manufacturer. In the good old days John Chinaman was given to nefarious pursuits in regard to tea, but the Indian or Ceylon tea sold to the consumer is pure. It is not so with coffee and cocoa, nor is it likely to be, so long as the law is so lax as regards adulteration. Occasionally the offenders are caught. For instance, at Lambeth Police-court a few days since, a grocer was charged with selling cocoa containing 36 per cent of added sugar and 20 per cent of added starch. The sanitary inspector proved purchasing the cocoa at the defendant's shop, and upon being subjected to analysis it was found to be adulterated to the extent maintained. The solicitor who appeared for the defence said his client had no intention of acting fraudulently, and had sold the cocoa in the same condition that he received it from the wholesale firm which supplied him. It was well known that there were many varieties of cocoa, and each of them had their own peculiarities, and the inspector must have known that pure cocoa could not be sold at 8d per lb. The grocer was fined, but no further reference was made to the manufacturer.

LAST WEEK'S SALES.—The market has been liberally supplied with Indian tea, says the *Produce Markets Review*, but the demand is inactive except for the better kinds. Common sorts have been offered in an increasing proportion, the bulk being of exceptionally poor quality, for which there is but a moderate enquiry. The result of this is a drooping tendency in the prices for all common tea, which can only be checked by an increasing demand although there are no indications of this at the present moment. The better kinds, however, attract attention, and are readily bought at firm rates; and judging from the later arrivals, the stock of these grades is not likely

to prove in excess of requirements. It is, therefore probable that there will be a strong market for these descriptions for some time to come and the only check to an upward movement will be the large supplies of Ceylon tea, which will have a steadying effec should they prove to be of good quality. Although the sales of Ceylon teas, conformably with advices from the island, have been considerably smaller than last year up to the same date, the demand still continues inactive, and the slight recovery noticeable about the end of January in common teas has been lost. Finer teas, however, maintain their position well, although the demand is not very active even for those descriptions; but, as the quantity advertised for next week is small, present rates bid fair to be maintained. The quality has been fairly good, showing some improvement. Java teas have been much neglected.

WORTH NOTING.—Discussing last week's tea market, the *Grocer's Chronicle* says:—The course of the market this week has been listless and tending downwards for all but good liquoring teas. Fine and finest from either India or Ceylon command fullest attention and show no change in value; but common teas seem out of favour at the moment, and, probably owing to the slackness of the country demand, the dealers are unwilling to increase stocks. There is no doubt that the policy of tea planters this season has been mistaken, although, after the phenomenal rise witnessed last spring, when common leaf tea touched 10d., it is not surprising that producers should "go for" quantity in the following season. The wonder is that they did not allow their inclinations to lead them still further on the down grade. There is always a large proportion of low class tea at the end of every season, and this year, owing to the reasons just given, the proportion of common stuff is extraordinary. Low quality Ceylon is selling down to 4d and even 3¾d. It would appear now that there are limits to the standard of quality, and no matter how temptingly low the price may be, the retailer must use the less of it when the quality goes too low rather than more; thus planters, by their desire to produce a very large quantity, are defeating their own object and damaging the prospects of the tea trade far more than they are aware of. Another feature this season has been the overwhelming quantity of inferior and low grade broken pekoe. Ireland has always been the largest consumer of broken teas, and the native appreciation of good tea there is keener than anywhere else in the united Kingdom. But an over proportion of low grade tea, whilst fine and finest continue to fetch full prices and are scarce as well, disorganises the Irish trade in tea; and the curious fact is now seen that Broken Pekoes can be bought at 7½d with equal quality to whole leaf Pekoe at 9d.

BANANA FLOUR AND BANANA GROWING.—Mr. H. M. Stanley, the explorer, said several good words for banana flour in his ration books, but no steps have been taken to introduce it in to the produce market. It is credited with being nutritious, palatable, and, above all, much more easy of digestion than wheaten flour. Mr. Stanley claims that banana bread would be a good substitute for wheaten bread as a standing article of human dietary. There seems no reason why it should not be so; that the flour will make bread, when properly dealt with, has been proved, we believe, by many practical experiments. The current issue of the *Kew Bulletin* states that the banana plantations of Fiji are threatened with ruin by a curious disease, or, rather, series of diseases. These consist of aphides, or plant-lice, a fungus causing rot in the root-stock, and various species of thread-worms. It is worth noting that in the soil about the roots of these plants nearly thirty different species of worms have been found, and of these about twenty-five are new to science, though as yet only two have been detected actually attacking the roots, living in certain brown, rotten cavities or between the sheaths of the leaves, and in some cases even at the very core where the tissues appear to be quite sound and white. The only suggestion for saving bananas as yet made is to plough up the land leaving it fallow, and alternating some other crop. The ground could then be replanted with banana "stools" from an unaffected locality.

THE SILVER QUESTION.—According to the *New York Tribune*, although Mr. Foster, Secretary of the Treasury, is coming to England solely for personal reasons, he will confer with Mr. Goschen with a view to arranging an international conference to consider what action should be taken in regard to the silver question. So much the better. There cannot be a doubt that all parties in the United States are at present more anxious than ever to get the question settled. The Republican Party is committed to the Silver Act of last year; the Democratic Party is afraid that the free coinage movement may cause a split in its ranks on the eve of the elections. The British and the Indian Government must have viewed the recent decline in the Eastern exchanges and its possible consequences with concern. For nearly twenty years the question has been debated, and despite all the hopes of the optimists, it has not "settled itself," but has assumed a more acute form. It is believed that the Indian Government dare not borrow gold for railway extension, and a silver loan at the present time is out of the question. Something will have to be done.—*H. & C. Mail*, Feb. 26th.

"SIROCCO" ENGINEERING WORKS.

The extensive works belonging to Mr. S. C. Davidson, at Bridge End, Belfast, were recently the scene of an event of an extremely interesting character illustrating, as it did, the harmonious relations existing between Mr. Davidson and his *employés*. The occasion was the opening of the new dining and reading rooms which have been recently added to the works, and Mr. S. C. Davidson and Mrs. Davidson hospitably entertained the *employés* and their friends (numbering over 300) in connection with the ceremony. The new building, which is intended for the purposes mentioned, has been fitted up e without regard to expense or trouble, the sole object of Mr. Davidson being the comfort and convenience of the people employed in the works. The principal portion of the proceedings took place in the lecture-hall, which occupies the third storey of the building. After tea, Mr. Davidson took the chair amidst applause, and briefly explained the object of the meeting. He said the special feature of their entertainment was to inaugurate the opening of these dining and reading rooms, which, in the first place, as they all knew, he intended for the daily convenience and accommodation of those employed in the works, and further to enable them occasionally to hold social gatherings, or for the purposes of educational lectures, without having to go to any place outside the Sirocco works. He considered that he could not have a more suitable test of the capacity and accommodation of the rooms than to employ them on the first occasion of their being used to meet there, as his guests and friends that evennig, everyone who was in his employment along with a few of their own and his own personal friends. He sincerely hoped that this test would not discover many defects in the arrangements of the place, either as regarded the accommodation of the tea-rooms or that hall, as concert-room or ballroom. He offered them his hearty welcome that evening, and trusted that they would all enjoy themselves as thoroughly as he wished. On the motion of Mr. Hugh M'Bratney, seconded by Mr. William Frew, a vote of thanks was passed to Mr. Davidson for providing the dining and reading rooms. Mr. Davidson having replied, music, in which the Misses M. and K. Davidson took part, followed, and dancing went on until an early hour in the morning.—*H. and C. Mail*, Feb. 26th.

WATTLE CULTURE IN NATAL.—Before the Immigration Commission, a farmer related:—"He did not think the wattle industry would be overdone. He had started growing wattles fifteen years ago, and had found it answer. It was possible to clear £14 10s per acre.—*Natal Mercury*.

MEMORANDUM OF TERMS AND CONDITIONS OF SALE OF THE MILDURA IRRIGATION LANDS, VICTORIA.

Including Water-Rights, &c., under the Agreement entered into with the Government of the Colony, as authorised by Special Act of Parliament.

Cash Purchase System.

Horticultural Lands.

1. The lands suitable for vineyards and fruit farms are divided into 10-acre allotments and sold at the cash price of £21 per acre to the maximum of 80 acres to any single purchaser:—£2 per acre of the purchase-money payable on application and the balance at the time of transfer. If cash be paid in full within one month from the date of application a discount of 2½ per cent. is allowed on the full amount. The above price includes water-right and one fully paid-up share in the Mildura Irrigation Company Limited for each acre of land purchased, as set forth below in paragraphs 7, 8, and 9.

N.B.—All the Pumping Machinery, Irrigation Channels, Conduits, and Pipes are constructed and provided at the cost of Chaffey Bros., Limited, for the conveyance of water to the highest corner for distribution in each allotment.

Time Payment System.

2. Land for fruit cultivation may be purchased on *time payment*, subject to the same stipulations and conditions and including water-rights, together with the same proportionate share in the Mildura Irrigation Company Limited, as above stated, upon the following conditions:—A deposit of £2 per acre is required upon application, and the balance of the purchase-money is paid upon the Building Society principle by monthly instalments extending over a term of five years. If desired, 10 years' terms may be arranged.

For each 10-acre horticultural allotment the purchaser will pay £20 deposit. Five years' interest at the rate of 5 per cent. is added to the balance of purchase-money (£190), and the total is divided into 60 instalments of £3 19s. 2d. per month. Instalments on the 10 years' system, £2 7s. 6d. per month.

Town and Suburban Lands. (*All sold pending completion new survey.*)

3. The lands subdivided for building sites will be sold at £25 each lot (ordinary size, 33 ft. × 155 ft.); £5 deposit, balance in two years, payable by monthly instalments of 18s. 4d. each, which includes interest.

Villa lots of the area of 2½ acres, £100 each; £20 deposit, balance in 5 years, payable by monthly instalments of £1 13s. 4d. each, which includes interest.

If the whole of the purchase-money be paid in full within one month from the date of application a discount of 2½ per cent. on the full amount is allowed.

Leasehold System.

4. All Purchasers may rent irrigated lands (the supply of water being included in such rental) for general agricultural purposes for a term of years to be agreed upon, at the annual charge of one quarter of the gross produce, and they may by special arrangement secure the power of purchasing such land within a given period.

Title Certificate.

5. *Title Certificates will be issued for all lands purchased whether upon the cash or time payment systems; and where the latter is preferred the purchaser will be required to execute the Company's form of mortgage* (*Registration Fee ten shillings*). *By this method the purchaser will have a negotiable security, and be placed in a better position to finance for the improvement of his land or otherwise, should he require it.*

By special arrangement the Company is in a position to obtain for purchasers their Title Certificates at the reduced cost of £2 2s. for one or more lots not exceeding in aggregate value £50, with an additional 5s. stamp duty for every additional £50 value of land to be conveyed.

The Maintenance, Management, &c., of the Irrigation Works.

6. Every purchaser of land, whether for cash or on time payment, will have issued to him one *fully paid-up share* in the Mildura Irrigation Company Limited for each acre held by him. Each share will entitle the holder to one vote in the control of the management of the Irrigation Works; and each share will be issued as appurtenant to, transferred with, and inseparable from each acre of land.

7. The Irrigation Works will be under the control of a Board of Directors, who will be from time to time elected by the shareholders.

8. Each landholder will be called upon to sign the Company's agreement in respect of the water-rights and to pay a yearly charge (to be levied by the authority of the Mildura Irrigation Company Limited) at an equitable rate per acre sufficient to defray the working expenses of the irrigation machinery and works, and maintaining the same in good order and condition, *but there is no charge for interest upon cost of Pumping Machinery and Irrigation Works, which are all provided by Chaffey Bros. Limited.*

A printed copy of the Memorandum of the Articles of Association of the Mildura Irrigation Company Limited can be obtained on payment of One Shilling.

Further information if desired will be furnished on application to Chaffey Brothers Limited, Chaffeys' Irrigation Offices, Swanston Street, Melbourne.

CULTIVATION OF LAND.

1st October, 1891. Cultivation is not compulsory. Land holders desiring to cultivate may improve eitherthe whole or only a portion of their holdings, and the area under cultivation may be gradually increased to suit the convenience of owners.

The Company is prepared to enter into contracts for clearing, fencing, ploughing, grading, and planting allotments; also for tending same for one or more years. A large proportion of land holders, both non-resident and resident, have availed themselves of this system of cultivation, which affords special facilities for the acquisition of profitable fruit farms and vineyards by investors unable to take up immediate residence, or lacking the experience necessary to enable them to undertake the heavy initiatory work of preparation and planting.

In addition to the Company there are several private firms at Mildura and Renmark who undertake the work of preparation, planting, and tending for resident and non-resident owners.

The following estimate of expenditure is prepared with a view of showing the approximate amount of capital required for the purchase and cultivation of one 10-acre allotment, where the work of cultivation and tending is undertaken by the Company. The cost of plants varies from £1 for raisin-vine cuttings to £9 12s. for orange trees, per acre, and in order to arrive at an average the estimate provides for 5 acres each of vine cuttings and orange trees.

Prices of plants are subject to the usual fluctuations of the market. Quotations are given on application for orange, lemon, peach, apricot, nectarine, pear, fig, and prune trees; olive trun-

cheons; currant, raisin, and grape vine cuttings or rooted vines. It should be noted that whilst rooted vines cost about £6 per acre, *i.e.*, six times the cost of cuttings, the former give an earlier yield, and the growth is more certain.

The charges mentioned in the following estimate are necessarily approximate. Definite quotations will be supplied on application for the preparation and planting of specific allotments selected by purchasers.

ESTIMATED EXPENDITURE.

On one 10-acre Horticultural Allotment at Mildura purchased on the 5 years' Time Payment System, one half, *i.e.*, 5 acres, planted with Oranges, and the remainder with Raisin Vines, at the Company's Current Rates for Planting, Irrigating, and Cultivating Holdings for Resident or non-Resident Owners.

	Rate.	£	s.	d.	£	s.	d.
FIRST YEAR—							
Deposit on 10 Acres	2/-/-	20	0	0			
Twelve Monthly Instalments, 5 years' system	3/19/2	47	10	0			
Title Charges ..	——	3	12	0			
Clearing 10 Acres (open country), say	10/-	5	0	0			
N.B.—If Timbered Land be selected, the Cost of Clearing will be from £1 10s. to £4 10s. per Acre.							
Cultivation.—First Year—							
Ploughing or Scarifying about 18 inches deep ..	1/5/-	12	10	0			
Clearing small roots and sticks, (stick picking) about	6/-	3	0	0			
Grading or Levelling, cost varies from 20s. to 60s. per acre, according to configuration of ground, say	2/-/-	20	0	0			
Planting, Cultivating, and Irrigating for 12 Months	7/-/-	70	0	0			
Water Rates.—About 6/- per acre per annum ..		3	0	0			
Plants,—5 Acres Oranges	9/12/-	48	0	0			
" " Raising Vine Cutting	1/-/-	5	0	0			
Fencing.—Cost of 1 End, 7 chains	15/-	5	5	0			
Half Cost of Division Fence, viz., 2 sides and 1 end, 37 chains ..	7/6	13	17	6			
Gate	——	3	15	0			
TOTAL EXPENDITURE FIRST YEAR	——				260	9	
SECOND YEAR—							
Twelve Monthly Instalments, five years' system	3/19/2	47	10	0			
Cultivation.—Cultivating and Irrigating	5/-/-	50	0	0			
Water Rates,—About 6/- per acre per annum ..		3	0	0			
TOTAL EXPENDITURE SECOND YEAR	——				100	10	0
Total Expenditure First Two Years, 5 years' system					£360	19	6
" " 10 years' system					£322	19	6

The third year's outlay will also be £100 10s., after which the yield should be ample to cover all expenditure, including instalments on land.

1st October 1891.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, 18th Feb.

ANNATTO.—Eleven bags bright seed from Ceylon sold at 2d to 2¼d per lb., and a large quantity of dull annatto seed realised from 1d to 2d.

NUX VOMICA.—Rather dull of sale, and somewhat easier. Sixty packages were shown, and the bulk of this was bought in at 11s for slightly damaged fair grey seed from Colombo; some ordinary brownish seed from Coconada sold at 8s 9d per cwt.

QUININE.—Quite flat and easier. Second-hand German bulk is hawked about 9¾d per oz. on the spot. At the Amsterdam bark sales in January last 17,856 kilos sulphate of quinine were offered, against 7,559 kilos in the January auction of 1891. In the February sale of this year 18,195 kilos were offered, against 9,312 kilos in February 1891. The total amount of quinine in the bark offered in Amsterdam during the first two months of this year exceeds considerably the total offerings during the first four months of 1891.

London, Feb. 24.

CINCHONA.—Tuesday's auctions were unusually heavy. The catalogues numbered of:—

	Packages	Packages of which 864 were sold
Ceylon	978	
East Indian	1,447 do	1,316 do
South American	406 do	208 do
Java	173 do	173 do
African (West Coast)	563 do	563 do
Total ...	3,567 do	3,151 do

The greater part of the 413 packages which remained unsold at the auctions have subsequently been disposed of at the equivalent of the sale value. The large preponderance of Indian barks at the sales was again a somewhat prominent feature—India may, in fact, be said to have ousted Ceylon from the leading position she has of late years occupied upon our market. The supply of West African bark, too, was larger than we believe it has ever been before.

The following are the approximate quantities bought by the principal buyers:—

	Lb.
Agents for the Brunswick works ...	181,875
Agents for the Mannheim and Amsterdam works	168,080
Agents for the Auerbach works	82,794
Messrs. Howard & Sons	69,518
Agents for the Italian and American works ..	67,293
Agents for the Frankfort o/M and Stuttgart works	63,411
Sundry druggists	60,422
Total quantity of bark sold	693,393
Bought in	105,004
Total quantity of bark offered ...	798,397

The auctions showed rather irregular results, but, considering the large quantity of bark offered, they proceeded very steadily. At first there was some improvement noticeable, but that was afterwards lost. The unit remains steady at 1½d per lb on an average. Much of the cinchona offered was of good quality, and there was a much larger percentage of Ledger bark than usual. The following figures represent the exports from Java during the second halves of the last five years:—

	1891 Amsterdam lb.	1890 Amsterdam lb.	1889 Amsterdam lb.	1888 Amsterdam lb.	1887 Amsterdam lb.
Private plantations.....	4,693,747	3,851,381	2,221,745	1,854,188	1,635,729
Government plantations	459,823	270,318	292,915	335,433	381,477
Total	5,153,570	4,121,699	2,514,660	2,190,321	2,017,206

Feb. 25.

ESSENTIAL OILS.—Lemongrass flat at 1 9-16ths d. per oz. on the spot. To arrive there offers at 1½d c.i.f. Citronella offers on the spot at 1d per oz. in bottles and ¾d per oz. in tins. The c.i.f. quotation for tins is 10½d per lb.

JAVA TEA.—Last year was not a very good one for Java tea, the prices being low and the crop a small one. Towards the end of the year higher prices were obtained in Amsterdam than in London but it is a question whether this would have been so had the whole crop been put on the Amsterdam market. The attempt to get the tea direct to the consumers in Holland has met with so much success that further efforts are being made in that direction. In future Java tea will be exclusively used in the Netherlands Indian Army, and the Chinese, with an eye to business, have succeeded in getting hold of some tea plantations, which is deplored because the Chinese find ways and means of marking a profit which others would unwillingly resort to.—*S. F. Press*, March 8.

NOTES ON PRODUCE AND FINANCE.

THE PRODUCE CLEARING HOUSE.—Elsewhere we give a report of the proceedings held at the annual general meeting of the London Produce Clearing House. This organisation has become a very important factor in Mincing Lane, and one which it is impossible for the most conservative of the fraternity in the Lane to ignore. The fact that as large a quantity as 112,000 chests of Indian "type" tea passed through the books of the company during the year is remarkable, while in the report special reference is made to the increased dealings in Indian tea. A more important matter, however, is that the operations in this "future market" are likely in course of time to exercise considerable influence on the actual market on the spot for Indian teas, and it will be for producers to consider in what way they can, in their own interests, best utilise the organisation. To show that it might not be altogether without its uses let us only imagine that last spring, when prices for Souchong were pence per lb. over what they now are, that some producers had seen fit to sell their product of that grade forward, under the Clearing House contracts, and an easy calculation will show to what extent they might have gained thereby. Whether, however, planters use or do not use this organisation, there is no doubt, as already mentioned, that the dealers through this company will have widely-extending influences upon the market. It is a sign of the times to find conservative Mincing Lane at last waking up to new methods of doing business, long familiar to our neighbours beyond the sea.

LAST WEEK'S TEA SALES.—The supply of Indian tea brought forward still consists principally of common grades of much inferior quality to those offered a few weeks ago (says the *Produce Markets' Review*), while prices have been irregular, and occasionally lower, for the less desirable parcels. Unless there is a much stronger demand for these grades, current rates can hardly be maintained, notwithstanding their present low prices. On the other hand, teas of good useful quality are scarce, and are eagerly sought after at higher prices. This has been particularly noticeable in the past week's public sales, more especially for whole-leaf kinds, which showed considerable advance from the lowest point. Broken Pekoes have shared in the upward movement, but to a smaller extent, while the finest grades continue to be actively competed for at prices showing a further rise. The enquiry, in fact, during the past season has been for tea with quality, which proves that the demand merely for price is declining. Importers would do well to note this, and instead of flooding the market with tea of undesirable character, they should turn their attention to procuring a larger proportion of good medium and fine descriptions, in doing which their interests would undoubtedly be better served. If, however, they persist in the present course, which will largely augment the supply in the coming season, coupled with a probable import of nearly 80,000,000 lb. from Ceylon, they must be prepared to face the lowest prices yet recorded. At the public sales 32,623 packages were brought forward, and the bidding was brisk for all good grades, but the common sorts were comparatively neglected. The Ceylon sales, in accordance with the reports from Ceylon as to the quantity exported, have again been rather smaller than was generally anticipated by the home trade, and prices have been full maintained, and in most cases have exceeded the January quotations. The quality has been fairly good, but perfect excellence in this respect is hardly to be expected until rather later on in the season. Strong efforts are evidently to be made not only by merchants and dealers, but also by representatives sent direct from the island, to push Ceylon teas at the forthcoming Chicago Exhibition; and when the success which attended the efforts made at the late Colonial Exhibition to bring Ceylon teas into general favour is considered, it is hardly to be doubted that a great stride will also be made by these means in the United States. This question, although not of immediate importance, must ultimately have a strong bearing upon the future price of tea in general.

THE EXCHANGE BUGBEAR.—The silver problem and the ups and downs, chiefly downs, in the rates of exchange between this country and the Far East have become too burdensome. It is no wonder, therefore, that in India business men are becoming restive on the subject. The position of a business man in India is a trying one. A decline in exchange tends in the first instance to stimulate the buyer of imported goods, because he feels that with every fall in the gold equivalent of rupee prices there is the less probability of his being able to buy later on at lower rupee prices; in other words, he is the more disposed to think that prices in the silver currency, with which he alone has to do, have in commercial parlance, "touched bottom." But the very fact of a decline which is purely arbitrary, as it is due to conditions absolutely outside the circumstances of the trade in which he is engaged, and is quite incalculable, makes him doubtful as to whether a reverse movement may not ensue, and mark his purchases relatively dear. No wonder, then, that the fall in exchanges has become the chief topic in business circles in India, for, with either a falling tendency of exchange such as has been now practically continuous since October, 1890, or a rising tendency of exchange such as was experienced from May, 1889, to September, 1890, the importer and exporter alike are equally uncertain how to act. However accurate may be their calculations, of demand and supply in regard to the commodities in which they deal, however shrewd their forecasts of the seasons, they are still as likely to find their operations end in loss as if they were mere gamblers.

A SUPPOSED RIG.—There is talk of a French rig in coffee. Its home is in Havre. Neither New York, London, nor Hamburg is implicated in the busine, bt Antwerp is said to have an interest in it.—*H. and C. Mail*, Feb. 19.

AN EX-CEYLON PLANTER IN AUSTRALIA.

LIFE OF A "JACKAROO"—PADDOCKS AND SHEEP-RUNS —IN THE INTERIOR—MILDURA—SUNDAY OBSERVANCE —A DAY AND A HALF OF WORK.

Feb. 16th.

I have several items to write about, and will likely enclose papers which you may be pleased to publish. I am here living on a station in N. S. Wales. The fife of a "jackaroo" or gentleman apprentice, or what you call in Ceylon a "creeper," is a pleasant mixture of pleasure and pain, of rough jobs and glorious riding over the flat grass paddocks. A "paddock" is a field, but a very large field. Some are 2,000 acres others are 8,000 acres. Sheep-runs go from 30,000 acres to 300,000 acres, and the gazing power of the land is very finely adjusted since universal fencing took the place of shepharding in days gone by. Mobs are placed in paddocks, and the number of sheep per acre, or the number of acres per sheep, is nicely arranged. The breeding and selecting is so easily managed in paddocks, and fewer men are necessary. Formerly shephards lost their sheep like little Bo-peep and didn't know where to find them. Rams and cows and lambs were all mixed up; and what was worse, neighbours found their sheep getting mixed. Now everything is orderly and methodical. I am not, as you will be sure, capable of explaining the management of a sheep-run after a week's experience, but a short sketchy description of the scenes and scenery might interest your readers.

After finding that Melbourne did not exactly welcome me, in fact the times were so hard that new comers seeking employment were not likely to be welcomed when those already on the spot were finding it a difficult thing to live, I journeyed into "the interior," as a Ceylon conductor would say, and found myself across the Murray, my old friend at Mildura, and speeding across New South Wales, across a flat, hot, dry, plain. I arrived at Deniliquin and eventually found the station which was

my destination. *The sloping garden* where "Paddy," *not* the Irishman, but the *Chinaman*, toils in endless and untiring industry—watering, watering, watering in this thirsty climate. His water-melons and lock-melons are delicious in this climate. Why cannot melons be cultivated in Ceylon? Surely in Jaffna large quantities could be grown.* *The house*, where blinds keep out the light and fine wire gauze doors keep out the flies, and glass doors and windows keep out the hot winds when they blow. The house is comfortable, nay, luxuriously furnished and grape vines and creepers shade the verandahs. The kitchens and other rooms form a wing at right angles, and round the back are the store, the men's quarters, the various sheds and stables and yards form what you in Ceylon call a "compound." Then farther on is the cottage of an old pensioner "Harry," and beyond that the stock yard where horses and cattle are driven into and out of constantly. About half a mile away is the wool-shed and sheep yards, and then away to the far horizon—where deceitful mirages pretend that the distant timber is dipping in cool waters—stretches the flat succession of paddocks all fenced with wire and posts. Ah that mirage! In old days how much the tortured wanderer, lost—bushed—for days, felt the anguish of Tantalus as his eyes revealed cool lakes into which the gums and boxtrees dipped their tassels. Near this are the "Old Man Plains" a great stretch of dry plain across which many failed to make their way to the Murray and lay down and died in days gone by. Near by, say half a mile, is the township—two hotels and a hovel or two, where drink breeds a curse to the improvident station hand, where the jaded coach-travellers stacken their thirst while they are changing horses. These hotels, pubs, or shanties, are a greater curse rather than a convenience. Away beyond the township stretches the "common," a reserve attached to every township for special grazing privileges, a treeless plain as far as the eye can reach save the faint edging of timber barely visible in the horizon. Sometimes the soil is red and hard, sometimes it is light-coloured and sandy, sometimes it is dark and covered over with deep cracks showing the stiff clayeyness of its composition. The last mentioned is *heavy* feeding, the second is *light* feeding, the first is *sweet* feeding. The first mentioned is the best in Mildura. Let us mount the well-trained station-horse "Jimmy" and start with our host round the yard and away past the wool shed and out into the paddocks. Great mobs of sheep will stare at us as we "amble" along; or, alarmed at the sight of the colley, they will move rapidly away in a long gray line marked by dust to another "camp" in the paddock. Every paddock is so defined that sufficient water, and variety of feed is well distributed. The water is found on the "frontage" of the Billabong creek or in water-holes, or tanks or lagoons. As the water dries up there is great danger of the sheep getting "bogged" in the mud. As we drove along the other day my host jumped out of the buggy and had the disagreeable duty of dragging a boggged sheep out of the water-hole which had become, to put it midlly, considerably "high." And talking of driving—driving over the endless plains is not wonderful, but when you get on to a pine-ridge and go right through the bush among thickly growing pines in a double-horse buggy the sensation is decidedly novel. The perfect obedience of the horses and the skilful manipulation of the reins was worth seeing.†

I have taken part in moving a few fat bullocks into some other paddocks, and shifting some horses over the run, and this has been very enjoyable; but it is merely child's play compared to real cutting out cattle and horses, but still the whole thing is pleasant and enjoyable in its novelty. Sitting in the garden in the moon-light the dark pines dotted about on the park-like expanse, and the varied foliage along the creek, and the white painted water-tank standing on tall scaffolding to which a steam engine pumps up water for garden and bathing purposes—all this form a delightful surrounding in the dry crisp coolness of the evening air. But I have not yet begun the real duties of a "jackaroo," and much of the glamour and novelty will soon be rubbed off in putting one's hand to a job whatever may offer, or to whatever one is ordered by the "boss." But still the climate, the food, the surroundings, are infinitely superior to the enervating, sensual, relaxing climate of Ceylon with the ever-present native at one's beck and call. Mildura is to be the beacon that will beckon me on: for that I will save money, and that will, I hope, be my haven of rest after years of unsettled restlessness.

As I write, the stillness and quiet of Sunday is round the place. Even the Chinaman in the garden refrains from his singing: at least I suppose he means the sounds he utters sometimes to be the outpourings of a happy heart in the enjoyment of song. Sunday is a day of rest on a station just as on a plantation in Ceylon.

ABERDONENSIS.

P.S.—Since writing the above I have *put in* a day and a half of work with my hands, and they are swollen and tender and wounded. A capital thing in a country of the white man, dont-cher-know, to use one's hands a bit instead of those everlasting coolies, dont-cher-see? Fine thiug to recommend to some other fellow, but it gets monotonous to say the least of it, especially in a "white man's country" and you have the horny-handed son of toil muttering in his beard about the "damned jackaroo." I strongly recommend discontented dories to "take a hand" in roadmaking or cutting wood or breaking stones for two days, and try to imagine it is *Australia*! Those glorious gallops, you know, bounding and boundless prairies, fresh, crisp air, and ah!—ah very sore at the "foot of the back." Yeth-aw-dont-cher-know.

(*Copy of Letter sent to the Editor of the "Brisbane Courier"*)

Dear Sir,—In the issue of the *Argus* of the 13th inst., there is a manifesto by Sir Samuel Griffith, favouring the introduction of Polynesian labour.

It begins by explaining how the change of opinion in his policy or in his attitude towards the question of coloured labour occurred. The chief reasons that had influenced his opinion, and had made him a determined opponent to the importation of coloured labour, are enumerated. I will go over them.

1. It tended to encourage the creation of large landed estates owned for the most part by absentees, and worked by gang-labour and so discouraged actual settlement by small farmers working for themselves.

2. It led to field labour, in tropical agriculture being looked down upon as degrading and unworthy of the white races.

3. The permanent existence of a large servile population amongst us, and not admitted to the franchise, is not compatible with the continuance of our free political institutions. And besides this is added, so far as Polynesian labour was concerned, the discredit that had been brought upon Queensland by the abuses in the South Sea Island Trade. I have been a planter in Ceylon and India for 18 years, and have worked Cinhalese, Tamil, and Canarese coolies during that time; and I have thoroughly studied the question of coloured labour, how to get it, and how to keep it. I know how labour is sent to Mauritius, the West Indies, the Cape, &c., from India, how they are safeguarded and protected by Government; and how they come back to India with great (comparative) wealth. The immense boon of a class of labourers, docile, industrious—from part of our own dominions, and protected by Government, being introduced into a country, tropical, or sub-tropical can only be realized by those who have worked coloured labour. In Ceylon we get Tamil Coolies from the South of India to come over and work in our plantations. The recruiting is closely watched, and many of our recruiting agents, or kanganies, are incarcerated for breaking the simple precautionary rules

* In our time, half a century ago, water melons were largely cultivated, and we suppose they sill are. —ED. *T. A.*

† The navigation of road traces covered witth immense tree stumps is wonderful.—ED. *T. A.*

as regards minors. This prevents abuse, because unlike Mauritius, &c., the coolies are not protected by special Government regulations, but, being so near, they are supposed to come and go voluntarily. The kanganies receive advances of money from the Ceylon planters, and they go over and recruit in the villages and collect gangs of coolies at about (roughly) a pound a head. But since *coffee* failed, and tea arose in its stead, there has been far too little recruiting in India. Coolies now-a-days prefer to remain in a country where they have more freedom and license, far from the restraining influences of caste, priests, and family ties, where money is more plentiful, and life more exciting and lively. The Tamil Coolie when he first lands in Ceylon suffers from a revulsion of feeling when he finds the *couleur-de-rose* promises of the kangany fade away into real life. But gradually he gets used to the new order of things and grows contented—even happy. Then there has grown up what I may call a "creole" class of coolie. What I mean by a creole class are those coolies born of Indian parents, but born and bred in Ceylon, who have not seen the country of their fathers, and who only know the country of their birth. These coolies form themselves into gangs and go from estate to estate trying to get larger advances, and they at last get so indebted to their kanganies, that they are virtually enslaved to them. Planters have unfortunately been obliged to play into those kanganies' hands and the rate of advances has gone up, and the security of a settled labour force has been shaken by those restless gangs who try to obtain higher advances. But, notwithstanding, these drawbacks, Ceylon stands in a unique position as regards facility of labour. In Southern India, of course, they obtain labour in the country itself, but one disadvantage arises from being too near the homes of the labourers for this renders the labourer too independent, because he is within "measurable distance" of his home, and can go and come—*malgré* the convenience or control of the planter. But in Ceylon, though the coolie is supposed to be a free agent, and is really so as regards the planter, yet is not so as regards his kangani, or proprietor of the gang; and in any case the existence of the sea being between him and his home, greatly strengthens the hands of the planter in Ceylon, as compared to Southern India. The labour is drawn from an immense country in Southern India, which is thickly populated with Tamil-speaking people. But there are other tracts where "Maliyalum" and "Telugu" are spoken, and then Mysore, where Canarese is spoken, which would yield immense labour-gangs for our colonies.

Now I am coming gradually round to this question of Queensland requirements. The Cinhalese are not very suitable for plantation work; though, since tea-cultivation has so greatly increased, very many Cinhalese who have suffered from the coffee failure,—partly because they grew it, but chiefly because they stole it from plantations, and cannot now steal it since coffee plantations have been superseded by tea-gardens—very many Cinhalese have begun to work, and giving great satisfaction. But the fact of their being so near their villages, like the case of the Indian coolie, renders them unreliable, unsettled, and independent.

Mr. St. George Caulfeild did much to influence Queensland against Indian labourers by importing the scum of the Colombo Jail and "Sea Street" bullies. Many of these rascals were wrecked in the "Quetta" going home lately, and are giving trouble in the neighbourhood of the wreck. These Cinhalese scoundrels gave Queensland an unfavourable impression of Indian labourers. But the unsophisticated Tamil, or, if you like, the sophisticated—this is a very different being. The Hindustani or Bengali labourer is very largely sent to the West Indies under Government Protection. Now here is a vast field of available labour, and in Queensland you have a vast unopened tropical country, rich with undeveloped wealth, ready to grow products which this Southern Empire has to get from outside her bounds. Cotton, coffee, tea, chocolate, rice, maize, coconuts, tobacco, spices, &c., all these tropical riches are, as it were, latent in your soil and climate, and who bars the way? The dog-in-the-manger white labourer who cannot work himself, and grudges his coloured brother a "show." The white man has all the rest of the country; but here a hard and fast line must be drawn as the white and black cannot work alongside each other. But before we go farther with the question of labour I must point out that "mining" must be prohibited where plantations are established because a rush of miners will ruin any tropical planter. I am new to this country, and am not very sure of my ground, but I understand that the Government reserves all right to minerals; and, should valuable minerals be discovered, miners are admitted to take up allotments or "claims." If that is allowed in Northern Queensland then capitalists could never be expected to open up the country in tropical agriculture, and would not dream of importing Indian labour.

My idea is, let there be full compensation made to planters in the event of a miners' rush; or let the planter benefit by the chance of minerals being found on his property, and protect him in the possession of it. Then Government could appoint immigration agents and commence negotiations with the Indian Government. The three causes that rendered Sir Samuel Griffith a determined opponent to coloured labour, seem to a tropical planter very weak, narrow and unworthy of a great politician. No wonder that his mind has at last shaken off the shackles, and has risen above such a narrow horizon. And now let us see what reasons have roused him. He finds that the sugar-cane can be cultivated by white families and sold to the manufacturers at reasonable prices, YET there are not enough of Europeans to carry this out everywhere, and the planters are really in great straits for labour, and mills have therefore to be closed. Now the Government step in and tries to save an industry that it has done its best to strangle. Sir Samuel Griffith appears to favour Polynesian to Asiatic labour. I know nothing of Polynesian labour except what I have read and heard. Fiji's experience, and also the past experience of Queensland does not lead me into the belief that those scattered islands of the East, where kidnapping and reprisals in the shape of murders of boats' crews are the best recruiting grounds for Queensland. Turn to the other side. You approach an Empire, whose civilization is the oldest in the world, whose present Government is a model to the rest of Governments, whose teeming millions of industrious races are ready to go and work—not on the selfish principle of the heathen Chinee,—an alien of the Empire—but as fellow-subjects of the Crown. They are docile, intelligent, and obedient. You have a glorious tropical country that has been strangled by the close proximity of the white labourer. Had there been a stretch of sea between Queensland and the rest of Australia, it would long ago have settled matters in accordance with the peculiar and special circumstances and position, regardless of the jealous and selfish hootings of her sister colonies.

(Signed) W. A. TYTLER.

THE AMSTERDAM CINCHONA AUCTIONS.

(*Telegram from our Correspondent,*)

AMSTERDAM, February 25th.

At today's cinchona auctions 4,780 packages of Java bark, representing about 510,000 oz. sulphate of quinine, were offered for sale. With fair competition, 4,067 packages sold at an average unit of 6¾ cents. (equal to 1⅝d to 1¼d per lb.), being about equal to that obtained at Tuesday's London auctions, and the same as that at the Amsterdam auctions of January 21st. Considering the heavy quantity of bark offered, this is very satisfactory. The following prices were paid:—Manufacturing barks in chips, broken quill and long quill from 15 to 36 cents. (equal 2¾d to 6½d per lb.); ditto root, 15 to 30 cents. (equal to 2¾d to 5½d per lb.); druggists' barks, in chips, broken quill and long quill, from 6 to 60 cents. (equal to 1d to 10¾d per lb.); ditto root from 16 to 54 cents. (equal to 2¾d to 10d per lb.). The princi-

pal buyers were Gustav Briegleb, of Amsterdam, the Baunswick quinine works, and the Mannheim and Amsterdam works. (Mr. Briegleb is supposed to buy for one of the American factories, one of the heads of which attended the sales. It is his purchases that gave rise to the "syndicate of buyers" report a few weeks ago.)—*Chemist and Druggist.*

SCOTTISH ASSAM TEA COMPANY, LIMITED.

The Secretary of the Company has issued the following to the shareholders:—"I have the pleasure to inform you that the total quantity of tea made during season 1891 has amounted to 376,608 lb., which, although 26,562 lb. less than the exceptionally large crop of the previous year, is still about 33,000 lb. in excess of the quantity made in 1889. Up to this date about 308,400 lb. of the season's teas have been sold, producing a gross sum of £13,044, being an average price of fully 10½d per lb., as against 11½d per lb. average realised for whole crop of the preceding year. Five invoices yet remain to be sold, and, taking these at or about Calcutta valuations, it is estimated that the total crop will produce a gross sum of about £15,750, as against £18,600 gross proceeds of crop 1890. Complete accounts have not yet been received from India, but from the figures already available it is evident that the expenditure for 1891 will considerably exceed that of the previous year, the excess arising chiefly under the heads of "additions to machinery" and "cost of importing and recruiting new coolies." On the other hand, there has been a substantial gain (about £1,500) under the head of "exchange," and the rate for remittances to India still continues exceptionally favourable. The latest accounts from the Gardens are of a satisfactory nature, all cold weather operations—such as hoeing, pruning, renewal of buildings, &c.—were well advanced, and everything was being got ready for making a vigorous start with the new season.—*H. and C. Mail*, Feb. 26th.

INCREASING THE LIFE OF WOODEN SLEEPERS.

From a paper read by Mr. H. W. Reed at the Ninth Annual Convention of the Road Masters' Association of America in August last, we learn that in the United States alone, more than 73 millions of wooden sleepers are used annually, and that the present timber areas cannot possibly continue to supply more than half that quantity. This has caused American railway engineers to devote more attention to the different methods by which timber can be preserved than has been the case in other countries, and Mr. Reed also points out that there are several methods of preserving the life of sleepers, besides the use of chemical preservatives.

1st. "By selecting the most durable timber, and insisting upon the use of properly designed bearing, or base, plates whenever soft wood sleepers are used." The average life of black cypress sleepers is eight years, and of red cedar, seven years, when the rails are allowed to rest directly on the sleepers; but when bearing plates are used, Mr. Reed estimates the life of the same sleepers at twelve years at least. When soft wood sleepers are used with double or bull-headed rails, their life may be increased from 50 to 75 per cent by using chairs with a very broad base; for as we have pointed out more than once, sleepers of this sort are, in the majority of cases, crushed or cut to pieces long before they are worn-out or decayed. Anyone who will take the trouble to examine the creosoted fir or deodar sleepers taken out of any Indian Railway, as unfit for further use, will find that at least 75 per cent are fairly sound with the exception of a small portion on either side of the rail or chair-seat. In connection with this, we may point out that the chairs in use on all the large railways in Great Britain, are from 35 to 100 per cent. heavier than those in use on Indian Railways; and, consequently, they have a larger bearing surface, and do not damage the wood so much as smaller chairs.

2nd. "Give proper attention to the specification for, and inspection of, sleepers." Mr. Reed points out that although every Company has its own specifications, which require a certain width of heart, freedom from wind-shakes, rot, hollows, splits, &c., it is customary to allow slight variations from the specification, and that contractors will frequently take advantage of this variation unless the sleeper inspector exercises great firmness, and an unusual amount of good judgment. This is certainly a most important point, and it should always be distinctly stated in the agreement, what amount of variation is to be allowed, instead of leaving this to the discretion of the inspecting officer, as is too often the case. A difference of one or two inches in the length of a sleeper is not of much importance, but not more than half an inch difference in width should be allowed when broad gauge sleepers are being examined, and any that have large gum veins, hollows, or splits, should be rejected.

Thousands of wooden sleepers are condemned every year as being unfit to remain in the road, solely because they are split in the centre to such an extent that there is no hold for the spikes: when such sleepers were accepted, the cracks were no doubt very small and these could have been prevented from increasing in size by putting an half inch bolt through the sleeper about six or nine inches from the end: two plates or washers, four inches square, and one-fourth of an inch thick, would also be required, and the whole could be made of scrap-iron. Dog-nails, bands of hoop-iron, and the many other methods which have been tried, are of no practical value, but split sleepers when properly secured in the manner above described last as long as sound sleepers and are quite as valuable. Even sound sleepers often split after they have been in use for a short time, and as the cost of the bolt, and washers, including the labour of fixing, would not be more than one rupee per sleeper 'if done at both ends,' it would perhaps be a saving in the end if all wooden sleepers were so treated before being put into the road as a preventive measure.

The cost of maintenance is largely influenced by the life of the sleepers used, and if by securing the ends this can be increased by two years, it will certainly repay the cost of applying the bolts.

Any sleepers that have more than half an inch of sap-wood either in depth or breadth, should be rejected as unfit for main line use; such sleepers deteriorate very quickly, and often lose one-third of their original size within three or four years.

3rd. "Sleepers should not be cut when sap is flowing freely." From experiments made by Mr. Reed it was found that yellow pine sleepers cut during the months of January, February, and June (in South Georgia) had at least 20 per cent. longer life than sleepers cut during other months.

4th. "Sleepers should be properly seasoned before being used, and this can be best done by piling, so that a free circulation of air can be maintained through and around, them." Suggestions Nos. 3 and 4 are certainly deserving of more attention than they have hitherto received in this country. As a rule, Indian contractors cut sleepers whenever labour is available, and this no doubt is the reason why sleepers of the same class, cut within a short distance of each other, give results so widely different. Wooden sleepers are often allowed to lie about in the forest for a month or two after being sawn, if there is not sufficient water in the nearest river to float them in; or, if the cart tracks (they cannot be called roads) are in bad order, but no regular procedure is followed; and all contractors try to deliver the whole of their stock as soon as possible after it is cut. When stacked at the depot they are usually laid so close together that only those on the outside of the pile get any fresh air, and when material is required for construction or renewals, sleepers are not allowed to remain at the depot longer than is actually necessary. To leave them exposed to the sun's rays would cause many to split, but cheap sheds with tiled or boarded roofs could be provided at a small cost, and it would then be possible to season them for a year or more, instead of using them within six months from the date on which the trees were cut down.

5th. "Proper drainage of the road-bed will increase the life of sleepers." In this respect Indian railways are far ahead of those in any other country. The advantages to be derived from the use of good stone ballast do not appear to be thoroughly understood even yet on European or American railways, although some of the best practical men in each country fully recognize its value, and have recommended its being adopted as the standard whenever practicable.

6th. "Proper care of sleeper." The practice of using picks to pull sleepers into place is destructive of their life, for the pick not only makes holes that admit water into the sleepers, but often splits the sleeper, thus providing an avenue for its rapid destruction. Hooks are much better than picks for placing sleepers. Old spike-holes are also a prolific cause of decay and should be plugged with wood when re-spiking." The suggestions made in the last paragraph of Mr. Read's paper are deserving of attention, and we believe that most railway men in this country are aware of the necessity of attending to such details.

Before leaving this subject we may mention that in America sawn sleepers are only used when hewn sleepers are not procurable. Mr. W. B. Parson, C.E., Engineer in charge of the United States Sub-way Company, who has had a large amount of experience with wooden sleepers, says: "Hewn sleepers are preferable because they are more durable: men of experience in such matters claim that the adze in hewing closes the pores of the wood, while the saw leaves them open to absorb moisture and hasten decay. A great objection to sawn sleepers is that they can be made from large coarse-grained sticks, giving several sleepers to a section, and it is even possible to pass off old or dead timber when decayed portions have been removed by the saws."

In Australia also, sawn sleepers are not in favour and it is generally specified that the logs are to be split with wedges in the same manner as wooden fencing: this prevents cross-grain timber being used. Neither splitting or hewing appears to have been tried in India or Europe to any appreciable extent; and if sawn sleepers were objected to, a higher price would probably be demanded, as there would be a great deal of waste with large log if they were split instead of sawn.—*Indian Engineer.*

NOTES FROM YERCAUD.

(From our own Correspondent.)

YERCAUD, March 8.—Since my last letter the stream of arrivals has run steadily on and the Ho! Hum! Ya! Cum! song of the bearers is now a daily sound. It is impossible not to admire the good humour, and general cheeriness of these men who, in all weathers, often cold, hungry, and ill-clad, set willingly to their by no means easy task of breasting the ghaut with perhaps sixteen stone of solid weight upon their shoulders, and lighten their way with ceaseless quip, crank, and jest. The ease and economy with which the Shevaroys can be reached is remarkable, and if more widely known would certainly count much in their favour. Leaving Madras in the evening Sooramungalum, or Salem, the station for the Hills, is reached by 4 a.m. the next morning, giving time for a comfortable wash and brush up and *chota hazri* before the dawn appears. A brougham, bullock coach, or the rapid, though less luxurious, jutka, covers the ground to the foot of the Hills in less than an hour, and the cheery bearers have borne their burdens aloft and left the burning plains well behind before the power of the sun begins to make itself felt. Yercaud is reached easily by 9 o'clock, then a bath, breakfast, a siesta and lo! what a change is there. Can this bright, alert, cool looking individual be that gasping, dust-begrimed creature that was called a Madrassee yesterday? If so would that his fellow Madrassees could see him. and do likewise! Only fourteen short hours since he was driving to the Central Station amidst noise, dust, smells and blasts of hot wind, and wondering to himself whether life was worth living. Now he has no hesitation in answering that question in the affirmative.

If this delightful exchange can be obtained by one night's travelling, then he is full of pity for the people who go further and perhaps fare worse. Rarely does a visitor who comes here for the first time go away disappointed, and numbers are filled with surprise and regret that the existence of so delightful and get-at-able a health resort had remained so long unknown to them. An occasional visitor from Bengal declares it to be far superior in every possible way to Darjeeling, and considers it worth the extra trouble and length of journey to get here. Epidemics are almost unknown, even the simple one of measles, which is constantly present in Ooty, never appearing. The belief that the Shevaroys are feverish is a popular error that has been fanned into faith by the willfully bought experience of the few. Carelessness and imprudence will bring about their own results anywhere, and unfortunately people seem to display a larger share of both when once they get to the Hills. It is a common thing to see young and delicate children, sometimes fresh from the enervating heat of the plains, out in damp weather before the heavy morning mists have been dispelled, and again after sunset, when except in the dryest weather, it is too late for them to be out. Exposure to the sun, violent exercise, neglect in changing wet clothes, are all causes likely to act injuriously on frames enfeebled by residence in the plains, yet when they are never avoided, and illness follows, the climate is blamed! The residents are healthy enough, but though acclimatised, they are careful to avoid the risks which some visitors indulge in freely, and never have cause to complain. As elsewhere we have been living in dread of the arrival of the demon influenza, but happily have escaped so far, though it is amusing to see the anxiety with which the symptoms of the simplest cold are watched till fully developed. The Tashildar and all his clerks happened to feel ill simultaneously with feverish symptoms, and the alarm spread like wild fire that influenza had arrived, though every one looked foolish when no fresh cases occurred, and the attack was traced to a simple, and natural cause. An impression exists that this is the begining of the most unhealthy season of the year, but as a matter of fact public health is particularly good just now, with even fewer cases than usual prevailing of the colds and coughs which, as a rule, accompany the trying changes from hot sunny days to cold dewy nights.—*M. Mail.*

INDIAN IRRIGATION.

The late Chief Secretary of Victoria, after visiting India, penned an able report upon what he had noted in regard to Indian administration. Summing up the conclusions at which he had arrived, the Hon'ble Mr. Alfred Deakin said that the legislation of India had not much to teach Australia, its administration little, its practices little, its relations of State department and people little, its agriculture very little, but that India's methods of construction, management of canals, conservation and distribution of water could teach Australia a great deal. Coming from the above authority and at tail end of a series of negatives, this remark is a high compliment to those intrusted with the care of irrigation in this country. Mr. Deakin alludes to the circumstances under which irrigation began in India as not unlike Australian circumstrances. But he remarks that in this country irrigation provides fresh food fast, only to find the population increasing faster, and not permanently rising or likely to rise, in the social, moral or intellectual scale, to even a European standard. He studied Indian irrigation as an outsider, desirous of learning what the system could teach. He alludes to Indian Engineering designs and devices as worthy of acclimatisation in the colonies; and reviews the working of the system in a highly appreciative manner. The reports upon which he based his remarks have now been succeeded by others. But these later writings

only tend to confirm the greater part of what Mr. Deakin has said. He wrote for a special purpose and touched upon some points which the Indian critic is content to take for granted. But the reports now published on the working of the Irrigation Departments in India during 1890-91, strengthen us in the belief that that country is fortunate indeed, which can truthfully say that it has nothing to learn from India in regard to irrigation. What is being done here is the outcome of centuries of native experience, followed up by European science. Irrigation must have been practised by Indians in very remote ages, and even the perennial canal of today appears to date back from the thirteenth or fourteenth century. But now, outside the Government schemes, the rain-filled tanks and the little wells are the chief source of native supplies. It is to these and not to the canals, or the tanks built by Mahomedan monarchs, that the people have trusted for centuries; it is to these that we chiefly look now for protection against a threatened water-famine.

In regard to irrigation we do not propose to dwell at great length on the usual test of a system, its financial results. These, if studied narrowly, would lead us to wrong conclusions; while to make clear the broad deductions that may be drawn from the annual returns, would occupy more space than we can spare. Suffice it for the present to refer to somewhat old figures which enable us conveniently to compare the cost of irrigation in various parts of India so far as concerns works which may be regarded as comparatively new. Here are the figures:—

	Expenditure. £	Acres Irrigated annually.
Ajmere	160,000	36,000
Bombay	2,500,000	85,000
Sind	1,180,000	150,000
Bengal	6,000,000	550,000
North-west	8,000,000	2,000,000
Madras	5,300,000	2,400,000
Punjab	6,500,000	3,000,000

Madras, it will be seen, shows up well here. It has made large use of Native works, and has thus been able to reduce the average of costs. But if we add to the above Native canals used in Government schemes, the table given would be increased by many acres:—Burma, 200,000; Sind, 1,000,000 and Madras 2,500,000, making about 13,000,000, for £33,000,000, yielding 4 per cent net revenue. To this total must be added the immense extent of country everywhere but especially in the North-West and in Madras, supplied from wells and tanks by the people themselves, and also the totals of Independent States. That all the outlay thus incurred is highly profitable, can hardly be shown in actual figures; though we have ever before us the fact that without irrigation millions of people could not live and some millions would be decimated by famine every few years. Speaking broadly however, of the financial results shown in official accounts, Madras, the North-West, the Punjab and Sind show handsome profits in regard to irrigation; Bombay figures are healthy; while in Bengal irrigation has been found to be the cheapest and best means of fighting famine, and saving the public Treasury from ruinous drafts in bad seasons.

Turning now to portions of the reports for 1890-91, we find that in Bombay 221,464 acres were irrigated, as against 230,753 in 1889-90. The decrease is explained as due to the exceptionally good rainfall during the late season, which led to a reduced demand for water. The aggregate estimated value of the crops irrigated was 40 lakhs, and the working expenses per acre irrigated are returned at R1·35. In the Deccan and Gujarat the net irrigable area under command was increased from 533,313 to 535,762 acres. The area irrigated by all the works taken together was 75,901 acres, which showed a falling off of 10,698 acres, due to favourable rainfall. The total revenue realised was R4,60,813; while the working expenses amounted to R2,39,615. Bengal reports allude to returns for Major Works as less favourable than in the preceding year. The large Canal Works are specially commented upon by the Government of India, which mentions incidentally that there is now no reason for further delay in completing the Orissa project so far as regards detailed sanctioned estimates, but progress continues slow owing to the want of labour. As regards Major Works the net result of the year was a loss of R92,995; while when Major and Minor are combined, the net results are shown to be, Receipts R21,70,960; Working Expense R20,28,238; Interest payable to the Government of India R23,87,119; Net charge on Provincial revenues R22,44,49. The total outlay in Madras was R68,45,384; the total area charged as irrigated both for first and second crops 5,514,184 acres, and the total irrigation (indirect) revenues, exclusive of deductions and remissions amounted to R1,38,20,535. The net revenue it is observed, amounted to 6·95 per cent in the capital outlay of the works in operation; and this percentage would have been 11·80 were it not for the Kurnool-Cuddapah canal. Taken all in all, the above figures are satisfactory; and they give but a faint clue to the benefits derived from the works to which they refer. Although at the present moment we have to say that the shadow of Distress is cast over India, we may also safely assert that that shadow would be much darker and much more to be dreaded were it not for the steady care that has been bestowed upon irrigation, and the great advances that have been made.—*Madras Times*, March 11.

SUVA CHAMBER OF COMMERCE.

The Annual General Meeting of the Suva Chamber of Commerce was held at the Suva Club Hotel last Friday evening, the Chairman, Henry Marks, Esq., J. P. presiding.

THE CHAIRMAN'S REPORT.

* * *

The total imports for 1890 amounted to £206,757 as against £189,393 for the preceding year; being an increase of 8·4 per cent.

Under the heading of exports, the value for 1890 is set down in the official return as £364,533 as against £364,282 being only an increase of £251, the smallness of which may be accounted for by the fall in price of one of the staple articles of export namely sugar, the diminution in value averaging £4 per ton; but as there was a total increase in value, despite the fall in price of one of the principal commodities, it is evident that the exports of the colony are considerably on the increase. As regards navigation I might mention that the total foreign tonnage for 1890 exceeded that of the previous year by 26,456 tons.

I will now make a few comments on some of the products of our colony.

TEA.—This is finding favour in all quarters and it is greatly to be deplored that the supply is in no way adequate to the demand. In fact for some months past a considerable quantity of foreign tea has had to be imported by local merchants; this marked increase in appreciation should prove an encouraging factor to producers, and it is to be hoped will lead to more widely extended cultivation.

BANANAS.—The export of this fruit is still increasing and from the large amount of fresh land being brought into use for the growth of bananas, it is to be concluded that the producers find the industry a profitable one, notwithstanding the many drawbacks they have to contend with.

COPRA.—1891 having been a very favourable year for the growth of coconuts and as new areas are coming into bearing, there is every reason to believe that the export of copra will be considerably in advance of former years.

DESICCATED COCONUT.—It is satisfactory to note the various kinds manufactured by the local companies are coming into larger and rapidly increasing demand, so as to necessitate a considerable increase of plant from time to time.

TOBACCO.—Although so far there has been no export of high class tobacco from Fiji, there is some reason to hope that the year 1893 will show superior tobacco both for wrapping and filling cigars, entering into

favourable competition with other in the mark ts of the world.

SUGAR.—The growth of sugar-cane is considerably on the increase and during the past year, large areas in a completely new district have been put under cultivation, this being the forerunner of sugar works of considerable magnitude.—*Fiji Times*, Feb. 3rd.

SCENES FROM EASTERN DRUG-PLANTATIONS.

The scenes represented in the following illustrations are reproduced from Dr. Alexander Tschirch's book "Indische Heil und Nutzpflanzen, und deren Cultur,"* upon which we comment in another part of this issue. The work contains no less than 128 illustrations, reproduced from photographs, mostly taken by the author himself. The first view shows a cinchona-plantation in Java. The little seedlings in the foreground are a Succirubra nursery. When the time arrives to plant out the seedlings in a regular plantation two coolies carefully remove the covering of the young shoots, pull them out by the roots, taking care first to moisten the earth round about, so that it shall adhere to the roots, place the shoots on a tray, and cover them with Pisang leaves to protect them. Two other coolies carry the tray as quickly as possible to the plantation-ground, where the seedlings are at once replanted under European supervision. The trees in the background are a full-grown plantation of *Cinchona Ledgeriana*, Moens. While exploring the bark estates in Western Java, Dr. Tschirch was disagreeably reminded that living among the cinchonas gives no immunity from fever. On one occasion he was suddenly seized with malaria while standing under a magnificent Ledger-tree in Bandong, and had to ward off the attack by swallowing compressed quinine tablets, which the local pharmacist obtained all the way from Berlin. The first illustration on page 309 shows the late Mr. B. Moens, the assistant-director of the Java Government gardens, to whose indomitable perseverance the cinchona industry in that island owes much of its present position, reclining in the shade of his own cinchona-tree of the Ledger variety which bears his name. The plantation is a typical Javanese Kinatuin, or cinchona-garden.

GRAFTING.

Great attention has been paid in Java lately to the intermixture of the cinchona varieties by grafting. The first grafting experiments were made as far back as 1866, in Teysmann's days. Director Van Gorkom afterwards devoted much time to the pursuit of this mode of culture, and the present director of the Government gardens, Mr. Van Romunde, believes that the grafting-process has a considerable future, in proof of which conviction he has caused it to be extensively resorted to in some of the gardens under his care—at Tirtasari, for instance. The grafting of the slow-growing *Ledgers* upon the strong, hardy, and quick-growing *Succirubras* has not, up to the present time, yielded favourable results, for it is found that a considerable proportion of the cinchonidine of the Succirubra is absorbed by the Ledger-graft, which is originally wanting in, or but sparingly provided with, this alkaloid; while, contrariwise, the quinine from the Ledger passes into the parent stem, the result being a tree containing less quinine but more cinchonidine than the trunk, a transformation which, needless to say, is not a desirable one.

Dr. Tschirch gives some striking instances of what we may term this alkaloid-exchange. A Ledger tree, raised from American seed, yielded 9·79 per cent. of quinine; grafted upon a Succirubra, the combination resulted in the production of a bark analysing only 7·32 per cent. quinine, but also 2·77 per cent. cinchonidine. From another Ledger, yielding in the natural state 11·01 per cent. quinine and no cinchonidine, grafting upon Succirubra produced a bark yielding 8·61 per cent. of quinine and 1·11 per cent. cinchonidine. On the other hand the succirubra trees become richer in quinine by grafting, the bark of one tree increasing its percentage from 1·5 to 2·7 per cent., that of another from 1·5 to 1·65 per cent. The book contains altogether fifteen illustrations showing the cultivation and preparation of cinchona, while the tea-culture claims seventeen, coffee six, and cocoa four.

NUX VOMICA.

The next view shows a full-grown *Strychnos* tree in the Government Gardens at Buitenzorg, near Batavia. The tree is a native of Ceylon; it attains a height of about 30 feet, and, notwithstanding its attractive appearance in the photograph, the author describes it as neither imposing nor beautiful—the flowers, plain, insignificant, of a yellow-green colour, contributing nothing to heighten the effect of the tree.*

THE TAMARIND.

The *Tamariudus indica*, of which the illustration shows a full-grown specimen in a thick plantation in Java is a tree of very different appearance. Neither in Java nor in Ceylon is it cultivated in regular gardens, but the beauty of its growth and the amplitude of its foliage have brought it into favour as a shade-giving tree. The tamarind appears at its best in the season when it is covered with its myriads of delicate flowers, or in the fruiting period, when thousands of long, fawn-coloured fruit-pods droop down from their long stalks. A tamarind-tree 50 or 60 feet in height is by no means rare but this altitude is only attained after many years, the tree being one of very slow growth. The great square in Batavia, the "Koningsplein," is shaded by magnificent avenues of tamarind-trees.

BENZOIN.

The benzoin-tree (*Styrax Benzoin*, Dryander)—in Malay, "Kayoo Keminyan"—is a native of Sumatra and Java. The tree grows to moderate size—the specimen represented in the picture is about 40 feet high—its leaves, flowers, and fruit are of a plain grey colour, which does not add to its dignity or beauty. A Dutch planter in Java has established a benzoin plantation of 70,000 trees on the northern slope of the Salak volcano; but, although he imported labourers from Sumatra on purpose, and the mode of preparing the gum followed in Sumatra is known in all particulars, the culture does not appear to flourish very well in Java.

THE NUTMEG.

The last picture represents a group of trees in the Government Botanical Gardens in Java. The two large trees to the right are nutmeg-trees (*Myristica fragrans*, Houtt.) The left part of the illustration shows *Elettaria speciosa*, some of the smaller Zingiberaceæ. The nutmeg-tree, says Dr. Tschirch, reminds the European traveller of the vegetation of his own home more closely than almost any other tropical plant. Its handsome, well-proportioned stem, the elegant pyramid of its richly-verdured crown, the small leaves—all these peculiarities makes him think of the pear-tree of his own gardens, only that every part of the nutmeg-tree branch-formation as well as outline, seems more beautiful and noble. The average height of the tree does not exceed 30 feet, or its circumference from 8 to 10 feet, though in the wild state it grows twice or three times as high. The nutmeg-tree, it is true, does not shine by the magnificence of its flowers, which though abundant, and of a pleasant orange fragrance, are small, unobtrusive, and strikingly like those of the hawthorn; but its peach-sized, oval, pale yellow fruit peeps kindly through the verdure, and the vivid red arillus glancing through the burst fruit, and contrasting effectively with the dark brown seed-husk, imparts a strong and characteristic colour to the whole. The tree bears fruit and flowers simultaneously almost all the year through.—*Chemist and Druggist.*

* *Indische Heil und Nutzpflanzen, von Dr. Alex. Tschirch.* Berlin, R. Gaertner's Verlagsbuchhandlung. loth cover, octavo, 223 pp., 128 llust. 30 marks.

* We thought the foliage of some young trees near Mihintale very pretty.—ED. *T. A.*

A CITY OF PALMS.

Georgetown, the capital of British Guiana, may claim, with more right than any West Indian town, to be called a "City of Palms." Here, indeed, more than in any other place I have ever visited, do they, from their abundance and vigorous development, exhibit that majesty and grandeur, the story of which must have first won for the Order the title, "Princess of the Vegetable Kingdom." Whatever part we stroll, on every hand they appear, forming majestic avenues, rising at entrance gates in pairs with stately pillar-like columns, or scattered singly or in groups, in gardens or by road-sides, their pluming heads, tossing in the wind often a hundred feet aloft. West Indian towns, generally, abound with plants, and lie, as seen from some elevated point embosomed in vegetation, but taking a general birds eye view of this city, nothing strikes the observer but the forest like abundance of palms. As seen from any of the elevated towers the view is exceedingly beautiful. To the back lies the Demerara river, which before the trade became monopolised by steamers, was crowded beyond any of our West Indian ports with shipping, and on the left the sea; while beneath and around, far stretching, are seen the white well kept, stores and houses over-shadowed and sheltered by the canopy of palm foliage. Looked at in this way some parts of the city that are fully built over and occupied seem to be pure unbroken coconut plantations, the streets and houses being hidden beneath the trees. Most of the tree stems are naked but others are clothed from ground to crown with the small repent fig, or with bright flowered free-growing creepers. It is surprising that this richly tropical effect is produced by only two species,—*Cocos nucifera*, the coconut, and *Oreodoxa oleracea*, the well known cabbage palm of the West Indies. A few other kinds of introduced palms are found grown up in the town, but, excluding the public gardens, in numbers so few that they may be counted on the fingers of one's hands. The coconut tree is grown only for the sake of its valuable nuts, and is never planted to form an ornamental feature. The cabbage palm on the other hand, though of incomparably less utility, is planted only for decorative effect, being one of the most stately and beautiful plants in the order. It is spontaneous here as everywhere that it once obtains a footing, and its prevalence is probably as much due to its generative energy and constitutional vigour as to any particular taste on the part of colonists for its cultivation.—*Demerara Argosy.*

IN PRAISE OF CEYLON TEA.

Messrs. Gow, Wilson & Stanton write to us, under date 23rd Feb. :—

"The chief object of this letter is to forward the enclosed document which is somewhat unique, and the chief importance of which consists in its emanating from one of the largest retail tradesmen in London. Whiteley's shop, as you probably know, has an enormous patronage amongst well-to-do classes in England and, therefore, the circulation of this document may perhaps become very wide. Should this be the case, it may tend to still further increase the popularity and the sales of Ceylon Tea, and we therefore bring it to your notice as a step which may eventually prove of some benefit to the Ceylon Tea Trade."

The enclosure is as follows :—

AFTERNOON TEA AT WHITELEY'S.
1892.

"Jinglia! Tinklia!" Teacup and Spoon!
O! the glad sound on a cold afternoon;
Refreshing aroma wafts all round me,
While sipping at Whiteley's his "Pure Ceylon Tea!"

Out on the pavement is nothing but snow,
Here within Whiteley's I feel a warm glow;
Dainties are brought me, I sit at my ease,
Partaking at Whiteley's of "Pure Ceylon Teas!"

All should come early, who wish to be served
Here without waiting, no tables "reserved";
In comfort you sit as long as you please,
Enjoying at Whiteley's his "Pure Ceylon Teas!"

How the wind blusters, and O! how it blows!
Keen too it cuts through the thickest of clothes
I feel impervious to any cold breeze,
Refreshed so at Whiteley's by "Pure Ceylon Teas!"

"Jinglia! Tinklia!" Teacup and Spoon!
O! the glad sound on a cold afternoon!
Nothing can equal, O! *do believe* me!
The flavour of Whiteley's own "Pure Ceylon Tea!"

L. F. S.

We only hope that Whiteley's tea *is* pure Ceylon.

It may not be generally known that a good substitute for tea can be obtained in the Australian bush. It is a glabrous climbing plant, with stem and branch covered with prickles. Many persons call it Botany Bay tea, and others sweet tea. It has good medicinal properties, besides furnishing a tasty andrefreshing drink.—*Indian Agriculturist*, Feb. 27th.

The Market for China Tea is not so strong, but the prospects are no worse, in fact, at low prices chances are in favour of a large spring shipping demand. In reference to next season's business the position is becoming clearer, for it seems to be unreservedly admitted that importing must be carried on very differently. A general improvement in quality may also be looked for, and that would undoubtedly go a great way to reinstate the China article to public favour. The great weight of inferior Indian and Ceylon Tea just now offering on the market is prejudicially affecting values, and it is a question whether such leaf would not be more advantageously prepared as brick tea. There is a largely increasing trade opening up *via* Tientsin in the north and north west of Asia. Ceylon could spare 15,000,000 to 20,000,000lb. of its increasing production to the benefit of all concerned.—*L. and C. Express*, Feb. 26th.

The Wattle Industry.—Messrs. Angus, of New Hanover, are going in extensively for wattle cultivation. Their enterprise may be said to inaugurate a new era in the industry, the application of scientific methods to the preparation for commercial purposes. It marks, in fact, a new departure in the industry, nothing of the kind having been tried before in South Africa or Australia. The buildings include a drying room, capable of drying some four tons of bark in some eight or ten hours, a blast of hot air being continually driven through the room by means of furnaces and a large fan. In other sheds are the steam engine and chopping machine for cutting up the dried bark together with packing and storing rooms, tanks, &c., the whole arrangements being so complete that the preparation of the material will doubtless go on in wet or dry weather with the regularity of a manufactory.—*Witness.*

Coffee at the Straits.—It is satisfactory to know that at least one class of the community has benefited by the heat which most of us have found so trying during the past few weeks. We are informed that the blossoms on the coffee have surpassed anything that has been seen in these parts before; and that the exports of coffee for 1892-93 may be expected to beat the record. Prices also continue firm, and are likely to do so; the unsettled state of almost the whole of the South American continent making it impossible to obtain reliable information as to the probable output of that quarter of the globe. The tendency of belief at the same time being that the prevalent uneasiness there will tend to disorganise labour, a consequent diminution of production may be looked for. We feel therefore that we may confidently congratulate our Eastern coffee planters on the future before them.—*S. F. Press*, March 5th.

MAT MANUFACTURE IN COCHIN.

The following account of the history and manufacture of Wadakaucherry mats has recently been given in a report on the Agricultural and Industrial Exhibition held at Mysore in October of last year.

The mats are made at Wadakaucherry, a taluk of Cochin. They are known at the place by the simple name of grass mats, and are recognised elsewhere by the name of Palghat and Kavalapasa mats, other places of manufacture. The industry was introduced into Cochin from Kavalapasa about forty years ago. At first there was but one family engaged in the trade, it has now increased to three, consisting in all of twenty souls. Both males and females are employed in the work. The men were originally brought for making mats from the Sircar and were provided with free quarters. Such is the short history of the introduction of the industry into Cochin.

These mats are made, like the Palghat mats of a kind of sedge (*Cyperus Pangorei*), grown by the side of swamps and rivers. The sedges grow to a height of six feet, by one and a half inches in circumference, and are of a triangular shape. They are collected in the rainy season. The culms or stems are split, and the inside pith removed, and are then dried. Each stem may be split into from four to eight, or even twelve, according to the delicay of the texture intended. The strips are then well seasoned and sown into mats. Women are mostly employed in the collection and splitting of the stems, while the actual weaving is done by men. The loom used for the purpose is of simple construction, consisting of two bamboo pieces at either end, attached to pegs driven in the ground. The warp consists of twine made of country hemp, and is produced by the weavers themselves. In special cases cotton-thread is also used instead of twine. The process of weaving is done by the strips of sedge being passed to and fro crosswise, by means of a stick with a whole at one end of it to which the sedge is attached. The warps are passed through a moveable piece of wood with as many holes as there may be warps, and are tied up to the Bamboo pieces at either end. According to the number and nearness of the warps the greater is the delicay and strength of the texture. The woof is made compact by means of the piece of wood above described.

The distinguishing peculiarity of the Wadakaucherry mats is their brilliant colour. Only four varieties of it can, however, be had, namely, the white, black, red, and yellow,; of these the last is the readiest to fade, and is obtained from a peculiar solution of turmeric and cassia leaves. White is the natural colour of the strips when properly prepared; red is obtained by boiling the strips in water containing sapan-wood and cassia leaves; black is but a conversion of red by a peculiar process of boiling the red strips in a solution of gall-nuts and green vitriol, and by subsequent soaking in a preparation of black clay. The difficult and dexterous portion of the work is the spliting and dyeing of the strips, the same has to be coloured with different colours, and this has to be done very carefully with reference to the size of ornamental work intended to be produced. When one colour is being worked at, the rest of the strip which has to be coloured differently will be closely covered with the outer covering of the plantain tree. The process of drying snd dyeing the strip may take a fortnight.

Natives use the mats as seats, and also for mattresses in the hot weather. A sort of social distinction is associated in the offer of these mats as seats, and amongst the vulgar, disregard of it on ceremonial occasions tends to foment disputes. These mats are also used for flooring, and are then woven to the size of large halls and rooms. The mats vary in price from 1 to 10 annas, while the superior kinds fetch from 15 to 25 rupees, according to quality.

Experiments have been made with other colours besides those just mentioned, but hitherto without success. If the industry were carried on by organised capitalists, these experiments might perhaps be successfully repeated, and many other improvements effected, such as facilitating the splitting of the sedge and keeping it compact by means of mechanical aid, and also relieving the weavers from the stooping they have always to assume when engaged in the work.

The mats of Wadakaucherry, compared with those of Tinnevelly, are generally superior in colour and ornamental work, but are less pliable, though the strips are sometimes more delicate.—*Journal of the Society of Arts.*

COMPRESSED OR TABLET TEA.

In January of the present year two samples of compressed or tablet tea were presented to the Museum by Colonel Alexander Moncrieff, C. B., accompanied by the following letter addressed to Sir Joseph Hooker.

15, Vicarage Gate, Kensington, W.,
24th January 1890.

My dear Sir Joseph,

I had almost forgotten to send you the specimens of "tablet tea" which I spoke of at the Athenæum, but as soon as I saw it just now I recollected my promise, and here it is.

My Chinese correspondent, Mr. Gardiner, Her Majesty's Consul at Hankow, informs me that this tablet tea is in use throughout Russian Siberia. It is manufactured at Hankow, the larger tablet from common tea dust, which adheres after being steamed in a pudding cloth for a moment, by hand pressure. The quantity of the dust required is placed in the bag, and after being steamed, is poured into the wood mould, and is pressed to the required consistency by lever or a heavy mallet wielded by one of the labourers. The cost of the common tea dust is 3½ Chinese ozs. silver (say, 15s.) per pecul=133 lb. avoirdupois. The cost of the manufacture, export duty, packing, &c. amounts to a further 15s. a pecul. The bulk when packed is only one-sixth of the bulk of an equal weight of ordinary tea as ordinarily packed.

"The small tablet is made of the finest tea dust, the selection of which is made with great care. The original cost of this tea here is about 84s. a pecul. It is manufactured into tablets by steam machinery in a steel mould. The proper amount of dust is poured into the mould dry without steaming, and the pressure brought to bear upon it is two tons per tablet. Considerable care is required in the manufacture and packing of this tablet tea, and the cost is comparatively great.

"Besides this tablet tea used in Russian Siberia, there is a pressed tea called brick tea used in Chinese Mongolia and Tibet. This is made of the whole of the leaf with stalks, and is about the size and shape of an ordinary brick. I have not seen this tea manufactured. It is made, I know, by Chinese in a very simple way.

This is all the information I got with the specimens.—I am, &c. (Signed) A. MONCRIEFF.

Sir Joseph Hooker, K.C.S.I., F.R.S., &c.

The manufacture of compressed tea at Hankow, referred to in the above letter, seems to be an industry of considerable importance, and is fully detailed in an article from the *Planters Gazette*, reprinted in the *Tea Cyclopædia* issued from the office of the *Indian Tea Gazette*, Calcutta, and published by W. B. Whittingham & Co., 91, Gracechurch Street, London, in 1882. It is there stated that "the Commissioner of Customs at Hankow reports that the importance of the brick tea trade is rapidly increasing, and the demand becoming greater than the supply. The employment of steam machinery for pressing the bricks has proved in every way a great success, the stem-pressed brick being much better finished than that produced by hand, and more compact and firm, withstanding the difficulties of transit better, and ultimately arriving at its destination in Siberia little, if any, the worse for the journey. With the old method, the bricks, from insufficient pressing power, were liable to chip and crumble at the edges; and as great stress is laid on perfect appearance of the brick by the Siberians, it can be

easily understood that a hard, sharply defined brick would at once obtain the preference. With both methods of manufacturing brick tea, there is a drawback, and a serious one—the damping of the dust by steam, which robs it of all its fragrance. To remedy this defect, a firm has imported a hydraulic press, which turns out small corrugated cakes, weighing a quarter of a pound each retaining the original aroma in all its freshness."

It was considered very probable that the ordinary brick tea and the compressed tea would run side by side in friendly competition, the brick keeping its own position for use amongst the poorer, and the compressed tea becoming popular amongst the better classes. At the time the article was written from which the preceding extract is made, there were six manufactories in Hankow, in three of which boilers were used either for steaming the tea, or both for that purpose and furnishing power for pressing. The dust from which brick tea is made comes principally from Ningchow in Kiangsi and Tsung yang and Yanglout'ung in Hupeh, and varies both in fineness and cost according as it belongs to the first, second, or third crop.

The Commissioner proceeds to state that—

"The first operation is to sift the dust and reject all the sand and rubbish contained in it, usaually amounting to about five per cent. It is then placed in a winnowing machine having three different sized sieves, with troughs corresponding, and passed into baskets. The residue, which is too coarse to pass any of the sieves, is taken out and trodden until it is reduced to the proper consistency, when it is placed in iron pans over a charcoal fire until it is sufficiently brittle, when it is again taken to be winnowed, and this operation is repeated until it has all been sifted to the requisite degree of fineness. Three sizes are produced, the coarser ones being employed to constitute the brick, while the finest dust is only used as a facing. The dust having been properly sifted the next step is to prepare it for pressing, and this is done by exposing it to the action of steam for three minutes, and it is this steaming that robs brick tea of its scent and flavour, and for which a remedy is eagerly sought.

"The old fashioned native apparatus consists of six iron boilers heated by charcoal and having spaces above, which are fitted with rattan covers. When the dust is to be steamed it is spread out on a sheet of cotton cloth placed over the boiler and covered up; but with the improved European apparatus the dust is simply put into iron boxes and the steam there passed through them. After having been sufficiently steamed to make it adhesive, the dust is put into a strong wooden mould, on the movable cover of which the trade mark of the 'hong' or firm is engraved (so as to leave the corresponding inpression on the brick) and firmly wedged down. It is then pressed and placed on one side for two or three hours to cool. Each brick should weigh one catty (1⅓ lb.), and all those that do not come up to the proper standard of weight or are defective in any way are rejected and re-made. For this purpose they are taken to a rotatory mill, constructed of two heavy circular stones moved by a horizontal wooden bar and working in a channel where the condemned bricks are thrown, and crushed as the wheels pass over them. Having again become dust, the operation already described is in all its details repeated. The hand press turns out 60 baskets a day with 25 per cent. failure bricks, while the stream press produces 80 baskets a day, with only five per cent. of bad work, and the saving by the employment of the improved machinery amounts to one tael a basket, or, according to the above stated outturn, eighty taels a day, or about 20*l*. The bricks found to be correct in weight and free from defects are stored in the drying room for a week, when they are carefully wrapped, separately in paper, and packed in bamboo baskets containing 64 bricks each. Green brick tea is made in the same manner, but of leaf, not dust, and the bricks are larger, weighing two pounds and a half each, thirty-six going to a basket when packed for export."

There is a sample of hard compressed brick tea in the Kew Museum such as was imported in quantities into London from Shanghai in 1863, for re-exportation to Russia, the cost of which was 6d. per pound and duty. It seems from information kindly furnished by Mr. Henry Tuke Mennell, F.L.S., of St. Dunstan's Buildings, Great Tower Street, E.C., who presented the above-named specimen to the Museum, that this kind of tea is not now an article of commerce on the London market, though it is still an article of regular consumption in Russia, but is now chiefly, if not entirely, sent overland.

Consul Allen, reporting on the trade of Hankow for the year 1887, says, "The trade in Russian brick tea seems to increase 'by leaps and bounds.' The bricks are prepared entirely by steam machinery. The brick tea factories, with their tall chimneys, are the most striking buildings in the European settlement."

The brick tea of Tibet is an entirely different quality of tea from the above described. The full grown leaves are used, and are comparatively loosely pressed together into blocks about 10 inches by 10 inches, and 4 inches thick.

Mr. Colbourne Baber, some time British Consul at Chungking, described the Tibetan teapot as a wooded churn, in which the boiling infusion is poured through a strainer; a little salt is added, and some 20 strokes applied with a dasher pierced with five holes. A lump of butter is then thrown in, and the compound is again churned with from 100 to 150 strokes administered with much precision. The tea is then ready for drinking.

The use of compressed tea in this country has been attempted at different times, but never with complete success. A few years ago two companies were formed for working it, and at the present time there is a company in London which deals exclusively in this article, a sample of which is in the Kew Museums. It is claimed for this tea that it has many advantages over loose tea, the chief of which is that the leaves being submitted to heavy hydraulic pressure all the cells are broken, and the constituents of the leaf more easily extracted by the boiling water thus effectng a considerable saving in quantity required for use. Its great advantages over loose tea however would seem to be its more portable character, and in the case of long sea voyages, or for use in expeditions, the reduction of its bulk to one-third.

The compression of tea into blocks further, it is said, constiutes a real and important improvement in the treatment of tea. These blocks weigh a quarter of a pound each, and are subdivided into ounces, half ounces, and quarter ounces; this insures exactitude in measuring, and saves the trouble, waste, and uncertainty of measuring by spoonfuls. It also ensures uniformity in the strength of the infusion. By compression it is claimed that the aromatic properties of the leaf are retained for a much longer period, and that it is better preserved from damp and climatic changes.—*Kew Bulletin.*

THE CORK INDUSTRY IN SPAIN.

The cork tree is found in Spain in great abundance in the provinces of Gerona, Carceres, and Andalusia, especially in the provinces of Huelvas, Seville, and Cadiz, and, although in less quantity, in the provinces of Cuidad Real, Malaga, Cordoba, Toledo, and some others. The United States Consul at Barcelona says that, according to a calculation made by the administration of forests, the extent of cork forests in Spain is about 255,000 hectares (hectare=2·47 acres), distributed as follows:—80,000 in the province of Gerona, 45,000 in Huelvas, 32,500 in Carceres 28,000 in Seville, 20,000 in Cadiz, 11,500 in Cuidad Real, and 9,500 in Cordoba. In the localities exposed to the north the cork is better than in those exposed to the south, and it is seldom found in calcareous soil, preferring always that o the felspar, this being found principally in the pro

vince of Gerona. It grows and develops in ground of very little depth, and sometimes in very stony ground. The leaves of the cork tree are oval-oblong or elongated oval, frequently toothed, and the teeth jagged; length, from three to five centimetres, and width from one and a half to two. The roots are strong, and spread considerably, and are frequently to be seen on the surface of the ground. It sometimes happens that the portion of root exposed to the air produces cork, while that which is buried produces scarcely any. The most common practice is to cultivate the plant by sowing, which is frequetly done, especially in ground somewhat manured, making alternate furrows with vines. Up to their twentieth or twenty-fifth year the ground is cultivated as if it were a vineyard, rooting up at that age the vines on account of producing less fruit, and also on account of the cork trees being fairly grown up, and no longer requiring the shelter of the vines. The barking of the cork may be effected when the plant has acquired suffieient strength to resist the operation, and the time chosen for this operation is in the summer. The cork of the first barking is called *corcho bornio, bornizo* or virgin, and is not fit for making corks. The cork taken after the first barking is called *pelas*, or secondary cork. The method employed in Spain for this operation consists in the total barking of the trunk, and not partial barking, or barking one part of the year and the remainder three, four, or five years later. In proportion as the cork is taken from the tree it is removed and piled up in heaps. Sometimes the cork is cooked in the woods, but at other times this operation is effected in the cauldrons that exist in the cork factory. The slabs remain in boiling water during the space of one hour, this operation causing an increase of thickness (generally of one-fourth to one-fifth), elasticity of the cork, and dissolution of tannin and other substances. The cauldrons in which the cork is boiled are of copper, and are either cylindrical or rectangular. The boiling of the cork can also be effected by steam, for which purpose it is introduced into a wooden box lined on the inside with copper or zinc, which is filled with water and steam injected therein. The steaming of cork sometimes hardens it and makes it brittle. The loss of weight produced by boiling the cork varies between twelve and forty per cent. In making corks it is necessary to take away the hard crust or *raspa*, for which purpose a tool is used with a short handle and curved blade, called *doladera, raspador*, or *raspeta*. A workman can scrape from two to three square metres of cork daily, and the loss in weight of the cork by scraping is from twenty to thirty per cent. Scraping machines are also used, two systems being employed, the Besson and Tousseau. The former, propelled by steam, consists principally of horizontal spindles, supplied with comb-like teeth, and turning with great velocity, at the rate of nine hundred revolutions a minute. The Tousseau scraper attacks the cork by the means of a vertical iron shaft, carrying several knives, whose edges are also vertical, and by the rotary movement of the shaft, giving fourteen hundred turns a minute, work like a brush. This machine is simpler than the Besson, and the slabs suffer less damage when worked by inexperienced workmen. Before cuttting the slabs in strips they are cooked for about half an hour, so as to facilitate the cutting, and piled up soon after in a damp place, so as to preserve the softness until ready to operate upon. The slabs are divided into three strips (*rebanadas*), the width of which is equal to the length of the corks, and in such a way that if the cork be placed in the position occupied by the slab on the tree they would have their fibres running alike. The workmen obtain or cut the strips by means of a knife with flat surface and curved edge, called *cuchilla de rebanar*. The strips are then made into squares by means of the *cuchilla*. They then have the edges cut, and thus prepared they are ready to be made into corks. This and the preceding operation are the most difficult of the cork industry, requiring great intelligence if the slabs and strips are to be cut to the best advantage. In the manufacture of the corks, the squares made into octagons first pass into the hands of the workman who is furnished with a knife composed of two pieces one of them similar to an ordinary knife and the other a blade, the edges of which fits into the first. Consul Schench says that only by seeing is it possible to form an idea of the rapidity with which these men take hold of a square and from it make a cork—they hold the knife by a small iron catch to the table in front of them, and giving to the square a circular movement, the result is that the cork is made in a few seconds. The squares are usually boiled for about a quarter of an hour, they are then deposited in a cool place, and four or five days after they are sorted and kept damp until required. The amount which the workmen receive for cutting 1,000 corks varies from 0·75 to 4 pesetas, according to the kind of workmen (the peseta is equivalent to about 9½d.). Different systems of machinery are employed to make corks, and all consist, at the base, of a knife, the blade of which is placed horizontally, joined generally to a piece of wood, and to which a back and forward movement is given similar to that of a carpenter's plane. In moving, the knife turns the square cork, which being attacked by the knife takes off a strip of cork, more or less thick, according to the distance from the axle of the cork and the edge of the knife. If these are parallel, the result is the cork is cylindrical, and if it is not it becomes conical. The corkmaker or workman has a large basket or several of them in which he places the corks according to size or quality, but this first classification is not sufficient, and the corks are placed upon a table, the back part of which is furnished with boxes, the front part of which are open to the operator. To classify the corks according to size, they also employ wooden boxes, the bottoms of which can be taken out or put in, having a kind of grating of wood somewhat resembling venetian blinds. The boxes are suspended by ropes to the ceiling, and the workman gives it a swing backwards and forwards, by which the smaller corks drop out at the bottom. With this apparatus worked by one man, 100,000 corks are classified for their size in one day. The corks are washed in a solution of oxalic acid or bioxalate of potash. As soon as washed they are placed out to dry gradually in the shade, in order to enable them to retain the silky gloss which the cork has when it is damp. For packing, 30,000 corks constitute what is called a bale. For South America and Oceania, bales consisting of 5,000 to 10,000 corks are made, and for England the sacks or bales are made to contain 100 gross or 14,400 corks for those of the larger size, and 150 gross for those of smaller dimensions. The greatest number of corks are manufactured in the province of Gerona, and the most important towns engaged in the industry are San Filieu de Guixols, Palafrugell, and Cassa de la Selva. The number of workmen engaged in the cork industry in Spain is said to be not less than 12,000.—*Journal of the Society of Arts.*

COAL AND IRON IN INDIA.

The recent news from home about the serious strike in the coal trade may have a most important bearing on these products of the East. It is often forgotten that the Indian Government is probably the largest owner of these two pillars of prosperity in the civilised world. There are thirty thousand square miles of coal strata in India, the corresponding area in England is less than twelve thousand, and, says Philips, all the European fields do not contain as much coal as the coal measures of Great Britain. In the United States and China alone there are, it is believed, coalfields surpassing those of India and England in area and value. England has been using up her coal recently to the extent of about one hundred and fifty million tons per annum, the outturn having increased from sixty-four millions in 1855, and the export having more then trebled in twenty-three years. Such being the rather alarming situation, in 1868 a committee was held to discuss the exhaustion of our coal beds and the probable duration of our remaining supplies.

Opinions differed, Professor Jeovns and others held, if we remember right, that in all probability our cheap coal would be exhausted within a hundred years, while owing to panic or combination among owners or workmen, there might be at any time an appreciation of coal and iron which would drive the English consumer to foreign sources of supply, and be ruinous to much of our industrial supremacy. It was believed in 1868 by those who took a sanguine view, that the consumption of our coal would not exceed the amount to which it had then risen, exactly one hundred millions of tons, because it was supposed that by hot blast, smoke consumption, close-topped iron furnaces and other appliances, we would economise to such a degree, that the increased consumption and export would be more than balanced. As we have seen this prophecy was not verified: the outturn rose above fifty per cent in a few years, and England now stands face to face with the apparent certainty that all the good coal within two thousand feet of the surface of her soil will be exhausted during the lives of thousands who have been already born. As was prophesied, there have been several notable appreciations of coal and iron; in 1873 steel rails rose to £15 10s per ton, having since been as low as £4 10s. This was due to temporary causes, but the last news, from home seems to point to a determination on the part of both masters and workmen, that the public must in future pay much higher than present prices for coal and iron. There is nothing in the general state of trade to warrant the reduction of wages which the masters have found necessary; there is no strike for eight hours' play and eight shillings a day; there is no grasping at better standards of comfort and living; we see nothing but the inevitable and long foreseen result of unlimited production and consumption of iron and coal, both having been accelerated in a high degree by our system of free trade.

It is desirable then to consider what can be done in the Eastern dominions of the Crown to reduce the balance which seems as if it were about to incline seriously against us. The inquiry is still more interesting, because during the present year Government will commence the manufacture of steel shells at Cossipore, and it is hoped that more general and extensive operations will be undertaken when satisfactory results are shown in one item. The advantages which India possesses over England or Germany in iron metallurgy are notable. First, there is an abundance of the finest ores, such as are absolutely required for the Bessemer manufacture, which for years past has sent into the world annually above three million of tons of steel. If again we wish to apply the basic process and consume the phosphoin ores which are also plentiful, dolomite is abundant in India—witness the marble rocks of Jubbulpore—while it is scarce and expensive in England. It is well known at home that pure iron ores containing up to 97 per cent of ferrioxide abound in India. To discredit them interested or ignorant parties have got up the cry that there is no good lime in India. The standard work on steel-making Mr. Jeans published as late as 1880, contains the information that India suffers from a want of lime, though many years before that date analysis had proved that limestone of unsurpassed purity covered thousands of square miles round Satna and Katni. We are also told that firebrick clay is wanting, though Mr. Hughes found abundant supplies near Jubbulpore, and an English firm has recently made firebricks from the clays beside the railway station. Iron is manufactured at a cost of £14 per ton in Kumaon, says Mr. Jeans; but the Government Geologist reports the cost of making steel in 1888 to be R2 per maund, or £3-12 per ton at present rate of exchange. If such results are achieved without the uses of hot blast, or of permanent furnaces with apparatus of the most primeval type, what may we not expect from the adoption of modern improvements? It is true that the best coal is yet wanting in India, on the other hand, the best charcoal and wood abound, and are a waste product. The jungle fires in 16,000 square miles of Government forest consume timber which is useless for construction, which now vanishes in smoke and ashes, but which might be utilised to turn the iron ores into steel rails, steam engines, and a hundred items required alike in industry and in war.

Denudation is dreaded by forest authorities who possibly are ignorant that in even inferior furnaces one ton of iron is produced by the consumption of thirteen hundredweight of charcoal. Charcoal may be made from inferior woods, such as *Boswellia* and *Sterculia*, or from crooked and worm-eaten boles; in fact the wisest forester admits that iron smelting and forest conservancy may co-operate to their mutual advantage when reboisment is fostered by heavy rainfall. With all these advantages and a falling rupee, how happens it that although steel-making by the Bessemer system was taken up in India in 1861, the project was nipped in the bud, and for thirty years no steel has been made here by European methods? How is it also that iron smelting has failed in Kumaon and Porto Novo, while it has succeeded in Barakur? The answer to these questions must be deferred to another occasion. It may be noted, finally, that charcoal is still largely used for the production of the finest qualities of steel and iron in Sweden and the United States, where forest reproduction is much slower, and labour far more costly than in India. The finest qualities of steel are those which State railways and arsenals demand in annually increasing quantities. Strange to say we import ores or iron from Sweden, Algiers and Bilbao. We actually construct lengthy railways solely for ore carriage, we turn these imported ores into steel by the aid of coal, of which our supplies are threatened with extinction, and then send the finished article to Allahabad or Agra, paying thirty shillings per ton for carriage alone, while all the materials for steel manufacture exist actually under the railways which carry the costly foreign product. Soon we trust Bessemer Converters will be seen operating on Indian ores again: no royalties are now required; hundreds of millions have been added to the world's wealth by blowing air bubbles into big iron pots. India should now realise these marvels, and share in the gains.—*Pioneer.*

THE TEA INDUSTRY.

On the 3rd instant the last of the Indian tea crop, 1891, virtually passed the hammer, and before entering on the prospects of 1892 a retrospect may be desirable. The averages realised during the past season, as the reports of the various companies now appearing in our columns prove, have been little short of disastrous, and better quality must be the aim. A casual survey of the reports seem, in our opinion, to evade the real issue, which is nothing more nor less than over-production both here and in Ceylon, and the inevitable result must be the survival of the fittest. The averages must surely open the eyes of proprietors to the fact that to sell tea at five annas per lb., and even lower, which costs more to produce, can only result in liquidation. The various reports teem with the promise that every attention will be paid to manufacture in the future, as if it had been neglected in the past, and then hopeful results appear in print about 1892—"a superior class of tea will be produced, or an entire change in the management will be a necessity." In the face of the annual depreciation in the London market, and a further annual increase in outturn, we venture to think that a prediction of this sort is purely delusive. The great question that presents itself is, have we reached the lowest point of economy in the cost of protection, or is there any step yet to be taken?

Machinery has effected much in that respect, but, on the other hand, the brain of the inventor has involved an outlay that seems to be endless, and no sooner is one machine pronounced the acme of perfection than forthwith comes another that is predicted to perform double the work at less cost. It therefore strikes us that the expense of local management and supervision is far beyond actual requirements, and in this direction and the amalgamation of neighbouring properties must we look in future for further economy; and in advan-

cing this opinion we are guided in a great measure by what is called the labour difficulty. Only a short time ago the Magistrate in one of the recruiting Districts drew a sketch which was doubtless slightly the outcome of imagination. At the same time it conveyed much truth, namely, ten sirdars or recruiting agents stalking one coolie as a recruit, and these ten sirdars represented ten different gardens within a ring fence of about 20 miles. If, on no other grounds, this alone to us seems conclusive proof that the labour difficulty is much in the planters and agents' own hands. Combination of planters and agents has been tried time after time, but either their interests are so conflicting, or their jealousies so great, that it has hitherto proved a failure. Shareholders are impassive; many of them have so long been accustomed to no return on their investments, that all efforts in that direction seem to be hopeless.

The only chance of effecting the further economy we have suggested is by a few resolute men who are deeply interested in the tea industry acting as a committee and formulating a series of schemes that by amalgamation will show a sensible decrease in the cost of production, and thus aim a great blow at one of the present curses of tea gardens, the cost of either imported or what is called free labour. Then it may be hoped that the difference between the cost of production and the value received for the manufactured article will show a margin commensurate with the outlay involved. It is with profound regret that we read in many of the reports that so much of the present misfortune that has fallen on the tea industry is laid at the doors of the unfortunate managers. Only those who have actually undergone the hardships, anxiety, and solitude of a planter's life can form an idea of what such an existence is, and, considering the small pay that they receive, and in most cases how much their emoluments depend on their exertions, it is not in that direction and by offering them up as the principal scapegoats that shareholders and proprietors must depend in future for some return on their money invested. Our advice, therefore, is to unite, and thus force down the cost of production by the saving in European supervision and the present reckless and expensive process of scrambling for labour.—*Correspondent of the "Englishman."*

CINCHONA IN MADRAS.

No industry in India has presented so many features of doubt and uncertainty as the cultivation of cinchona Thirty years have elapsed since Mr. Markham advised and directed the introduction of this South American tree into the Nilgiris, and Mr. McIvor gave practical effect to his advice and instructions, and yet the questions anxiously discussed at the present are of an initiatory character—what are the best varieties to grow, how to grow them, and in what manner is the harvest to be gathered and placed upon the market? This uncertainty is all the more singular because cinchona planting is carried on by a fairly intelligent body of Englishmen and by the Government, which makes a speciality of the subject, employing highly trained experts to watch its progress and record the results of investigations in the field, the factory, and the laboratory. Thirty years may not seem a very long time for the conduct of a State undertaking; but for an *experiment* it is a fairly reasonable period, that ought to produce decisive results of one kind or another, encouraging or discouraging. With such advantages as have been enumerated, we have not advanced beyond the threshhold of enquiry, and notwithstanding the great uncertainty on important matters, the cultivation, most unusual as it is, has advanced with rapid strides, and a vast area has become covered with a tree of which the growers know really very little.

The *Madras Mail* and the *Madras Times* had a *résumé* of the annual report on the Nilgiri plantation for 1890-91 with some commonplace observations thereon. It is true that, in maintaining its cinchona plantations, Government is doing for the planter what individual effort, or, for the matter of that, corporate effort, could not accomplish—namely, the investigation of the numerous problems and difficulties that have to be solved and overcome by the successful cinchona planter. Our present object is rather to dwell upon a few points of interest to the cinchona planter, which the labours of the Director and the Quinologist in the past have made prominent. From a number of experiments conducted on the Nilgiri plantations there is little room to doubt that the best variety of cinchona for the Hills is the *Magnifolia*. It is the hardiest and quickest-growing of all the varieties, attaining to a considerable size comparatively, and forming thick bark rich in alkaloidal value. A recent analysis of the bark of the *Santa Fé*—to which Mr. Cross devoted attention when he was in India—shows it to be hardly inferior to *C. Officinalis* in quinine, and much superior to *C. succirubra*. Like the *Micrantha*, there was an utter absence of quinidiue in the bark, a constituent present in all cinchonas. The *carthagina*, it seems, is worthless on the Nilgris. It was imported originally on an analysis of the *Magdalena*, but it is possible the latter never reached this country. Analyses both in Madras and in Bengal prove it to be entirely deficient in quinine. Mr. Hooper's enquiries into the constituents of the bark of the *Verde* and the *Morada*, two valuable varieties of the calisaya, lead him to predict a grand future for these kinds. Some seeds were obtained many years ago for Government from Bolivia, and plants raised from them on the Nilgiris and at Darjeeling. The elevation of the Nilgiris appears to be inimical, but they have thriven well in Wynaad at 3,000 feet above sea level. A specimen of the *Verde* six years old, grown in the Wynaad, yielded seven per cent of sulphate of quinine, and more recent analyses confirm this excellent result. With such a high percentage the *Verde* is almost better than the *Ledgeriana*, and deserving of extensive propagation. The experiments conducted on the Madras plantations with manure are particularly interesting and tend to show that suitable materials produce decidedly profitable results. It has been found that manures act more energetically on young trees than on old ones, and that the larger outturn of bark is from the faster-growing varieties, like the *succirubras*, the *ledgers*, and *hybrids* and not from the slow ones as the *officinalis*. Cattle manure proved to be the most powerful fertilizer, raising the yield of quinine by about 50 per cent over that of unmanured trees. Lime, and lime and cattle manure mixed, were the next best, increasing the quinine by 20 per cent. Woodashes the least stimulating,—only increasing the sulphate by ten per cent. Poonac was tested as a manure, firstly, six months after application, and next twelve months after. In both cases there was benefit—in the latter to the extent of 22 per cent. In this experiment a singular effect was noted—the poonac reduced the quantity of *cinchonine*, the least valuable constituent of the bark. Fish manure applied for a considerable time proved to be as valuable as cattle manure, causing an increase of quite 50 per cent of quinine. Bone used with cattle manure produced an increase of 30 per cent, and bone alone 23 per cent —*Indian Agriculturist*, Feb. 20th.

SOUTH SEA ARROWROOT is the product of *Tacca pinnatifida*, Forst. This is a perennial herbaceous plant, with a tuberous root. As a source of arrowroot the plant is of great value. The tubers when fresh resemble new potatoes, and contain a great deal of starch. Tacca arrowroot is preferable to any other in cases of dysentery and diarrhœa. —*Chemist and Druggist.*

BANANAS seem to have been imported in great quantities into England this year. Of all the vegetables which furnish food to man this fruit is the most prolific. A single cluster often contains from 160 to 180 pods, and weighs from 60lb. to 80lb. Humboldt says that a piece of land of 120 square yards will produce 4,000lb. weight of fruit, while the same area will rarely produce more than 30lb. weight of wheat or 80lb. of potatoes.—*Princess*

ESTIMATES OF THE TEA CROPS.

It is satisfactory to learn that Mr. Roberts, of Messrs. S. Rucker and Co., whose views as to the position occupied by our teas in the London market have been so repeatedly verified, has expressed the opinion that whatever the outcome of this year's crop may prove to be, whether in excess of or below the estimates made by ourselves, it is not likely to affect prices to be obtained for our teas. Several years ago, our readers will remember, Mr. Roberts told our London correspondent that, even if the time came when Ceylon should export 80 million, or even 100 million, pounds of its tea, an adequate market could be found for it. Indeed Mr. Roberts, while naming those figures, stated that, so far as he as an expert could foresee, there need be necessarily no limitation to the export. The sole effect of this, whatever its amount might be, would, in his judgment, be the displacement of a similar amount of China tea. To such a view, it appears, he still adheres; and his former prophesying has hitherto been so entirely justified by results, that we must perforce feel bound to attach great weight to his opinion. China tea is, as Mr. Roberts predicted it must be, succumbing year after year as the result to the production of this island having been placed in annually increasing quantity upon the London market, and although the assurance derived from this fact could not justify us in abstaining from making every exertion to open up new sources of consumption, we may take it for granted, we think, that up to the utmost limits of the capacity for tea-growing in Ceylon means may be found for its profitable disposal. We learn that Mr. J. L. Shand, who, during his late stay in Ceylon, has been actively engaged in visiting our upcountry estates, has written that he believes our export of tea for the year now current will be barely up to 74 million pounds. That gentleman has further written, we understand, that he has seen many fields, the bushes on which have shown unmistakable symptoms of having suffered from over-plucking; and he augurs from this that, unless more discretion be exercised, many gardens that have hitherto annually yielded large crops must gradually show a great falling-off in their production. We have little doubt that in this opinion Mr. Shand will be supported by many other experienced planters. Bushes that have never been allowed any chance of attaining a certain amount of maturity for their leaves that have been constantly stimulated towards reproduction of bud by denying to their sap its natural outlet must, like all forced forms of growth, suffer ere long, and must need a period of rest for recuperation. The fact stated by Mr. Shand might perhaps well account for the difference between the estimate first made by ourselves and that his late experience compels him to adopt. If we had heard of Mr. Shand's figures without the assurance given us by Mr. Roberts, we think it might have been justifiable to assume that his reduced estimate would have been one upon which our planters and others interested in tea might be congratulated. But Mr. Roberts tells us that if our original estimate had been likely of fulfilment we need not to have feared from the fact that any lowering of prices obtainable for Ceylon teas would result. As it is we believe we may look upon the issue to this year's operations, whatever it may be, with almost entire indifference. Of late many alarmist predictions have found utterance as to the probable consequences of our greatly increased production, and there are many who with ourselves have attached an importance to them which we now hardly think they can be said to deserve. It must, at all events, be some time yet before our exports can rise to the figure of 100 million pounds, at which it may be that Mr. Roberts would feel disposed to reconsider his present decision respecting this matter; and we fully adopt his view that until that figure of export be reached we may regard the extension of tea cultivation in this island with a satisfied calmness. This is, however, but one light in which to regard the facts communicated to us. The second in which these may be viewed is of importance as regards the financial prospects before our planters. If the tea bushes are to be weakened by a course of overplucking systematically pursued, it is possible that it will be found that planters will have to face a large destruction of trees on their estates. They will in fact find that they have "killed the goose that laid the golden eggs," and they will have to lie by to await the attainment to maturity of new trees put in to take the place of those which have been killed by persistence in an unwise course. And it may well be assumed, we think, that for recent largely increased exports this system of over-plucking has been largely responsible. It will be well, perhaps, if the diminished estimate of yield made by Mr. Shand opens the eyes of all of us to check the prosperity of our planting enterprise is likely to receive by persistence in a course which in the long run must, as it seems to us, prove very uneconomical. It will be better that we should be contented with lighter returns from our estates than that we should find ourselves compelled to in many cases lie by for several years to obviate the effect of excessive plucking in the consequent destruction of our trees.

SCIENTIFIC TEETOTALISM.

[The following is a specimen of the extravagant nonsense in which others besides Sir Andrew Clarke indulge. Tea is valuable as a food as well as a non-alcoholic stimulant. The use of tea has greatly increased the value of life and even its abuse is not to be compared for a moment to the ravages of alcohol.—ED. *T. A.*]

In the current number of the *Australasian Medica Gazette*, Dr. J. Murray-Gibbes, of Boort, Victoria, has an interesting paper on what he calls "Scientific Teetotalism." After admitting that the teetotallers are right in saying that alcohol in fermented liquors is injurious to the body, he proceeds to ask whether teetotalism as carried out now is advantageous to the human race and how it is carried out.

"It is a total abstinence from alchoholic stimulants. But are these the only stimulants consumed now-a-days? By no means so, for in no period of the world's history has the consumption of stimulants been so prevalent as at the present moment. But it may be said, how can this be when teetotallers who now muster by the thousand, never touch stimulants? Don't they? Why they consume as much, or even more stimulants than the non-abstainers, for instead of taking them in the form of alcohol they take them as tea and coffee, for thein or caffein is as strong a stimulant as alcohol.* They have simply substituted one form of stimulant for another. Tea and coffee rapidly spread over Europe when it was first introduced in the seventeenth century, because it acted as a substitute for fermented beverages, in that the tannic acid in it delays the digestion of nitrogenous substances. Thein is a pure stimulant to the nervous system, only it acts in a more subtle way. With alcohol you see most of the effects at once, but with thein it is different, for it acts like a most insidious poison. There is a certain balance in the power of the nervous system, for if it is overstimulated it afterwards suffers from a subsequent exhaustion which we see in nervous irritability, atonic dyspepsia, neuralgia, decayed teeth, consti-

* A blatant falsehood.—ED. *T. A.*

adulthood. Having given some of the evil effects of thein, it is only right that I should give some of its good effects. Thein has developed the brain power of our race, as is seen in the wonderful advance of inventive power. It has raised the animal man into the brain man. The crave for education is a consequence of a stimulating power developing the brain, but the question is whether this sudden forcing ahead of man's nervous system is for his permanent advantage. Is the Australian, who heads the list of nations who drink tea, which nature has compelled him to do in consequence of the large quantity of meat he eats, gaining by this hothouse forcing of his nervous system in a hot climate like ours? I say certainly not, for of all Australian vices I look on the one which is most likely to permanently injure his constitution, or rather the constitutions of his children, is his tea-drinking habits. My answer, then, to this question—Is teetotalism as now carried out, advantageous to the human race? must be in the negative, for with the non-abstainers who drink tea largely the alcohol they take in a measure counteracts the injurious effects of thein."*

The doctor contends that "we should eat less meat and more vegetables, especially fruit, and then we should not require the amount of stimulants now consumed by the teetotal and non-teetotal members of the community, and the future race will have a better prospect before it, for there are already signs of degeneration in our race. The degeneration of a race commences with its female members, in that at first they cannot nourish their little ones, and then they have very small families. The first of these failings we notice amongst us. Woman's brains are being stimulated too much by thein, consequently she may become highly developed at the expense of her usefulness. In conclusion I am of opinion that teetotalism as at present carried on is useless for State purposes, for I consider that a race of people imbibing tea largely without fermented beverages would suffer the same fate as some of the vegetarian colonies, for it might answer with the parents but it would be death to their children. The race would wear out owing to nerve exhaustion. The above are the thoughts of one who has been an almost lifelong teetotaler. Tea, coffee, cocoa, tobacco, fermented drinks have all their usefulness, and when taken in moderation may not do harm any more than meat, vegetables and fruit. But they must be taken in reason, and then they are not harmful. Virtue carried to excess becomes irksome to others, and so it is with all things. Tea plays havoc with our food ferments—nature's guardians of our bodies agsinst disease. We live in an age of stimulants—an age of excitement—and we demand impossibilities. We have discovered a few things and get disgusted at not knowing all things. We expect the microscope to tell us everything about the causes of disease, yet are too lazy to analyse the blood during the different stages of disease, but listen with mouth wide open to everyone who says he has discovered the cause of this or that disease, when in reality no single microbe has been so far proved to cause any one disease. Pasteur, the chemist, is the only man who has told us anything positive, and the chemist we must depend on, at least so says my brother, Heneage Gibbes, in his latest work on 'Morbid Histology', just published. The Russians place a slice of lemon in their tea, which must strengthen its power of delaying the digestion of food, and in the Black country the men add salt to their beer. Tea is poison to anyone with a consumptive tendency."—Sydney *Daily Telegraph*, Feb. 20th.

CULTURE OF INDIARUBBER TREES.

Mr. H. Crist, of Bâle, Switzerland, writing on the above subject in *Garden and Forest*, says:—It is, perhaps, worth while to call attention to the ease with which that beautiful tree can be propagated for cuttings. As is well known, it is only necessary to take a piece of a branch and insert it into moist sand, and to protect the cutting with a bell-glass to secure a rooted plant; but it is less well-known, perhaps, that the last articulation of the branch is capable of making roots much more quickly and readily than those lower down. Mr. Gamble, inspector of the forests of Madras, in South India, tells me that when they desire, in his district, to make plantations of this valuable tree, workmen always take the end of a branch with a single leaf for the cutting, as experience has shown that this is the way to obtain plants quickly and surely, and I believe that horticulturists would do well to follow this plan always in propagating *Ficus elastica*.

This tree, by the way, does not demand a real tropical climate. On the contrary, in flourishes outside the tropics in regions where snow falls sometimes and which experience several degrees of frost. I have seen in the beautiful garden of Hamah, near Algiers, specimens of *Ficus elastica*, and of its relative, *F. Roxburghii*, as large as our large forest trees, casting a shade blacker and thicker than I have ever seen before. Generally, the genus *Ficus* is hardy and easy to acclimatise.

Ficus australis succeeds admirably in Algiers, and *F. Benjamina* is used in the same city as a shade tree in the suburb of Mustapha. There is a large specimen of *Ficus australis*, already old, on the Italian Riviera at Mentone, which, protected on the north by a house, forms a superb mass of dark green foliage; and at Cadiz there is a handsome avenue of large fig-trees, with small leaves, not far from the Botanic Garden. These are trees two feet or more in diameter of trunk, with thick spreading heads. There are often severe frosts, however, in all these regions.

With regard to the fruit of *Ficus elastica*, I have once seen it on a small plant cultivated in a pot at Bale, so that it appears that this species bears fruit sometimes in a comparatively young state.—*India-Rubber Journal.*

THE ORIGIN OF PETROLEUM.

Theories as to the origin of petroleum have been numerous—some plausible, some hardly so, but ingenious, some ridiculous, though all more or less interesting as presented by their advocates, the following rather unique theory is propounded by T. E. Malone in the *Pittsburgh Dispatch*:—

What was the origin of the oil that exists in the earth in such vast quantities? This is the question that the thoughtful observer asks himself as he surveys a score or more of immense wells at McDonald, out of which in the aggregate fully 90,000 barrels of oil are discharged daily. Think of it—a vast river of petroleum rushing out of the earth. Truly this question is one that is sufficient to set us to thinking. How are we to account for this oleaginous wonder that comes up from 1,600 ft. or more below the level of the hills? How easy for some to put the question off with the remark that it is not for us to answer—that it is one of the mysteries of the world that God did not intend that man should ever understand; but the thinker is not to be satisfied with any such evasion of a question the nature of which demands an explanation.

Down deep in the earth he knows that there is a vast deposit of oil. Call it lake, or river, or what you will, it is there, and, judging from the amount that rushes up through a 6 in. casing in a second of time, one is inclined to think that it is very tired of imprisonment, and has long been wanting to get out.

The scientific man, ever ready to wrestle with any vexatious problem, is the only individual that undertakes to give us any light on the subject. He admits that it is a profund subject in every sense of the word, and wishes that he had some kind of a subterranean telescope that would enable him to study the rocks from whence this great volume of petroleum comes as the astronomers study the stars. The distance that intervenes shuts out an investigation as completely as if the source of the oil was far beyond the North Pole.

But the drill and the sand pump that go down into the earth, what do they reveal? Look at the

* Fancy a man daring to talk of alcohol correcting the effects of theine!—ED. *T. A.*

sand and pebbles that are brought up just before the oil is struck, and what do they indicate? Solid rock. Yes, rocks such as are exposed in railway cuts and quarries, and which in such places are found to be devoid of oil as any other thing, unless it be a few fossil plants or shells.

These surface rocks are not to be compared to those oil-producing sand rocks, for we are positive that the latter are as full of oil as a sponge thrown into a river is of water. They are, indeed, so full of petroleum that it acts as a barrier against a tremendous pressure of natural gas, and it is this pressure that lifts a solid column of oil 6 in. in diameter and 1,700 ft. or more in height, together with thousands of pounds of steel tools, out of the casing with apparently no effort.

To be plain, and to avoid bewildering technicalities, we will state that, so far as chemistry has been able to ascertain, the oil appears to be of animal and vegetable origin. There are exceptions to this finding of chemistry, of course, and theories that deal with the spontaneous generation of petroleum from other sources are common and some of them are very plausible, but we believe that we are justified in asserting that the majority of scientists are of the opinion that this petroleum had its origin in the abundant fauna and flora of prehistoric geological ages.

In connection with this statement, allow me to say that this word prehistoric is not a fit term to use in referring to the fauna and flora of the Devonian age. In speaking of some old ruins that may be seen on the earth's surface, such as the walls of Casa Grande on the Gila desert, or the ruins of Yucatan, we may with propriety use the word, but in speaking of the remote geological ages it has no bearing whatever, and is out of place. Are we, then, to understand that this oil was produced from the remains of ancient animal and vegetable life. Is it possible to conceive of the necessary materials in such enormous quantities as would justify such a belief?

In the vast deposits of the upper and lower silurian formations there are more than 10,000 ft. of limestone made entirely of molusca. These immense beds of limestone are of vast extent, and everywhere they are amazingly fossiliferous. Take 400,000 square miles of limestone 10,000 ft. in thickness, and entirely made up of the remains of animal life; add to this a similar extent of Devonian formations crowded with the remains of fishes, moluscs, and crustaceans, and then add to that 8,000 ft. or more of carboniferous matter, packed with the abundant remains of a tropical vegetation, and what have you got?

It is easy to conceive of an ocean of oil coming from all these things, providing they were well squeezed like apples in some immense cider press and the juices preserved. And what better evidence of a pressure sufficient to accomplish this is wanted than that which is obtained by studying the gigantic upheavals and inward lateral crushing convulsions that are suggested by the Appalachian and Rocky Mountain ranges.

Here, then, were the materials and there were the forces sufficient to account for this immense deposit of oil that has been released by artificial perforation of the rocks at McDonald and other places.

To come a little nearer home in an effort to show the enormous quantity of vegetable matter that must have been buried by inundation and subsequent elevations of the surface of the earth, let us go to Mansfield, nine miles from Pittsburg, on the Pan Handle, where, in cutting down an immense hill, the workmen have discovered a vast and wonderful deposit of fossil plants.

There, packed in the solid blue and black shales, are the abundant remains of the vegetation of the carboniferous age. Perfect casts of beautiful arborescent ferns and calamities, rushes of gigantic length, and curiously carved trunks of the lepidodendron and sigiloria are all heaped and pent in one inseparable mass. Even the unlearned Italian labourers are amazed at the sight. On every block of shale are a thousand perfect casts of plants and a hundred different varieties. There are enough specimens here to stock a million cabinets. A road, bed for the third track of the Pittsburg, Cincinnati Chicago and St. Louis railroad is being graded with remains of one of the forests of the ancient world. Look where you will, go where you will in the vicinity of this cut, and everywhere you tread upon the perfect casts of plants that grew in some old carboniferous lagoon, perhaps 10,000,000 years ago.

Here then, probably, was the origin of our great deposits of coal, and it may, in conjunction with the other fossils above mentioned, have helped to produce the vast supplies of "golden ile" in the form of petroleum.—*Chemical Trade Journal.*

Two of the largest sugar-houses at Greenock are about to suspend melting operations temporarily, in consequence, it is said, of the high prices of raw suger, which, it is stated, does not allow of refining at a profit. The firms in question have recently been paying off workers.—*A. F. Press.*

WATTLE BARK.—An influential company, consisting of well known Rand and Pretoria men, is in course of formation for the purpose of prosecuting the wattle bark industry in the Transvaal. Land has been selected in one of the best districts in the sister republic, and an old Natalian will pilot the venture. It is stated by experts that owing to the chemicals in the soil the bark grown in the republic will yield about three per cent more of tannic acid than the tree in Natal. The scheme is to be started on a gigantic scale.—*Witness.*

QUININE AS A PROPHYLACTIC.—Mr. Rhodes, the Prime Minister of Cape Colony, reports that during his journey to Mashonaland he took plenty of quinine in order to resist the malarial fever. Thanks to this, he and his party got through the wilds without any of his party being laid up with fever, for, although they felt feverish occasionally they exceeded in warding off the affection. Mr. Rhodes's experience confirms the published experiences of Dr. Binz, Dr. Graeser, Dr. Buwalda, Dr. O. Schelling, Dr. Tschirch and other authorities who have travelled in the tropics that quinine guards against and effectually prevents malarial fever.—*Chemist and Druggist.*

SWEET POMELOS.—Mr. G. I. B., in a late number, asks information about grape fruits and how to protect pineapples. I lately had an opportunity of sampling the fruit of the sweet pomelo, to which you refer, and think so highly of it that I would urge G. I. B. not to plant any other. This pomelo originated in this vicinity and seems a cross between the common pomelo and the orange. It is somewhat smaller than the common variety, the peel thinner and there seems an entire absence of the bitter taste which is found in the inner peel of the ordinary pomelo. The flavor is very fine, being a combination of both orange and pomelo. It is liked at once and can be eaten out of hand like an orange, as it requires no sugar. I do not know where trees of this variety can be obtained at present, but understand they are being budded by nurserymen and trees will doubtless soon be offered on the market. —*Farmer and Fruit-Grower.*

It is by no means a new idea that the prairies of the Far West are practically treeless owing to the extensive fires that devastate them after the grass withers; but Mr. Miller Christy, F.L.S., has brought forward a large amount of evidence in favour of it. The most promising of other theories is to the effect that the prairies are the beds of large lakes, the black mould being the sediment or mud. Mr. Christy regards the black mould as the ash of the repeated fires. Formerly the Indians used to burn the prairies in the fall, leaving patches for the buffalo to feed on. Now they are burned by the settlers in the spring or by accidental ignition from neglect, or out of wantonness. Whatever be the correct theory, it is certain that trees will grow on the prairie lands where they are protected, as around homesteads, or by the banks of rivers. There seems to be nothing in the soil itself which forbids the growth of timber—*Globe.*

A GERMAN PROFFESSOR ON INDIAN DRUG-CULTURE.

About three years ago Dr. Alexander Tschirch, then a "Privatdocent," or University coach, in Berlin, and already well known as an authority on pharmacological and botanical subjects, undertook a voyage to the British and Dutch colonies in the East with the chief object of gathering on the spot information concerning those economic plants, the products of which represent the bulk of the value of the whole Eastern trade. After his return to Europe Dr. Tschirch published several short notes on his Indian experiences, abstracts of which we have upon several occasions placed before our readers. It was also announced that the doctor (who has since become professor at Berne University) was busy upon the regulation book of travels, the production of which is as integral a part of well-conducted modern travel as the process of rumination is essential to the digestive functions of a well-conditioned member of the bovine family. The doctor's book has been long in making its appearance, but it has come at last, and we hail it with satisfaction as a welcome contribution. to the historiography of Indian economic plants. The professor on his travels has preserved an open mind, and he shows himself in his book remarkably and pleasantly free from the dogmatic assertion of superiority, which is often so aggressive a feature of books written by scientists upon general subjects. To describe in full detail and from personal observation all, or even the majority of Indian economic plants, would be the task of a lifetime. It is being accomplished by scientists in British India; but Dr. Tschirch does not pretend to have accomplished anything of the kind during his limited sojourn in the tropics. He claims for his book no further value than it actually does possess—that is, as an account of a trained botanist and pharmacognosist in his visits to the principal producing centres of some tropical products—many of them staple articles of commerce, such as cinchona, coffee, tea, cocoa, rice, cloves, nutmegs, and mace, rubber and pepper; others, articles of much less money value, but not on that account less interesting to the pharmacist—benzoin, for instance, cubebs, cardamoms, citronella oil, and cinnamon. Dr. Tschirch, himself expresses his regret that circumstances prevented him from investigating, as he had wished to do, the culture of tobacco in Sumatra, and that of indigo and sugar in Java. Malarial fever, that most faithful travelling companion of the European in tropical travel, seldom permitted the author to work as he would have wished. Another obstacle to the acquisition of reliable information lay in the ignorance which prevails, especially in Java, concerning all cultures in which the informant is not personally interested. Cubebs, for instance, are much grown in the residency of Bantam, in western Java; but although Dr. Tschirch tried as much as he could to get accurate information about the culture of this drug during his sojourn in the adjoining residency, or province, no one could tell him anything trustworthy about it, and Bantam itself he had no opportunity of visiting. Steadfastly adhering to the sound principle of describing only what he actually saw, the doctor has rigidly excluded all hearsay information from his book—a resolve which must often have been a painful one to him, though it has rendered his book much more reliable.

Dr. Tschirch, who, be it observed, as a German-Swiss, travelled without any prejudices in favour of one of the two great colonising Powers of the East, the British and the Dutch, thus sums up a difference in the planting and trading habits of the two nations which struck him most strongly all through this travels:—"Both nations work with the same object of utilising their colonies to the greatest advantage, but they attain this object in very different ways, and they work on totally different principles. If we glance through the export lists of the three principal ports of the Southern East—Colombo, Singapore, and Batavia—our attention is immediately attracted by the stolid steadiness of the Dutch, and the almost lightning rapidity of the changeableness of the English colonial modes of cultivation. While the Dutchman sticks with extreme stubbornness to the cultivation of any culture he has once introduced, and only relinquishes it with evident pain and under incessant doubting of heart, the Englishman no sooner begins to feel doubts of the success of his undertaking than he is prepared to relinquish it immediately. Thus, to give an instance, the market variations and the ever-sinking price of quinine have not been able to deter the Hollanders from continuing to plant cinchona in Java upon a scale increasing year by year. The action of the English in Ceylon is the precise opposite of this mode of procedure.* The first shipments of Ceylon coffee are sent to London, and fetch high prices. Immediately an exodus of Anglo-Indian planters to Ceylon commences; everybody wants to grow coffee and does grow it. Result: a 'rush into coffee,' with scamped and careless methods of cultivation; † then a coffee-disease declares itself. Planter after planter 'cracks up,' and when it is also found that the formerly despised cinchona culture, into which, without much ceremony, everyone has straightway thrown himself, will not prosper as it was expected, tea is taken up after short deliberation. What the *Hemileia* has left standing of cinchona and coffee plantations is uprooted, and replaced by tea on such a colossal scale that the tea export rises between 1877 and 1887 from 3,500 lb. to 22,000,000 lb.! Needless to say such haste precludes the careful selection of one's soil and situation; nor is it possible to weed the forest ground carefully.‡ This is the reason that every visitor notices at once an essential difference between the plantations in the two islands. In Ceylon rotting tree-trunks and numberless stumps all through the plantation, in Java everything neat and clean; the lines more carefully drawn, nowhere remains of trees or stumps." The superior energy of the Englishman Dr. Tschirch illustrates by calling attention to our occupation of Singapore, the entrance-gate to Eastern Asia, and to the commercial life-and-death struggle between that port and Batavia. Singapore, in spite of its faults as a harbour, attracts every year more products from the Malay Archipelago. It is already the most important emporium in the world for pepper and gambier, and draws growing supplies of rubber and gutta-percha, damar gum and nutmegs, benzoin and rattans. Just as the harbour of Batavia slowly becomes choked with sand and retracts further and further from the town, so the export trade of Batavia runs to sand, choked by the powerful competition of Singapore.

But though Singapore is very favourably situated, the author considers that if a European Power would seize the little island of Pulu Way and its two small sister islands just at the north coast of Sumatra, at the opening of the Straits of Malacca, and create a good harbour there, Singapore would be doomed in its turn. Pulu Way has immense coal-mines, and Dr. Tschirch, who is a colonial enthusiast, calls upon Germany to seize the group and lead the way. Unfortunately for him, his desire is not likely to be gratified. The German Government has had enough of colonial enterprise at present, and recent information from the Dutch Indies states that the Netherlands Government have decided to occupy Pulu Way, and explore its coal-mines and that the French and Russian Governments have already promised the custom of their mail-steamers to the coaling-station. Singapore, therefore, may again take heart of grace. She is saved for the present.—*Chemist and Druggist.*

* For the good reason that the Dutch are in a position to supply the world with the best species.—ED. *T. A.*

† An utterly unfounded charge.—ED. *T. A.*

‡ There are no plantations in the world better weeded than those of Ceylon, although the half-burnt forest trees are left on the ground to supply fuel and manure.—ED. *T. A.*

THE QUESTION OF AGRICULTURAL BANKS.

A year has elapsed since we published the last of a series of articles on "Popular Banks for India." In those articles it was our object to show that in all countries farming must be assisted by credit, especially for all permanent improvements. Even in England and Scotland (where the landlord's capital finds the land, buildings and improvements), loans from the Treasury, from private Banks and other sources are necessary for the development of agriculture; while in France, Germany, Italy, Austria and Russia the peasant-farmers, whether from the vicissitudes of climate, from the laws of inheritance, from the weight of taxation and rentals, from the smallness of the farms, from misfortunes such as disease of cattle and crops, or from other causes, are generally dependent on borrowed capital even for current operations, and are seldom able to make permanent improvements by means of their own capital. To this common lot of peasant farmers the Indian ryot is no exception. We showed in those articles that wherever a proper system of banking has not been introduced, the peasant farmers are universally fleeced by the money-lender, or "exposed to the excesses of the most unbridled usury," as in Italy, and that the progress of agriculture is checked. We explained that wherever Popular Banks have been introduced they have cut down usurious interest, bridled the money-lender, created and strengthened habits of saving of business, of co-operation, and of mutual confidence, and are distributing hoarded and barren capital in immense sums—probably above £100,000,000 per annum in Germany, £50,000,000 in Italy, where they are of very recent origin—to those who have need of it, but to whom it was hitherto inaccessible. We showed how these Banks were invented and started, both in Germany and Italy, by the efforts of individuals, who saw what was needed, instead of by the people themselves, who could not start them for lack of enterprise, knowledge, and confidence. We proved that the efforts of the promoters were justified by the results, thus showing that a popular reform, however necessry and however possible by the conditions of society, is not invariably indicated beforehand by any popular movement or expression, but may be brought about by extraneous action. Further, we showed that these Banks can be originated by half-a-dozen men, with but very small personal capital, provided they are men of integrity and prudence. We pointed out that the principles of the Banks are self-help with mutual guarantees; that that security provided by the moral and material guarantees of the Association enables capital to be obtained on reasonable terms; and that this capital lent prudently on short terms, and in small loans to members of the Association, yields reasonable profit to the Association, and inestimable benefit to the individual borrowers. Finally, we contended that the Banks of this description are suited to all classes of industrial employment in which capital is required for short terms, and that agriculturists needing short loans are on even better terms than other borrowers, since they have material security to offer, but that when loans are need for long terms, as for permanent improvements special arrangements are necessary such as the *Buoni di Tesoro dell' Agricoltura* of Italy.

Although we can point to no substantial marks of progress towards the attainment of the object specified in the articles to which we have been referring we are satisfied that some advance has been made. Mr. F. A. Nicholson during the ten months' sick leave from which he has just returned has been investigating the systems of Agricultural and Popular Banks in vogue in Europe. He has collected a mass of facts and figures, and has made himself acquainted with the latest developments in the systems of those two countries; and we now understand that Lord Wenlock's Government has decided to place him on special duty with a view to his making a digest of the stores of information, that he has accumulated and reporting how far the Continental systems would be applicable to this country. Of course Popular Banks by themselves are not capable of dealing with all the demands of landed proprietors. They can deal only with loans required for daily and seasonal wants and with those which are repayable within two or three years at most; they cannot fully satisfy those wants which concern the permanent improvement of land. These require not only a large amount of capital, but a very long period for gradual repayment. In fact the whole question has to be dealt with in a larger way and on broader lines than those indicated in the articles published in these columns, in which that side of credit commonly called "personal" credit was chiefly handled. Mr. Nicholson in studying the subject has been brought into contact with the Land Banks, the *Credit Foncier* of France and the *Landschaften* of Germany, and has been to some extent able to ascertain how far they are able to deal with the demands for capital of the agriculturists of Europe. His special work will involve not merely a consideration of what is being done in this direction in other countries, but a larger knowledge of the conditions of this country and a very careful application of what has been found possible in Europe to the conditions as found in India, with, at the same time, a comparative study of the laws of other countries with a view to such legislation as may hereafter be found necessary for adapting such Banks to the wants of rural India. The question of legislation is of course a very difficult one. Even on the Continent, where these Banks have been not only under discussion but in working order for over 40 or 50 years, continual legislation is found necessary, legislation to improve and assist the new forms of Association and legislation to correct the previous faulty enactments. Probably, however it is in the social conditions of this country that the greatest difficulties will be found. However perfect a scheme it cannot but fail if the men who must work it are found wanting, while, on the other hand, even an imperfect system will meet with eventual success by the gradual elimination of errors and imperfections, if only there be found in India business-like social reformers such as have made credit on reasonable terms a possibility and a fact in Europe even for the smallest farmer, and the most usury-ridden community; men of action as well as men of speech; men in whom a beneficent philanthropy was added to the most successful business capacity. If these men are found in India—and why should they not be?—then it will be easy for credit to become really "popular," upon the basis of a true banking system, and to relegate the old-fashioned money lender with his elementary methods of rural finance to his proper position.—*M. Mail.*

NEW NITRATE FIELDS.

Nitrate of soda, besides being a most important factor in chemistry—it is converted into saltpetre, and is extensively used in the manufacture of ammunition, &c.—is one of the most highly concentrated of nitrogenous fertilizers, and is the more valuable for the reason that the nitrogen is not dissipated by exposure to the atmosphere. The remarkable development during the past few years of the nitrate in dustry of Chili, where the hitherto only known deposits of caliche (the crude material) exist, has directed attention to the possibility of finding the mineral in other quarters of the globe. The origin of nitrate has given rise to various conjectures but most geologists seem to favour the theory of its formation by a peculiar deposit, partly organic, partly inorganic, left by the sea on receding from the land in prehistoric times. Nitrate, being readily soluble in water, the area where it may be sought with any degree of success is necessarily circumscribed; the principal rainless regions, in addition to the Pacific slopes of the Andes in South America, comprising vast arid territories in Northern India under the shadow of the Himalayas, and the desert plains of Central Africa. It has been stated that the caliche-forming process is now proceeding on the Western Coast of the African

Continent, in the same latitude as the deposits occur in Chili, but the physical difficulties the country presents have, so far, prevented a complete survey.

THE DISCOVERY.

Speke and Grant (whose distinguished services were by the way, ill requited by their country) in their travels in Central Africa, twenty-five years ago, made allusion to extensive fields of natural "sodium" which the natives on the shores of Lake Tanganyika collected and bartered with the neighbouring tribes, whilst earlier in the century the famous and amiable Dr. Moffat, referring to a saline deposit in that *terra incognita*, described it as "saltpetre." But within the last fortnight more concise and authentic information has been received, and the existence of practically inexhaustible beds of nitrate in the Equatorial provinces is reported on the authority of the German explorer, Dr. Peters. This important discovery has been made within the German sphere of influence, but there is strong presumptive evidence that similar deposits will be found within the adjoining territory of the British East African Company, where the climatic and geological conditions are almost precisely identical. Owing to the difficulty of transport a few years must elapse before African nitrate can become a merchantable commodity, but the partition of Africa amongst the European powers has been followed by extraordinarily rapid developments, and railroad communication with the interior is simply a question of time. Already the subject of constructing a railway to the great lakes is under consideration, and in support of the project the Government this week are bringing forward a proposal to grant £20,000 towards the survey of a line from Mombasa (Zanzibar) to the Victoria Nyanza.—*Liverpool Monthly Circular.*

TRADE PROSPECTS IN CENTRAL AFRICA.

Before a special general meeeting of the London Chamber of Commerce, held in the council-room, Botolph-house, Eastcheap, a paper was read on Thursday by Mr. Mounteney Jephson on "The Possible Expansion of British Trade in East Africa." Sir A. K. Rollit, M P., Chairman of the Council, presided, and there was a good attendance.

Mr. JEPHSON observed that three-quarters of the British public thought that Central Africa was either one huge desert or one huge forest, but in the interior of the country there were vast tracts of fertile land, which were only awaiting cultivation to yield a practically unlimited supply of raw material to feed our British looms and factories, and there was also a vast negro population ready to exchange our manufactured goods for those raw products. It was impossible entirely to separate trade and philanthropy in Africa. Any one reading the history of the march of civilization in Africa must be struck by the fact that most of the important and lasting benefits to civilization in Central Africa were due to trade. The British East Africa Company was largely composed of Scotch and English gentlemen, whose philanthropic instincts were as proverbial as their instincts for business and commerce. He considered Uganda, owing to its position, to its commanding so extended a waterway, and to the healthiness of the climate, as the key to the rich countries of the interior. Every traveller who had visited Uganda invariably spoke of it as a country with a great future. Very superior coffee grew there wild in abundance, and, if cultivated, it would become a great source of wealth and revenue to the country. They might safely consider that tea was another trade which would spring up with the pacification and development of Uganda. It has also been for many years a great up-country depôt for ivory. In all the upland countries lying around the head-waters of the Nile cattle were plentiful, and a large trade in hides could also be organized. One of the chief sources through which Emin had proposed to bring in a large revenue for the province was oil. The raw cotton which might be imported from Africa into England if the cultivation of the cotton plant were properly developed would free England entirely from being dependent upon foreign countries for her raw cotton, much of which could be returned to Africa in the shape of manufactured cotton cloth. Almost the entire country between the lakes and the coast was suitable for the cultivation of cotton. The growing of tobacco, too, might be developed into a large trade. Sugar-cane, wild indigo, and fibre plants grew freely and were indigenous in many parts of Africa within the British sphere of influence. Cereals of many kinds, as well as rice and oil seeds, could be grown greatly in excess of home requirements, and could be exported to India, the Red Sea and the Persian Gulf. In fact, there were few necessary things which could not be grown in the British sphere of influence in Africa. One of the most important of the many natural products of Equatorial Africa was indiarubber, and the trade in ostrich feathers was capable of great extension. Although there were in Central Africa many million acres of rolling grass downs, all these savannahs were so infested with parasites that sheep would not, he thought, become sufficiently numerous to make Africa a wool-producing country. Throughout the whole of Central Africa there was abundance of iron ore, and gold-bearing quartz had been found in large quantity. Copper knives and ornaments were common features in Monbuttu, Niamniam and the adjoining countries, where the metal was found in large deposits.

Speaking of the probable imports of manufactured goods from Great Britain, the lecturer said that between Mombasa and the Victoria Nyanza the usual Manchester cotton goods, woollen stuff, beads of various kinds, brass and iron wire and iron hoes, and hardware of all kinds were the mutual coin of the country. He hoped that as trade developed in Africa, and as the means of transport were improved, the manufactured goods we introduced would be of a better quality. It was, however, useless to talk about extending trade in Africa and bringing up trade goods to a better description without having railways to transport them. Stanley, as far back as the time when he first entered Africa on his search for Livingstone, said that nothing would ever be done in Africa until it was surrounded by an iron girdle. What was now wanted was to produce a storm of public feeling so overwhelming that no Government would dare to ignore public opinion by refusing measures for granting a guarantee necessary to enable a company to build a railway from the coast to Lake Victoria. Its construction should be considered as belonging to the duty of the Imperial Government, for it would be the means of stamping out the slave trade and opening up British East Africa to civilization and commerce, which was eminently an Imperial duty. At present everything in Africa had to be carried on men's heads, and therefore the Arabs made slave raids to obtain slaves, whom they used as beasts of burden. If the railway were built and steamers put upon the lake there would be no longer any need for human carriers. He would impress strongly upon their minds that this help which was expected from the Government was not a party affair, and that the scheme of a railway was entirely suggested by the declarations embodied in the Brussels Act, and the necessity there was for opening up new fields for British manufactures. The Government was not asked to put a further burden upon the Treasury, but merely to turn a portion of the £200,000 which it annually expended upon its squadron on the East Coast into another and much more effective channel. He thought he was not unreasonable in asking the various Chambers of Commerce to use their influence with the Government, to make sure that what the Government had recognized as its duty at the Brussels Conference should be carried out.—London *Times*, March 5.

CINCHONA PROSPECTS.

Where no counsel is, the people fall; but in the multitude of counsellors there is safety. When, about three thousand years ago, Solomon laid down this opinion it is evident that he did not foresee the plan upon which the speculative produce business in general and the quinine trade in particular, would be conduct'ed at the end of the nineteenth century. The very largeness

of the multitude of counsellors and prophets anxious to serve as guides to the would-be investor renders it exceedingly difficult for that over-protected individual to judge the merits of each one, especially as the advisers seldom agree in their opinions, or even in their facts. A remarkable instance of this want of agreement is shown in three expressions of opinion on the prospective supply of cinchona which reach us almost simultaneously from different sources. The writers are all practical planters and anxious, apparently, to state what they conceive to be truth. One, Baron v. Rosenberg, of Devicolom, Madras, addresses the editor of this journal; another, Mr. Anton Kessler, of Garoet, Java, writes to a planter friend in Ceylon, who has handed the letter to the "Ceylon Times;" and the last, Mr. Winning, a well-known Dutch-Indian cinchona authority, contributes an article to a review published in Java. These three authorities, each, it would seem unaware of the other's intentions, were moved to write their impressions about six weeks ago. Mr. Winning, among a number of other statements, opines that in 1892 Java will ship 3,300,000 kilos.; in 1893, 3,500,000 kilos.; and in 1894, 3,800,000 kilos. of bark —the highest of these figures being below her shipments of 1891; and he proceeds to build up elaborate calculations upon the assumption that the average quinine percentage of the Java bark will remain stationary at 4 per cent. Continuing his argument upon these lines, Mr. Winning comes to the conclusion that we are at this moment faced by an output of quinine insufficient for the world's requirements, his estimates of the total quinine production from all sources being:—For 1892, 226,500 kilos.; for 1893, 225,500 kilos.; and for 1894, 228,500 kilos. Mr. Winning's figures have been promptly seized by quinine manufacturers and others for commercial purposes; and it is to be hoped, for the sake of those who may become victims to their allurements, that they will pan out aright.

Then comes Baron v. Rosenberg, who, in the letter to which we have referred, takes credit, more in sorrow than in anger, for having prophesied truth four years ago, though his truths were of such evil purport that no one would listen to them. The Dutchman, Mr. Kessler, too, lifts his voice as an unappreciated Cassandra. Listen to his admonitions to his planting friend in Ceylon:—

"You have left cinchona and run across to tea. I think you were right, for cinchona is looking very like a wreck, and may prove one even if Java be left alone with it. You may recollect that I prophesied in 1887 what we are now experiencing. Your people did not believe me, and some of them may have thought I was "doing them." But I knew I was not and advised your people to root up their cinchona when the unit was at 4d; they must now own that I gave them good advice."

"And what will the future be? Our bark in Java average now from 4 to 4½ per cent, and will average about twice as much some years hence, for we are doing our best to cultivate high-class barks. We export 6½ million kilos now, and will go on increasing; you may calculate for yourself what this means. Very little is heard of estates that will be abandoned, though there are some, and most estates cannot cultivate any other produce well on account of their situation, the restrictions of their lease, or because their shareholders do not care to embark into something new which might swallow more money in case of failure. So most people stick to the old thing in hopes of killing out their weaker neighbours or that better times may come. I myself doubted of their early advent, and rooted up 300 acres, which is now under coffee."

So far Mr. Kessler. It will be seen at once that he and Mr. Winning cannot both be correct, and Baron v. Rosenberg is more or less at issue with the two. One comfort is that, though utterly at variance as regards the future, "I told you so," is the harmonious burden of their songs where they treat of the past.

Baron v. Rosenberg thinks that a large proportion of the Java bark is below the paying point of richness, and he infers that the poorer plantations in the island must be in process of uprooting if they have not already ceased to exist. Upon this point Mr. Kessler contradicts him flatly, and even goes so far as to assrt, that in a few years Java bark will average 8 to 9 per cent. of quinine, while the quantity shipped, weight for weight, will go on increasing also. This statement is in accord with the reports from our Amsterdam correspondent which we published over four years ago. While we are calling attention to the various disciples of Old Moore who are raising their voices at this moment, it may not be out of place to recall the fact that we too, in a modest way, have occasionally ventured upon a bit of horoscope-casting. On December 17th, 1887, we wrote, in commenting upon the statement of our Amsterdam correspondent that orders for the planting of 300,000 exceptionally rich trees had been sent to Java:—

"It is quite possible that within a couple of years Java will absolutely dominate the cinchona market ....Ceylon planters will do well, therefore, to ask themselves seriously whether they have any prospect of holding their own against such competition as.. is looming near at hand."

But to return to the three "planting prophets." Baron v. Rosenberg, when recently in Ceylon, was assured that if every tree in that island were uprooted perhaps 3,000,000 lb. of bark might be cropped, with which the production would be finished entirely. If that statement be true, all the Ceylon authorities and most of the leading London importers and brokers are hopelessly at sea in their estimates.

Baron v. Rosenberg believes that Ceylon and India "will both again decrease their shipments this year." So far as India is concerned, that view also is not accepted by the leading representatives of the cinchona industry in London, though probably our correspondent, who is an Indian planter himself, has better means of judging on this point than others.

In the face of all these contradictory opinions the wisest course would seem to be—let the future take care of itself; but that is a course which will certainly not be received with approbation by the large majority of those who spend a great part of their days in calculating, from imperfect data, the chances of a rise or fall in the quinine market.

Prophete rechts, Prophete links
Das Weltkind in der Mitten,

says Goethe. The unfortunate world-child who happens to be financially interested in bark or quinine is tormented by the doubt which of the rival prophets he shall follow; and, needless to say, his choice falls, in almost every case, upon the one whose views coincide most nearly with his own hopes of gain. Though no one can compute even approximately the sum total of brain-power spent upon vain calculations of what the future holds in its lap, two things are tolerably certain: first, that the energy misspent upon such calculations, if directed to the solution of any problem likely to advance the interests of mankind, would bring lasting renown to the mathematicians engaged in it; secondly, that if, peradventure, the hopes and estimates of any speculator should be realised to the full, that individual, instead of preparing to enjoy at ease the fruits of his foresight, will immediately commence to worry his soul afresh, and to destroy the remnants of his digestive organs with a new set of calculations about what is to happen five or six years further ahead, and risk his money upon the realisation of that fresh set of calculations.—*Chemist and Druggist*, Feb. 20th.

MORE FACTS ABOUT PRECIOUS STONES.

The following is from the *American Exporter*. We seem to have missed the first article referred to, but it will probably turn up:—

Last month we considered briefly the constitution and value of the four leading ornamental gems, viz., the diamond, the ruby, the sapphire and the emerald; and we noticed in passing, also, a few stones of the chrysoberyl family, allied to the emerald or beryl group.

We have now to consider the subordinate gems, of the second and third classes, and first let us enu-

merate a few of the best specimens derived chiefly from the materials known as alumina and silica. Of these the turquois is perhaps the most prominent, and certainly one of most popular. The turquois consists of about two parts alumina, one part phosphoric acid and one part water. The best color is a deep sky-blue, though it is found in various shades of blue. It is one of the few precious stones which are not transparent. The finest specimens come from Persia, and inferior specimens from many other places.

The topaz, another favorite jewel of the second order, is found in two or three different varieties. The original oriental topaz of the ancients, composed chiefly of alumina, was of a brilliant yellow color, and was very highly esteemed. In these later times it has become exceedingly rare, and more valuable even than the diamond. Its rarity is so great, indeed, that it has practically gone out of the market, and the ordinary topaz of modern commerce is something entirely different, and much less valuable. It is one of the silicates, and is known as the Brazilian topaz, from the country of its origin. Its color is a lovely pink, and it is produced by firing. The metal is completely covered and encompassed with sand, which is then subjected to a very high degree of heat, and after the expiration of a certain time it is allowed to cool off gradually, and if the process is exactly successful the stone is found to have turned to a beautiful pink color. The operation, however, is a very delicate and difficult one, and many stones, in fact the great majority of them, are ruined. The heat may have been too great, or not great enough; it may have been applied too long, or not long enough; the cooling process may have been too slow, or too quick. In either case the stone is ruined; and probably not more than one-tenth of the operations are entirely successful. This makes the Brazilian topaz not only beautiful but valuable.

The zircon, hyacinth, jacinth, or jargoon, as it is variously called, is another beautiful member of the second class of gems, which is not as widely known as it ought to be. It is remarkable as being by far the heaviest of the precious stones. Those which are called zircons are brown, violet and green; the hyacinths are red, the jacinths yellow, and the jargoons greyish-white and pure white. They are found in Ceylon, Germany, France, the United States, and many other places.

The tourmaline is remarkable for its many and varied colors and groupings of shades and colors. It is composed chiefly of alumina and silica in about equal parts. It is found in Brazil, Ceylon, Siberia, Moravia, Elba, Sweden, Burmah, the Tyrol, Canada and the United States.

The opal consists of about nine parts silica and one part water. Its colors vary from chalky-white to bluish-white, from yellow to red, and kaleidoscopically from one to almost any other color. In respect to this variability of color, and a sort of mysterious opacity, the opal is unique among jewels. For some absurd reason it acquired unpopularity long ago as being "unlucky," but it is now becoming again a a favorite of fashion, as it well deserves to be. The best opals are found in Hungary and Honduras, but the common varieties are found more or less generally all over the world.

The chrysolite is a beautiful stone of a greenish yellow color, composed of silica, magnesia and oxide of iron.

One of the best and most useful of the silicates is the garnet, composed of silica, alumina, and protoxide of iron. It is distributed extensively all over the world in abundance, and is therefore not very costly; but it is exceedingly beautiful, rivalling in appearance even the ruby. The predominant color is red, but it varies from a brown to almost a violet hue. Carbuncle is a name applied to all garnets that are cut with a smooth rounding top.

The moonstone is a species of feldspar. It is colorless, or only slighted tinted with blue, green, yellow and red, and is beautifully transparent or translucent. The lustre is vitreous, and a brilliant pearly streak of bright light plays in it from side to side. This stone has latterly become very popular, and deservedly so. It is found chiefly in Ceylon and Switzerland, and occasionally in Bavaria, Greenland, Norway and the United States.

Lapis lazuli, the "sapphire" of the ancients, is an azure blue, and is used sometimes for purposes of ornamentation in the jewelry line, though more generally for works of larger dimensions.

There remain to be considered hereafter a number of gems of the third rank, composed chiefly of quartz.

SELECT EXTRA-TROPICAL PLANTS READILY ELIGIBLE FOR INDUSTRIAL CULTURE OR NATURALISATION.

By Baron Ferdinand von Mueller, K.C.M.G., &c. (Melbourne: Printed for the Victorian Government by C. (Troedel & Co.) Price 5s.

The eighth edition of a book, which has been translated into German and French, adapted for Indian climates, and modified for that of New South Wales, needs no recommendation. The mere mention of a re-issue is all sufficient. A book of this character, though to a large extent a compilation, is one which demands unusual knowledge and consummate judgment on the part of the compiler. Its great success indicates that these requisitions have been met. Indeed, it is a book which should not only form part of the library of every cultivator, but one which should be on the shelves of all those in any way interested in economic botany. As a condensed encyclopædia of the latter subject, the book, within its prescribed limits, has a value for a class of readers as numerous, or more so, than those for whom it was more immediately destined. Those plants which are of special interest or value are marked by an asterisk. In all, 2,485 plants are mentioned, besides very many others, of which incidental mention only is made. In the appendices, details are given as to the temperature and rainfall in various parts of the colony of Victoria. Lists are also supplied of the genera, arranged according to the purposes for which they are used, alimentary, textile, constructive, medicinal, and so on. A systematic index is also provided, in which the genera are arranged under their respective natural orders. A list of synonyms and a geographical index follow, and these are succeeded by detailed lists of plants which furnish a crop in one, two, three, or more years, as the case may be. Plants adapted for very cold or very dry regions are separately enumerated, whilst the work ends with an index of vernacular names. The mere mention of some of the contents of this volume is sufficient to justify our remarks as to its utility. But its author is not yet satisfied, nor, indeed, would he or could he ever be. Accordingly, we find him, while approaching the eighth decade of his life, hoping not, indeed, that he may see "many more editions of this work brought up to the newest standard," but that he may "perhaps still be able to publish one more edition before passing away." To this end he solicits that assistance which all who are able will cheerfully give to so valiant and indefatigable a worker as Sir Ferdinand von Mueller.—*Gardeners' Chronicle.*

[We can personally testify to the great value of this compendious book of reference.—ED. *T. A.*]

EGG-PLANTS.

Some time ago, in passing a fruit shop in Regent Street, I saw in the window some fruits of the purple Egg-plant, Solanum Melongena. Of course, this is closely allied to the Tomato, but it does not appear to have taken the fancy of horticulturists; yet when cooked, it is one of the most delicious of vegetables imaginable.

As there are Apples and Apples, so there are Egg-plants and Egg-plants. The white variety is sometimes cultivated in India, but it is the least valuable, as it is rather bitter; but the purple varieties are cultivated in fields everywhere, and much used by the natives and Europeans.

The best of all kinds which I have ever tried is one grown in Delhi, under the name of Mâroo Bâingan. Baingan is the native generic name of this plant, but Mâroo is, I suspect, a corruption of the English word marrow, as, when cooked, its pulp has a marrowy delicacy. The fruit of this grows to the size of a child's head, and is of a light purple. I do not know the origin of the word Bâingan. I cannot find this plant in De Candolle's *Origin of Cultivated Plants*. It may possibly be a South American plant, originally introduced into India by the Portuguese. The French call it Aubergine, and also Melongene; the Italians call it Melingiana; and the English in India often call it Brinjal. All these words, with the specific Latin name, Melongena, evidently have one derivation; and the Indian name, Bâingan makes one suspect that it is a further corruption of the same name.* In India, among dyers, the word Baingni has been adopted to indicate a purple shade of colour, so probably the cultivation of the plant is of old date.

As the French are fond of Aubergines, they should note in Delhi are to be procured the seeds of a very fine variety. It is never certain, however, that a good variety in one place will maintain its fine character when grown elsewhere. Tobacco, Tea, Coffee, the Vine, &c., sufficiently show this; nevertheless, heredity, as they say in Hindostan, is *bari chiz* (a great thing); and it has often happened that a plant retains its good qualities in the country and soil of its adoption. Then what is the use of man's intelligence if, having once got hold of a good plant he cannot make it stick to its character, or even improve it? We know that the Tomato in England is now a "how-is-it-we-ever-did-without-it" sort of both fruit and vegetable. The Aubergine ought, likewise, to hold in time a similar position as an adopted vegetable.

It is not impossible that such a fine thing has not taken the fancy of English growers because they have not hit off the right way of cooking it, although Anglo-Indian housewives must know a good deal about the way of managing it for the table; but they would like to find it in the shops at a reasonable price. I fancy it would admit of being grown in pots in summer, under glass, exactly as the Tomato is grown.

For the benefit of those who may happen to grow the plants of the purple variety, I herewith give one of a dozen ways of cooking the Aubergine. In India, they have many varieties, some of them almost black, and as long and thin as Cucumbers; but the best I have ever tried is the Mâroo Bâingan of Delhi.

The rule is, first to "catch the best hare you can find." The stalk and calyx should be cut off, then the Aubergine sliced longitudinally, each slice of the thickness of about a quarter of an inch. Place them flat on a table or board, sprinkle salt over them, place another board on the top of them, and some weights on that. The object of all this is to drain off, by the help of the salt, the bitter juice which some kinds contain. I do not think the Delhi variety needs this trouble. Then wash off the salt, dry the slices in a cloth, and fry them in lard, or any other frying material. In Italy, they fry them in plenty of Olive oil (probably now they do it in Cotton-seed oil). In the olden time they used to call these fried slices of Aubergine, "quaglie" (quails), probably because they thought them delicious. Sometimes after drying in a cloth they are powdered with flour, which, when fried of a golden-brown, gives them a crumby appearance. Done in this way, they can be eaten with meat, or, French fashion, as a separate dish.

There are many other ways of cooking the Aubergine. Roasted, or boiled and peeled, and then squeezed in a cloth, they may be used in curries, in omelets, &c. They can be stuffed with force-meat and baked, and in several other ways, but as this is not a paper on culinary subjects, I shall end by stating that English growers and English cooks will be unwise if they do not take to the Mâroo Bâingan of Delhi.—E. B.—*Gardeners' Chronicle.*

* The surmise is correct. See Yule's *Hobson-Jobson* s. v. "Brinjaul" for the curious history of the word.—ED. *T. A.*

TASMANIAN APPLES.

"There is a glut of Apples in the market," said a morning contemporary, the other day; and "the Canadian crop of Apples is this year estimated at a million barrels," an evening journal had previously stated. All this, of course, writes a correspondent, means a bad lookout for low-class English products—first-class will always hold their own anywhere; and in these few words the grower may read his lesson. As time goes on, all the weedy sorts will have been cleared from the market, and Apples worthy of the name will be "worth money," as the saying is. By the month of March next, people will begin to sigh for a toothsome and cheaper Apple, and then—on come the beautiful varieties from Hobart, in far Tasmania. We have been threatened with supplies from Australia; they would be very welcome, but they have yet to be grown, and it is just possible that Australia is not an Apple-growing country. This, however, from all accounts, Tasmania is; we can readily take this for granted, with the vivid memory of what has reached us from that far-off British colony, rapidly rising into importance, for much of which it is indebted to its Fruit-Growers' Association, and the Agent-General, located in the Broadway, Westminster—a gentleman with a firm belief in the future of his country, and quite able to direct the operations of those of his friends at the Antipodes who seek to find favour for their wares in the English markets. A pleasant interview with this gentleman a few days since was productive of much information concerning the Apples of Tasmania, from which we reproduce the following, almost in the words of our informant.

Three years since, the import of Apples into this country from Hobart was some 30,000 bushels; in the year following—1890—the figures had risen to 40000; this year the importation had risen to 140,000 bushels! It may be stated here that during the season of 1891 considerable space was secured in the cool chambers of steamers loading fruit at Hobart beyond the first-class fruit then at the disposal of the shippers. To save absolute loss of freight, inferior fruit was shipped, with the consequence that the price fell from the average of 16s to 18s per bushel of 1889 and 1890 to 8s to 10s in 1891. It has been stated in the English press that the Tasmanian growers are satisfied with this lower rate: but they are not satisfied. The actual cost to the shipper in freight, &c., excluding the price of the fruit, is over 7s a bushel, and the 1s to 3s remaining over is less than the price which can be realised in the colony. The Government have noticed the mistake of putting anything but first class fruit on the English market, and there is no probability that the Tasmanian Fruit Growers' Association, which conducts the fruit exports, will allow such a blunder to be repeated. In the season of 1892 and thereafter, the British public need not anticipate the arrival from Tasmania of any but first-class apples.

Respecting the area over which apples are grown in Tasmania, the Agent-General informed us that the acreage under gardens and orchards in 1889-90 was 9808, against 6459 in 1880-81, and this increase is likely to be maintained. It is anticipated, says our informant, that in ten years hence the acreage will be extended to some 12,000 acres. To our thinking the increase will be greater. Our informant hinted at the possibility of an early start in the production of Peaches and Apricots for this market; certainly the fruit would be eagerly bought up if in good condition; and here, surely, what has been done may fairly be accepted as an earnest of what remains to be accomplished.—*Gardeners' Chronicle.*

NATURAL REPRODUCTION IN THE MADRAS FORESTS.

It is no new fact to be told that, where protection is efficient both from fire and grazing, the natural growth in the Forest Reserves of the Presidency is excellent; and on the contrary, where it is not so, the natural growth is poor. All that the Forest Officer has to do, therefore, is to protect—and possibly direc

by improvement cuttings—and leave Nature to do the rest. Protection from fire, the Board of Revenue observes, is a mere matter of money and labour, but to combine protection from grazing with the necessities of the ryot and the grazier is more difficult. An instance of the good results of effective protection is given in the "marvellous growth." in the Anantapore reserves, which are specially protected by stone walls. The question, therefore, which arises for consideration is should not more be done in the way of fencing? The difficulty has been the matter of cost, but, as the Board remarks, if railway lines can afford to be effectually fenced, there would seem to be no reason why forests should not, at any rate where the forests lie in large compact blocks. "Such fencing," the Board continues, "wou'd assist most materially to protect both from fire and from thieves; and with protection from the latter, all the obnoxious transit rules could be abolished."

To show the effect of protection on natural growth, the case is motioned of the Peddapalee forest in Vizagapatam, which has been under special protection for five years. In Nellore, in the Srikarikot forest, experiments were made to increase reproduction by cutting the roots of the eugenia jambolana, and the result is reported to be satisfactory, many shoots having come up. Experiments were also made in the felling of casuarina trees in Nellore, and it was found that the best season for coppicing was from September to November, and that the coppice was best when under shade and when the length of the stem left was not less than 4 feet. In Cuddapah, the growth of red sanders from seedlings is reported to have been successful; the ordinary bamboo seeded in most parts of Cuddapah and in the Nallamalais of Kurnool. In the Nilgiris, the reproduction in the sholas and the growth of coppice shoots in the *eucalyptus* plantation are reported to be satisfactory. The reproduction from seed of bamboos in the Nagalapuram reserve in Chingleput, the germination of sandal wood seeds in Salem, the reproduction from coppice in the Sholakarai, block in South Coimbatore, and the growth of kongoo seedlings in places where clean cuttings have been made in the evergreen forests of Tinnevelly, are reported to be noteworthy. In the Tindivanam and Villupuram ranges in South Arcot reproduction by coppice is said to have failed owing to the unfavourable character of the season; the coppice from casuarina shoots in the Cuddalore range was also a failure. In North Arcot and Salem the growth in the open areas is said to have been very poor, chiefly owing to over-grazing. In the mixed high forests of South Coimbatore, in several of the valleys and hill slopes in Madura and in parts of North Malabar, the unsuitable nature of the soil and the thick under growth of grass and thorny shrubs have retarded natural reproduction.—*Madras Times.*

THE CEYLON MARGOSA: A HINT!

There are few people among the many English in Ceylon who do not know the margosa tree (Por. margoséra, and Tamil verpum maram), but to many it is only known as a very fine "shade" tree, one that reared successfully, and treated with common generosity, will fairly last a century, and even more. It yields first a rough bark or outer bark which Tamils have only lately begun to value as a rival to quinine, in fever cases,* though administered very sparingly and in small quantities its taste being intensely nauseous and bitter. Its leaves also are medicinal and when burnt *green* on a fire in a brazier or earthenware chattie (as well as the dead bark) will, if placed in any room, drive away or kill the most obstinate and bloodthirsty of mosquitoes. The *green* bark is also successfully used as a "vermifuge" in the treatment of buffaloes and country cattle, and pounded and applied to a sore will kill off every worm in it. The timber sawn from this tree is noted for keeping off white-ants. A valuable and particularly clear gum exudes from the bark, naturally in small quantities, but when bruised in large *sheets* and yellow drops like icicles! Books bound with this gum are never bored or eaten by worms, and "painted" on an *abrasion* or skin wound will take off all pain. The yield of the tree in the shape of fruit is marvellous, and these furnish food to crows, goats and hundreds of the smaller of the feathered tribe, and the ground under margosa in fruit is daily and nightly carpeted with fruit. The leaf or seed of the margosa contain a valuable, rich and clear oil, sometimes burnt in earthen lamps, but specially valuable for fly blown sores in horses, elephants and cattle.* It is also used medicinally in *very* minute doses. It *smells atrociously*, but is very valuable as a lubricant for steel, iron, &c., from which it keeps rust, and would doubtless answer well as a lubricant for machinery and rolling gear. It is generally sold in the markets at 75 cents a quart bottle (*Ceylon quart*), being expressed in rough wooden mills, chekkus or by pounding, but when treated in a superior oil mill might be worked cheaply; but once a mill has worked for margosa oil it becomes practically useless for anything else.

R. A.

* Trees in Colombo were barked to death forty years ago, just as *Cassia fistula* trees are being destroyed now.—ED. *T. A.*

PACKING ORANGES BY STEAM.

EDITOR "FARMER AND FRUIT-GROWER."

If one wishes to see systematic orange packing it will repay him to look in and see Mr. Sampson, at Boardman, with all his practical methods. He uses a steam motor to propel a three-bank Ayer's Sizer and many wrapping machines. One man is constantly and easily turning trays of oranges into the hopper of the sizer. Two men, one standing on each side of the hopper, assort the oranges. The seconds all go to the sizer on the left, the firsts to the two on the right. He has no russets, and hardly more than 10 per cent. are seconds. Here you can see a machine which comes near to a living, moving being, which responds promptly to the will of the operator and supplements his intelligence. Under such a man as Mr. Sampson, who has the genius to know a good thing when he see it and get the best work out of it, who actually compels it to do only the best work, give me the Ring Chain Sizer. From the sizer, like drilled soldiers on the parade, the oranges steadily move on to where the wrapping machine picks them up, prints on each wrapper the brand of the grove, neatly and securely twists the wrapper around the orange and then deposists it in the bins where the packers are arranging them in the clean cases. This machine wrapping is done with such care that eggs would go through the same process uninjured.

TEA IN FOOCHOW.

We have been forestalled in a rejoinder we intended to publish to Merchant's letter of 29th ult., by the writer of a 'communicated' article on the subject of the letter. As he happily hits upon the points we purposed bringing forward, there is no occasion for us to write at length about them. The points are simply these: *First*, that the real reason of manure not having been used on the tea gardens is, that it was not procurable in sufficient quantity. We gave this as a reason on the 16th January in an article headed 'Tea Prospects,' on the information obtained from upcountry teamen in an interview we had had with them, and it should be noted that they did not oppose the use of manure; they merely stated it was not procurable. *Second.* The idea of using chemical manures had never occurred to them. They had never heard of them. But we have to ask, who knows what they would do if the advantages were

* And in lieu for mercury for killing maggots in wounds or sores in the human subject.—ED. *T. A.*

thoroughly explained to them by an influential body? We should like to add to 'Merchant's' proposal, that head representative teamen from the country should be invited to attend the conference. It is to the interest of the Cantonese to keep us apart as long as possible from direct communication with the upcountry men, and here is a chance and, good reason, for our trying to break through a custom which suits our Southern friends so well.

From an upcountry teaman with whom we are well acquainted and who has come down to see after his unsold stock here, we learn that several of the teamen are very much against the proposal to make small chops next season on the grounds that it would add so much to the expense of preparation. We do not quite follow his explanation as to how this comes about, but as he asserts that a large pile of tea can be fired at the same expense as a smaller one, both being contracted for as a day's work, we suppose we must accept the statement as correct. We were glad to have our information on the subject of early firing, lately published, confirmed. Instead of allowing the tea to stand about for a long time as heretofore, it is to be fired as soon after picking as practicable. On the subject of supply, he stated, in reply to our enquiries, that the quantity woul depend upon the extent of the advances made by the Hongs here, but he had reason to believe that it would fall considerably short of last year, as neighbours in the country had told him that they were unable to get their customary advances made them. He heard that loans, and credit generally will be greatly restricted this year.—*Echo.*

PROTECTION OR DESTRUCTION OF BIRDS IN INDIA.—Our correspondent Jas. H. B. will be interested in what follows :—

Mr. W. L. Sclater contributes to Indian Museum Notes an interesting little article on the economic importance of birds in India, with special reference to the question whether legislation is necessary to protect insect-pest destroyers. Of the birds destroyed in this country for plumage or food, very few, if any, he states, are insectivorous ; while, with regard to to those of mixed diets, it would be unadvisable to protect them, "since they may do much greater harm in devouring fruit and grain than they do good in destroying insects," as is especially the case with crows and starlings. The principal birds killed for their skins and feathers, which are exported at high prices, are egrets, and the cattle egret, the pond heron and the blue heron, while the snake-bird has feathers of a certain market value. The lengthened scapular feathers of this bird, which are the only ones sold for export, are looked on, we learn, "as a badge of royalty by the Khasias, and were once the badge of one of the Bengal regiments of irregular cavalry." Of pheasants, many are exported in large quantities ; the bulk of the specimens brought down to Calcutta being shot in Bhootan and Nepal. The Sikkim and Simla Argus pheasants are probably largely exported, but, as the writer says, neither is the true Argus, which is a bird found only in the Malay Peninsula. Indian parrots, the blue jay, the kingfisher, and junglefowl are the only other birds which are exported in large quantities. Mr. Sclater quotes from Mr. Hume's "Gleanings from the Calcutta Market," for the list of birds commonly eaten in India, and sold in the markets of Lower Bengal. They include the snipe, snippet, plover, teal, and the red-crested pochard. Of the birds shot by European sportsmen and eaten, but which are not common in the Calcutta bazaar, are the green and blue rock pigeons, the bustard, the florikin, the Sarus crane, the beefsteak bird, the ortolan, the sand-grouse, the peacock, jungle fowl, gray fowl, the red spur fowl, black partridge, painted partridge, the kyah partridge, and the gray quail. Mr. Sclater adds a list of purely insectivorous birds but none of those we have mentioned fall within this category.—*Indian Agriculturist.*

THE FAN PALM.—Rev. C. B. Henry states that the fan palm of China grows only in the San Ui district, twenty miles long by ten miles wide. The trees do not yield leaves suitable for fans until six years old. Some trees are said to be over 100 years old, but the tallest measure only about twelve feet. From April to November the leaves are cut monthly, one to three being taken from each plant. From 10,000 to 20,000 people are employed.—*Florida Agriculturist.*

COFFEE AND COCOA IN PANAMA.—Attention is being paid (says the London *Grocer*) to the planting of cocoa and coffee, etc., in Panama, one company having a large number of the young plants of the various classes mentioned, and which are in a condition of vigorous growth. Good tobacco has already been produced by this company, and the crop well cured, was manufactured into cigars of a fair quality. There is scarcely any doubt as to the success of the experiments in the cultivation of cocoa, although several years must elapse before the results can be properly estimated. With coffee, of which about 15,000 plants have been set out during the year and carefully attended to, the outcome is more doubtful, as the conditions of soil and climate are not favorable. The ground on which this essay in coffee-growing is in progress is only about 250 feet above sea level (an elevation not sufficient in this latitude) while the soil has but slight depth of loose vegetable mould, resting upon a stratum of red friable clay, which has for its base the talpetate of the country—a compact indurated clay or rock, impervious to water and into which the roots of the plants cannot penetrate. A company has also been formed for the cultivation of sugar-cane and the manufacture of its products, but it has not yet passed beyond the stage of mere organization. It is doubtful if there are good lands for the growth of sugar-cane in the immediate neighbourhood, although there are in the department ; but tobacco, rubber, cocoa, and textile and medicinal plants may be cultivated to considerable extent at great profit.

TEA, COFFEE AND CINCHONA IN JAVA are thus referred to in the *Straits Times* of 26th March :—

Last year has been disastrous to tea planters in Java owing to a prolonged drought which resulted in the young plants, from one to three years old, dying in hundreds of thousands. It will take years to repair the damage done. The crop fell in consequences far short of that of the previous year. The planters as a set-off against this stroke of ill luck, have managed to persuade the Government to order the supplying of the army in Java with locally grown tea. This has aroused the attention of the Chinese to that branch of planting industry. They consequently have got hold of several estates by entering into contracts with the owners to enable these Chinese to prepare and bring to market Java tea. It seems that small estates have larger working expenses than bigger and more productive plantations, and, hence, have need to call in Chinese aid, as the Chinese can draw larger profits from estates under their control by means which few Europeans will resort to. Another result of this passing over of estates into Chinese hands is that the European capital and labour expendod on them now benefit Chinese owners. In West Java, Liberian coffee is coming into greater favour for cultivation than the Java article owing to climatic conditions giving the African berry the advantage, provided the ground be not too high lying. Liberian coffee now readily finds buyers at Amsterdam, and also in America. Fair Java it is said brings at the utmost 54 to 54½ guilder cents per picul while Liberia fetches 56 cents a picul. Cinchona growing in Java has proved highly unprofitable from the heavy fall in prices. Experts differ whether the decline is due to overproduction or to speculation for a fall, but agree that its continuance will prove calamitous to this kind of cultivation.

MANGROVE PLANTS FROM CEYLON FOR THE ROYAL BOTANIC SOCIETY OF LONDON.

The *Standard* of 14th March has the following:—

At a meeting of the Royal Botanic Society, held on Saturday, Mr. J. Bell Sedgwick in the chair, the Secretary announced the safe arrival at the gardens of a number of young plants of the mangrove, from Colombo, remarking that, though common enough in the mangrove swamps of the Tropics, this plant had never yet been grown in England, though many attempts had been made by the Society and others. In the conservatory, however, the white mangrove, a somewhat allied plant, had been growing for the last eight years, but the rate of growth was very slow, and the plant appeared very delicate.

INDIAN TEA SALES.

(From *Watson, Sibthorp & Co.'s Report.*)

CALCUTTA, March 16th, 1892.

There was a good demand at about previous rates in the sales held on the 10th instant. The Bombay buyers were very keen and suitable teas realised from one to two annas over present London prices. 4,712 packages changed hands

The season is now practically closed. Since it opened on the 14th May last 39 series of sales have been held at which 433,678 packages changed hands at an average of As. 6-8 or about 9d per lb. as compared with 391,990 packages sold in 34 sales in season 1890-91 at As. 7 or about 10½d per lb. and 466,784 packages sold in 38 sales in season 1889-90 at As. 7-7 or about 10¾d per lb.

The increased demand from various new outlets during the past season was one of the prominent feature of the market, and prices realised for suitable teas were throughout very considerably above current London rates. There is no doubt, in this regard, that if this market had been more liberally supplied the growth of the trade with these new consumers of Indian teas would have spread even more rapidly than it has done. In future a much larger proportion of the crop should find a market here as these recenly found customers ought to be encouraged and others from still future afield induced to complete. The figures published by the Indian Tea Association on the 12th instant, lend additional weight to the above remarks, they show that from the 1st May to the 29th February in the season under review the exports from here to all other places than the United Kingdom were 8,620,000 lb. as compared with 5,764,000 lb. in 1890-91 and 4,939,000 lb. in 1889-90.

The average price of the 4,713 packages sold is As. 4-6 or about 6¾d per lb. as compared with 7,528 packages sold on the 26th Feb. 1891 at As. 7-11 or about 10½d per lb. and 7,637 packages sold on the 27th Feb. 1890 at As. 5-4 or about 7¾d per lb.

The exports from 1st May to 14th March from here to Great Britain are 109,511,071 lb., as compared with 98,179,163 lb. at the corresponding period last season.

NOTE.—Last sale's average was As. 4-11 or about 6¾d per lb.

EXPORTS, STOCKS, &c., OF INDIAN TEA.

	1892. lb.	1891. lb.	1890. lb,
Exports from Calcutta to Great Britain from 1st January to 29th Feb.	13,240,251	12,077,526	13,952,816
Exports from Calcutta to Great Britain in Feb.	5,600,354	4,158,352	5,149,528
Stock in London on 29th February ...	47,562,440	40,131,498	43,081,176
Deliveries in London from 1st January to 29th February ...	19,867,647	19,602,300	17,018,516
Deliveries in London in February ...	9,900,000	9,031,506	8,187,293
Landings in London from 1st January to 29th February ...	21,934,409	23,366,905	22,279,800
Landings in London in February ...	8,3000,000	10,098,585	8.912,076
Exports from Calcutta to Australia and New Zealand from 1st May to 29th February ...	4,815,849	4,361,393	3,521,900
Exports from Calcutta to Australia and New Zealand in February ...	463,433	152,067	172,757
Exports from Calcutta direct to America from 1st May 29th February	183,728	131,662	164,697
Exports from Calcutta direct to America in February ...	1,420	13,152	212

The following are the total quantities from each district with the averages realised :—

		Season 1891-92.				Compared with Season 1890-91				Compare with Season 1889-90.			
		packages.	R. a. p.	per lb. s. d.		Packages.	R. a. p.	per lb. s. d.		packages.	R. a. p.	per lb. s. d.	
Assam	Cachar	... 130,453	avge. 0 7 0	about 0 9½	or about	127,331	avge. 0 7 5	about 0 11		149,039	avge. 0 8 1	or about 0 10¾	
	Sylhet	... 105,258	„ 0 6 4	„ 0 8¼		89,631	„ 0 6 9	„ 0 10		90,841	„ 0 7 1	„ 0 9¾	
	Darjeeling	... 36,857	„ 0 6 0	„ 0 8¼		41,294	„ 0 6 8	„ 0 10		63,245	„ 0 7 0	„ 0 9¾	
	Terai	... 43,227	„ 0 7 11	„ 0 10¾		34,860	„ 0 8 0	„ 0 11¾		41,221	„ 0 9 2	„ 1 0¼	
	Dooars	... 27,338	„ 0 6 2	„ 0 8¾		19,043	„ 0 6 5	„ 0 9¼		30,905	„ 0 7 2	„ 0 10	
	Chittagong	... 74,926	„ 0 6 4	„ 0 8¾		63,112	„ 0 6 8	„ 0 10		72,737	„ 0 7 3	„ 0 10	
	Kangra Valley	... 7,065	„ 0 6 11	„ 0 9¼		8,620	„ 0 6 9	„ 0 10		10,221	„ 0 7 5	„ 0 10¼	
	Kumaon	... 3,469	„ 0 5 1	„ 0 7¼		3,232	„ 0 6 4	„ 0 9¾		3,898	„ 0 6 5	„ 0 9	
	Chota Nagpore	... 2,152	„ 0 4 1	„ 0 6		1,896	„ 0 6 4	„ 0 9¼		1,351	„ 0 6 4	„ 0 9	
	Dehra Doon	... 1,984	„ 0 4 8	„ 0 6¾		2,917	„ 0 4 9	„ 0 7¼		2,214	„ 0 4 5	„ 0 6¾	
		949	„ 0 4 8	„ 0 6¾		124	„ 0 7 2	„ 0 10¼		1,122	„ 0 4 11	„ 0 7¼	
		433,678				391,990				466,784			

The average price of the 433,678 packages sold since the 14th May last is As. 6-8 or about 9d per lb. as compared with 391,990 packages sold in season 1890-91 at an average of As. 7 or about 10½d per lb., and 466,784 packages sold in season 1889-90 As. 7-7 or about 10¾d per lb.

The following figures show the difference in the range of prices that have ruled during the past season and those of the two previous years.

PRICES.	Season 1891-92.		Season 1890-91.		Season 1889-90	
As. Up to 7¼ or Up to 9¾d	per cent 70	As. up to 7¼ or up to 10¼	per cent. 67	As. up to 7¼ or up to 9¾d	per cent. 56⅜
As. 7¾ to 10 or 10d to 1s 0¾d	18¼	As. 7¾ to 10 or 11d to 1s 2¾d	22	As. 7¾ to 10 or 10d to 1s 1d	23¾
As. 10¼ to 12¾ or 1s 1d to 1s 4d	6¾	As. 10¼ to 12¾ or 1s 2¾d to 1s 6d	7¾	As. 10¼ to 12¾ or 1s 1¾d to 1s 4¾d	9⅜
As. 13 to 15¾ or 1s 4¼d to 1s 7¾d	3¾	As. 13 to 15¾ or 1s 6¾d to 1s 9¾d	2¾	As. 13 to 15¾ or 1s 4¾d to 1s 8d	5⅜
Re. 1-0-0 & upwards or 1s 7¾ and upwards	1¼	Re. 1-0-0 and upward or 1s 10d and upwards	1¾	Re. 1-0-0 and upwards or 1s 8¾d and upwards	3¾

DESCRIPTIONS.	per cent.	per cent.	per cent.
Dust ...	1⅜	1½	1½
Broken tea and fans....	9¼	7¼	6¼
Broken pek. souchongs	6¾	8	7½
Souchongs and congou	8⅜	5	5⅛
Pekoe souchongs ...	20	23½	22¼
Pekoe ...	33½	32⅜	33⅛
Broken pekoe ...	19¼	20¼	21
Orange pekoe and bro. orange pekoe ...	1⅛	1¾	2

Sales from 14th May 1891 to 10th March 1892.
433,678 packages sold.

CLASSIFICATION.

Descriptions. Grades.	Prices. Rupees.	Prices. Sterling.	Packages.	Percentage.
Dust ...	r. a. p. 0 0 Up to 0 5 0	s. d. 0 0 Up to 0 0 7	8,136	1⅞
Bro. tea and fans ...	0 5 1 to 0 7 0	0 0 7¾ to 0 0 9¼	40,191	9⅜
Bro. pek. Sou. and pk fans	0 7 4 to 0 10 0	0 0 9¼ to 0 1 0¾	27,966	6⅜
Souchong and congou ...	0 10 3 to 0 13 0	0 1 0¾ to 0 1 4	36,345	8⅜
Pekoe souchongs ...	0 13 0 to 0 15 0	0 1 4 to 0 1 7¾	87,091	20
Pekoe ...	0 15 0 to 1 2 6	0 1 7¾ to 0 1 10¾	144,620	33⅜
Broken pekoe	1 2 6 to 1 6 0	0 1 10¾ to 0 2 1	85,308	19¾
Or. pek. and bro. or. pek..	1 6 6 upwards.	0 2 3 upwards.	4,921	1⅛
Total			433,678	100

Average of 39 Sales As. 6-8.

Average Exchange—for 6 months' Documents 1-5.
Average Freight.—£2-11-3 per ton of 50 c feet.

NOTES ON PRODUCE AND FINANCE.

ADVICE TO GROWERS AS TO QUALITY OF TEAS.—Messrs. Stenning, Inskipp & Co. have issued the following circular with reference to tea season, 1892-93:—In view of the approaching manufacturing season, we beg to offer a few remarks for your consideration. The fact that common and medium grades have sold with difficulty for but little more than half the prices ruling at this time last year, must be a source of anxious concern to producers. This heavy depression is due to excessive quantity and poor quality, and to the sudden and enormous increase in the imports from Ceylon. Fine and finest have been rather scarce throughout the season, and have sold readily at satisfactory prices. Ceylon teas have shown some falling off in quality, but the demand for them has about kept pace with the import, as will be seen by the figures for the last nine months, viz:—Import, 46,630,000 lb; Delivery, 45,235,000 lb. The imports from all India for the season will probably average 9¼ millions per month, and the deliveries half a million of pounds less, giving an excess of supply over demand of about 6 million of pounds. The stock of Indian in London at the end of February last stood at 47,558,000 lb. or more than five months consumption. Under these circumstances it would seem that, while avoiding the danger of plucking too fine, the only course open to growers is to improve the strength and flavour of their teas, and thus make them more attractive. We think this may be done by plucking moderately; by getting the leaf off in good time—that is, before it has become hard and coarse—and by giving the closest possible attention to the manufacture. We also think the endeavour should be to produce a fair proportion of true Pekoe and broken Pekoe, which would reduce the quantity of "medium," and help to bring up the average price. The export from China appears likely to still further fall away in the future, the teas being in disfavour, owing to their continued inferiority, and the blow the industry has sustained in consequence must be held in mind by Indian and Ceylon planters, who should not allow quantity to be their first consideration, or prices may sink to a point below cost of production.

TEA FROM NATAL.—On Monday Messrs. Gow, Wilson, and Stanton offered 303 boxes of Natal tea, containing about 15,000lb. from the Kearnsay estate. The prices averaged 5d per lb, but we imagine that the Natal growers sent their first large consignment more with a view of testing prices than making regular shipments, as there is a good market in South Africa for their tea. Fears of the failure of the coffee crop seem to have first prompted the Natal colonists to seriously contemplate tea cultivation, but although a few samples were obtained from Kew many years ago, the actual beginning of the industry seems to have been only made in 1877, when Assam hybrid and Assam indigenous seed were imported from Calcutta. Since that date steady progress has been made, and even in 1884 the Assistant Executive Commissioner of Natal, reported that over 50,000lb. were produced and disposed of locally. The rainfall is low for a tea-growing country, but this is supplemented by such excessive dewfalls that its want is not several felt, and the fact of the cultivation thriving is a strong testimony of the adaptability of the colony for the purpose. The tea is grown near the coast where the loam is light.

LAST WEEK'S TEA MARKET.—There has been a smaller quantity of Indian tea brought forward at the public sales, namely, 24,763 packages against 34,900 packages in the preceding week, says the *Produce Markets' Review*. This diminution in the quantity has not, however, improved the low quotations of common tea to any extent, although at the later sales a slightly firmer tendency was noticeable. However, as the supply of these grades will probably continue to be quite sufficient to meet the declining demand for them, there appears no immediate prospect of any reaction of importance in prices. The demand that prevailed some time ago for common kinds appears to have fallen off considerably, and it is evident that the consumer is prepared to give a fair price for good tea. For the medium grades there is a good enquiry, and, as the proportion of these is gradually getting more restricted, their value has been well maintained. Finest descriptions are eagerly competed for, and sell readily with an upward tendency, especially the finer Darjeelings, which have fetched extreme prices. The public sales of Ceylon teas have again been remarkably small, but, as the demand has not been good, there has been little variation in values. The finest grades, both of whole and broken tea, are still in requst, and their value is fully maintained, but medium grade Pekoes, worth 8d to 10d, are rather easier. There has been a slight increase in the demand for common teas, at last week's quotations. A material contraction in the supplies at auction has been noticed this week, says the *Grocer*, the total quantity put up not exceeding 25,010 packages, in comparison with 34,680 packages previously, but at the resumption of business on Monday this diminution in the offerings of Indian tea did not appear to have a

reassuring effect upon the market, which was in an almost demoralised state, many invoices being withdrawn where no biddings could be elicited, and most of the tea that was sold showed it to be as cheap, if not cheaper, than ever. This remark, of course, refers more particularly to teas of a common grade, as all preferable kinds met a fair competition at full rates. The *Grocers' Chronicle* says:—The depressed prices latterly observable in this market are no doubt entirely due to the excessive supplies which have been unloaded upon it, without reason, during January and February. Last year, during those two months, 290,746 packages Indian and 106,232 packages Ceylon were offered in public sale, at a time of unusual activity and on a rising market, whilst the country dealers were laying in stocks in view of higher prices. This year the situation has been qwite the reverse. Trade in the country has been depressed; prices have been on the down grade—every week registered a lower range of value, yet the importer kept steadily on crushing the market, in order to get out himself; and it now appears that 295,416 packages Indian and 133,634 packages Ceylon tea have been offered during January and February, or 42,072 packages in excess of last yet, when the trade was booming. Yet the importer deplores the want of animation in the market now and the selling brokers write mournfully that no improvement can be noted. There is just the shadow of a better feeling this week end, owing to the smaller sales. Buyers are not so entirely disheartened, and they argue that once the London market shows a slightly improved tone country dealers would begin to operate again.—*H. and C. Mail*, March 4th.

LAST WEEK'S TEA SALES.—The diminished supply of Indian tea brought forward at the public sales has been sufficiently large to meet the demand, and consequently the market has shown no improvement of importance in prices, although the tendency is slightly firmer, says the *Produce Markets' Review*. The statistical position is stronger than in the preceding month, the surplus stock being 3,000,000 lb. smaller, or 7,000,000 lb. against 10,000,000 lb. A stock, however, of 47,000,000 lb. at this period of the year is sufficient to prevent any material upward movement, especially in the lower grades, although these kinds are from 30 to 40 per cent below the prices of last year. The deliveries for February were satisfactory, but even at this rate there will be an available supply, with the additional imports to arrive, of fully five months' consumption. Therefore, should the coming season be later than usual, owing to climatic causes, there will be ample tea to meet requirements, although some of the better grades may arise to a higher level, in consequence of moderat supplies. There is little change in the position or value of Ceylon teas. The supplies have been larger than for some time past, but the dealers were rather bare of stock, and have easily taken the extra quantity offered. The only kind of tea in which any perceptible change has taken place is broken tea, worth from 10½d to 1s, which may be noted rather easier.

THE IMPORTS OF PRODUCE.—The Board of Trade Returns for February are again unsatisfactory from the home trade point of view. The imports are valued at £34,877,931, an increase of £1,566,577, or 4·7 per cent; and the exports of British and Irish produce at £19,328,753, a decrease of £1,141,868 or 5·5 per cent. Thus, allowing for the extra day, the imports are about equal to those of February, 1891, while the exports are nearly £2,000,000 lower. The increase of the imports is to be found in articles of food, and cereals in particular. The consumption of tea reached 17,162,349 lb., compared with 16,024,078 lb. There is a considerable falling off in the receipts of sugar. In February 1891, the imports from Germany, Holland, Belgium, Farance, and the United States amounted in the aggregate to 827,379 cwt., but in February of this year the aggregate from those countries is only 555,627 cwt. On the other hand, in February of last year Russia only sent 1 cwt., but in the same month of this year the receipts thence were nearly 164,822 cwt., and for the two months the receipts are 314,436 cwt, compared with 1,201 cwt. Of raw sugar the falling off is chiefly found in beet.

COTTON PICKING BY MACHINERY.—A company has been organised at Chicago, with a capital of 5,000,000 dols., to manufacture a new cotton-picking machine, which, an American newspaper says, will do the "work of seventy negroes, and make an interesting change in the negro problem of the South." Indeed, says the authority we have quoted, "unless all signs fail, this company is destined to revolutionise the cotton industry.—*H. and C. Mail*, March 11th.

GIBBS' PATENT DRYER AND PURE AIR FURNACE.

The improvements recently effected by Mr. W. A. Gibbs in the design of his filter stove and dryer have rendered this combination popular with tea planters, and given a decided impetus to the sale. The first great economy of the system is in the novel principle of the stove, which allows of the direct utilisation of all the products of combustion from any kind of fuel, as testified by the reports of those who have adopted it. Another point of economy is that damp fuel may be burnt with advantage instead of loss. It is well understood that in the ordinary form of up-draught furnace, any moisture in the fuel used is converted into steam, which wastes a large part of its heating value, but in this furnace the products of combustion being drawn down through the fire, instead of passing away from the surface, any water in the fuel is decompnsed into oxygen and hydrogen, both on which, in burning, add to the heat of the resultant air. The second notable feature of the apparatus is the sifting arrangement, whereby the finest tea (dhob-gari) passes out of the dryer previous to the delivery of the main bulk, thus avoiding any over-drying of the most valuable qualities; this process has proved very advantageous, and will doubtless be appreciated by all practical tea makers. Attention is specially directed to the improved sifting arrangement recently introduced by the patentee, *i.e.*, the substitution of woven wire panels (of two different sizes of mesh) in the body of the machine for the original extra drum on the end of the cylinder. The advantage of this arrangement is that the tea is sifted out in two degrees of fineness, and any desired variation can be made in this respect by simply inserting panels of coarser or finer mesh; and further, if at any time it should be desired to dispense with the sifting operation the screens are easily replaced by cover plates. By reason of these recent improvements it is now generally acknowledged that the Gibb's Dryer manufactures a very large quantity of tea under conditions that are remarkably economic in regard to labour and fuel, that the mechanism is durable and simple, and that last, but not least by any means, is the important fact that the perfect distribution of the heated air currents ensure absolute regularity of quality without these necessity of skilled labour. With these important points in its favour it is not surprising that the dryer and stove are making rapid headway, and that planters in India and Ceylon bear testimony to their value.—*H. and C. Mail.*

THE CINCHONA BARK MARKET.

The present ruinous state of the bark market is caused by over-production, not only is the market over-loaded with stocks, but the present rate of production exceeds what is required for consumption.

Producers, however, have the remedy in their own hands, supposing that they were to destroy all bark yielding under 3 per cent of quinine, or more than one-third of the total production, what would be the probable effect on prices?

The following are the shipments and figures roughly for 1891:—

Shipments from	Lb. English	Under 3%	Percentage	Remaining for shipment
Java for 1891	8,000,000	2,240,000	28 %	5,760,000
Ceylon ,,	6,000,000	4,000,000	67 ,,	2,000,000
India ,,	4,500,000	2,025,000	45 ,,	2,475,000
	18,500,000	8.265,000		10,235,000

Bark unlike other produce will keep for years. Lately some Cuprea, which was imported years ago, was put up for sale at a London auction.

If large quantities, especially of the poorer kinds, are thrown on the market, they are bought up by speculative manufacturers or speculators and stored for use in the future, or to be resold in case of a rise in price.

The effect of this is not only to depress prices for the present but to keep them down for years to come.

There is the danger, too, of a combination among buyers.

This state of things can only be prevented by producers destroying, instead of shipping, their poor barks: thus producers have the remedy in their own hands.

The present slight rise in price is caused by the increased demand for quinine owing to the influenza epidemic. When this demand ceases, will not prices fall back to their former level, or even lower?

Ledgeriana bark gives an average of 4 to 5 per cent of quinine.

Succirubra and other kinds, good renewed, an average of over 3 per cent of quinine.

Succirubra and other kinds, bad renewed (that which has been renewed over 3 times and has become "corky" and fibrous), under 3 per cent of quinine.

Succirubra and other kinds natural an average of under 2 per cent of quinine.

If the value of the unit is 1d to 1½d,

Barks under 2 p. c. would fetch about about 1d p. unit.
,, ,, 3 ,, ,, 1⅛d ,,
,, over 3 ,, ,, 1¼d ,,

The expenses of harvesting, shipping and selling come to about £20 per ton. I will call bark yielding over 3 % good, under 3 % bad.

I will class producers of ledger bark as No. 1, of different kinds as No. 2, of kinds yielding under 3% as No. 3.

Class No. 1 need not be considered.

Class No. 2 would do well to regard the following.

Crop of 10 tons.	£	Profit.
3 tons 2 % at 1d per unit	56	
Less expenses of harvesting, shipping and selling at £20	60	
2 tons 2½ % at 1½d per unit	58	
Less expenses as above	40	18
5 tons 5 % at 1¼d per unit	291	
10 tons less expenses as above	100	191
5 tons under 3 % destroyed.		
5 tons under 5 % (average of good ledger) at 2d per unit	466	
10 tons less expenses as above	100	366

But would the value of the unit stop at 2d supposing the supplies to be reduced by one-third or more?

Class 3 are the chief producers of bad bark, and they have to consider whether (if it pays them at all) it will pay them best to continue, to throw on the market their bad and to depress and keep down prices or to cut down their trees and destroy the bad bark, in which case there would be a probability of prices rising and being really remunerative when the suckers which would spring from the "stools" would be ready and would produce good.

Class 3 should recollect that bad barks had their day from 1877 to 1883.

Getting all producers to agree to carry out a plan. This is a point which all bark growers would do well to consider. The chief difficulty is the intense jealousy which seems to be felt if one class obtains a slight advantage over another.

Ceylon contains most of the bad kinds, but planters there are doing well with tea: they would then be the better able to sacrifice their bad bark.

Java has taken the lead in thinking of plans to meet the situation: there is therefore the more probability of their joining in any good plan.

W. T. HODY.

NOTES ON POPULAR SCIENCE.

By DR. J. E. TAYLOR, F.L.S., F.G.S., &c.,
EDITOR OF "SCIENCE GOSSIP."

The active and industrious French agricultural chemists, Professors Schlœsing and Laurent, have just read another important paper before the Paris Academy of Sciences on "The Fixation of Free Nitrogen by Plants." They arrive at the conclusions that there are some inferior green plants capable of fixing atmospheric or gaseous nitrogen. Under the conditions of their experiments they found that peas take up much atmospheric nitrogen, whereas fallow soils, oats, spurrey, mustard, &c., are not capable of fixing it.

Two French chemists, Messrs. Arnaud and Charrin, have been devoting their attention to quite a new side in the natural history of microscopical germs and organisms. They find that the quantity of oxygen absorbed by them is in proportion to the quantity of carbonic acid gas evolved, In a vacuum, evolution of the latter gas takes place slowly. In an atmosphere of pure carbonic acid there is no development of microbes. In hydrogen, on the contrary, there is considerable development, with formation of ammonia. The quantity of nitrogen converted into ammonia by these organisms is sometimes as much as 70 per cent. With asparagine it rises to over 90 per cent. The weight of the microbes and of the productions of their secretions was found to be considerably greater with gelatine than with asparagine.

There are few questions which are more interesting to scientific agriculturists than the life-history and work of the micro-organisms in the soil. It is to them we owe the possibilities of a higher life. The old notion that plants could live on inorganic matter in the soil is not correct. Their plant food has to be prepared for them, and the bacteria prepared it. Mr. Müntz has recently shown that nitrites are only found in soils in very small quantities; whilst on the other hand, when nitrifying organisms are introduced large quantities of nitrites are formed. Dilute solutions of calcium nitrite undergo no change when left in contact with oxygen for months. The simultaneously action of oxygen, or of the ordinary atmosphere and carbonic acid gas, on solutions of calcium nitrite completely converts it into nitrate. Oxygenation takes place when the nitrifying organisms are about. Mr. Müntz is of the opinion that the nitrifying organisms convert the nitrogen into nitrites, and that the latter are converted, without the further action of any organisms, into nitrates by the simultaneous action of the oxygen and carbonic acid always present in soils. On the other hand, some of our best English investigators believe that the work of producing nitrites and nitrates is performed by two distinct species of soil bacteria. It is satisfactory to know that microbes are pretty much like ourselves—their are both good and bad among them.—*Australasian.*

ORANGE RECIPES.

ORANGE FRITTERS.—Make a nice light batter with one-half pound of flour, one-half ounce of butter, half a teaspoonful of salt, two eggs, and sufficient milk to give the proper consistency, which would be about one pint; peel the oranges and divide each into eight pieces without breaking the thin skin; dip each piece into the batter; have ready a pan of boiling lard or clarified dripping; drop the oranges in this and fry a delicate brown—from eight to ten minutes. When done, lay them on a piece of white blotting-paper before the fire to drain away any greasy moisture that may remain, sprinkle them over with white sugar and serve hot.

ORANGE PUDDING.—Take the yolks of three eggs, one tablespoonful of cornflour, one breakfastcupful of powdered white sugar, one pint of milk; make into a custard by allowing it to come to the boil to thicken. Peel and slice five oranges and put the slices into a pudding dish, with sugar sprinkled over each layer. While the custard is quite hot, pour it over the

oranges; make a whip of the whites of three eggs and two tablespoonfuls of sugar, place on the top, and brown very delicately in the oven.

ORANGES IN SYRUP.—Score the oranges all over in imitation of some ornamental design, representing basket-work or trellis-work, and then simmer them in water until nearly done through. They must next be put into cold water for twenty-four hours, changing the water every three hours. At the end of this time they should be drained in a sieve for several hours, then placed in an earthen pan and covered with a hot syrup made by boiling three pounds of sugar and one quart of water for five minutes. For three successive days let the syrup be boiled up and skimmed, and when nearly cold pour back upon the oranges; after the last time the oranges may be put away in jars, and used for dessert when required.

LEMON CUSTARD CHEESCAKES.—Ingredients: One-half pound of puff paste, four ounces of butter, four ounces of powdered white sugar, four lemons, eight eggs, and one drop of essence of lemon. How to use them: Put the butter, sugar, the juice of four lemons, and rubbing of one lemon into a stewpan: add the eggs, then stand the stewpan in a pan of boiling water on the fire, and continue stirring until the ingredients become quite a thick custard; take off the fire and stand in a pan of cold water, and stir until quite cold. Roll the puff paste out the thickness of a quarter of an inch; now cut some round pieces and lay them in tartlet pans, press out the paste from the center with the thumb and finger, then place in each a teaspoonful of the mixture. Then put them on a baking tin, in a moderate oven, and bake a pale brown. When baked take out of the pans and let them get cold, then dish them on lace paper in glass or silver dishes.

PINEAPPLE PUDDING.—Ingredients: One pint of milk, six eggs, six ounces of sugar, six sponge cakes, a tin of preserved pineapple and three ounces of dried cherries. How to use them: Butter well a pudding mould, and ornament the top with dried cherries and pieces of pineapple; put in the sponge cake (broken in pieces) and some more pineapple (broken in small pieces); into a basin put the milk, the sugar, and the eggs, whisk all together until the sugar is dissolved, then add the syrup of the pineapple to it; turn the mixture over the sponge cakes in the mould, cover with buttered paper, and steam one hour and twenty minutes. Chop the rest of the pineapple very fine, turn the pudding into a hot dish, place the pineapple around it and serve immediately.—*Good Housekeeping.*

COFFEE CULTIVATION IN JAVA.

AMSTERDAM, March 9.—Last week the advices of the Java Government upon the report of the States commission regarding the coffee cultivation in Java was received, from which it appears that the Governor-General disapproves the proposals made by the commission as leading to unsatisfactory results. The realisation of the views of the commission would cause a loss of about 3,500,000 guilders, calculated according to the average coffee production during the years 1883-87. Although some of the measures proposed might be useful they would never answer the purpose of replacing the State cultivation by a free native cultivation. The Governor positively states that the system of the commission would be the ruin both of the Government's free cultivation, and, moreover, the financial sacrifices expected in the future are not to be estimated. He can therefore fully agree to the ideas of the Director of Home Government, who has projected a system which will promote alike the interest of the State and that of the people and private industry. This system is based upon the principle of paying wages according to labour and a prudent working of the still available Government grounds, joined to a mode of cultivation which will give back to the soil what has been taken from it. Provisionally His Excellency advises the maintenance of the Government's cultivation, with the abolition, however, of the injustices and faults connected with it at present. The total abolition of the Governments's cultivation is a matter to be considered in the future, when experience will have taught in which way this ought to take place. Notwithstanding this, the complete freedom from compulsion must be the aim for the promotion of which the system of the Director of Home Government seems to give the best guarantee This system will be less expensive than other plans, and will further secure the necessary stability in the revenue derived from the Government's cultivation, although no guarantee can be given that the annual production will be in the first years about 700,000 piculs, required to get the equilibrium in the budgets. In this way the ideas advocated during the last forty years will be gradually realised. In connection with the Governor's report the Council of India has advised: the maintenance of the price of 15 guilders per picul of coffee for compulsory cultivation, with a premium of 100 guilders per bouw for ordinary, and 150 guilders per bouw for compulsory cultivation, according to the regulation projected by the Resident of the Preanger districts. Further, the compulsory cultivation is abolished in those places where it is proved to afford more burdens than advantages to the population, or gives no remunerative results to the Government, in consequence of payment of the premium referred to above. In order to encourage the free coffee cultivation provisional freedom from compulsory labour will be granted to those working new estates out of the "dessa's," and further authority will be allowed to construct and maintain roads on Government's account, if the trials to be made in six districts prove successful. An Inspector, with two assistants, should be appointed to carry out this new regulation.—*L. and C. Express*, March 11.

WYNAAD PLANTERS' ASSOCIATION.

From the proceedings of a general meeting held at Meppadi reading room on 2nd March 1892, we take the following:—

Coffee Leaf Disease.—Read proceedings of Madras Government Revenue Department, dated 28th January 1892, No. 587, recording a letter from the Government Botanist, dated 16th January, 1892. No. 10—Extract.

2. "I may here state that I made some hundred and more cultivations of the Hemileia Vastatrix when in England, so far back as the year 1873 and that since I came out to India, I have made three separate series of cultivations, but in none of these latter cases have I advanced upon my first ones, or on those made subsequently by Mr. Marshall Ward. I have been constantly on the look out for evidence which might point to the Hemileia being hitercœcious, but I have found none. The Hemileia is undoubtedly common to other plants, besides the coffee, so that the abandoning of coffee for a few years would not get rid of the pest. This is suggested by Dr. Cunningham himself in his letter.

3. "I quite agree with Dr. Cunningham in thinking that any further investigation in the life history of the hemileia would be valueless to the planter, but it might furnish information which would be of very great interest from a Botanical point of view."

THE ENCOURAGEMENT OF PLANTERS IN PEARK!

(*To the Editor of the "Pinang Gazette."*)

SIR,—During the eighteen months or so that have elapsed since the question of coffee cultivation in Perak was taken up by the *Pinang Gazette*, I have used my best endeavours to induce planters and capitalists to try their fortune in that State. Some minor alterations were made in the rules relating to transfer of leases of land and other correlative matters, and the circulars of April and July may be said to have been the outcome of inquiries made direct to the Resident on behalf of Ceylon planters.

Now that matters have been advanced a stage or two, and a few blocks of land selected and surveyed, it has become apparent how very little has been conceded to the would-be planters, and how much more must be done by the Government of Perak before it can be said that it is encouraging capitalists to invest in coffee cultivation. The price at which land

can be bought, $4 per acre, or the equivalent of R9, is only ten per cent. less than the upset price, at which the Ceylon Government puts up forest land for sale, with all the advantages of a previous survey, and access by rail and road already provided. When the land has been acquired, for a so-called premium, it is not held by a freehold title but is still subject to a number of land regulations which prevent a man from saying "May I not do as I will with mine own," for verily it is not his own but still the property of the State. When representation is made that there is no means of access for prospecting the jungle without the loss of time, and the expense incurred by hiring Malays and taking supplies into the jungle, which is naturally a difficult proceeding for strangers not conversant with the language of the natives or the nature of the country they wish to explore, we are told that eight or ten years ago a number of planters went through the country and examined the jungle from end to end, and at that time there were few or none of the present roads which intersect the State in every direction. In addition to this, we are reminded that the first planters in Ceylon took up their lands under similar conditions. Very true! and see the result. In Perak, the examination of the country, and subsequent concessions of land, in inaccessible regions, was the sum total of what resulted from the visit of most of the planters of that time. The very few who did remain and open coffee estates either abandoned the attempt and went away, or else laid their bones in the country, so that there can hardly be said to be much encouragement held out to men who are now told to go and do likewise. As regards the pioneers in Ceylon, who commenced operations before the era of roads and rails, I apprehend that hardly a single one of them made anything out of the venture, the general smash-up of 1848 being a proof of the assertion. If it is a fact that the Government of Perak is anxious that ten or a dozen men should make a lot of money by way of encouraing others to come into the country, it is evident that it must do something more than tell them to go and incur the risk and trouble and expense which resulted in the ruin or death of those who have previously made a similar venture. There is at present but one valley of hill forest which will be served by a cart road for a short distance and then by a bridle path, which is under construction. And when, in accordance with directions from the Land office, and permission granted to take up land "anywhere you like," as long as it has not been already taken up and demarcated by some else, we proceed to select in this valley, we find that other parties have a prior right of selection, and that until they choose to come to some determination on the subject, nobody else can do anything—two years time being the shortest period named for the purpose.

Until measures are taken to enable visitors, in the first place to inspect the elevated jungle land of the State, and in the second place to provide for the transport of supplies and produce when the Estates are opened, there is not much chance of any large extension of the cultivation of coffee *Arabica*. These remarks do not apply to the same extent when we come to Liberian coffee, low lying tracts of country suitable for this variety lying adjacent to many of roads already constructed. In this connection I wish to point out an extraordinary and vexatious regulation affecting land already planted, and more that has been taken up for planting, in the interior districts of the State. At Kuala Kangsar, a sort of custom house has been established, and the coffee grown in the district has to be taken to this customs house and weighed before it is allowed to go on to Taiping, and the privilege (?) of doing this has to be paid for at the rate of two and a half cents a picul. Let us see how this works. At present the only estate giving a crop lying on the Ipoh side of the town, has necessarily to send its produce through the town, so that there is no extra transport incurred; but suppose the estate lay eight or ten miles on the Taiping side, it would, in order to comply with the present regulations, be necessary to send the coffee 16 or 20 miles out of its way to the port before it is allowed to leave the district. Again, this coffee has to be weighed at Kuala Kangsar to please the Government, weighed a second time at Taiping to please the railway authorities, and finally weighed a third time at Port Weld to please both the Government and the steamer agents. This is, of course, all by way of *encouragement* to planters! Another difficulty results from the inability of the Land Office to cause the immediate survey of the land taken up. We are told to go and demarcate the land, and in due course the Lands Office will proceed to survey it, the cost of the two operations coming to something like one and a half dollar an acre. The whole question of survey in the State appears to be in a muddle—at any rate it appears so to a stranger—and will probably remain so until the whole of the surveys are placed under one head, instead of being as at present divided between the Land Office, the Survey Office and private surveyors, each treading upon the other's heels—and toes too, if credit is to be given to general report. To facilitate the commencement of operations, permission has been given to employ certain private surveyors, whose work, when duly checked and approved, will be accepted by the Government, and this is the only concession obtainable at present.

Clause No. 12 of the General Land Regulations places the planter at a very serious disadvantage indeed. "The right to take, *and to authorise others to take* timber, charcoal, gums, and all other natural produce from unfelled forest and uncleared land, is reserved by the Government." The planter is thus unable to reserve any timber for building purposes, if he happens to be near a mining village, which may spring up at any moment and he is liable to have at any time Chinese, and natives of all descriptions, wandering about his land and destroying his property without the ability to check them in any way. This is by no means an imaginary possibility. I can point out a block of 500 acres of land selected six months ago, with abundance of fine timber upon it, which in another six months time, at the present rate of exhaustion, will not have a stick worth felling left upon it. At Blanda Mabok there are hundreds of acres of land entirely denuded of forest, which has been used for the mines. Tracts of land taken up for agricultural purposes must be protected from similar loss of timber. On pointing this out to the State Commissioner of Lands, we were told that in clearing the land the planter *wastes* the timber, for he burns it all up, and it comes to the same thing if the timber is taken away by miners and others. This reply is worse than puerile; for, it must be evident that, as clearing the land necessitates the burning of the timber upon it, it becomes all the more important for the planter to preserve for estate purposes all the available timber on the uncleared land. If the Government wants to encourage planters to purchase land, it should hold out as an inducement that the timber, charcoal, gums, attaps &c., &c, should be at their absolute disposal, to sell, or reserve, or make use of as circumstances might dictate. Such a concession would help the planters and be but little appreciable loss to the Government. Another argument freely used in this connection is that the mining interest must be nursed, as it forms the main source of State revenue, and that the cultivation of coffee is an interest of a very indefinite value. Granted; but the Government asserts that it is endeavouring to further the coffee interest in every way it can, and it is very evident that being in its infancy, it requires nursing a great deal more than mining, which is hundreds of years old.

I have made this letter too long already, and will not trespass further on your space. I may never set foot in Perak again, but am convinced that encouragement to coffee planters must take a different form than at present obtains, if any important interest is to be created within a short period of time. An immense deal has been done for Perak in fifteen years, but this is not the time to halt on the road of progress,—asking men to come to the country for a particular purpose, and then apparently grudging them any little concession they may ask for.—Yours faithfully,

EDMUND WOODHOUSE.

Penang, March 10th.

ON TEA.

The daily papers have of late so frequently discussed tea, that there is not much left to be said on the subject. The rivalry between Indian and Ceylon as against China, and the eclipse of the Chinese as tea growers, have been referred to again and again, and a very good advertisement for Indian and Ceylon teas, has this frequent reference proved. A writer in the *St. James's Gazette*, under the head of "Common Objects of the Household," deals with tea, and if there is nothing absolutely new in his article, there are several points of interest in it. He says:—Every lady who does her own shopping is aware that there is now considerable difficulty in getting China tea pure. Generally she is offered India or Ceylon; and if she asks particularly for China, the shopman can only accommodate her with a "blend." Even in very large establishments where pure China tea is kept, it is not recommended, but sold, as it were, under protest. The enquiring customer, who asks the reason why, is told that hina teas are no longer what they were, and that they have been superseded by Indian. There is no doubt about the truth of the latter statement. It is a fact that China, which in 1864 supplied 97 per cent. of our tea, now supplies only 25 per cent. The trade has undergone a complete revolution, particularly in the last eleven years. Some very interesting statistics have been drawn up by Messrs. Gow, Wilson and Stanton, the well-known brokers, which bring out the following facts among others:—(1) From 1866 onwards Indian tea advanced so persistently in favour that in 1888 it took first place with a consumption of 86,000,000 lb., against 80,000,000 lb. of China. (2) Ceylon tea, which was not introduced in any quantity until 1885, progressed even more rapidly, and in its turn beat the Chinese last year. (3) China produce, though it increased a little up to 1879, did so at a much slower rate than Indian, and after that date continually declined, slowly at first, but since the introduction of Ceylon with great rapidity. Thirty years ago it monopolised the market; today it is but a poor third. While our total consumption has doubled, the supply from China has diminished by more than one-half. These are facts which admit of no dispute, but when we come to ask the reason it is not at all easy to get at the root of the matter. Party feeling, if one may use the expression, runs so high in the trade that an unbiassed expert opinion is rare. On one side it is said that China teas have deteriorated to such an extent as to be unfit to drink; and the reason why they have deteriorated is that they are still prepared by hand in the ancestral fashion, while the British-grown article is made by machinery. Nothing of the sort, say the Anti-Indians: China teas are still far the best, partly for the very reason that they are made much more carefully by hand; they have been ousted from the market because the others have been so persistently pushed in the retail trade, and because a coarse article suits coarse tastes. Even in a large merchant house, which deals impartially in both, you will find the men in the India-room speaking with scornful contempt of the flat, insipid Chinas; while those in the China-room shrug their shoulders in pity for people who can tolerate the coarse and common Indians. So the battle goes on, and the trade is rent in twain. Let us try in all diffidence to hold the balance.

An impartial observer will at once perceive that, as usual, all the truth cannot be on either side. China teas cannot have deteriorated merely because they are made as they used to be. That is an excellent reason for their being no better, but not for their being worse. And, again, the ascendency of the others, rising steadily through a series of years, is not to be explained by mere pushing. The public knows very well what it wants, and, though always ready to be on with a new love with highly-painted charms, it returns to the old with the constancy of perfect fickleness the moment it discovers that the charms are painted. No bad thing holds the market long, however pushed; and, beyond question, the teas of India and Ceylon do suit the public taste—which, by the bye, is a very good thing for British industry. The truth seems to be that China produce has indeed deteriorated, though to nothing like the extent alleged. Only the commoner sorts have been affected. Just like many of our own manufacturers, the Chinese fell to spoiling their magnificent market out of sheer greed. They pillaged their plantations so recklessly that, to keep up the supply, they had to fall back on old leaves and inferior stuff. This partly explains the change, but it is not all. The rival kinds have an advantage which of itself would inevitably bring them to the fore; they are more economical—they possess more strength, body, or whatever you like to call it, and therefore go further. Most people judge their tea in a ready sort of way by colour and strength, according to a private standard. Suppose a lady tries a new kind; she puts in the quantity she is accustomed to, and the drinkers pronounce it too strong or too weak, as the case may be, by their own standard. The quantity is correspondingly diminished or increased, and at the end of a week or month the housekeeper finds herself on the right or the wrong side. Now, India and Ceylon will go half as far again as China; if one pound of the latter makes five gallons, the same quantity of the former will run to seven and a half gallons. The argument is irresistible to the middle classes, and even to the rich; but, oddly enough, less so to the poor. Spending nothing on the outside, they are inversely particular about the inside. In London, for instance, inferior coffee goes west, not east; there what they have must be good. And until lately a certain small dealer among the South Wales miners used to take regularly 100 chests of the finest China tea at a time. Since the strikes the good man has gone bankrupt. At the same time the poor, as a rule, like a good twang to their liquor, and so the newer teas flourish more or less all along the line.

As for the actual merits of the rival kinds, that is, of course, a matter of taste; but no one will deny that for delicacy of flavour China remains unapproached. For that reason it is used for blending throughout the trade. It is altogether a prettier, more refined, more interesting article; epicures will have no other. The difference is much the same as that between Australian and French Burgundy. The one is a capital thing in an ordinary way, and gives you more show for your money, but there is no charm about it. China is the ancestral home of the cultivated plant and the drink, though the wild shrub is indigenous in Assam. The finest kinds—the Clos Vougeots, so to speak—have no counter part in India; but then we never see them here either—they are too dear. Russia takes a good deal, for the Russians do not mind paying high; but the best of all—the superior Oolongs—are consumed at home among the upper ten thousand (or is it ten million?) and they fetch 12s or 15s a pound on the spot. Excellent China tea, however, still comes to London, of as good quality as ever, and very much cheaper. Owing to depression in the trade, samples which would formerly have fetched 2s 8d now go for 1s. But the retailer prefers dealing in Indians, because they are all sold in the open market and the price is known; whereas the China merchant buys privately, and can charge what he likes. That is how he used to make a fortune; but the day is gone; it is the retailer who makes the profit now, and a big one—not less than 6d to 1s a pound. Naturally, he prefers to push the Indian teas, and this has an important bearing on the trade

We have classed India and Ceylon together because they have the same character on the whole; but there is a difference. Ceylon approaches more to the character of China, and this may account for its remarkable success. Both have unquestionably a great future before them, which is matter for congratulation; for the amount of British capital now embarked in the business in the two countries cannot be less than £40,000,000. Other places where tea is grown are Natal, Fiji, Jamaica, and Johore.

Something should be said about the relative wholesomeness of different teas. On this head it

is more easy than wise to dogmatise. Exact science has really very little to say about the composition and physiological effects of tea; but it may be safely asserted that "strength" implies tannin, and tannin means indigestion. The strong Indian teas should therefore be carefully used and not allowed to brew too long. Properly speaking the infusion should not stand more than five minutes; after that it begins to get bitter, and there is poison in the cup. We Anglo-Saxons always take our tea too strong, and have to smother it with milk and sugar in order to disguise the bitter taste—a practice unknown to the other great tea-drinking races. They take it pure and weak, thereby getting more flavour without any bitterness. The Chinese method of brewing is practically the same as that used in the trade for tasting. Enough leaf to make a cupful—that is, the equivalent in weight of a sixpence—is put in a small bowl and boiling water added; it is then covered over and allowed to stand five minutes, after which the liquor is poured off clear of the leaves into another vessel. Made in this way the drink is at once more agreeable and more wholesome; but the Englishwoman would, of course, rather die than give up the teapot and the cosy. Her tea is never undrinkable from bitterness; she only apologises for its being cold.

Referring to the above article, Mr. John Roger late tea planter in Ceylon, writes:—"As one of the first to open a tea-clearing in Ceylon (in 1880), I naturally read with considerable interest the article on tea which appeared in your issue of the 14th inst. On the whole, I think these references in the *St James's Gazette* to the three great tea-producing countries are characteristically just and impartial; but I believe most people will admit that the ordinary teas, for some time back, sent home from China, have gradually deteriorated so much in quality that they are now poor indeed, and it matters little to the ordinary consumer that it is still possible to get fine teas in China at prohibitive prices. The superiority in the mode of treating the leaf, which our countrymen have adopted in India and Ceylon, was strikingly illustrated the other day by one of the more intelligent Governors of China sending to India and Ceylon for planting experts, to teach his countrymen in China how to make tea with the aid of machinery. I believe the taxes now imposed on native Chinese tea-growers prevent their really cultivating their gardens, which are overrun with weeds. Generally speaking, you would not get one barrowful of weeds off a hundred acres of a Ceylon tea estate. The rapid rise of the tea industry in Ceylon occurred to me the other day when I was sending an advertisement to the papers offering tea-plants for sale here in London reared from seed imported from Ceylon; for I remember advertising in the Ceylon papers for tea-plants twelve years ago, and I could not get them. It is a curious fact that tea-plants are now being sold in London, and are to be seen growing in many shop-windows today, and twelve years ago not one could be got for love or money in Ceylon itself. Twelve years ago the total export from Ceylon was only about one hundred thousands pounds; this year it is about seventy millions. We are undoubtedly getting more and more a tea-drinking people, for seventy million pounds of Ceylon tea represent a much greater number of tea drinkers than the same quantity of China tea would do; and the British public like to feel or taste something for their money. They prefer the teas of India and Ceylon with a 'grip,' and do not want the poorer liquor of the China article. What is tannin? May not the cheering qualities of the cup be ascribed to tannin in a great measure, which may therefore be a good thing when taken in a legitimate way? No one need cry out against tannin who makes tea properly, though the essence or extract of tannin may cause indigestion."—*H. & C. Mail*, March 18.

INDIAN AND CEYLON TEA.

"HONOUR TO WHOM HONOUR IS DUE."

To the Editor of the *Home and Colonial Mail*.

Sir,—At the present time, when so much is being done to make public the merits of Ceylon tea, and when such success is attending the efforts made by the Ceylon planters to call attention to their wares it appears to me that both the merits of and the important position held by Indian tea are apt to fall into the background.

All honour to the perseverance and push which has characterised the efforts of our neighbours in Ceylon, but they and their advocates should, at any rate, adhere to the truth, and also take the pains to inform themselves a little more carefully and accurately than they appear to do regarding the position held by their chief competitor—India. Such fairness and such fairly looking in the face of facts regarding Indian tea will probably in the long run be not adverse to their best interests. To show to what extent this ostrich-like burying of their heads in the sand may carry those who are interested to magnify the position of Ceylon tea, I cull the following from a most interesting ably-written book, lately published by Mr. Walters, entitled "Palms and Pearls." Speaking of the future of tea, he writes:—"It does not, therefore, seem rash to affirm that the tea shrub has found in the island a congenial home, and that Ceylon will take and keep its place as *the tea country of the world.*" And in reference to the possibility of blight attacking the plants he writes:—"But the fact remains that, up to now, tea in Ceylon has been free from the ravaging blights which, in India, often reduce the crop *by one-half the average.*"

Of course, the inference in the minds of those who read these two paragraphs will undoubtedly be that —(1) the great bulk of tea, now consumed, comes from Ceylon, and Ceylon only, whereas, as a matter of fact, taking the season just closed, the proportions of the tea supply reaching this country are roughly, something like:—

India	about 50 per cent.
Ceylon	about 25 per cent.
China	about 25 per cent.
Total.....100	

These figures, of course, are only approximate, and rather overstate the Indian proportion. The actual figures are more like the following:—

India	110,000,000
Ceylon	60,000'000
China	65,000,000
Total ...	235,000,000

As regards the blight, of course anyone acquainted with the Indian planting industry knows that the writer's assertion is a gross exaggeration as the utmost extent by which the worst of blights, probably reduces an Indian crop is from 5 to, at the outside, 10 per cent in quantity.

(2) As regards the future, it may be assumed that the increase of output from year to year is, after the close of the present year, not likely to exceed in Ceylon the rate at which it goes on in India, say perhaps about 10 per cent per annum in each case, and it is to be hoped that, by the joint efforts of the two large and powerful planting communities, the increase of consumption will be kept about level with the increase in production.—I am, sir yours, &c., OBSERVER.

London, March 16th, 1892.

THE AMSTERDAM MARKET.

AMSTERDAM, March 22.—All the analyses of the cinchona-bark for sale here on March 31st have been published now. The results are as follows:—The manufacturing bark contains about 14½ tons. sulphate of quinine, or 4 68 per cent. on the average. About 6 tons contain 1 to 2, 23 tons 2 to 3, 84 tons 3 to 4, 90 tons 4 to 5, 52 tons 5 to 6, 24 tons 6 to 7, 18 tons 7 to 8, 3 tons 8 to 9, 9 tons 10 to 11 per cent. sulphate of quinine.—*Chemist and Druggist*, March 26th.

QUININE AND CINCHONA IN BRITISH INDIA.

In our issue of June 9, 1888, we gave an account of the process for manufacturing sulphate of quinine then newly inaugurated by the Indian Government upon some of their cinchona estates. Further details of this process are now made public in Mr. Lawson's report on the Indian Government cinchona plantations. That report deals with the quinine factory at Naduvatam, in the Nilgiri district. The *modus operandi* followed at Naduvatam is practically the same as that published about two years ago; hence, although the account is repeated in the present report, it does not add, and could not be expected to add, much to our knowledge. Some wrinkles have evidently been gained by experience. The bark is no longer powdered so fine as it was at first, a No. 64 sieve having proved sufficient for the purpose, instead of the No. 130 one first employed. The proportions of cinchona powder, alkali, and kerosene, have also been slightly modified, the present formula being to place 200lb. of powdered bark in a cylindrical vat with 100 gallons of water holding 14 lb. of caustic soda in solution, adding to this a mixtur e of 96 gallons paraffin and 24 gallons fusel oil, and agitating for three hours with a revolving paddle. The subsequent process of drawing off the oil into which the alkaloids have been incorporated, dissolving out the latter by means of water acidulated with sulphuric acid, filtering the acid liquor through charcoal, crystallising out the sulphate of quinine, and drying the crystals, is all substantially the same as when described eighteen months ago. The bark now used for manufacturing purposes at Naduvatam is a mixture of branch, stem, and root of *Cinchona officinalis*. It has an alkaloidal value of 3·02 per cent. quinine, 1·01 per cent. cinchonidine, 0·14 per cent. quinidine, 0·24 per cent. cinchonine, and 0·30 per cent. amorphous. Its equivalent in quinine sulphate is 4·06 per cent. The factory has had to struggle with a good many adversities before it was able to work without interruption on a large scale. The manufactory was started at Naduvatam in June, 1889, but it took four months to train the native workmen to their task. This work accomplished, it was found that the loss of the costly fusel oil was so great as seriously to hamper the working of the process, and the manufacture had to be suspended until February, to admit of the erection of a still for recovering the fusel oil. Just as everything was ready to start, influenza broke out at Naduvatam, and all the native workmen ran away to their homes in Mysore, a fresh squad having to be engaged and drilled. Finally, the steam-engine was found inadequate for its work, and the plant had to undergo a thorough alteration. All obstacles, however, were ultimately overcome, and since the end of May of this year the factory is in full working order. The cost of manufacturing the first batch of 227 lb. sulphate of quinine was 3,915·12 rupees, or 17·4 rupees per lb., equal to about 1*s.* 6*d.* per oz. It took 6,000 lb. of bark to obtain that quantity of sulphate of quinine. The value of the bark was 3,626 rupees; fuel, chemicals, and the cost of plant amounted to 205 rupees; and for labour only 84 rupees, or less than one-third of a penny per oz. of quinine, is charged. It is, therefore, not likely that the Indian Government quinine will do much injury to the sale of the European article in the East, even if it should ever attempt to enter into serious competition with the latter. But as the Naduvatam factory is only estimated to turn out the comparatively insignificant total of about 65,000 oz. per annum, there is not much chance of that.

Added to Mr. Lawson's report on quinine manufacture is a statement by Mr. D. Hooper on the progress of the Government plantations during the year under review, which contains some interesting notes on the experiments on the artificial increase of the alkaloidal value of cinchonas. Since 1886 a valuable series of experiments on the effect of manuring on the different species of cinchona has been inaugurated, and the result has been to prove that the application of ammoniacal manure, such as cattle, stable and poonac, to cinchonas is always attended with a profitable outturn of a large quantity of richer bark, especially on young and fast-growing species, as *Succirubras*, *Ledgers*, and *Hybrids*, and that the agents employed act more energetically upon younger trees than older ones and upon the fast-growing trees just mentioned that on the slow-growing *officinalis*. It remained to be proved whether the action of fertilising agents for a longer period on *officinalis* trees would be attended with remunerative results, and what effect they would have upon mossed and renewed barks.

In order to elucidate this problem careful experiments were made with ten *officinalis* trees at Dodabetta. Four of these were eleven-years old trees and six twenty-one-year-old trees. The manures used were bone-meal, fish, lime and cattle manure. One pound of the bone-meal manure or 2¾ lb. of fish manure were used to each tree, but the quantity of the other manures employed is not stated. Of the eleven-year-old natural *officinalis* trees, the one manured with bone-meal yielded 5·78 per cent. of total alkaloid and an equivalent of 4·95 per cent. of sulphate of quinine. That manured with fish afforded respectively 6·82 and 5·94 per cent., while from lime and cattle manure 5·68 and 5·19 per cent., and from bone-meal and cattle 5·97 and 5·35 per cent. respectively were obtained. The results obtained from the twenty-one year old trees, were as follows:—Renewed bark: fish manure, 8·21 per cent. total alkaloid, 8·43 per cent. sulphate of quinine; bone-meal manure, 7·02 per cent. total alkaloid, 7·02 per cent. sulphate of quinine. Mossed bark: fish manure, 6·61 and 5·97 per cent.; bone-meal, 7·48 and 7·02 per cent. respectively. Natural bark: fish-manure 6·14 and 5·54 per cent.; bone-meal, 7·38 and 6·85 per cent. respectively.

All these are exceedingly good barks, when compared with the natural crown bark, containing an average of 3 per cent. of quinine when grown in the same situation without manure. The fish manure especially has raised the amount of quinine to a considerable extent in the barks to which it was applied.

In the present critical state of the cinchona industry such experiments must be of considerable value to planters.—*Chemist and Druggist.*

SUGAR FROM SORGHUM.

(From Bulletin No. 12. of the Louisiana Sugar Experiment Station.)

The sorghum plant in China is poor in sugar and sensitive to frost. At Rio Grande it has been acclimated so that it will stand quite a severe frost with ice, and been educated to imbibe five times its normal dose of sugar. Such results so deservedly merited from the persistent energy of its intelligent managers, is exceedingly gratifying especially when it is remembered that State bounty was withdrawn two years ago.

Encouraged by the prospects of diffusion extracting all the sugar from cane, the citizens of Ottawa, Kansas, led on by Hon. W. L. Parkerson, established at that point a few years since a large and complete factory. It is merely necessary to say here that it failed, after the promise of great success.

Convinced that only a few more persistent and intelligent efforts were needed to wrest from sorghum the sugar which it contained this same Mr. Parkerson, repaired to Fort Scott, and there erected the Parkerson Sugar Works, whose name and fame are now written and spoken in every tongue. With national aid, liberally bestowed, with scientific skill bending its energies upon one single accomplishment, with improved machinery erected for a sole purpose, the Parkerson Sugar Works of Fort Scott, Kansas, sounded its determined attack upon sorghum early in the fall of '86, and millions of souls awaited the issue with intense solicitude.

The interest deepened as time wore on, and the dailies with intelligent correspondents at the seat of war, were denounced for withholding the news from

Fort Scott. Foreign countries had sent ambassadors to investigate and report upon this strange plant which under the influence of diffusion was to revolutionize the sugar world, add the name of Fort Scott to the commercial sugar marts upon the blackboards of sugar exchanges, and make all Kansas rich and happy. It is a pity to say failure to all these high hopes and bright anticipations, but the truthful chronicler of history has so recorded, and the chemist in charge has officially announced "the absolute failure of the experiments to demonstrate the commercial practicability of manufacturing sorghum sugar," which fell upon our intelligent Commissioner of Agriculture "like a wet blanket," to say nothing of the chagrin and grief, amounting to almost discouragement which followed.

"Human fortitude is equal to human calamity" was one of the impressive sentences contained in the "farewell address" of Lee to his army at Appomattox, and its truth has been fully verified in the history of the Parkerson Sugar Works. Undaunted by failure, and urged to renewed exertions by the unjust attacks of carping critics, the courageous managers calmly surveyed the field of disaster, reviewed the causes as far as known, and calmly resolved upon another trial. Defective and superfluous machinery was removed, uncertain or useless processes were eliminated, pet theories were abandoned and simplicity and pure science left to conduct a campaign, which has attained a success that finally places sorghum sugar making among the profitable industries of this country. The success of '87 at Fort Scott is due 1st, to the almost complete extraction of the sugars from the cane by diffusion. 2nd. The prompt and proper treatment of the juice in defecating and evaporating. 3rd. The efficient manner in which the sugar was boiled to grain in the strike pan.

According to the report of General Manager Parkerson, the cost of labour and fuel per ton of cleaned cane was $1. The estimated cost of salaries, wear and tear of machinery etc., another dollar, making a total of two dollars per ton for manufacture. Upon this basis with the same yield of cane and product secured this year, it requires but little figuring to show that we have developed a business of great interest and profit to our State and nation," is the conclusion of Mr. Parkerson.

The total cane worked into sugar 2,643 tons; the total sugar made 235,826 lb.; or per ton of cane worked 89·2 lb.

No second sugars were made—

The sugar sold for 5¾ cents and netted ..	$13,559 98
The State bounty was 2 cents per pound	4,716 52
Total	17,276 50
There were also 51,000 gallons (estimated) molasses at 20 cents	10,200 00
Seed valued at	7,000 00
Value of total product	$34,476 50

EXPENSES.

Paid for cane and seed	$ 9,614 00
Labor	5,737 16
Fuel	1,395 77
Salaries	3,500 00
Insurance, etc	1,500 00
Total expenses	$21,746 00
Total value	$34,476 50
Total expenses	21,246 93
Net	$13,229 57

Had the factory been in the South, and made the same yields, the account would have been different in the following: No State bounty; an increase of cost of fuel, and a probable decrease in the price of molasses.

There is however one feature of the above account which it is hard to realize:

The cane with seed cost	$9,614 00
The seed is valued at	7,000 00

Making 2,643 tons cane cost only $2,614, or not quite $1 per ton.

The financial success of the above, while highly gratifying to the manager, is not apparent upon close examination. The molasses and seed remain, and are estimated at $17,000.

Since the company, as we learn, has closed its works for the coming season, it is fair to presume that some of its stockholders do not regard the enterprise as profitable. However, the problem of making sugar from sorghum is solved, and the question is now only a commercial one.

THE CLOVE CROP.

In a circular recently issued by a well known Rotterdam firm of spice dealers appears the following regarding the outlook for cloves:—

"Zanzibar reports, under date February 2 last, state that the total crop this season is by far the largest on record, and is estimated at 800,000 frazileh, or about the double yield of former abundant crops. A frazileh is equal to 35 lb., and the total yield, therefore, will be about 28,000,000 lb., while the average requirements of the whole world are estimated at only just over 11,000,000 lb. Prior to 1871 ths price of fair Zanzibar cloves in London averaged from 3½d to 3¾d per lb., and although since then an export duty of 15 per cent. of the value has been established, the difference between the prices mentioned and the actual quotation of, say, 4¾d to 4½d is much larger. The large yield is undoubtedly a consequence of the replanting which has been going on in Zanzibar after the hurricane in 1872, the trees having now attained their full growth. The fact that the tree bears fruit every second year only leads to the supposition that the next crop will be a small one, bur it is said that a much larger number of trees has been planted since the hurricane than ever existed before. At any rate, the current crop is much in excess of the requirements, and concurrently with this exceptional Zanzibar crop the yield of cloves in the island of Amboina (Netherlands Indies), though of much less importance commercially than Zanzibar, has also been greatly in excess of the average." In reply to these alarming statements, it is said, according to the *Chemist and Druggist*, that no European house can possibly have any means of correctly estimating the crop of Zanzibar cloves, as the bulk of this article is produced on the small island of Pemba, north of Zanzibar, which is entirely in the hands of the natives, who do not allow any foreign traders to obtain accurate news of the crop; but the estimate given by the Dutch firm is thought to be muc exaggerated.—*Oil, Paint and Drug Reporter.*

THE OUTLOOK FOR INDIAN AND CEYLON TEA PLANTERS.

TO THE EDITOR OF THE "HOME AND COLONIAL MAIL."

Sir,—Indian and Ceylon planters are undoubtedly coming face to face with and every day drawing nearer to a crisis in the history of the tea industry, unless they take steps, which I believe they can, to prevent it.

When we consider there is certainly not less than £20,000,000 of British capital sunk in tea property, the subject, from its magnitude alone, is deserving of more than a passing attention.

I would first desire to explain how I arrive at this immense sum of twenty millions sterling.

India and Ceylon last year produced in round figures 180 million lb. of tea, and the average yield per acre may be taken at 360 lb. We thus have an area of 500,000 acres under tea, and the average cost of tea estates in India and Ceylon may be taken at £40 per acre, the result being a capital outlay of twenty millions sterling.

This sum does not include the outlay on railways, roads, and public works constructed for the purpose of serving this enterprise, which must amount to a few millions more.

Year after year there has been a steady fall in the price of tea, and 1991 resulted in a gross price of 10d. per lb. being realised for the teas of India and Ceylon.

The difference in price of teas from each country was merely fractional, and need not be considered.

The great and serious difference between the two countries, apart from that of quality, is in the cost of production. I gathered from the excellent table of figures of twenty-seven Indian tea companies, published by Mr. Henry Earnshaw, that the cost of production for Indian tea is 9d. per lb., and from other reliable sources that Ceylon lays its teas in London at a cost of 6½d per lb.

Now, what do these figures mean? They show that India, on its 1891 crop of 109 million lb., made a profit of about £454,000, while Ceylon, on its crop of 68 millions, made a profit of £990,000.

Should the price of tea, therefore, fall another 1d per lb., Indian planters would cease to earn a profit, while the Ceylon tea planting industry would be profiting to the extent of 2½d per lb. on, say, 80 million lb. of tea, equal to £817,000 per annum.

If we carry the argument still further, we shall find that, if the price of tea reached the low limit of 6½d per lb. (and the Indian properties remained under cultivation) they would be suffering a loss of over £1,000,000 per annum when Ceylon found itself in the position of simply paying expenses.

I do not say that the price of tea *will* recede to this extent, but I do not believe prices have yet touched bottom, and will not, I think, do so until a halt is made in the expansion of the production of British-grown teas. In about three years' time India and Ceylon will be exporting 25 per cent. more tea than they did in the past year. New markets develop slowly, and consumption will probably be unable to keep pace with this extra supply, unless very strenuous efforts are made to push the teas into consumption in new fields.

Ceylon has certainly done her share nobly in this respect, and it behoves her bigger sister, India, to move forward in the lead thus given her.

It requires no great foresight to predict what will happen when prices recede further, and that India will be the first to suffer from her lethargy in not having pushed her teas earlier into new markets.

Although Ceylon all round will make a profit should the price of tea go down another twopence per lb., there will be a considerable acreage, however, giving small yields and prices below the average, that will be worked at a loss.

In India, again, the majority of properties will be suffering heavy losses.

Planters, however, will no doubt continue to cultivate, hoping for better days, and will be slow to abandon even non-paying properties.

The poorer fields will cease first of all to be cultivated; and on estates where this course does not stop the loss, a point will soon be reached when the unfortunate proprietor or company can hold out no longer, and the garden will become abandoned.

The low prices will have the immediate effect of preventing new lands being opened out for planting, so that in the course of a few years, when certain areas are thrown out of cultivation, we shall probably not only have no increase, but possibly a decrease, in the output of British-grown teas.

When this time has been reached, the new markets will be making themselves felt, and consumption will have overtaken supply, so that the position will from that period gradually strengthen, and good profits will be made by those proprietors who have been able to tide over the few bad years.

The land thrown out of cultivation when unproductive of profit will gradually be reopened, as tea bushes, unlike coffee, are not killed by neglect, and may possibly improve by allowing them to follow a natural state of existence for a few years.

There are many gardens in India which doubtless produce tea as cheaply as those in Ceylon. I, however, am not dealing with individual properties, for, in discussing this subject, the average results from each country can only enter into the comparison. From what I have stated, it would appear that Ceylon holds an eminently strong position, which will enable it to engage, without fear, in the struggle for the survival of the fittest.

If it be true that the English nation and Australian Colonies will not again go back to the common grades of China tea, even if they could be had pence per lb. under the price of British-grown teas, then the tea planters of India and Ceylon may look with unconcern on the future. It will not do, however, for them to listlessly look on and allow the tea trade to drift until it settles down *somehow*. If they hope to stave off bad times, I would venture to suggest the following advice:—1. To absolutely cease planting up more land with tea. 2. To endeavour to keep a good standard of quality, and not be tempted, when prices improve, to sacrifice quality for quantity. 3. To maintain, with liberal funds, their organisation for pushing teas into new markets. 4. To effect economies, if possible, in the cost of production.

I have faith in Ceylon planters working shoulder to shoulder, as they have so often done before, when they see clearly that a united effort and a strong pull all together will bring them through their dangers; but the absence of cohesion among Indian planters, I fear, will only accentuate the possibility of their drifting into asperilous position.

The tea enterprise in both countries is (taken as a whole) sound, but as critical times, although only temporary, seem to be in store, more specially for India, it might be well for the leading companies, proprietors, or planting associations to collectively endeavour to see how best they may mitigate, if not altogether avert, what might otherwise prove to be a situation of no inconsiderable gravity.—Yours, &c. SCRUTATOR.

London, March 15th.

THE GIBBS DRYING MACHINE

is thus noticed in *The Sugar Cane*:—

This machinery, which is adopted for all manufactures in which the products are required to be dried, and which for several years has been adopted in London and in Australia, Java, and other countries for the drying of sugar and megass, has recently undergone improvements in its application to tea-drying. The Gibbs Patent Pure Hot Air Furnace, after many experiments, has proved a perfect success in supplying the means of obtaining either from coal or wood, or both, a hot air so pure that it can be inhaled without injury or inconvenience, and is therefore suitable for application to the most delicately flavoured tea, coffee, &c., or other produce without possibility of taint. It is now not only possible but easy and economical to obtain the utmost amount of heat from coal without any deleterious accompaniments. It may interest our readers to learn that most favourable reports have been received from various parts of India and from Natal.

The latest use to which the Patent Drying Cylinders (see advertisement columns) have been successfully adapted is that of coffee drying.

Some months ago Messrs. Gibbs sent out one of their Dryers to a large house in Rio de Janeiro, Brazil, and by the last mail from this country they have been advised that at a public trial held the machine gave great satisfaction, the opinion being that it is the best of the many dryers in the market.

The apparatus in question consists of a horizontal rotating cylinder 36 ft. long by 3 ft. 6 in. diameter, through the centre of which at one end a circular tube or air-duct projects some 12 feet; this tube is open at one end and connected with a fan, which draws a supply of heated air from a specially constructed furnace, capable of burning wood, coal, or other fuel.

The opposite end of the air-duct is fitted with a perforated iron plate through which the heated air-currents are distributed into the cylinder.

Both ends of the cylinder are partially closed with wire mesh discs, which, while retaining the coffee, allow free escape for any vapour.

In the shell of the cylinder are a series of apertures or ports covered by slides.

The modus operandi is briefly as follows:—

The cylinder is first placed upon a slight incli-

nation (a sliding bracket being provided at one end whereby the inclination can be easily adjusted), so that the coffee fed in at the higher end gradually travels down to the opposite or lower end, where it is retained by the wire mesh disc above mentioned.

When the cylinder has been thus fully charged it is set down level and kept continually revolving until the charge is dried, the slides covering the ports in the shell of the cylinder are then drawn out and the coffee rapidly discharged, by again placing the cylinder upon an incline.

It should have been mentioned that the interior of the cylinder is fitted with shelves or lifters, by which the coffee is distributed in a constant shower over the whole area of the cylinder, through which the heated air-currents are passing.

The machine effects an enormous saving in labour, burns very little fuel, is easily erected and worked, and the whole mechanism being extremely simple there is no liability to get out of order, and it is only reasonable to expect that a Dryer possessing such advantages will prove exceedingly popular.

NOTES ON PRODUCE AND FINANCE.

THE OUTLOOK FOR TEA PLANTERS.—In our correspondence columns will be found an important letter upon the position of the tea industry in India and Ceylon. It is written with the authority of one who knows his subject, and on this point we can assure our readers. The letter may give rise to some controversy, but whether this be so or not it claims attention, and should help to stir up members of the tea industry to the necessity for continuous action in the search for new markets. It is clear that Ceylon planters have taken the lead so far as new markets are concerned, and they have been altogether more on the alert than their Indian *confrères*. The energy and vigilance of the Ceylon planters have been incessant, and no opportunity has been lost for advertising Ceylon teas whenever a chance offered, as witness the protest of another correspondent, who calls attention to the exaggerated statements made in a recent book on Ceylon. There has been much said hitherto as to the friendly rivalry between India and Ceylon, but this friendly rivalry has a serious difficulty to face. The common enemy, China, has been vanquished, and now the cry is that tea production has overtaken the consumption, and unless unity of purpose be resolved on, it will be a case of the "devil take the hindmost." It is imperative that new markets should be found. Our correspondent "Scrutator" believes the position serious, and one requiring immediate attention. He advocates more cohesion and the display of some collective wisdom in facing a situation of such gravity.

TRAVANCORE PLANTERS' ASSOCIATION IN LONDON.—An association, under the above title, has been formed in connection with the Travancore Planters' Association, and has, among other things, for its objects:—To watch and protect in London the interests of tea, coffee, and cinchona planters, and to advise the parent association of all matters affecting these industries. All residents in the United Kingdom interested in Travancore are invited to become members of the association. The parent association subscription is £10 10s. yearly, and the annual subscription for members in this country has been fixed at £1 1s.—Arrangements have been made with the Ceylon Association in London for the use of their rooms at 4, Mincing Lane, where members can meet and peruse papers bearing on the objects of the association. The president of the association is Mr. Patrick Grant. Subscriptions may be forwarded to the hon. secretary, Mr. Ewen Cattanach, 3, Great St. Helens, E.C.

A TALK ABOUT TEA.—The managing director of the National Wholesale Tea Supply Association (Mr. Slaney) gave the young grocers' assistants of Manchester some advice about tea a few nights since. There was, we are told, an exhibition of a collection of specimens, curiosities, &c., which Mr. Slaney had been able to obtain through the kindness of many of the leading tea brokers in London. One specimen of tea, valued at from £50 to £60 per lb., the produce of an Indian estate, gained special attention. Mr. Slaney gave his audience some very good advice, as well as a description of the teas supplying the English market, first dealing with the products of our colonies India and Ceylon, and then with those of China and other countries. In giving some hints on obtaining a knowledge of tea, Mr. Slaney said: "In no branch of business does the axiom that 'knowledge is power' apply with more force than in a knowledge of tea. The opportunities of the grocers' assistants of today, speaking generally, are somewhat meagre and it is difficult in many cases to get to know anything about this article. The only course is to make best use of the opportunities you have, not to remain satisfied with them, but to endeavour to extend them wherever practicable. Those who are favourably placed with an intelligent employer who studies tea and keeps a variety of stock, and can obtain access to the testing and blending-rooms, have opportunity of picking up knowledge."

THE TASTE OF THE CONSUMERS.—Referring to the consumers' taste in tea, and the efforts the grocer should make to meet it, Mr. Slaney said:—"Amongst the working-class population, generally speaking, tea with strength is preferred to fine tea of high quality and less strength. A cup of tea made from a rasping, pungent Indian pekoe souchong and thick, strong broken pekoe would be appreciated, where a cup made from a choice Darjeeling tea, costing four times the money, would not please. Many dealers pay great regard to the weight or bulk of a tea, preferring heavy close leaf, because, I suppose, users get more weight into their teaspoons when measuring into the teapot; hence tea-mills are used to reduce the size of some of the excellent liquoring teas, whose only fault is their possessing a large or ugly leaf. The steel roller operates and licks it into shape, enabling the users to blend these descriptions to advantage along with other teas at a higher cost, because, after all, the appearance has something to do with regulating the price or value."

SOUND ADVICE.—"Never deal in tea," Mr. Slaney added, "that is objectionable in flavour, or that you would hesitate to drink yourself. Avoid earthy, minty, sour, or coarse teas, or teas which, owing to the scarcity of wood in the districts in which they are grown, are packed in wood from Japan having a cedar or drug-like odour, which is soon conveyed from the chest to the tea. Avoid by all means keeping or storing tea in proximity to any strong-smelling articles, such as soap, cheese, oranges, apples, &c. Keep tea in a dry, warm room, where it will improve. Let your blended tea be prepared a time before sale. A fresh blend, made up from identically the same teas and in the same proportions as one blended a fortnight before, will not taste near so well as the older one, whose flavours have assimilated by the teas lying together. Let your customers see that in pushing the sale of tea your aim is to please them, not to effect just one sale and no more, and if you are assured that the goods you handle are equal to the best of any of your competitors, whoever they be, success will be likely to attend your efforts. I might take up more time by going into the subject, 'How to match blends.' This is a higher branch, and, like analysis in chemistry, requires deep study. One hint here may be useful. Adopt the narrowing down process, and come to an accurate conclusion of the kinds or varieties that you suppose are not present; then, having fewer kinds to deal with, you more readily judge the constituents of the sample under notice. In a case of this kind observe the appearance in dry leaf and infused leaf—the leaf infusion under treatment of varying time, say five, seven, or ten minutes, spreading out the leaf on white paper and judging by complexion of leaves. Testing the liquor against both originals of the teas you suppose to predominate, and blends you consider similar, will, with constant practice, enable you to perform both the analytical and synthetical processes required when you wish to match or follow any particular blend.

A NEW IDEA.—A description recently appeare

in the *Echo* of certain Tee To Tum clubs formed in the poorer neighbourhoods of London, in which teetotal principles and practice were to be inculcated and bars for the sale of tea a leading feature. Mr. P. R. Buchanan's name was mentioned in connection with the scheme, and, according to the *Echo*, he was "able to raise the necessary capital from among his friends." The idea of these clubs, or at least Mr. Buchanan's connection with the experiment, does not commend itself to the grocery trade, if we may accept the views of the *Grocer's Chronicle*. In an article entitled "Philanthropy in the Tea Trade," the writer says:—"Certainly no one can object to the establishment of comfortable clubs for those whose homes are, to say the least of it, very unattractive, but grocers have a perfect right to object to having their legitimate business taken away from them by clubs, whose proper business is to supply refreshments, but who are going outside their province when they take up the work of retail distribution. If Mr. Buchanan is really a disinterested philanthropist, he ought to take care, whilst doing good to the poor, that he does not increase their number by undermining the business of honest tradesmen."

LAST WEEK'S TEA MARKETS.—There is still a pleasure to sell the low and common qualities of Indian (says the *Grocer*), which form the bulk of the existing supply, and these have been disposable only at easy and irregular rates, as the trade are too full of stock to bestow much attention upon them, and the presence of these teas constantly on offer gives the market a flat and drooping aspect, that can be relieved only by an immediate and prolonged curtailment of supplies. The quality of Ceylon has reached a poor average during the past week, and this feature is a serious drawback to the trade. Growers would profit well by sending forward better teas, also by reducing the number of breaks. Small breaks are generally sold at low rates, as many buyers do not trouble about tasting them.—*H.and C. Mail*, March 18.

TEA IN MOROCCO.

When a party of guests enters the house or the tent of a rich Moor, one of the near relatives of the host is charged with the duty of making tea. He squats in one corner, having on either side of him a large server or platter. Upon one of these servers are a number of cups and upon the other a sugar bowl, a box of tea, a pile of fragrant menthe leaves, a copper apparatus for heating water and a tea urn. The tea-maker sets the water to boiling with a little fuel, and then pours the boiling water into his tea urn, quickly adding to it some tea and some sugar, and allows the compound to steep a few moments. Then he pours out a cup of tea and tastes it, smacks his lips, sniffs the odor of the liquid and draws a deep breath—all with an air which says: "I am going to get this tea just right." The chances are that he does not find the compound to his taste at the first attempt, for he pours the tea in his cup back into the tea urn, adds a little sugar or a little tea, and pours out another cup for a second test. This process goes on, the tea-maker tasting his tea and pouring it back again until he gets it to his mind. Then the guests are called, and if any one of them does not finish his cup he is expected to pour it back into the urn, for it is the custom in Morocco to take three cups in succession, and the tea-making has to be begun over again.—*American Grocer*, Feb. 24.

IN A TROPICAL FOREST.*

BY ALLAN ERIC.

It may not be generally known that the cinchona plantations of the island of Jamaica, in the West Indies, yield bark far superior to the best grown in Ceylon. It is commonly supposed that the Peruvian bark tree in America grows most readily only on the slopes of the Andes, between the equator and ten degrees of north latitude and twenty degrees south latitude. This was once correct; but in the island of Jamaica, several years ago, Peruvian bark trees were found growing on the slopes of the Cuna Cuna mountains, and while not plentiful, the bark was found to be of excellent quality. As both the climate and soil of the mountain slopes in America were found to exactly suit the Peruvian bark tree, the people, encouraged by the wealthy planters and rich merchants on the coast, have been propagating it, and have planted, within the last ten or fifteen years, large plantations of cinchona, which are now producing bark which is taking a leading place in the markets of the world. Such a plantation I had the pleasure of visiting while on the island a few months since. The Peruvian bark tree, to begin with, belongs to the natural order *Cinchonaceæ*, which yields the bark so much valued in medicine, and otherwise known as Jesuit's bark, quina, quinquina, cinchona, chinchona, etc.; and from which the important alkaloids *quinia* or *quinine*, *cinchonia* or *cinchonine* are obtained. I have seen these trees while riding over the mountain paths in Jamaica, scattered among growths of cocoa, cabbage-palm and pimento, fustic and logwood; but it is most usually found near some spot practically clear of other trees. Some of the cinchona trees are very large; but the best bark comes from small ones, which appear as shrubs after the large trees are felled. It must be remembered that cinchona exist in many varieties, chiefly distinguishable by the different localities in which they grow, but whose quality is essentially and to all practical purposes the same. They are all ever-green trees. They very closely resemble laurels, and the shrubs still more closely resemble the "lambkill" of the New England pastures. The cinchona has entire opposite leaves, stipules which soon fall off, and panicles of flowers, which very closely resemble lilac blossoms. The flowers are white, rose-coloured, or purplish, and very fragrant; and I now have some of the flowers, which were given me by a native named Brava, and which I pressed in my note-book which I carried in my saddle-bag while riding through the Jamaica mountains; and even now, pressed and dried, they retain much of their fragrance. The calyx of the flower is small and five-toothed, and the capsule splits from the base upward. This is the true cinchona. There is another of a similar species which I have seen growing in some localities in the tropics; but I noticed that in this, the sub-genus *Casarilla*, the capsule splits from the top downward. The two look very much alike, but the letter has no commercial value and no trace of the valuable alkaloids is to be found in it. The cutting and peeling of the cinchona trees are carried on by the natives in the dry season. The trees are felled as near the roots as possible, that none of the bark may be lost and the barkbeing stripped off, is carefully dried, the quilled form of the inner bark being acquired in drying. The bark is made up into packages of various sizes, but averaging 150 pounds in weight, closely wrapped in woollen cloth and afterward in hides, and conveyed to the points of shipment on the coast, on the backs of mules and burros. These packages are called seroons, or drums.

The soap tree, *Sapindus saponaria*, is another tree that I frequently met with during my journey into the interior; and I frequently saw the native women stripped to the waist, standing in the swift-running mountain streams washing their scanty clothing, and using the pulp of the soap berry in lieu of the manufactured article; and I am told that so great is the alkaline property of these berries that they are capable of cleansing as much linen as sixty times their weight in soap. The berries each contain, embedded in the pulp, a shining and very hard black seed. The soap tree is found principally growing at the bases of the mountain ranges, being hardly met with at a higher elevation than 3000 feet above sea level.

Before me I have a large glass jar of alcohol, containing a branch from the anotto, or annatto tree, which I gathered at Mt. Diabolo while the black driver of the Royal Mail stage-coach was changing his mules. It has reddish, oblong, hairy capsules about two inches in length, and from the dried

* From the *New England Druggist*, February.

samples in a box near by I find that each capsule contains about forty seeds. The leaves are heart-shaped and pointed, and the blossoms, which my specimen does not show, are large and of a peach-blossom colour, and grow in loose clusters at the ends of the branches. The shrub, for such the anotto tree really is, rarely exceeds eight or ten feet in height. The tree is very pretty when the capsules are ripe, the vivid red colour of the clusters of pods or capsules contrasting very beautifully with the rich, dark green leaves. The colour of my preserved specimens has changed somewhat, being now nearer a chocolate brown. The seeds are gathered from the pods, put up in bags and exported in large quantities from Jamaica. In some cases the natives obtain the anotto pure by rubbing off the pulpy pellicle which covers the seed. In this case the pulp is pressed into square cakes and wrapped in the leaves of the tree itself.

While at St. Ann's Bay, my host, Mr. A. D. Jacobs, took me out and showed me, piled up near the water's edge, several cords of logs each about eight inches in thickness and about four feet long. "That," said Mr. Jacobs, "is quassia wood." This tree, known in the West Indies as Picræna, quassia being the name given to it by the Maroons, grows almost everywhere in Jamaica principally quite near the coast, so cutting it and transporting it to points of shipment are comparatively easy. It is a very lofty tree, and very beautiful as well. This is the species from which the quassia cups and quassia chips, so well known to us, are obtained. Growing up at a higher altitude, and at some distance from the coast, I found another species of quassia. This one is known to botanists as *Simaruba*. It is a shrub ten or fifteen feet high, and bears beautiful bright red flowers. This wood is very bitter and very much stronger than the other; and being scarcer, at a greater distance from the coast, and superior as a drug, it has a greater commercial value.—*Pharmaceutical Journal*, March 19.

TAMIL COOLIE LABOUR.

TO THE EDITOR OF THE "STRAITS TIMES."

Sir,—As a probable employer of a very large force of Tamil or Kting labour over here in the near future, I trust you will allow me space to record a protest against the action of the Madras Government in placing, as it does, every impediment in the way of planters importing free Tamil labour into the Straits and in saddling this Colony with a burden, in the shape of the exciting Indian Immigration Ordinance, the undoubted working of which cripples extended agricultural operations here. The whole question is one which I am aware has been thoroughly threshed out and dealt with by far abler pens then mine, so, without attempting to criticise the Ordinance at any length, I shall merely endeavour, by a statement of what I myself have seen of its working, demonstrate how nearly akin to actual slavery is the conditian of the unfortunate Tamil coolie who is despatched over here under the wing of the over-patemal Madras Government as compared to that of his "free" brother. It is my firm beliet if this wonderfully rich Peninsula is to become one of the first if not the very first only coffee producing countries of the world, it can only be with the assistance and cheerful co-operation of the Tamil coolie. Easily contended, capable of getting through an enormous amount of honest work, quiet, and amenable to discipline and, above, all a confirmed *settler*,* I doubt very much if there is a better all-round agricultural labourer in the world than the Tamil coolie. But this little word must be spelt with a big E, he is gifted with a very keen and nice appreciation of *Justice*. You may be hard on him but if you are at the same time fair, he will even take it in good part when, having been unwittingly unjust to him, you make reparation; but he will do nothing for you if you are consistently unjust, and this I unhesitatingly assert a man is bound to be if, amongst his coolies are any Statute Immigrants, or, in other words, natives of India brought over under the protection of Government.

For an adult male the minimum rate of wages in the case of an indentured coolie is fixed by the I. I. Ordinace at 14 cents a day for the 1st year and 16 cents for 2nd year; for a woman 10 cents and 12 cents. Free labourers or coolies who have come over independent of Government and of contracts made by the Indian Immigration Agent, are paid on estates up to 25 cents a day for men and women up to 20 cents. Consequeently, the ridiculous anomaly of a coolie working alongside of another man in no way his superior as a worker, *on little more than half the other's pay* is a matter of everyday occurrence. Can anything be more unjust than this? and I ask would any labourer in the world work under conditions such as these; and more than this, if the unfortunate wretch refuses to work, he can be sentenced at the instance of his employer to 3 months imprisonment, because he contracted, before he ever came to the country, when he was little more than a savage with the vaguest ideas of what was before him, to work for at least 3 years on about half what he could have got, without binding himself down in any way, had he been only a little wiser and not quite so wild when he was first caught! The natural question which any one reading the above will ask is "why then not pay the statute Immigrant the same wages as the free labourer and so equalise matters?" Because the contract in the case of the former is entered into through the Imigration Agent, before the planter sees the coolie with whom he is contracting, and before he can judge of his capabilities as a worker, and also because the large majority of Statute Immigrants are not only worth 25 cents, but also are worth absolutely nothing at all. As an instance of this, a somewhat extreme instance I will allow I know of a case when a woman with no less than 3 children and no husband or breadwinning friend, was sent over under a 3 years agreement on a daily wage of 10 cents, out of which she had not only to keep herself and her children, but pay off her debt as well; the result was she very soon realized that she had undertaken to do what was quite impossible, collapsed altogether, and was eventually shipped back to India at the expense of the estate the Manager writing off the whole of what he had cost him as "Loss by Coast Advances." Now, if the Immigration Agent had explained fully to her thie nature of the contract upon which she was entering, as he is supposed to do, he must have known she was quite unfit to carry out her engagement and should not have allowed her to come over here; if he did *not* do so why did he not. He is paid to do this amongst other things, and cannot be exonerated from blame whichever way you look at it.

Now as a set off against his meagre wages, the Statute Immigrant is entitled to sufficient house accommodation, good water, proper sanitary arrangements advances of food at wholesale market prices, hospital accommodation, medical attendance and medicines when he requires them; but here again he is no better off than his "free" brother, who gets all of these things, too, except hospital accommodation, and when he is ill enough to require this, he is sent to the Public Hospital. Now look at the other side of the picture; a planter, were he allowed to recruit his own labour, would send a reliable agent to India who would be responsible for the money with which he would be entrusted as coast advances and also for the physique of his recruits, each of whom on arrival here would be debited with his share of the cost of bringing the gang over &c. Paid 25 cts. a day, he would if he were a good man, save from $4 to $5 a month, very soon liquidate his debt, and then be in a position to remit money to the "coast" in sums calculated to tempt all his friends to follow his example. But planters can't do this as the sum of money entrusted to the agent might often be a large one, and as the latter runs considerable risk

* Surely, this is only partially true? More have settled in Mauritius than is desirable; and a good many are settling in Trinidad. But in places so near home as Ceylon and the Straits, only a small proportion *settle*?—ED. *T. A.*

of being imprisoned for crimping, in India, to start off with; whilst over here it is the duty of the Immigration Agent to board steamers and explain to Immigrants that they are quite free and under no sort of obligation to anybody unless they have signed contracts of service before some duly authorised Government official. The risk is too great to be run, the influx of labour is stopped, and the extension of agricultural operations is grievously retarded. With the prospect of a rice famine in India and consequently of a large surplus population, and with such an El Dorado for Tamils as the Straits might easily become, close at hand, the attitude of the Madras Government in this connection cannot sufficiently be deplored.—I am Sir, yours faithfully,

E. V. CAREY.

I have heard it stated that the minimum rate of wages, was fixed as quoted previously, in order to suit sugar planters of Province Wellesley who are said to state that, were their coolies to be paid at the same rates as the free labourers on coffee estates and Government works, they would be ruined. The question seems to me to resolve itself therefore into this, either the agricultural development of the Malay Peninsula must be retarded, or free immigration must not only be sanctioned but supported by Government at the risk of Province Wellesley being ruined, the latter course I venture to think will be of the greatest ultimate benefit to the country, as if the sugar industry is being worked with such a very narrow margin for profit, the sooner others interested in agriculture have some say in the matter the better.—*Straits Times*, March 23rd.

FROM THE METROPOLIS.

March 18th, 1892.

PERU AS A FIELD FOR COFFEE AND CACAO PLANTERS: CINCHONA AND MR. CLEMENTS MARKHAM, C.B., F.R.S.

It will make the mouths of old Ceylon coffee planters water to read all about the virgin forests, rich soil of inexhaustible fertility, fine climate and indigenous coffee bearing up to 10 cwt. an acre, in the Commissioners' Report on Peru when it appears. It will be out shorty; but meantime the 28th is fixed for Mr. Ross's "paper," giving an account of the trip, before the Royal Geographical Society; while on last Tuesday night we had a gathering at the Society of Arts to listen to a paper on "Peru: its commerce and resources" by F. A. Pezet, Peruvian Consul-General in London. Sir H. Trueman-Wood sent me tickets, and I was glad I attended. You will see the full text of the paper and of the discussion that followed in the Society's weekly journal and will no doubt be taking over all of the same that bears on tropical agriculture for the *Observer* and *Tropical Agriculturist*. Mr. Pezet, a bright, young, educated Peruvian gentleman, speaking English well, but reading very rapidly, afforded a great deal of information in his hour; and he had for his chairman a personage so interesting to us as Mr. Clements R. Markham, C.B., F.R.S. Arriving a few minutes late, I quite supposed for half the time that the chairman was again the Attorney-General Sir Richard Webster, so great is the resemblance between them—both are clean-shaven, refined, healthy-looking gentlemen, past middle life with a look of geniality and benevolence almost Pickwickian. Mr. Markham, however, soon revealed his personality, by standing up to point out on a splendid map of Peru, the places, mountains, rivers, districts, &c. as referred to by Mr. Pezet.

SIR ALFRED DENT led off the discussion in an interesting speech, showing how much the enterprising Peruvian Corporation was doing to develop the country by railway extension, placing steamers on Lake Titicaca, encouraging immigration and how they looked, as the result of the recent Commission, for the development of an extensive industry on coffee, cacoa, *tea*. ["Not tea," whispered in Ex-Ceylon planter beside me—"protest!"] Sir Alfred Dent also alluded to the great value from a commercial point of view of young Englishmen learning Spanish, which was of more value to a merchant than even German.

COLONEL HARRIS, a white-haired veteran who had spent 25 years in Peru, followed with extremely interesting particulars and more especially dwelling on the rich deposits of gold as yet untouched, mentioning on scientific authority that there were many streams the sands and waters of which, at certain points, would yield very handsome returns.

To him succeeded COLONEL CHURCH, a true grizzled Yankee and great traveller all over South America, who amidst much that was historical and flattering told some plain truths as to the Peruvians having been demoralized in the past, cutting each other's throats in revolution after revolution, everybody living on "guano" from the Government downwards, and doing no work, and then turning to the Nitrate fields which, however, as the result of an unjust war were wrenched from Peru by Chili. A regular blessing this, in disguise; for ever since the Peruvian community had begun to work, develop, and prosper in the true sense. But as regards immigration, Colonel Church had to say that better laws and better treatments must be given to strangers before there would be a rush.

Mr. ALEX. ROSS came next in some well-chosen sentences referring to the recent explorations, the delightful climate of Lima ranging in temperature between 60° and 80° as extremes, while he and Mr. Sinclair lived as in England in all save the superfluousness of an umbrella! Mr. Ross spoke highly of the progress making in railway extension, of the several routes travelled, of the many products available, the fine soil and forest land generally.

Mr. J. FERGUSON followed. I said that I rose because of one word that had dropped from Sir Alfred Dent in connection with the future of Peru, namely "tea." But before dealing with it, I would mention for the information of the lecturer and other of his countrymen and friends present, that the name of "Peru" was familiar in the Far East of India and Ceylon as well as in England and was closely connected with one of the greatest blessings ever brought to the millions of Southern Asia, in cinchona. It was in 1861, the same year as I first saw Ceylon, that their chairman arrived with a few plants of Peruvian cinchona at Bombay—half being sent to the Nilgiris and half to the hills of Ceylon; but no planter, while coffee was prosperous, would look at a "medicine plant," and so recently as 1869 only 20 ounces of bark were exported. But when coffee failed, cinchona was planted and Ceylon ran up to a maximum cultivation of 54,000 acres and a maximum export of nearly 16 million lb. of bark, bringing down the price of quinine from 16s to 20s an ounce to (last year) 1s or 9d [Mr. T. J. LAWRANCE:—Less than 9d] per ounce in Mincing Lane. This was an inestimable boon to millions in India and elsewhere and one with which the names of Peru and Markham would ever be associated; but it proved destructive to the Ceylon cinchona planter; and he had to plant tea instead; and now we were fast becoming a premier tea-growing country, exporting 68 million lb. last year with the prospect erelong of reaching 100 millions, while India was also going on. Now, I would warn planters opening in Peru, to profit by our lesson in cinchona and *beware of tea*. But,

there were other and very valuable products of which the world's supply just now was really less than the demand, for which Peru was evidently most admirably fitted, notably for coffee and cacao; and I was quite sure that when the Ceylon and Indian planters read the Report (shortly to appear, of my friends Messrs. Ross and Sinclair who had learned planting in Ceylon—the best school in the world for tropical agriculturist—before I reached the island, that the interest of many of them would be awakened, in respect of coffee especially. For coffee in Ceylon and India has failed and is failing, as also to a great extent in Java, and even in Brazil the top of the tide seems to have been reached, while there was evidently a great field for this product and others equally profitable in Peru. I could not but look forward, therefore, with great interest to the financing and development of planting operations in the wide, rich forestlands along the Peruvian tributaries of the Amazon.

Both Mr. Ross and myself were well received.

Mr. WATTS, a practical Wiltshire farmer who had been in Peru, came next with most valuable testimony to the great value of live stock in that country.

The meeting concluded with an interesting speech from Mr. MARKHAM proposing and conveying the thanks of the meeting to the lecturer. He mentioned that Mr. Pezet's grandfather was one of the foremost patriots of his day and indeed fell a martyr to the freedom of his country.

I had the pleasure afterwards of being introduced to Mr. Markham, with some pleasant talk during which I ventured to urge that he should use his official influence to make known the great value of cheap quinine for use among the millions of China, especially among those who were enslaved to, or using, or beginning to acquire the taste for, opium. He agreed that something had to be done in this direction, though gradually the use of quinine was being extended through the Treaty Ports in China.

In this connection I have to mention that Mr. Ross has been elected an Honorary Member of the Royal Geographical Society of Lima.

CINCHONA CULTURE IN ECUADOR.

I had an enquiry from the Colonial Office the other day for information respecting "Cinchona in Ceylon," made on behalf of the President of Ecuador, I referred the authorities to our publications—the "Cinchona Planters' Manual," "Handbook and Directory" and *Tropical Agriculturist*; but chancing to lay my hands on one of my "Agricultural Reviews" reprinted from the Handbook of 1888, I added to it the latest statistical information and sent it on as the best means of at once showing the Ecuador President the foolishness of attempting the cultivation of cinchona at the present time. In acknowledgment of the little book, I have the following:—

Downing Street, March 7th, 1892.

SIR,—I am directed by Lord Knutsford to thank you for the copy of your "Review of the Planting and Agricultural Industries of Ceylon" which you have been so good as to send to this office with the figures relating to cinchona planting corrected to date.

The book has been sent to the Foreign Office for transmission to the President of Ecuador, who has expressed a wish to receive any reports or statistics bearing on the subject.—I am, sir, your obedient servant, EDWARD FAIRFIELD.

John Ferguson, Esq.

QUININE-MAKING IN ECUADOR.—In South America, according to a French report, the first step has been taken towards the manufacture of quinine on the spot. M. Manuel Jijon has set up a factory at Quito, which supplies the whole of Ecuador, and has begun to export a product which has a very good appearance. The sulphuric acid necessary is manufactured on the spot from native sulphur.—*Chemist and Druggist.*

AGRICULTURAL ADVANCEMENT IN LOWER PERAK.—AN ACRE OF JUNGLE WORTH $250 IN THREE YEARS.—We hear that an acre of land in Teluk Anson was sold the other day for $250 hard cash. This land was allotted by the Perak Government to an Indian immigrant brought over at Government expense, and was all jungle three years ago. The man arrived in Perak penniless; he is now worth $250, less the amount he repaid to Government as advances. This is another instance of the result of the care and energy displayed by the Lower Perak authorities in the matter of agricultural advancement, and is a proof that Indians as agriculturists will do well if looked after. We also learn that about 1,300 acres of land, in the same district, have recently been taken up by Chinese and Malays for padi planting, and that operations on them will shortly commence.—*Pinang Gazette*, March 25.

SPEAKING at an Agricultural College in England the other day, the Rev. Canon Bagot made some interesting remarks upon the subject of milk. He said that he was a specimen of a man who had been brought up on skim milk. He never tasted a drop of pure milk from the time he was one year old until he was fifteen. It was skim milk for breakfast, for dinner, and for supper, along with oatmeal porridge, and potatoes, and, sometimes a bit of meat. Skim milk was more suitable for infants than whole milk because it contained less fat. Yet in London hundreds of gallons of skim milk were daily poured into the sewers because people would not buy it. A factory had, however been started for making lactite, a substance resembling ivory, from skim milk. The water was expelled from the milk, and the solid matter was first compressed and then turned in a lathe into various shapes. The numerous dairies that are being started all over India, and notably in Bombay as the result of the travelling Dairy Exhibition that visited this country a year ago, might take the hint if they have difficulty in disposing of their separated milk,"—*Indian Agriculturist.*,,

THE TEA DISTRICTS OF CACHAR AND ASSAM are not favourable for railway construction. Sir Bradford Leslie, in his paper on Indian Bridges, remarks:—

Further to the eastward are the fertile districts of Assam and Cachar, which for many years to come must be served from the railway system of the rest of India by the great Brahmapootra river. With the hills in close proximity on either side, and with a very heavy rainfall, the rivers of these districts are numerous and formidable; the plains are covered with a network of creeks and water-courses, which make it a very amphibious sort of country in the rainy season. Should it become necessary in the future to carry land communications across the Ganges or Brahmapootra rivers in Lower Bengal, the question will arise whether tunnelling may not be cheaper than bridging. In the case of a tunnel, a great portion, if not the whole length, would have to be made through permeable strata. Any permanent structure for crossing these rivers involves the necessity for fixing and controlling its course at the site of the structure. Although not impossible, this might prove a costly undertaking, and it therefore seems probable that the present system of working the railway traffic across the lower reaches of the Ganges and the Brahmapootra by ferries must continue.—*Indian Engineer.*

SOME THOUGHTS ABOUT TEA.

When the Laureate sang
"Better fifty years of Europe, than a cycle of Cathay," we do not suppose he had in view China's great gift to Europe and the world, Thay or Tea,
"which cheers but not inebriates,"
as another poet sang in a poem rising from the every-day pleasure of home to the sublimities of the Millennial glory. Blessings on the man, though he had his eyes askew and wore a pigtail, who first invented tea—the dried and fragrant leaf! His name, if it could be discovered, even if it was a comical aggregation of monosyllabic exclamations such as "Ho!" and "Fu!" and "Fi!", ought to be emblazoned amongst those of the foremost benefactors of the world. There can be no doubt that the tea plant is indigenous to Assam and Burma; and the probabilities are that it found its way into China from India *via* Burma instead of the reverse process which some have imagined. Be that as it may, the roasted tea of China is as superior to the pickled leaves of Burma, as the finest golden tip pekoe excels the coarsest brick tea. The curious phenomenon is that the genius which discovered the preparation of the fragrant leaf by simple and rude appliances should, in all the centuries, have advanced no further. To this day the processes of preparation are stereotyped; and John Chinaman rejects and destroys improved appliances when introduced to his notice. The "better fifty years of Europe" principle is illustrated by the progress made in the labour-saving and quality-improving machinery and appliances which have been invented in the half century since the British have commenced to cultivate and prepare tea, whether pure China, as at first, or Assam indigenous or high class hybrid as latterly; and now, what would the Chinese who first roasted tea on bambu sieves over open charcoal fires—the leaves having been prepared by the pressure of the human hand and perhaps by the imposition of human feet—what would this Chinese inventor, who knew nothing of advanced engineering and patents, say, were he permitted to "revisit the glimpse of the moon" and see at work in the insignificant island of Ceylon, those great triumphs of human skill applied to the preparation of the leaf he loved so wisely and so well, the roller which is such an improvement on the human hand, the downdraught sirocco and the perfection in simplicity of the Britannia drier! These thoughts on tea and tea machinery on the literature and the science which have brought their votive offerings to shrines which men name tea factories, in the fast half century or less, have been suggested by a glance at the latest edition of Rutherford's encyclopedic "Ceylon Tea Planters' Note Book." It contains "all about tea" and a great deal more. Much about wood and coal and petroleum, as sources of heat and force; about iron and timber as structural substances and material for tea boxes; about lead and solder and shingles and nails; about tea tasting and weighing and measurement, and freights and cost and profits; about rupee-cents and pence and sterling and exchange. About the proportion of dry tea to green and withered leaf; about the cost and capabilities of labour, labour advances and the labour laws; with the number of bushes per acre at varying distances, and the profits per acre at varying rates per pound of tea. Even the forester can come to learn with the planter,—fuel being literally a burning question with both,—what indigenous trees to plant at low levels and which of the exotics are best suited for high altitudes; while weights per cubic foot and prices of the local timbers, of cement, lime, bricks, tiles and other building materials with the cost of various descriptions of building, are given. Much valuable and important literature on tea, originating in India and Ceylon, is extant and can be consulted with advantage; but this, the selected tit-bits and boiled down essence of all, is indispensable even at the price, about which we have heard some murmurs. But surely a book is worth paying for (especially with the rupee so low in value) which tells a man how to open an estate and how to turn its produce to the best advantage, which gives tea exports since they became appreciable in our commerce and the latest dividends of Indian and Ceylon Tea Companies. A reward might well be offered to the man who looks and fails to find in this Planter's Note Book anything, however, remotely, connected with tea. Then comes the curious coincidence, that, although Englishmen have doubtless done their part, the author of the most generally useful and comprehensive book on tea and the greatest and most successful tea machinery engineers are Scotchmen! There is no more mistake about Mr. Rutherford than there can be about Messrs Reid and Loudoun Shand or our good friend and everybody's good friend "Logie Elphinstone." Then we might as well deny the existence of "Aberdeen awa'" and the influence its sons have had on Ceylon estate culture and Ceylon estate English ("Wha 's mammoty's yon?") as doubt that Mr. Jackson of "Rapid roller" and "Britannia drier" fame is a Scotchman, whose model rooms and laboratory are within hail of Balmoral, although his honest and solid machines are made by the Marshalls on the wrong side of the border. We imagined the old-world Chinese sage who invented tea and there stopped, as amazed if he saw the modern automatic machinery applied to the preparation of the fragrant leaf. But surely his ghostly pigtail would stand on end if he heard Mr. Jackson coolly talk of generating electricity as a motive power for such machinery. But no doubt some Milesian will claim Sirocco Davidson as a countryman. He lives and works, brain and hands, to good purpose at Belfast, and we suppose he was born in that North of Ireland city, "because he happened to be there at the time." But Mr. Davidson, like thousands of other Irish-Scotch, is essentially Scotch, although the purity of his doric accident is somewhat tainted with a tinge of brogue. If a Scotchman does not cease to be a Scotchman because he emigrates, does his son cease to be a Scotchman because of the accident of his being born in the country to which his parents had moved? Time does not admit of our pursuing this problem or our thoughts about tea further on the present occasion.—Before closing we may admit that the Note Book is not faultless. There are some curious misprints for which of course Mr. Rutherford, away in London, is not responsible. One of the most curious is the substitution of Devon as an Indian Tea District, instead of "the Dooars," in association with Darjiling and the Terai. But there are spots (at present one larger than our globe) on the sun's face; but the usefulness of the light-giving orb remains. We may add that Mr. Rutherford's useful compendium is published at the office of the "Times of Ceylon."

AN EX-CEYLON PLANTER IN AUSTRALIA.

New South Wales, March 6th.

The question of Federation is very far off when we consider the two burning topics in these Colonies, viz.:—

(1) Sir Sam. Griffith's wish to encourage kanakas and the New South Wales hatred to the very idea of black labour.

(2) The proposed Stock Tax to be put on all stock imported into Victoria.

At the late discussion on Federation in the Sydney Parliament, no one seemed really anxious for its speedy arrival. The fact is Federation means a smoothing over of intercolonial jealousies, forgiving the past, and altogether starting a sort of ideal Millennium, hand in hand, offering the cheek to the smiter, and one's coat to the robber. But that is not real solemn Federation that was brought about in the United States by the hard cement of bloodshed. It is a stern fact that Federation will never come until all Australasia is roused to a common sense of danger in the panic of a common calamity; as in England, the Unionists, the Irish Party, the Conservatives, though all in antagonism, will all combine against a common foe. But here, there being no outside foe, save the British money-lender; the individual colonies are all taken up with intercolonial jealousies, Victoria says that Queensland and New South Wales shall not flood the country with cattle and horses. New South Wales, on one side, sneers at Victoria's protective precautions and schemes; and, on the other, objects to Queensland employing black labour. She also wants to claim the whole of the Murray. South Australia objects to Victorian unemployed labourers flooding her labour market; while poor Western Australia is struggling to maintain its dignity as an independent colony. I have already written to you about "Kanakas" and black labour for Queensland. This stock tax deserves mention.

At a late meeting the farmers and graziers have insisted in leaguing themselves in favour of the imposition of a tax of £2 per head on all imported cattle, 2s or 3s per head on all sheep, and £4 on all horses. The go-ahead Victorians, who are a match for the other colonies in the 'outeness and push, not content with being the only colony which insisted Protection, are now going farther; and the graziers and farmers want to benefit too. Great herds of cattle and mobs of sheep and horses have been pouring in from New South Wales, but *Queensland* especially. The great runs in the north pour their huge wild cattle, fattened on the way, into Victoria, and the farmers and graziers find that breeding cattle and horses and also sheep, does not pay at all; so they are going to keep out imported stock by heavy taxes, and thus raise the price of food. But now the butcher comes in, and other interested parties, who say "Let 's have the *ad valorem* duty (that is duty according to value); others say, "No, let 's have it by weight and weigh on the American weigh-bridge system." But the majority says: "Rather *value*; look at all the valuating experts required to distinguish between 'store cattle,' and 'fat cattle' and also other *weight*; look at the expense, time, and trouble in weighing up huge herds of wild Queenslanders." Thus they are goingto the general election.

No, that "National Calamity" must come and reduce all to a common level of *mutual* protection, and not "*Protection*" against each other. "*In union there is strength.*" You have heard that remark before, I dare say.

My experience of station life continues. My hands healed all right in time, and I am more comfortable when sitting down. The wild careering on a fiery "mustang" champing the bit and flecking its flanks with the foaming spume from its month. The Crimean shirt, and neckerchief loosely tied, broad palm-leaf hat, huge spurs, and dread stockwhip. The bearded tanned face and stern voice full of strange oaths, the campfire, the "billy," the "jumper," the blackfellow. No, that is not the real picture. Ordinary English dress, not ever riding breeches. Quiet ambling along fenced paddocks or a perfectly broken trained station horse that *almost* knows how to open a gate or cut out some rams. Deep thought, anxious thought furrowing the brow, as the rider slowly ambles along under a fierce sun. No wonder he is silent and grim. Rabbits; tanks drying up; and sheep and cattle getting "bogged" in the still, soft mud; foot-rot; market affected by Melbourne depression; absence of rain; bush fires; cost of rabbit-proof fencing round the run; and so on;—then a rousing up and a smart canter to leave *atra cura* a little way behind. Now we will see a number of graceful emus moving rapidly there the timber with a peculiar indulating body fixed on long stretching legs; now we see a number of those ridiculous kangaroos who always excite my derision. They "loup" away. The Scotch word for leap is more suggestive. After a little we draw rein among a fine lot of cattle who stare at us with bright honest but not altogether pleased eyes; or perhaps we may find ourselves in a head of horses who are decidedly more inquisitive and demonstrative and make advances literally and figuratively. Then out of the timber with the *cool waters* (?) of a mirage! Then back to the comfort of the station, where cool drinks, and bunches of delicious grapes, and a cold showerbath, refresh and brighten the dusty sunburnt rider.

Rabbits are truly a curse. I have been wandering on foot with my gun; and though told that they are not worthy of powder and shot, and though I fully intend to shoot ducks or teal, yet, the unblushing effrontery of the rabbit actually washing its complacent mouth with its paws or peeping calmly out of a burrow, or waiting at the entrance of a burrow till the very last possible moment, —I say though I did not intend to waste ammunition, yet I was wroth like old Noah (no it was Jonah who was angry with the creeper). Stop—Why is Jonah like the manager of a Ceylon Tea Estate? Give it up? Well, because—ha! ha! *he was angry with the creeper*!! You can see that I made this up, by the *context*, as the padres say. To return to our sheep. I found a ram among the ewes one day, but that was not all. I found eight ewes among the rams. That was very wrong and forbidden, but still though naughty it was nice and natural. It's the way all over the world. When all the romance and gilt wears off what do you find station life to be? The gentleman-apprentice or "jackeroo" works with the men, wire fencing, post-hole digging, or any *job* going. He gets what the men get, a pound a week, and his "tucker;" but that is only when he has picked up some experience and has his hands in a proper "horny" condition. He is called "Mister," and is respected by the men, if he does not *pitch* to (*anglice* yarn with) the men, and get familiar and exchange stories and jokes. He may ride out with one of the hands with a small hoe like a "quintanny" over his shoulder and dig up "burrs" (plants obnoxious to a wool grower on account of the burrs) in the heat from 7 to 12. This "knocks the creases out," as you will believe. Some youths pay £200 a year to do this, and gain "colonial experience." In a big station there will be a number of "jackeroos," who live in the barracks and call at the "house" on Sundays. The station hands' motto is "Go day, come day, God bring Sunday." Sunday is a day of rest to man and beast. The men wash their shirts and moleskins, or read up newspaper arrears, or visit the township for a "droppy," or to have a "pitch" (yarn). Only the Chinaman works. It is enough to give one fever to watch this man. He is of course the gardener. He begins at daybreak, and leaves off with a sigh of regret at night, when it gets too dark. I have an idea he splits firewood for the pumping engine at night. He swears in English at the township boys who come for mulberries and figs. These boys are as wild as kangaroos, and provoke poor "Paddy." Then he swears in Chinese at the fowls who are always getting in somewhere through the fence, and then, working all the time, he begins to sing. I rise and go away, and the slumbering possum almost drops from its branch, and the wild ducks flap noisily up the creek. It is far worse than Mark Twain's gondolier; but it comes from a happy heart. Solomon had not studied the ant sufficiently, and took things for granted, when he told the sluggard to "go to the ant." Why, some ants have slaves, and others hire sweet white bugs from which they suck nectar, and get quite lazy and stupid. Solomon should have said: "Go to the Chinaman, thou sluggard." The Australian workingman is down on the Chinaman on account of his cheap industry, but I have dis-

covered another reason he is jealous. White women like Burmese women, find John Chinaman very kind and good to them. Many a trampled bullied wretch finds a haven of rest among Chinamen. Missionaries jump to the conclusion that a white woman married to or kept by a Chinaman is lost and abandoned. I say no. They are happier with the thrifty, kind, muscular, happy Chinaman than with the drunken, brutal, beating bully of a white man. The terrible pictures of white women in Chinese "hells" is all "gammon." The white man's "*hell*" is a far more terrible reality for women of that class. Little Burke Street is disgraced more by the larrikin than by the Chinaman. A poor girl bullied by the larrikin's flies for shelter to the Chinese and is well treated. The half-caste Chinaman is a bad bargain, inheriting the evil propensities of both parents.

ABERDONENSIS.

FIRE RISK ON CEYLON TEA ESTATES.

We have received the following correspondence :—

Ceylon Association in London, 4, Mincing Lane, London, E. C.,

March 9th, 1892.

A. B. Bagnold, Esq., Secretary, Fire Offices Committee.

Sir,—This Association, as representing the Ceylon tea planters' interests, desires to bring to your notice the excessively high tariff charged by fire insurance companies on Ceylon tea factories, leaf withering sheds, bungalows, and other estate buildings. These rates vary from 7s 6d per cent. to 40s per cent. This tariff was agreed to by the various fire insurance agents at a meeting held in Colombo on Aug. 30th, 1889.

From figures furnished by some of the leading tea companies, representing forty-seven factories (which may be taken as sufficient data for the whole of the factories insured), we find that the maximum policy for any estate amounts to £5,000 and the minimum £150. These forty-seven estates pay on policies amounting to £88,629 the sum of £795 net for premiums, or 17s 10d per cent. There are some 350 tea factories in Ceylon, the value of which, at £1,900 per estate, amounts to £665,000, giving, at 17s 10d, say £6,000 per annum in premiums. These premiums would therefore allow a liberal margin for charges and profit if two factories were burnt down per annum. With regard to the risk of fires we have no exact figures, but we believe £5,000 would more than cover the losses suffered by fire insurance companies during the past ten years.

The association is of opinion that these high rates have been charged because the real risks are as imperfectly understood by English fire insurance companies as Ceylon life risks were until recently by life offices.

The business has not probably been sufficiently large when divided among many offices to warrant the expense of sending a qualified supervisor to Ceylon to study factory risks, and factory proprietors feel that the tariff has been arbitrarily fixed so excessively high on an assumed heavy risk which does not exist, and the real value of which has probably never been calculated.

This association trusts that the various fire companies will, on consideration, be able to very materially reduce their tariff so as to be more in conformity with the rates paid on the same class of buildings in England, as we are assured that many of the larger tea companies and factory proprietors are seriously considering the desirability of mutually protecting themselves against fire risks rather than continue to pay what they consider the unwarrantable high rates now charged.—I am, sir, yours faithfully,

(Signed) WM. MARTIN LEAKE, Secretary.

(REPLY.)

Fire Offices Committee (Foreign),
63, Watling Street, and 11, Queen Street,
London, March 11, 1892.

Wm. Martin Leake, Esq., Secretary, Ceylon Association in London

Dear Sir,—In reply to your letter of the 9th inst., in which you call attention to what you consider the high rates charged for tea factories, &c., in Ceylon. I beg to inform you that the matter is not one with which it falls within our province to deal, as the tariff to which you refer has not been settled through this Committee.—Yours faithfully,

(Signed) ALEX. B. BAGNOLD, Secretary.

—*H. and C. Mail*, March 25th.

RUBBER GATHERING ON THE AMAZON.

At the instigation of the editor of the *India Rubber World*, the Department of State, through the consular offices, has been engaged in making some extended researches into the rubber industry of the world. These reports are valuable and interesting, and great praise is due Mr. Hawthorne Hill, the editor of our contemporary, for the effort put forth to secure these reports, by which "the extent of rubber forests of the world has been demonstrated to be so extensive that any possibility of cornering the crude rubber supply is impracticable; that the once-threatened extinction of the rubber forests is apt now to be checked by Governmental precautions against wasteful methods of gathering rubber, and that new sources of gutta percha supplies have been discovered which will prevent a scarcity of this commodity, and thus encourage the building of ocean cables." From these reports we quote the following interesting description of

RUBBER-GATHERING IN THE AMAZON VALLEY.

"The rubber-gatherer rolls out of his hammock as soon as it is light in the morning, takes his gulp of rum and his calabash of coffee, starts out to visit his rubber trees. He wears a short pair of breeches, and sometimes a shirt. He goes barefoot, for he must wade though the swamp mud and ooze of the tide up to his knees, and often up to his waist in water. He takes a basket full of earthenware gill cups, a hunk of adhesive clay and a little narrow-bladed hatchet.

"If he adopts the most approved method of tapping the trees, he reaches as high as he can with his hatchet, making an incision in the bark, but not reaching through to the wood. The milk immediately begins to issue in rapid drops or little streams. With a spat of the adhesive clay he immediately fastens one of his little gill clay cups just below the bleeding gash, and molds the clay so as to make all the rubber milk flow into the cup. Three such gashes, at equal distances around the tree, and at an equal height, is the rule. The next day he will make three more gashes in the same way, just a little below these three, and so continue, until by the end of the season he will have reached the level of the ground. Each of his 100 or 150 trees is treated in the same way, and he returns home after having travelled from three to five miles, barefoot and almost naked, through thorny thicket and malaria-steaming swamp.

"When he reaches his hut again he takes another gulp from the demijohn, snatches a breakfast of salt fish and mandioca meal, which are often moldy from the reeking damp of the swamp, and then starts out again with his calabash buckets to gather the milk, which by this time has ceased to flow. His gill cups are full, or nearly so, and when he reaches home he has milk enough to make four kilos of rubber, on an average. The next task is the coagulation of this milk. For this purpose he has a jug-shaped furnace, made of earthenware, called a *boiao*, open at bottom and top, and with a small aperture at the side to admit the air for the combustion. In this piece of furniture he builds a fire, or rather a smudge, with the nuts of the inaja or urucry palm. The dense black smoke which rolls from the open top of the *boiao* is the reagent which coagulates the milk. For this purpose the rubber gatherer has a circular-bladed paddle, like the paddle of a canoe, which he smears over with clay so that the rubber will not adhere to it. This is suspended by means of a cord from the limb of a tree just above the smudge. The milk is poured over the blade of the paddle, which is then turned over and round about in the smoke, and in a few moments the film of rubber is coagulated. The same process is repeated of wetting with milk and smoking the growing lump until it reaches the weight of from five to twenty-five kilos or more. Then it is slipped off from the paddle as a mitten is pulled off

from one's hand. This ball is the crude rubber of commerce. If the coagulating has been carefully done it is 'fine' rubber; if carelessly done, and the ball on being cut open at the exporting warehouse shows signs of poorly-coagulated milk or slight mixtures of foreign substances, such as mandioca meal, it is classified as 'middling fine' (*entrefina*). There is also a coarser grade still, called *sernamby*, the native Indian word for 'shells.' This grade is composed of the scraps and bits that have dried without coagulation proper, especially the linings that form in the little earthenware cups and in the calabashes and buckets used in handling the milk, as also the drippings that run down the trees from accidental wounds. These are all rolled up together in a mass and would bring as good a price as the middling fine, were it not for the leaves and other rubbish that manage 'innocently' to stow themselves away in the lump.

"In future issues we hope to be able to find room for further notice of these reports, giving statistics of amount produced, value, etc."—*American Grocer*, Feb. 24th.

ZANZIBAR AND THE CLOVE TRADE.

At the time of the publication of the last annual statement of the trade of the United Kingdom with foreign countries we pointed out that in no direction had our foreign trade grown more largely during the last five years than with the contries of which Zanzibar is the chief business centre. Our imports from those parts were worth 129,222*l.* in 1886, in 1890 they had grown to 722,893*l.*, while the exports, in the same period, advanced from 254,421*l.* to 521,190*l.* Since the publication of those figures a new British political officer, Mr. Portal, has been sent to Zanzibar and has assumed practically the government of that island. The city has been declared a free port, and sundry other reforms have been initiated which will no doubt contribute largely to its commercial importance. Mr. Portal has just sent home his first report on the commerce of our new dependency, in which he expresses himself full of hope for the future. A big cloud, however, obscures the commercial sky of Zanzibar at this moment—viz., the overproduction of cloves, its staple article of trade. Since the clove-tree was first introduced in the islands, about sixty years ago, it has been an enormous source of wealth to the Arab landowners and to the Sultan. There have been periodical depressions in the price before, but until about three years ago 6d. to 7d. per lb. was considered a very low quotation, and once, after a hurricane which destroyed the greater part of the plantations, the value of cloves rose to 1s. 7d. per lb. in the London market. Lately, however, the clove crops have become larger and larger, and they are now almost every season greatly in excess of the world's estimated annual consumption, which is about 80,000 bales of 140 lb. each. As a result the price (3⅝d. per lb.) has fallen to within measurable distance of the lowest point it has ever touched—viz., 2⅞d. per lb., in 1869—when, however, there was no export duty, or at any rate a much smaller one than at present.

The London warehouses are burdened, at this moment, with a stock of not less than 34,000 bales of the spice, and the quantities warehoused in America and on the Continent are also known to be exceedingly heavy. The cause of the present depreciation of cloves lies exclusively in the short-sighted policy of the Arab plantation-owners in the islands of Pemba and Zanzibar, who have neglected the culture of all other products which they might have reared with profit upon their fertile soil, and turned every available acre of land into a clove-plantation, without the least thought of the inevitable effect of their action. The people and the ruler of Zanzibar have for years been practically dependent upon the returns of the clove-crop for their sustenance, and the problems that confront Mr. Portal, in consequence of the breakdown of the one remunerative industry of the island, may, in proportion, become as difficult a solution as the situation created by an Indian famine or a failure of the Nile flood in Egypt. Telegraphic information received this week states that the Arab landowners have presented petitions to Mr. Portal declaring that they are ruined by the low price of cloves and the scarcity of labour, and asking for a reduction of the clove tax. There is no doubt that, sooner or later, these demands, so far as the reduction of the export duty is concerned, will have to be granted. The puzzle will be where to find a source of revenue which will recoup the Sultan, to whom Mr. Portal stands in the relation of a kind of *maître de palais*, for the loss of the mainspring of his income. Cloves are the cork by which the Court of Zanzibar is kept afloat. "A few years ago," says Mr. Portal, "the price of cloves used to range from $7 to $10 per frasila (35 lb.), and the export duty taken on them by the Sultan was 30 per cent *ad val.* The price does not now exceed $2½ to $2¾ per frasila, and the export duty has been reduced to 25 per cent." The 25 per-cent. duty, the growers probably think would give them a fair margin of profit; but there is no doubt that if it were abolished tomorrow, it is not the Zanzibar Arabs, but the European spice-dealers and oil-distillers, who would profit, for quotations here would certainly answer with a corresponding fall. The scarcity of labour of which the Arabs complain is probably traceable to the abolition of slavery by the late Sultan. It must be remembered that at the time of the budding of the clove-tree there is a sudden demand for labour upon the plantations, for if the buds are not promptly picked they burst into flower and become valueless. Mr. Portal is so well aware of the critical condition to which the country has been brought by the over-production of cloves, that he is already looking out for other economic articles to be brought into cultivation when the Arab's day shall be done (a contingency which the consul foresees at an early date), and the land have passed into the hands of Indians and Europeans. From manioc (tapioca), sago, coconuts, pineapples, and aloes Mr. Portal expects something. The plants already grows wild in profusion, and with a little care and intelligence might become profitable—the aloes and pineapples specially on account of the valuable fibre they yield. Vanilla, he thinks, might also become a profitable culture. The French missionaries in Bagamoyo, on the German coast opposite, already grow it, and assert that it pays them well. Chillies grow plentifully all over the eastern and southern parts of the island. Next to cloves and coprah they are the most important Zanzibar product. During the period from the beginning of this year until October 13th, 112,179 rupees' worth of them were shipped—half going to London, the remainder going to New York and Marseilles.

Until the English stepped in to set the Sultan's tottering house in order, no official statistics or accounts of any value were kept in the island. No records were made of shipping; the lighthouses around the coast were left crumbling to pieces, and the only object to which the Government appeared to apply itself with sympathetic ardour was the collection of taxes. Mr. Portal has but one term to express the cause of all the wretchedness in Zanzibar—"Arab domination"—now, fortunately, in process of abolition.—*Chemist and Druggist*, March 19.

TEA AND COFFEE.

Now that there is so much talk about tea and the good and evil effects resultant on its use and abuse, perhaps a few words of reminder concerning Professor Sir William Roberts' researches on food accessories would not be out of place. They were noticed in the *Nineteenth Century* by Dr. Burney Yeo, February, 1886, and as far as I can remember, have been practically uncontradicted, in the Reviews at least, by anyone entitled to a hearing on such matters. Sir W. Roberts had already presented to the world a mass of most valuable information derived from his careful researches on the "digestive ferments" in his lectures delivered before the Royal College of Physicians in 1880. His later researches on "food accessories and their influence on digestion" are equally important, and more easily grasped by the lay mind. The results are, in some respects, as Dr. Yeo remarks, so novel and unexpected, and they contradict so many apparently unfounded assumptions, that they cannot be too soonor too widely known.

This was written in February, 1886. We are now in February, 1892, and yet the general public seem as ignorant as ever, to judge by the current newspaper gup. It seems perhaps too much to expect that even a dozen readers will change their opinion *and* their practice concerning tea and coffee. Let us hope for the best, however. Many people are of the opinion that tea and coffee, though nice, are naughty, and have a vague idea that drinking such beverage is against the natural harbits of natural man. Others again swear by tea and scoff at the idea of any harm accruing to its votaries in whatever way and whatever quantity they drink it. But, as Sir W. Roberts remarks, man is now a very com. plex feeder; he has departed, in the course of his civilisation, very widely from the monotonous uniformity of diet observed in animals, in the wild state. These generalised food customs of mankind are not to be viewed as random practices adopted to please the palate or to gratify our idle or vicious appetites. These customs must be regarded as the outcome of profound instincts, which correspond to important wants of the human economy. They are the fruit of colossal experience, accumulated by countless millions of men through successive generation. They have the same weight and significance as other kindred facts of natural history, and are fitted to yield to observation and study lessons of the highest scientific and practical value. It is unnecessary to describe here Sir W. Roberts' methods of investigation; they are fully set forth in his volume and they are alike admirable for the ingenuity of their conception and the laborious accuracy of their prosecution. I shall concern myself at present only with that part of his researches which deals with tea, coffee and cocoa, merely mentioning that he deals at length with wines and all alcoholic beverages, giving too ardent Temperance-wallahs many a sharp rap over the knuckles, none the less effective if indirect.

Tea exerts a powerful retarding influence on salivary digestion, coffee and cocoa a comparatively feeble one. Sir W. Roberts estimates the medium strength of tea usually drunk at four to five per cent; strong tea may contain as much as seven per cent; weak tea as little as two per cent. Medium coffee has a strength of about seven per cent, and strong coffee twelve to fifteen per cent; cocoa, on the other hand, is generally weaker, not more than about two per cent.; and this, he thinks, may be one reason why it is more suitable to persons with feeble digestions than tea or coffee. Tea exercises a powerful inbibitory effect on salivary digestion, and this appears to be entirely due to the large quantity of tannin it contains. It appears that tannin exists in two conditions in the tea leaf. One, the larger portion, is in the free state and is easily extracted by hot water; but about one-fourth is *fixed* and remains undissolved in the fully exhaused tea leaves. Some persons have supposed that by infusing tea for a very short time—only two or three minutes—the passing of tannin into the infusion would be avoided. *This is a delusion*; you can no more have tea without tannin than you can have wine without alcohol. Tannin, in the free state. is one of the most soluble substances known. If you pour hot water on a little heap of tannin it dissolves like so much pounded sugar. Tea infused for two minutes was not found sensibly inferior in its retarding power on salivary digestion to tea infused for thirty minutes. One gentleman of my acquaintance (says Sir W. Roberts) in his horror of tannin, was in the habit of preparing his tea by placing the dry leaves on a paper filter and simply pouring on the boiling water. In this way he thought to avoid the presence of tannin in his tea. But if you try the experiment, and allow the product, as it runs through the filter, to fall into a solution of per-chloride of iron, you will find that an intense inky black coloration is produced, showing that tannin has come through in abundance.

In order to diminish as far as possible the retarding influence of tea on salivary digestion, it should be made weak, and used sparingly, and it should not be taken *with* but *after*, the meal. There is another means, mentioned by Sir W. Roberts of obviating the retarding effect of tea on digestion, and commenced by him to the dyspeptic; *it is to add a pinch of bicarbonate of soda* to the tea when it is being infused in the tea-pot. He found that ten grains of soda added to an ounce of dry tea almost entirely removes this retarding influence. The infusion thus made is darker than usual, but the flavour is not sensibly altered, nor is the infusion rendered aklaline, for tea infusion is naturally slightly acid, and the soda, in the proportion mentioned, only just neutralises this acidity. It is a very general practice, I believe, at home, to add a pinch of soda to the tea, but not on account of neutralising the acidity, I am afraid, but to "soften" hard water. In other words, to precipitate excess of lime held in solution by the "hard" water, I make it a rule now to add the pinch of soda required, and I cannot perceive the slightest difference in the flavour of the tea. Taking my tea without milk or sugar, as I am in the habit of doing, I stand a better chance of detecting any unusual flavour than if I drank it in the usual way. My readers, however can readily judge for themselves. Coffee, unless taken in a very large quantity, has very little retarding effect on salivary digestion; this is explained by the fact that the tannin of tea is replaced in coffee by a substance called caffeo-tannic acid. Cocoa resembles coffee, and has but little or no effect on salivary digestion; the use of coffee or cocoa is therefore preferable to that of tea for persons of feeble digestion. Thus far on *salivary* digestion; we now turn to *stomach* digestion, which is a very different thing.

Tea and coffee both exercise a remarkable retarding effect on stomach digestion. There was no appreciable difference in the two beverages if they were of equal strength, but as coffee is usually made of greater percentage strength than tea, its effect must ordinarily be greater. Cocoa, also, had much the same effect if used of the same strength as tea or coffee, but when of the strength as ordinarily employed, its effect was inconsiderable. Strong coffee—*café noir*—had a very powerful retarding effect, and persons of weak digestion should avoid the customary cup of black coffee after dinner. A good deal has been said and *is* being said of the injurious effects on gastric digestion of tannin contained in tea. It has been alleged that meat fibre is hardened by tea, and that the coats of the stomach are liable to be injured by this beverage. These views are entirely theoretical. For people of strong digestion, the use of tea as a beverage is, when taken in moderation, of great benefit, at least so argues Sir W. Roberts. This also applies to coffee and cocoa. They serve, he maintains, the purpose of wholesomely slowing the otherwise too rapid digestion and absorption of copious meals.

One thing to be borne in mind, especially by ladies, is that tea, if taken *at the same time* as farinaceous food (such as bread, toast, porridge, cakes and biscuits), is much more likely to retard its digestion and cause dyspepsia than if taken a little time after eating. It is better to take one's five o'clock tea without the customary bread and butter or cake, than with it. Indeed, while there is little that can be said against a cup of hot tea as a stimulant and restorative, when taken about midway between lunch and dinner, and *without* solid food, it may, on the other hand, be a fruitful cause of dyspepsia when accompanied at that time *with* solid food. It is also a curious fact that many persons with whom tea, under ordinary circumstances, will agree exceedingly well, will become the subjects of a tea dyspepsia if they drink this beverage at a time when they may be suffering from mental worry or emotional disturbance. Moreover, it is a well recognised fact that persons who are prone to nervous excitement of the circulation and palpitations of the heart, have these symptoms greatly aggravated if they persist in the use of tea or coffee as beverages. The excessive consumption of tea amongst the women of the poorer classes is the cause of much of the so called "heart complaints" among them; the food of these poor women consists largely of starchy substances (bread and butter chiefly) together with tea, *i.e.*, a food necessary which is one of the greatest of all retarders of the digestion of starchy food. The effect o

coffee as a retarder of stomach digestion would be probably more felt than it is were it not so constantly the practice to take it only in small quantities after a very large meal; it is then mixed with an immense bulk of food, and its relative percentage proportion of food insignificant. To the strong and vigorous the slightly retarding influence on digestion may be, as Sir W. Roberts suggests, not altogether a disadvantage, but after a spare meal, and in persons of feeble digestive power, the cup of black coffee would probably exercise a retarding effect on digestion, which might prove harmful. It is also worthy of remark that in the great coffee-drinking countries this beverage is made not nearly so strong as with us. At home, and in India also, I am afraid, *good* always means *strong* coffee, often very strong coffee; but on the Continent they possess the faculty of making *good* coffee which is not necessarily very *strong* coffee, and which, therefore, as a beverage, is less likely to do harm. The great difference between English and Continental coffee is that the former make their coffee from a mixture of chicory and coffee dust, and consequently have to use large quantities to obtain any flavour at all from the decoction. On the Continent they either roast it themselves or buy freshly roasted coffee and grind it at home. This we do out here also, *why* don't we get good coffee? Of the three drinks therefore, cocoa may be ranked first, as being least harmful to digestion. Taken with proper precautions, however, tea and coffee may be safely partaken of, in most cases with much benefit to the drinkers.
—*Madras Times.* CREIGHTON.

[A person's own instinct and experience are the best guides; and both are in favour of tea with milk and sugar.—ED. *T. A.*]

THE CULTURE OF RHAMIE.

Many people know the value of rhamie, its growth and preparation, but for the edification of those who do not, we will explain. Rhamie is a native of the Sunda Islands, but has long been introduced in Upper Burmah from China. This fibrous plant was originally confounded with China grass; however, it is now recognised that the two are essentially distinct, China grass being classified as *Bochmeria nivea*, whilst rhamie is furnished by the *Boehmeria utilis*. Both plants are of the nettle order and of considerable size, especially when they are improved by culture; but their leaves differ in colour, the former having a silver-white top, whilst the latter has greyish-green leaves. The fibre obtained from each plant is very similar in many respects, but that obtained from rhamie is far superior, being very soft and beautifully white, and does not break so easily when subjected to, tension. As regards cultivation, rhamie presents many advantages. It is a hardy plant, very vigorous and healthy and when once planted, it will continue to flourish about twenty years with regularity, provided it receives a certain amount of constant care. It multiplies easily and rapidly, and can be planted at small expense. Its cultivation is simple and its crops very abundant; in dry climates three to four harvests a year can be reckoned on. With regard to its value rhamie certainly produces a better fibre than cotton or linen and one as glossy as silk.

Different fibres being of differedt thickness their relative value can best be judged by reducing them to a common denomination. Taking rhamie as the unit, we reach the following results:—

Thickness.	Tensile.	Strength.	Elasticity.	Twisting Strain.
Rhamie ..	1 ..	1 ..	1 ..	1
Flax ..	½ ..	¼ ..	⅔ ..	4/5
Hemp ..	⅔ ..	¼ ..	¾ ..	19/26
Cotton ..	½ ..	⅓ ..	1 ..	4
Silk ..	¼ ..	¼ ..	4 ..	6

It will be thus seen that rhamie fibre is longer and more uniform than all the others, except silk. It is more solid, has more tensile strength, more resistance to twisting strain and more elasticity than linen or hemp, or even cotton, though the latter can be more readily twisted. Inferior only to silk. Under the preparation to which rhamie is submitted, it receives the appearance of cotton wool or even silk thread. From its single or mixed fibres may be woven all kinds of stuffs from the finest to the coarsest. Mixed with wool, or with wool and silk, rhamie can be made into magnificent furnishing materials. Imitations of satins, simmings, and table linen can also be made from it.

I may add that all the imitation silks worn by the Karens and Thans are the produce of this fibrous plant. Another unheard-of use of this valuable fibre is the manufacture of steam pipes, which we hear is a remarkable Yankee invention, and of which we shall hear something more in this country before long.

The soil suitable for rhamie is a light one, such as chalk, sandy or alluvial; spots which can be easily irrigated. As to climate, the warmer the better. Having regard to all these different conditions, it is without doubt that this plant can be cultivated with advantage in parts of India and Ceylon.

Reproduction can be obtained by sowing, but the method most commonly adopted is to plant pieces of roots or thick slips. The nurseries should be made in a light soil similar to beds of a kitchen garden.

As earthing up has to be done later, it is well to render it more easy by preparing the grounds in furrows. The plants are placed a few inches apart till they are strong enough to be transplanted.

During the whole time of preparation, the nursery soil must be well manured and kept free from noxious weeds. It being a strong plant which will occupy the soil for many years, plantations may be made. In that case the soil must be prepared to a depth of 2½ to 3 feet, which can be done by ploughing, the best results being obtained by the most carefully prepared ground.

When the plants grow to the height of 2½ feet, the tops are then cut, but the fibre in this instance is very inferior; second weeding is then necessary: then new spouts are allowed to spring up. When the lower parts of these shoots turn brown, a new cutting is proceeded with. This time the fibre is of good quality and the plantation well established. To preserve it, it is only necessary to weed between each cutting down. The ground should be well manured, as rhamie, like all other plants, is fruitful in proportion to the manure with which it is suppl ed. For this purpose horse or cow's dung is found very suitable.

The crop once gathered has to be prepared. It is an established fact that rhamie cannot be retted the fermentation set up by that process would destroy the qualities of the fibre. Separation by hand is a very long operation, and cannot be employed unless labour can be obtained very cheaply; it is therefore mainly effected by machinery. Many have been tried but their defects, such as breaking or deflecting the fibre, have caused them to be abandoned.

The fibre once obtained, it has to be washed with gum and bleached; then it is ready for combing, carding and other texile purposes.

It has been estimated that a plantation of five acres will nourish 80,000 plants and the produce of three cuttings in one year will give 159,000 lb. of stems, which will yield 3,200 lb. of fibre, the market value of which is three annas per pound.

Many people are experimenting with various processes was for extracting the fibre cheaply and quickly. Up to the present no results are quite satisfactory. However, it would be well for capitalists and manufacturers in India to try experiments in this direction, as it is one of the most important industrial problems of the day.—*Indian Textile Journal.*

NOTES ON PRODUCE AND FINANCE.

THE INDIAN TEA DISTRICTS' ASSOCIATION AND NEW MARKETS.—At the meeting of the Indian Tea Districts' Association, held on Tuesday, the question of new markets was discussed and the necessity for active

co-operation between India and London urged. We are glad to find that preparations are on foot for obtaining the sinews of war, and that there are signs of activity in the right direction. On the subject of new markets, Messrs. George White and Co., in their annual report, have the following:—As still larger areas will be available, both in India and Ceylon, for the production of tea, it is evident that fresh outlets, outside the United Kingdom, must be sought for and exports encouraged. With this object in view, arrangements are already being made to bring British-grown tea before the world at the Chicago Exhibition next year. Steps have been taken to solicit a grant from the Indian Government, and to direct the attention of those interested in the cultivation of tea there to the importance of being adequately represented. Hitherto the expenses attending exhibitions have fallen principally on London agents and brokers, while comparatively very little has been raised for the purpose in India. It is therefore, now proposed that a small sum per acre shall be contributed by each estate in furtherance of the above project, which appears a fair method of raising funds absolutely necessary, not only to enable India to maintain her position, won after many years' struggle, but to open out other channels for her increased output. We also learn that considerable sums have been promised by the Government and planters of Ceylon. It is hoped that altogether about R2,00,000 will soon be forthcoming to forward the industries of the island on that occasion. The interests of these two countries being to such a great extent identical, it seems of vital importance that they should, if possible, adopt a common policy in opening up new markets for their produce. Increased shipments have been made both from Calcutta and Colombo to other countries besides Great Britain, the figures for the past two years, from May 1st to Feb. 5th, being:—India: 1891-2, Australasia, 4,288,000 lb.; Bombay (chiefly for Persian Gulf) 3,058,000 lb.; Sundry Ports, 566,000 lb.; America 180,000 lb.; total, 8,902,000 lb. India: 1890-1, Australasia, 4,545,000 lb.; Bombay (chiefly for Persian Gulf) 742,000 lb.; Sundry Ports, 213,000lb.; America, 118,000lb; total 5.618,000 lb. Ceylon: 1891-2, Australasia, 2,310,000lb.; Bombay (chiefly for Persian Gulf. 460,000lb.; Sundry Ports, 508,000lb.; America, 144,000lb.; total, 3,422,000lb. Ceylon; 1890-1, Australasia, 2,010,000lb.; Bombay (chiefly for Persian Gulf), 107,000lb. Sundry Ports, 182,000 lb.; America, 142,000lb.; total, 2,441,000lb. The low prices current here during the past eight months have, no doubt, been beneficial in developing the export from London to the continent of Europe, as for the first two months of this year India totalled 737,000lb and Ceylon 414,000lb against 423,000lb. and 161,000lb. respectively for the same period in 1891.

TEA A LA CHAMBARD.—One of the difficulties met with in opening up new markets for tea on the Continent arises from the fact that in France and elsewhere the idea prevails that tea, as the British drink it, is a medicine, and and a very strong one to be carefully avoided when the consumer is in health. This notion, which lingers now among the French, is likely to be strengthened by the advertisement of a certain M. Chambard, who advertise "Chambard's Aperient, Purifying, Diuretic Tea," which we are told, is "solely composed of the leaves of certain plants and flowers and is a very reliable purgative." We fear that this tea of M. Chambard's may be confused in the French mind with tea from India and Ceylon, which is now procurable in Paris, but possesses no medicinal qualities of the kind mentioned by M. Chambard

INSURANCE OFFICES AND THEIR TARIFF IN CEYLON.—We publish some correspondence on this subject between Mr. Martin Leake, Secretary of the Ceylon Association in London, and the Secretary of the Fire Offices Committee. As the latter shifts the responsibility on to other shoulders, the owners of which also decline to accept the burden, the matter is left precisely where it was.

ANALYSIS OF CHINA TEA.—The China tea which finds its way over here is not always as pure as it should be, as will be seen from a report by Mr. W. C. Samuel, tea analyst to the Custom House, to the Commissioners of Customs on examinations of tea under Section 30 of the Sale of Food and Drugs Act, 1875. He states:—"In submitting the annual return of tea analysed by this department under the Sale of Food and Drugs Act, 1875, for the year ended Dec. 31st, 1890, I beg to report that the total number of samples analysed during the year was 437, viz., 84 green faced tea, 10 green not-faced tea, 96 green caper tea, 154 black congou tea, 64 black dust tea and 29 black siftings. Of these 384 samples were found on analysis to be satisfactory, and the importations represented by them were delivered on the certificate of the analyst. On the remaining 53 samples, representing 516 packages of doubtful and unsound teas, the results of analysis were reported to the Board with the following results: 1 sample, representing 5 packages, was admitted to home consumption; 41 samples, representing 301 packages, were restricted to exportation owing to the presence of exhausted leaves, damage, or other causes within the Act; 8 samples, representing 139 packages, were refused admission, as unfit for human food; 3 samples, representing 71 packages, were on analysis found to be teas that had previously been imported, and ordered to be exported. They were this year re-imported and relabelled as new season's teas. This fact, with the analysis, was reported to the Board, and the whole of the parcel of 71 packages were ordered to be seized under the Merchandise Marks Act."

LAST WEEK'S TEA MARKET.—The Indian tea market, says the *Produce Markets' Review*, has developed more activity, and the demand generally has shown an improvement. This, coupled with moderate supplies, has made prices somewhat firmer for the more desirable common grades, but it will require a much brisker demand before any material reaction from the present low prices take place. Judging from the report of recent sales held in Calcutta, the bulk of the tea consisted of the lowest sorts, which means that a considerable proportion of the coming imports will be of these descriptions. On the other hand, the values of the medium and finer sorts are still moving upward, and, judging from the manner in which these teas have been bid for, buyers appear to hold but moderate stocks. This being the case, a strong market may be anticipated for some time to come, particularly as many of the owners of gardens from which the better class teas are produced have thus early disposed of the whole of the past season's growth. The quantity of Ceylon offered continues extremely small, and, although no very considerable trade has been done, the feeling at public sale has been in the direction of firmer prices. Very little improvement has been apparent in quality, but the season is approaching when better teas are to be expected. The arrivals for the week were:—The "Legislator" and "Bengal," from Calcutta and Colombo; "Ningchow," "Jelunga," and "Massilia," from Colombo.

A NEW COFFEE COMPANY.—Under the title of the Coorg Coffee Estate Company, Limited, a new company has been registered, with a capital of £200,000, in £10 shares. Object, to acquire lands and buildings, and to develop and turn to account the same by planting, clearing, draining, and building thereon; generally to carry on business as planters, growers of all kinds of produce, merchants, importers, and exporters in all their respective branches. The first subscribers, who take one share each, are:—N. Brown, 7, Princess Road, Brownswood Park, South Hornsey, N.; W. G. Smith, 87, Haldon Road, S. W.; T. Hoare, 26, Hayden Park Villas, Wimbledon; R. Moffat, 14, Grange Road, Canonbury, N.; T. R. Dick, 25, Regina Road, Tollington Park; R. A. McClare, 7, Nelson Road, Hornsey; and D. R. Slimen, 43, Alkham Road, Stoke Newington, N. Registered without special articles of Association.

COFFEE IN COLOMBIA.—The State of Colombia is going in heavily for coffee cultivation. In the single district of Los Santos 120,000 coffee trees have been planted this season, and the plantations are in a most promising condition. Some idea of the

steady growth of this branch of Colombian agriculture may be gathered from the fact that the exports of coffee from the Republic, which in 1885 amounted to only £31,583 had reached in 1890 £116,259. The report states that there is an abundance of fertile land suitable for coffee-growing in the district.

LADY TEA MERCHANTS.—Another rival to the regular tea-dealer has arisen. The lady as tea-merchant is quite the latest development. A Ladies' Own Tea Association have secured premises in Bond-street, and there independently import, blend, and sell their tea. Their ambition is to have "lady agents" in every town in the kingdom.—*H. and C. Mail*, March 25.

THE OUTLOOK FOR INDIAN PLANTERS.

To the Editor of the Home and Colonial Mail.

Sir,—As your readers would doubtless notice from the tenour of a letter which I sent to you last week, it appears to me that very much misapprehensions exists in regard to the relative economic capabilities of India and Ceylon respectively to produce tea at a profit.

I accordingly venture to make one or two remarks on certain points referred to by your correspondent "Scrutator," in last week's issue.

"Scrutator," of course, writes as a Ceylon planter, and I confess frankly to writing as an Indian one. He points out that a great and serious difference between the two countries lies in their cost of production, and then proceeds to assert that Ceylon is capable of laying down her teas several pence per pound cheaper than India; and he adduces, in proof of this, first, an *assertion* that Ceylon teas are laid down at a cost of 6½d a lb. and second, *statistics*, shown in black and white, in regard to the cost of the Indian, companies' production from Mr. Earnshaw's well-known statement for the season 1890. Might we ask for a similar statement, worked out on the basis of publicly published reports for a large number of Ceylon companies? No doubt the large and most favourably situated Ceylon companies can lay down at a low cost, despite the comparatively small acreage product and the more expensive fuel and wages of that island; but what about the thousand and one smaller and less thoroughly organised estates?

In regard to Mr. Earnshaw's statement, I would make the following remarks. The greater number of the London companies there represented are in the province of Assam proper, whence come the strong and pungent teas which realise in the London market pence per pound more than either Ceylon teas generally or than the *general* average of Indian teas. Under this category come eighteen out of the twenty-seven companies. Many of these gardens also are old concerns, which have not yet freed themselves from the old traditions of expensive working, although they are beginning to bestir themselves in that respect.

Even as regards modernly organised Assam companies, despite the high cost of importing fresh labour, there is no doubt that, should they be driven to extremities, they could immensely reduce their cost of production, many of them having fortified themselves in good times by going in for heavy "betterments," which have been paid for out of revenue.

The enormous areas now under tea in the districts of Cachar, Sylhet, and Western Dooars are only represented in Mr. Earnshaw's list by five companies—chiefly small ones—the great bulk of the properties in these districts being either Calcutta companies or private ownerships, and the capabilities of cheapness in their working having practically no limit if competition should place them on their mettle.

Another point is that despite the comparatively high cost of production of these companies they showed on average about 2¾d. per pound profit; and further it should be pointed out that the year 1890 was the year when the working cost was largely enhanced by the rise in exchange.

The only gardens, except a few moribund and worked out gardens, chiefly in Cachar, which may have difficulty in reducing their cost are the gardens in the Darjeeling district where yield is small, but this is largely compensated for by the fact of their wonderful capabilites of producing a tea of exceptional merits, for which, in fairly favourable seasons, they can always command a high range of prices.

Your correspondent, however, will not have done harm if, by his letter, he may have aroused the Indian planters to the great importance of strict economy, consistent with efficiency.

As to your correspondent's suggestions for a remedy to the existing state of things, I cordially agree with him in the importance of, *first*, effecting economy so long as this is not done to the detriment of cultivation; *secondly*, organising for the opening out of fresh markets; *thirdly*, of keeping up the standard of quality so far as can be without too much enhancing the cost; but in regard to his *fourth* recommendation—"to absolutely desist from planting more land with tea" I would merely remark that, however this might be desired, it is that which there is not the least possibility of succeeding in doing, for the reason that by extension alone can the present existing companies provide against possible deterioration and by so doing alone can they expect to further reduce the poundage cost of their crop.—Yours, &c. OBSERVER.
—*H. and C. Mail*, March 25.

TEA IN DARJEELING, THE DOOARS AND THE TERAI is thus noticed by the *Darjeeling Standard*:—

The tea season may be said to have begun, plucking leaf having been commenced on some estates. The season is considered an early one, especially for gardens favourably situated as regards moisture; rain is much needed however, as the showers which fell three weeks ago were not sufficient to reach further than three or four inches below the surface of the ground, which has now become as dry as before. Although last season proved to be such a trying one for the tea industry, owing to the extremely low prices ruling for tea, yet there are very few of the gardens in this district which show a balance on the wrong side of the books, while most concerns have made a satisfactory profit. The published accounts of public companies in the district almost all show a dividend ranging from 3 per cent to 15 per cent; a result which must be gratifying to holders of tea scrip in these bad times. The accounts from the Dooars district are still more gratifying, as much as 40 per cent on the capital having been made in more than one instance; those from the Terai, however, are somewhat doleful, for although many of the best concerns have paid well, yet a large number have suffered loss; this is not to be wondered at in the face of the exceptional difficulties of the season. The death rate is said to have been exceedingly high, not only from cholera, but from influenza and fever of a specially malignant type, which carried off a much larger number than the former disease. The result of this was of course a great scarcity of labour, and consequently some managers had to temporarily abandon hundreds of acres of tea, whilst others resorted to special money inducements to obtain labour, a proceeding very like that described as "burning the candle at both ends." Such an unhealthy season for coolies has never been known before, and it is hoped will never occur again. The present prospects of cooly labour are unusually bright, food is scarce and dear in Nepaul, and coolies are flocking in large numbers into British territory, where the resources are greater and a local scarcity much more easily remedied. Tea prophets tell us that the London market is not likely to open with a better tone than last year, the imports from Ceylon have already assumed gigantic proportions, and it has become quite a regular part of Tea Brokers' reports that there is a superabundance of teas of a "common" description, whilst good parcels are still well competed for. Our friends the planters will no doubt find it their best policy to go in more than ever for the fine flavoury teas for which this district is famous.

WILSON, SMITHETT & CO.'S CEYLON TEA MEMORANDA FOR 1891.

LONDON, March, 1892.

The Ceylon Tea market during the year 1891 has pursued a remarkably uneventful course. During the first two or three months the strong statistical position of the article as a whole gave rise to considerable speculation in the "future" market, and caused a quite disproportionate advance in the quotations for low grade leaf tea, but the unexpectedly heavy arrivals from Ceylon, at this juncture, consequent upon an abnormally wet spring, speedily dispelled any fears as to possible short supply, and a reaction followed, from which the market never thoroughly recovered during the remaining portion of the year.

The weight of Ceylon tea offered in auction between January 1st and December 31st, 1891, amounted to 60,000,000 lb. or 50 per cent in excess of the supply in the previous year, and realised an average price of about 10½d per lb. against 10⅝d in 1890 and 1889.

On the opening after the Christmas holidays of 1890 a strong demand set in, establishing an advance of ½d to 1d per lb. on useful medium Souchongs and Pekoes; prices for all desirable leaf teas up to 1s per lb., also gradually hardened throughout January and February, but during this time ordinary Broken Pekoes experienced a flat and irregular market. At the close of February the artificial character of the "boom" in teas for "price" became more widely recognised; the high rates established had checked business in the country, and dealers being well stocked, this class of tea commenced at once to decline in value. Towards the end of March a slight recovery took place in teas up to 10d per lb., but above this price buyers acted cautiously. After Easter there was again a slight upward movement which was maintained throughout April until Whitsuntide, when the large supply coming forward had a very depressing effect upon the market. In June the demand tended more strongly towards really good liquoring teas, which commanded much more attention than they had received throughout the spring; common teas, on the other hand, were neglected. At the close of July the market had relapsed into extreme dullness and at this period the average price had receded from 1s in January-February to 8¾d per lb., or as low as at the most depressed period in 1889, when, however, lower rates for common grades caused the reduced average, whereas now the fall extended over a much wider area. After the August holiday a good demand for really good to fine tea sprang up which lasted throughout the autumn, values gradually hardening, and at the end of October the average price had advanced to 10d per lb. During November the market showed less buoyancy but a better tone became apparent next month, and the year closed with firm rates and an average of 10½d per lb.

The list of estates, which we have tabulated this year, gives the results on 562 gardens, which have* sold over 20,000 lb. of tea during 1891, on the London market, under their own marks. On comparing these results with last year's it will be noticed that in the great majority of instances the largely increased yields have been disposed of at a marked reduction in the prices realised; this decline in value was mainly confined to the large bulk of ordinary quality tea, the range of prices being well maintained in those gardens favoured by elevation and climatic advantages. Portswood, which has increased its output by about 80 per cent, shows an average of 1s 4½d per lb. for the year against 1s 4d in 1890, this being again the highest on the list. A rise of 1d per lb. in the average accompanied by a very substantial increase in the yields of Chapelton, Glendevon, Norwood, Morar, and Goatfell must be considered highly satisfactory, especially when the generally depressed state of the market in 1891 is taken into consideration, and serves to emphasize the fact that really good tea will almost always command the special attention of the trade. On numerous other estates almost equally satisfactory results are shewn, as reference to the names of Bogawantalawa, Henfold, Glenalpin, Spring Valley, Invery, Glenugie, Elbedde, Gorthie, Mount Vernon, Ouvah Kellie, Frotoft, &c., will testify. Of the different districts, Bogawantalawa, the neighbourhood of Nuwara Eliya, and Dimbula again head the list; the two former suffering a diminution of ½d and the latter 1d per lb. in the average price obtained: the greatest reduction is shewn in the Kelani Valley, where the average was 9d against 10¾d in 1890.

The exports during 1891 shew very satisfactory extension, the actual figures being 2,100,000 lb., against 1,432,000 lb. in 1890. The Continental demand was considerably interfered with by the distress in Russia, occasioned by the failure of cereal and other crops, which gave rise to restrictions and prohibitions in exports, and consequently depreciated the rouble; despite this a fair trade has passed in Ceylon tea with Russia, and there is ample evidence that in that country particularly it is coming more and more into favour.

The trade with America has also developed considerably during the past season, and much pains are being taken to push Ceylon Tea at the World's Fair to be held at Chicago next year; evidence is multiplying on all sides that this branch of the trade will yet shew a great expansion, and the despatch of a Special Commissioner from Ceylon should have very substantial results.

During the past year, which has been decidedly one of over-production, Ceylon has still further outdistanced its rivals in the race for popular favour. Up till last season China had the undoubted advantage, in that it practically commanded the market for tea for price, common Congou forming the basis of the blenders' operations. But now that the relative positions of China and East Indian growths have become reversed, Ceylon has demonstrated its ability to undersell its old rival, and to give a much better article at the normal price of "common Congou." It would also seem that the decline of the China trade is operating entirely to the benefit of Ceylon. The bulk of Indian tea, being much stronger and more rasping than Ceylon, is in great measure dependent on China for blending purposes to render it more acceptable to the palate, whereas Ceylon needs none of this toning down to make it a pleasant and wholesome beverage. However this may be, a glance at the Board of Trade returns for the year will shew that whereas the Home Consumption of China tea during 1891 fell off to the extent of over 5,000,000 lb., and Indian to the extent of 3,000,000 lb., that of Ceylon has increased to 16,700,000 lb. Reference has also been made to the over-production in 1891, and it may be advisable to devote some attention to the prospects of the future. The extraordinarily wet spring in Ceylon last year was productive of heavy flushing, and the yield on a great number of estates consequently almost doubled the estimates made. It was this unexpectedly heavy supply that upset the calculations of speculators on the "future" market and had such a depressing effect on the trade throughout the remainder of the year. The low rates afterwards established had the highly desirable effect of sending Ceylon tea rapidly into consumption, and it is very satisfactory to note that practically all the Ceylon tea imported since June last up to date has been delivered from the warehouses.

At the close of the year the apprehensions of the trade as to the supply of the forthcoming season were not allayed by the sanguine estimates formed of the probable yield of 1892, and the report was widely circulated that we should have between 80,000,000 and 90,000,000 lb. from the island, some going so far as to give a still more extravagant amount as our probable supply. Maturer reflection has considerably pared down this weighty total, and the most reliable authorities do not now estimate the exports for 1892 over 75,000,000 lb., and several causes are likely to still further diminish this total. Firstly, the heavy cold rains in January considerably reduced the amount we might reasonably have expected during the first two months of the year; secondly after the heavy flushing of last year some reaction will probably set in, the bushes being scarcely likely to prove so prolific in the coming season; and thirdly, the low rates current for common grades have induced many growers to adopt, at any

* Each of which has.—ED. *T. A.*

rate for a time, finer system of plucking, al which will probably limit the output, and with only about 70,000,000 lb. available for the U. K., our market should not be too heavily supplied.

Summary of Ceylon tea sold at public auction in London between January 1st and December 31st, 1891, estimated quantity in lbs. and average prices realised:—

Average Price for the year 10½d per lb., against 10¾d in 1890, and 10¾d in 1889.

The initial letters following the estate names refer to the mean elevation, as follows:—

L (low) sea level up to 1,000 feet; HM (high medium) 2,500 to 3,500 feet; HH (highest) above 5,000 feet; M (medium) 1,000 to 2,500 feet; H (high) 3,500 to 5,000 ft.

ESTATE AVERAGES.
Over 500,000 lb.

		About lb.	Av. price per lb. 1891 s	d	1890 s	d
Wallaha (CTPCo.)	HM	647,000	0	11	1	0¾
KAW	HM	804,500	0	9½	0	10¾
Mariawatte (CTPCo.)	M	665,000	0	8¾	0	9¾
250,000, to 500,000 lb.						
Chapelton	H	289,500	1	1½	1	0½
Kirkoswald	H	250,000	1	0	1	1½
Kandapolla	HH	279,500	0	11¾	1	1
Diyagama	H	393,500	0	11½	1	1½
Bambrakelly & Dell	H	290,000	0	11½	1	0¾
Tillyrie (CTPCo.)	H	356,000	0	11¼	1	0½
Hauteville	H	268,000	0	11¼	0	11¾
Glen Alpin	H	266,500	0	11¼	0	10¾
Mattakelly	H	301,500	0	10¾	0	11¼
East Holyrood	H	292,500	0	10¾	0	11¼
Campion	H	256.000	0	10½	0	11¾
Vellai-oya (EP&ECo.)	H	387,500	0	10	0	11¼
Great Western	H	280,500	0	10	0	10¾
Moray	H	267,500	0	10	0	11¾
Galaha	M	446,000	0	9¾	0	11¾
Gallebodde	M	298,500	0	9¾	0	10¾
Imboolpittia	M	335,000	0	9½	0	10½
Gallamudena	M	308,500	0	9½	0	10½
Strathdon (SCTCo.)	HM	283,500	0	9½	0	11½
New Peradeniya (CLPCo.)	M	250,500	0	9¼	0	10¼
Hatale	H	259,500	0	8¾	0	10¼
Sunnycroft	L	277,500	0	8½	0	9½
Degalessa	L	259,000	0	8½	0	10¼
Lebanon Group	M	340,500	0	7¼	0	9¼
100,000 to 250,000 lb.						
Mooloya	H	118,000	1	2¾	1	2½
Glendevon (OBEC)	H	168,000	1	1¾	1	0¼
Goatfell	H	134,500	1	1¾	1	0¾
Henfold	H	186,000	1	1½	1	1
Kotiyagalla	H	143,000	1	1¼	1	3
Bogawantalawa	H	164,000	1	0¾	1	0
Norwood (EP&Co.)	H	123,000	1	0½	0	11½
Waverley	H	200,500	1	0¼	1	1
Invery (SCTCo.)	H	176,500	1	0¼	1	0½
North Cove	H	122,000	1	0	1	0¾
Kew	H	106,000	1	0	1	0¾
Drayton	H	218,500	0	11¾	1	1½
Glenugie	H	215.000	0	11¾	1	0
Dunsinane	H	170,000	0	11¾	0	11¼
St. John del Rey	H	112,500	0	11¾	1	0¾
Scrubs (CTPCo.)	HH	102.000	0	11¾	1	0
Glassaugh	HH	100,000	0	11¾	0	11½
Elbedde	H	147,000	0	11½		11¾
Ythanside	H	162,500	0	11½	1	0¼
Mount Vernon	H	224,000	0	11¼	0	11¼
Gikiyanakanda	L	129,000	0	11¼	0	11
Eltofts	H	115,000	0	11¼	1	0¾
Tangakelly	H	100,000	0	11¼	1	0½
Spring Valley	H	227,500	0	11	0	11¼
Gorthie	H	165,000	0	11	0	11½
Labukelle (EP&ECo.)	H	130,500	0	11	1	3¼
Ottery	HM	109,000	0	11	0	10½
Fetteresso (CLPCo)	HH	102,000	0	11	0	11
Rangbodde	H	171,500	0	10¾	0	11½
Abbotsford	HH	154,000	0	10¾	0	10¼
Dimbula	H	149,500	0	10¾	0	10½
Rangalla	HM	103,000	0	10¾	0	11½
Blair Athol	H	100,000	0	10¾	0	10¾
Battalgalla	H	172,000	0	10½	0	10½
Culloden	L	159,000	0	10½	0	1
Adam's Peak	H	157,000	0	10½	0	11
Kowlahena	H	156,000	0	10½	1	00
Waltrim	H	155,000	0	10¼	0	11¼
Bearwell	H	143,000	0	10½	0	11½
Talawakelle	H	133,500	0	10½	0	11
Hindagalla	M	121,000	0	10½	0	10¼
Rothschild (EP&ECo.)	H	119,000	0	10½	1	00½
Mahanilu	H	116,000	0	10½	0	11¾
Glentilt	H	115,500	0	10½	0	11¼
100,000 to 250,000 lbs.						
Lameliere	H	107,000	0	10½	0	10¾
Rookwood	HH	202,000	0	10½	0	11½
Sogama (EP&ECo.)	HM	190,000	0	10¼	0	11
Wattegodde	H	165,500	0	10¼	0	11¾
Venture	H	162,500	0	10¼	0	11¾
Annfield	H	161,500	0	10¼	0	11¼
Calsay	H	161,000	0	10¼	0	11
Fordyce (LPCo.)	H	158,0000	0	10¼	0	11½
Albion	H	144,500	0	10¼	0	11½
Kuda-oya (OBECo.)	H	131,500	0	10¼	0	10½
Lawrence	H	131,500	0	10¼	0	11¼
New Peacock	H	112,000	0	10¼	0	10¾
Dessford	H	106,500	0	10¼	0	10½
St. Clair	H	235,000	0	10	1	0
Wangie-oya	H	224,000	0	10	0	11¼
Hope (EP&ECo.)	H	210,000	0	10	1	0
Beaumont	M	190,500	0	10	0	11¼
Mipitiakande	L	186,500	0	10	0	11
Darrawella (OBECo.)	H	184,000	0	10	0	10
Osborne	H	146,000	0	10	0	10½
Ragalla	H	143,000	0	10	1	0
Peradeniya	H	118,500	0	10	0	10½
Hornsey	H	102,000	0	10	0	11¼
Ingestre	H	100,000	0	10	0	11¼
Queensberry	H	100,000	0	10	0	10¼
Stonycliff	H	100,000	0	10	0	10¾
Altow (CTPCo.)	H	245.000	0	9¾	0	10¼
Kellie	M	207,000	0	9¾	0	10½
Elkadua	HM	202,500	0	9¾	0	10½
Le Vallon	HM	201,500	0	9¾	0	11
IMP	H	191,500	0	9¾	0	11¼
Oononagalla	H	182,000	0	9¾	0	10½
Craigie Lea (OBEC)	H	180,500	0	9¾	0	11
Windsor Forest	H	170,500	0	9¾	0	11
Tyspany	H	151,500	0	9¾	0	10
Penrith	L	136,000	0	9¾	0	10
Dikoya	H	130,500	0	9¾	0	10¼
Bogahawatte	H	127,000	0	9¾	0	10¾
Dalleagles	M	126,500	0	9¾	0	10¼
Mahacoodagalla	H	120,500	0	9¾	1	0
Uda Radella		116,500	0	9¾	...	
Lynsted	H	116,000	0	9¾	0	11½
Nilloomally (OBEC)	H	115,000	0	9¾	0	10¾
Condegalla (EP&EC)	H	107,000	0	9¾	1	1½
Indurana	L	102,500	0	9¾	0	9½
Happugahalande	M	102,000	0	9¾	0	9¾
Dunedin (CTPCo.)	L	238,500	0	9½	0	10¼
Blackwater	M	233,000	0	9½	0	9½
Meddecombara (EP&ECo.)	H	231,500	0	9½	0	10½
Barnagalla	M	219,500	0	9½	0	10½
Elston	L	194,500	0	9½	0	10¼
Laxapana	H	137,500	0	9½	0	10½
Castlemilk	M	136,500	0	9½	0	10½
Wattakelly	H	116,000	0	9½	0	10¼
New Valley	H	106,000	0	9½	0	11½
Gallaheria	H	103,000	0	9½	0	10
Westhall	HM	216,500	0	9¼	0	10
Nilambe	HM	210,000	0	9¼	0	10½
Pen-y-lan	M	203,500	0	9¼	0	10¼
Doteloya	M	192,000	0	9¼	0	10¼
Andangodde (CL&PCo)	M	118,000	0	9¼	0	10
Kandaloya	M	158,000	0	9¼	0	9
Hardenhuish and Lammermoor	HM	146,500	0	9¼	0	10½
Glencairn	H	139,000	0	9¼	0	10¼
Ambetenne	L	127,500	0	9¼	0	9½
Minna	H	127,500	0	9¼	0	10½
Arapolakande (EP&ECo.)	L	119,000	0	9¼	0	10
Glassel	L	117,500	0	9¼	0	10
Kabragalla (M)	H	113,500	0	9¼	0	10½

Avisawella	L	104,500	0	9½	0	10½
Hillside	M	103,500	0	0¼	0	10
Raxawa	HM	102,500	0	9¼	0	10½
Nayabedde	H	100,000	0	9¼	0	11¾
Hunasgeria	H	221,500	0	9	0	9½
Katooloya	H	209,500	0	9	0	10
Goorookoya	M	154.500	0	9	0	10½
Goomera	H	151,000	0	9	0	10
Nayapane	HM	138,500	0	9	0	10½
Delta	H	132,000	0	9	0	9½
Poengalla	HM	122,500	0	9	0	11½
Lauderdale	HM	110,500	0	9	0	10½
Digalla	L	110,500	0	9	0	9½
Glenalla	L	109,000	0	9	0	9¼
Torrington	H	107,500	0	9	0	10½
Mottingham	H	100,000	0	9	0	10
Luccombe	HM	154,000	0	8¾	0	8½
Hoonoocotua	H	153,500	0	8¾	0	10½
Hunugalla	H	146,500	0	8¾	0	10½
Binoya	HM	146,000	0	8¾	0	9¼
Hayes	M	140,000	0	8¾	0	10¼
Yatideria	L	134,500	0	8¾	0	9¼
Havilland (OBECo.)	M	134,000	0	8¾	0	10½
Attabage	M	126,000	0	8¾	0	0
Glendon	L	117,000	0	8¾	0	0½
Dewalakande (CTPCo.)	L	213,500	0	8½	0	9¾
Pambagama	L	204,000	0	8½	0	9¾
Dambulagalla	H	131,000	0	8½	0	10
Aberdeen	HM	119,500	0	8¾	0	9
SBR		165,500	0	8	..	
Engurakande		122,500	0	7¾	..	
50,000 to 100,000 lbs.						
Portswood	HH	79,500	1	4½	1	4
Ouvahkellie	H	53,500	1	2	1	1½
Frotoft	H	64,500	1	1¾	1	1¼
Alnwick	H	97,000	1	0¾	1	1½
Hethersett	H	83,000	1	0¾	1	1¼
Melfort	H	88,500	1	0½	1	0¼
Edinburgh	H	71,000	1	0½	1	0¾
Morar	H	57,500	1	0½	0	11½
Wootton	H	72,000	1	0¼	1	1
Macduff	H	59,500	1	0	1	0¼
Loinorn	H	55,500	1	0	1	1¼
Portree	H	52,500	1	0	0	11¼
Sheen	H	91,000	0	11¾	1	2
Lippakella	H	90,500	0	11¾	0	11
Geddes	H	82,500	0	11¾	0	11
Glasgow	H	60,000	0	11¾	1	0¼
Vallombrosa	H	55,500	0	11¾	9	11¾
Rahatunagoda	H	53,000	0	11¾	0	11¾
Pundaloya	H	83,000	0	11½	1	1
Charley Valley	H	78,500	0	11½	1	1¾
New Forest	H	69,000	0	11½	0	11½
Rickarton (CL&PCo.)	HM	63,500	0	11¼	0	10½
Castlereagh	H	89,000	0	11¼	0	10½
Loolecondera (O B E Co.)	H	87,500	0	11¼	0	11½
Erlsmere	H	79,500	0	11¼	1	0½
Derryclare	H	62,500	0	11¼		—
Mahagastotte	H	61,000	0	11¼	1	0¾
Middleton	H	55,500	0	11¼	1	
Somerest	H	86,500	0	11	0	10¾
Erroll	H	86,000	0	11	1	0¾
Uva	H	83,000	0	11	0	10¾
Portmore	H	77,500	0	11	0	10
Brunswick	H	71,500	0	11	0	11¾
Cocogalla	HM	61,000	0	11		..
Aldie and Dunlow	H	59,500	0	11		..
St. George	H	58,500	0	11		..
Dunnottar	H	57,500	0	11	0	11½
Mincing Lane (SCTCo)	H	57,500	0	11	0	11¾
Bloomfield	H	57,000	0	11	0	10½
Freidland	HH	56,500	0	11	1	0
Kaipoogalla	H	54,500	0	11	0	...
Summerville	H	50,000	0	11	0	11¼
Maskeliya	HM	97,000	0	10¾	0	11
Holmwood	H	94,500	0	10¾	0	11
Lindula	H	91,000	0	10¾	0	...
Narangalla (Uva)	H	83,500	0	10¾	0	9½
St. John's	H	82,000	0	10¾	0	11
Ovoca	H	78,000	0	10¾	0	10½
50,000 to 100,000 lb.						
Kintyre	H	70,500	0	10¼	0	10¾
Clontarf	L	69,000	0	10¾	0	11½
Fairlawn	H	68,000	0	10¾	0	10¾
Bramley	H	60,000	0	10¾	1	0¾
Holyrood, W	H	54,500	0	10¾	0	10¾
Kotagalla	H	53,000	0	10¾	0	10½
Fernlands	H	51,000	0	10¾	0	..
Mayfield	H	98,000	0	10½	0	11¾
Abbotsleigh	H	90,000	0	10½	0	...
Newton	H	90,000	0	10½	0	..
Rajatalawa	HM	83,000	0	10½	0	11½
Sandringham	H	82,000	0	10½	0	...
Balmoral	H	73,000	0	10½	0	11½
Bathford	H	71,500	0	10½	0	11¼
Kelaneiya	H	71,000	0	10½	0	10½
Maha Eliya	H	70,500	0	10½	0	10¼
Agrakande	H	64,500	0	10½	1	0¼
Warwick	H	63,500	0	10½	1	1
Meria Cotta	H	63,000	0	10½	0	10¾
Bismark	H	62,500	0	10½	0	10
Chetnole	M	58,000	0	10½	0	10½
South Wanna Rajah	H	50,000	0	10¼	0	..
Kotaboola	H	97,500	0	10¼	0	10¾
Nahalma	L	94,500	0	11½	0	10½
Emelina	H	94,000	0	10¾	0	9¾
Oliphant	HH	81,000	0	10¼	0	10¾
Dunkeld	H	78,000	0	10¼	0	10¼
Wewelmadde	M	77,000	0	10¼	0	10½
Deeside	H	76,000	0	10¼		0¼
Valamaly	H	74,500	0	10¼	0	..
Pine Hill	M	72,000	0	10¼	0	11
Brownlow	H	69,000	0	10¼	1	..
Arslena	M	66,500	0	10¼	0	9¾
Kirrimettia (EP&Co.)	M	64,000	0	10¼	0	10¾
Gonomotava	H	63,500	0	10¼	0	11½
Torwood	L	63,500	0	10¼	0	10½
Duckwari	HM	60,000	0	10¼	0	10½
St. Vigeans	H	59,000	0	10¼	0	11¾
Caskieben	H	57,500	0	10¼	0	10¾
Gonakelle	HM	96,000	0	10	1	..
Sinnapittia (OBECo.)	M	93,500	0	10	0	10¾
Claverton	M	87,500	0	10	0	11¼
Verelapatna	H	86,000	0	10	0	10½
Suriakande	H	81,000	0	10	0	11¾
Kelliewatte	H	77,000	0	10	0	11
Kadienlena	M	76,000	0	10	0	10¾
Fairfield	L	72,000	0	10	0	..
Llanthomas	H	68,500	0	10	0	..
Riverside	M	65,500	0	10	0	10½
Lankapura, W	H	63,500	0	10	0	..
Gammaduwa	H	61,500	0	10	0	10¾
Fruit Hill (LPCo.)	H	59,500	0	10	0	11
Ferndale	H	57,000	0	10	0	10¾
Bitterne	H	53,000	0	10	0	10¾
St. Heliers	M	53,000	0	10	0	10
Kallebokka	H	94,500	0	9¾	0	10¼
Hantane	M	93,000	0	9¾	1	1
Dangkande (OBECo.)	HM	87,500	0	9¾	0	10¾
Great Valley	HM	87,500	0	9¾	0	10½
Orion and Galata	M	84,500	0	9¾	0	..
Atherfield	L	83,500	0	9¾	0	10½
Mount Pleasant	HM	74,500	0	9¾	0	10¾
Gona	M	71,000	0	9¾	0	10¼
Cottaganga	H	67,500	0	9¾	0	9¾
Mahousa	M	65,500	0	9¾	0	11¼
Heatherton	HM	65,000	0	9½	0	11¼
Glencoe	H	63,000	0	9½	0	10½
Deyanella & Deemally	HM	62,500	0	9¾	0	10½
Gouravilla	H	62,500	0	9¾	0	...
Hoolankande	HM	54,500	0	9¾	1	1¼
Mayfair	H	54,000	0	9¾	0	...
Taprobana	H	51,500	0	9¾	0	10½
Putupaula	L	91,000	0	9½	0	10½
Kelvin	M	90,500	0	9½	0	10¼
Densworth	L	89,000	0	9½	0	10
Pantiya	L	87,000	0	9½	0	9½
Glentaaffe	H	85,000	0	9½	0	11
Templestowe	H	75,000	0	9½	0	10¾
Amblamana	HM	72,500	0	9½	0	10
Heeloya	H	71,000	0	9½	0	11
Orwell	M	70,000	0	9¾	0	10¼
Clunes	L	65,500	0	9½	1	0¼
Ekolsund	H	64,500	0	9¼	0	10
Allagala	M	61,500	0	9½	0	...
Delpota... Uoya	H	52,00	0	9½	0	10¾

Galloola	H	51,500	0	9½	0	10½
Nayanza	HM	97,500	0	9¼	0	10
Ingurugalla (EP&ECo.)	M	96,500	0	9¼	0	10
Sanquhar	HM	93,500	0	9¼	0	10¾
Kaloogalla	HM	93,000	0	9¼	0	10½
Oodewelle	HM	89,500	0	9½	0	10¾
Heatherley	M	88,500	0	9¼	0	10
Tunisgalla	H	87,000	0	9¼	0	10
Ernan	L	85,500	0	9½	0	10
Polgahakanda	L	81,500	0	9¼	0	10¼
Weyweltalawa	M	80,500	0	9¼	0	10½
Shrubs Hill	HM	74,500	0	9¼	0	10¼
Amunamulle	H	74,000	0	9¼	0	10
Glengariffe	H	73,500	0	9¼	0	10¾
Hattongalla	L	70,000	0	9¼	0	...
Glenhorse	L	68,000	0	9¼	0	...
Fassifern	H	63,500	0	9¼	0	10¼
MK	HM	57,500	0	9¼	0	9½
Doragalla	HM	57,000	0	9¼	0	10¾
Devitural	HM	52,000	0	9¼	0	9¾
Aigburth	HM	50,000	0	9¼	0	10¾
Choisy & Rolleston	H	99,000	0	9	0	10½
Gingranoya	HM	87,500	0	9	0	10
Ederapotla	L	82,000	0	9	0	9¾
Ooragall	M	77,500	0	9	0	10½
Peacock Hill	HM	75,000	0	9	0	10½
Blackstone	H	66,500	0	9	0	10¾
St. Helen's	M	61,000	0	9	0	10
Coolbawn	M	57,500	0	9	0	9
Doranakanda	L	51,500	0	9	0	10
Ardross	L	50,000	0	9	0	9¾
Dawatagas	HM	98,500	0	8¾	0	...
Knuckles Group	HM	98,500	0	8¾	0	9½
Sembawatte	HM	92,500	0	8¾	0	9½
Parusella	L	88,000	0	8¾	0	10
Narangalla (Dolos)	M	87,000	0	8¾	0	9½
Gangwarily	M	84,000	0	8¾	0	10¼
Hemingford	L	76,000	0	8¾	0	10
Palgama		75,500	0	8¾	0	...
Mossville	M	73,500	0	8¾	0	...
Troy	L	71,500	0	8¾	0	10
Mahatenne	M	71,000	0	8¾	0	10
Lavant	L	64,000	0	8¾	0	9¾
Saidewatte		62,500	0	8¾	0	...
Yahalakelle	L	61,000	0	8¾	0	...
Nagodde		60,000	0	8¾	0	...
Brae	HM	51,000	0	8¾	0	10
HGA	H	50,000	0	8¾	0	9¾
Dedugalla	M	86,500	0	8½	0	10½
Needwood	H	76,000	0	8½	0	10½
Ivanhoe	H	70,500	0	8½	0	9½
Wereagalla	L	69,500	0	8½	0	10
Dehiowita	M	67,500	0	8½	0	9¼
Ellagalla	M	64,500	0	8½	0	9½
Hangranoya	M	55,000	0	8½	0	9¾
Nartakande	M	55,000	0	8½	0	8¼
Aberfoyle	HM	54,000	0	8½	0	9
Donside	HM	52,000	0	8½	0	00
Salawe	L	52,000	0	8½	0	00
Hatherleigh	M	93,500	0	8¼	0	10
Udabage	L	86,500	0	8¼	0	9
Oolapane	M	59,000	0	8¼	0	00
Saumarez	L	89,000	0	8	0	9½
Elangapitiya	M	86,000	0	8	0	00
Ugieside	M	85,000	0	8	0	10¼
Upper & Lower Haloya	M	76,000	0	8	0	10
Little Valley	HM	64,000	0	8	0	10½
Elfindale	H	90,500	0	7¾	0	00
Lindsay		72,000	0	7¾	0	00
Tamaravelly	M	62,500	0	7½	0	00

20,000 lb. to 50,000 lb.

Courtlodge	HH	28,000	1	1¾	1	0¾
Gartmore	H	30,000	1	1	1	0
Elgin	H	25,000	1	0½	1	1¼
PDM	H	29,000	1	0½	1	2
Rita Ratmalie	H	43,000	1	0½	1	1¾
Frogmore	H	35,500	1	0	0	11¼
Devonford	HH	37,000	0	11¾	0	11¾
Denmark Hill	HH	48,500	0	11½	1	1½
Wellekelle	H	40,000	0	11½	0	10¼
Chrystler's Farm	H	34,500	0	11½	0	00
Tommagong	HH	44,500	0	11¼	0	10¾
Braemore	H	37,500	0	11¼	1	0¼

Kenmare	HH	37,000	0	11¼	0	00
Kalupahani	H	36,500	0	11¼	0	...
Queensland	HM	36,000	0	11¼	0	...
Marske	H	32,000	0	11¼	0	10¾
Mey Mulgama	M	20,000	0	11¼	0	...
Broad Oak	M	48,500	0	11	0	11
Theresia	H	48,500	0	11	0	11
Berragalla	H	46,000	0	11	0	10¼
Harrington	H	37,500	0	11	0	...
Stockholm	H	29,000	0	11	0	10
Penrhos	H	23,500	0	11	0	11
Craig	M	47,500	0	10¾	0	10½
Dammeria	HM	44,000	0	10¾	1	0¼
Loonagalla	HM	43,500	0	10¾	0	10½
Selegama	HM	41,000	0	10¾	0	10¼
Detenagalla	H	39,000	0	10¾	0	11¼
Bon Accord	H	35,000	0	11	0	...
Broughton	H	35,000	0	10¾	0	11¾
Maria (Dimb,)	H	35,000	0	10¾	0	...
Kandenewara	HH	32,000	0	10¾	0	11½
Strathspey	HM	27,000	0	10¾	0	...
Kundula Kandera	H	21,000	0	10¾	0	...
Lankapura, M.	H	36,500	0	10½	0	10½
Mocha	H	34,000	0	10½	0	11½
Hattanwella	M	31,500	0	10½	0	...
Robgill	H	27,000	0	10½	0	...
Kirklees	H	49,500	0	10¼	0	11½
Diyanellakelle	M	48,000	0	10¼	0	...
Cattarantenne	HM	47,500	0	9¾	0	11
Agraonvah	H	46,000	0	10¼	0	11¼
Stellenberg (BEC)	H	43,000	0	10¼	0	11¼
Kinloch	H	42,000	0	10¼	0	10½
Clarendon	H	38,500	0	10¼	0	...
Ampitlia (LPCo.)	H	36,500	0	10¼	0	10¾
Katookelle	H	34,500	0	10¼	0	...
St. Leyse	H	54,000	0	10¼	0	10¼
Amhers	H	33,000	0	10¼	0	11
Poystont	H	30,000	0	10¼	0	...
Richlands	HM	26,500	0	10¼	0	...
Yellangowry	M	25,500	0	10¼	0	9¼
New Caledonia	H	24,500	0	10¼	0	11¼
Nahakettiya	H	23,000	0	10¼	0	...
Rowley	L	22,500	0	10¼	0	...
Leangapella	H	49,000	0	10	0	10
Karagastalawa	H	43,000	0	10	0	0¼
Coombewood	HM	42,000	0	10	1	10¾
Pingarawa	HM	41,000	0	10	0	10
Woodstock	H	41,000	0	10	0	10¼
Denegama	H	38,000	0	10	0	9¼
Marlborough	H	36,500	0	10	0	10¼
Yarrow	HM	34,500	0	10	0	10¼
Epplewatte	M	34,000	0	10	0	10½
Chalmers	H	33,500	0	10	0	...
Dunbar	H	33,500	0	10	0	...
Bunyan	H	31,000	0	10	0	...
Haputale	H	30,500	0	10	0	10¾
Thornfield	H	30,000	0	10	0	11¾
Stamford Hill	H	26,000	0	10	0	..
Burnside	HM	25,000	0	10	0	..
Wewesse	M	24,500	0	10	0	...
Rillamally (LPCo.)	H	23,500	0	10	0	...
Ancoombra		22,000	0	10	0	..
Craeighead	M	22,000	0	10	0	..
Dehigala	HM	20,000	0	10	0	...
Midlands	HM	49,000	0	10	0	10½
Poolbank	M	46,500	0	9¾	1	...
Nichoaoya	HM	42,000	0	9¾	0	11
Maturlaia	H	39,000	0	9¾	0	...
Dahansike	H	38,500	0	9¾	0	10
Gavatenne	HM	32,000	0	9¾	0	9¾
Galkandewatte	H	28,000	0	9¾	0	...
Deanstone	H	48,000	0	9½	0	11
Norton	HM	48,000	0	9½	0	10½
Wattaweila (OBEC)	M	46,500	0	9½	0	9¾
Hallowella	H	41,000	0	9½	0	..
Warleigh	HM	40,000	0	9½	0	10¼
Doombagastalawa (EP&EC)	HM	37,000..	0	9½	0	..
Iddagodde	L	35,500	0	9½	0	
Laluganga	L	30,000	0	9½	0	1
Kadella	H	29,500	0	9½	0	
Melrose	HM	28,500	0	9½	0	1
St. Leonards-on-Sea	L	23,500	0	9½	0	
Ardlaw	H	23,000	0	9½	0	

Yelebendo	HM	22,000	0	9½	0	..
Crurie	L	20,000	0	9½	0	..
Old Madegama	HM	47,500	0	9½	0	10½
Warriapo	M	44,000	0	9¼	0	10¾
Allakolla	HM	44,500	0	9¼	0	..
Galgwatt	HM	41,500	0	9¼	0	10¼
Kelburne	H	41,500	0	9¼	0	10¼
Opaigalla	HM	41,500	0	9¼	0	10¼
Lagalla	HM	39,000	0	9¼	0	10¼
Cabragalla	HM	37,500	0	9¼	0	9¾
Belgravia	H	33,500	0	9¼	0	..
Mousakelle	H	30,500	0	9¼	0	10½
Asgeria (EP&ECo)	M	27,500	0	9¼	0	..
Wariagalla	M	27,500	0	9¼	0	9¾
Cooroondowatte	M	24,000	0	9¼	0	..
Dickmukeana	L	24,000	0	9¼	0	..
Aadneven	M	23,000	0	9¼	0	11¼
Goonambil	H	20,500	0	9¼	0	..
Strathellie	M	21,000	0	9⅛	0	10
Laxapanagalla	M	46,000	0	9	0	9¼
Malgolla	M	46,000	0	9	0	..
Lyndhurst	L	45,500	0	9	0	..
Woodend	L	44,500	0	9	0	...
Panmure	H	43,500	0	9	0	11¼
Pansaltenne	M	43,500	0	9	0	11
Koladenia (EP & ECo)	M	42,500	0	9	0	9¾
Patiagama	H	42,000	0	9	0	...
Galella	H	39,500	0	9	0	10¾
Tellisgalla	HM	35,000	0	9	0	...
Polatagama	L	34,000	0	9	0	...
Keenagaha Ella	HM	32,500	0	9	0	...
Roseneath	HM	3 ,500	0	9	0	...
St. Andrew's	H	31,000	0	9	0	...
Amblankande	M	30.000	0	9	0	9¼
Benvuelah	M	30,000	0	9	0	...
Manickwatte	H	29,500	0	9	0	...
Blair Avon	H	28,500	0	9	0	10¾
Vogan	L	28,500	0	9	0	..
Stubton	L	22,500	0	9	0	9¾
Elchico	L	21,500	0	9	0	...
Ingiriya	L	21.500	0	9	0	...
Marguerita	HH	21,500	0	9	0	10½
Dtulaganga	H	48,500	0	8¾	0	10½
Siebatgama	M	47,500	0	8¾	0	...
Tymaur	H	47,000	0	8¾	0	...
Beverley	L	46,000	0	8¾	0	...
Balgownie	L	44,500	0	8¾	0	9¼
Faithlie	H	42,000	0	8¾	0	...
Mousagalla	HM	42,000	0	8¾	0	...
Vicarton	M	36,000	0	8¾	0	...
Good Hope	H	34,500	0	8¾	0	...
St. Clive	M	33,000	0	8¾	0	...
Eadella	L	32,500	0	8¾	0	...
Agra-Oya	HM	32 000	0	8¾	0	9¾
Morton	L	30,000	0	8¾	0	9¼
Bandarapolla	HM	29,000	0	8¾	0	...
Akuressa	L	27500	0	8¾	0	...
Augusta	HM	48,500	0	8½	0	...
Eilandhu	H	42,500	0	8½	0	...
Pelawatte	L	38,500	0	8½	0	...
Salem	M	35,500	0	8½	0	10
Carlabeck	H	29 000	0	8½	0	...
Welliwitta		24 000	0	8½	0	...
Maryland	M	22,000	0	8½	0	10
Longford	L	21,500	0	8¼	0	...
Eila	L	47,500	0	8¼	0	...
Wiltshire	HM	44,500	0	8¼	0	10¼
Kurulugalla	HM	43,500	0	8¼	0	8¼
Theberton	HM	41,000	0	8¼	0	10½
Dambagolla	HM	40.500	0	8¼	0	10
Derby	H	34 500	0	8¼	0	...
Lesmoir	L	34,000	0	8¼	0	...
Harmony	HM	32,000	0	8¼	0	...
Dea Ella	L	26,000	0	8¼	0	9¼
Ravenscraig	HM	22 500	0	8¾	0	...
Relugas	HM	47,000	0	8	0	10¼
Maria (Panwila)	M	44,000	0	8	0	...
Gallawatte	HM	42,000	0	8	0	8¾
Blackwood	H	32,000	0	8	0	9¼
Tonacombo	HM	29.000	0	8	0	...
Hyndford	M	28 500	0	8	0	...
RB & Co.		43,500	0	7¾	0	...
Mapitigama	L	37,000	0	7¾	0	...
MK'Oya		34,500	0	7¾	0	...
Topare	HM	32,000	0	7¾	0	7¾
Cocoawatte	M	27,000	0	7¾	0	9¼
Indian Walk	L	23,000	0	7¼	0	...
Langdale	H	20,000	0	7¾	0	...
Ekkie Oya	L	39,000	0	7½	0	...
Dig Dola	L	22,000	0	7½	0	...
Sapu		28,500	0	7¼	0	...
Campden Hill	M	20,500	0	7¼	0	...
Shannon	M	31,000	0	7	0	10¼

DISTRICT AVERAGES.

Estimated relative yield and average price realised for the different Ceylon tea districts, compiled from the public auctions held in London between January 1st and December 31st, 1891:—

	lb. about	Av. Price per lb. about s	d	Av. Price per lb. in 1890 about s	d
Bogawantalawa	2,500,000	0	11¾	1	0¼
Nuwara Eliya, Maturatta and Uda Pusselawa	2,500,000	0	11½	1	0¼
Dimbula	9,500,000	0	10¾	0	11¾
Dikoya	4,500,000	0	10½	0	11½
Maskeliya	4,000,000	0	10¼	0	10¾
Uva	2,000,000	0	10¼	0	10¾
Pusselawa, Kotmale, Pundaloya and Ramboda	5,000,000	0	10	0	11¼
Hewaheta	1,500,000	0	10	0	11½
Kalutara	1,500,000	0	9¾	0	10½
Ambegamuwa and Lower Dikoya	3,500,000	0	9½	0	10¼
Nilambe and Hantane	2,000,000	0	9½	0	10½
Dolosbage and Yacdessa	3,500,000	0	9¼	0	10
Knuckles, Kellebokka, Rangala, &c.	3,000,000	0	9¼	0	10¼
Matale and Hunasgeria	2,500,000	0	9¼	0	11
Kaduganawa and Alagala	1,000,000	0	9⅛	0	10¼
Kelani Valley	4,000,000	0	9	0	10¾
Sabragamuwa	1,000,000	0	9	0	10
Lower Districts	213,000	0	9	0	9
Galle	277,000	0	8¼	0	9¼

N. B.—Untraceable marks to the extent of about 4,500,000 lb averaging 8½d per lb are not included in the above estimate.

Home Consumption of China and East Indian growths ten years ago, five years ago and last year:—

	China.	Indian and Ceylon.
1881...	112,156,000lb.	48,836,000lb. or 30½ per cent of the total
1886...	100,000,000	74,665,000 „ 42¾ „ „
1891...	50,817,000	149,250,000 „ 74¾ „ „

N.B.—In 1890 the consumption of Indian and Ceylon was 70½ per cent of the total. [Then follows a table of monthly deliveries of Ceylon tea, which averaged 4,457,000 lb. in 1891, the highest monthly delivery as yet being 5 486,000 lb. in June. The same month showed the highest import, viz. 6,480,000 lb. —ED. C. O.]

BOARD OF TRADE RETURNS.

Imports and Home Consumption of tea from all countries during the past five years:—

1891.	1890.	1889.	1888.	1887.
		From British East Indies.		
lb.	lb.	lb.	lb.	lb.
171,939,263	146,260,642	127,160,409	113,004,692	97,830,117
		From China.		
61,935,325	73,635,351	88,848,574	105,424,271	119,739,116
		From Other Countries.		
6,458,739	4,758,378	5,593,677	5,189,515	5,194,054
		Imports.		
240,333,327	224 654,371	221,602,660	223,618,478	222,763,287
		Home Consumption.		
†202,456,837	†194,008,492	†185,621,800	185,556,214	183,635,885

† Of this total 98,941,931 lb. were Indian, 51,227,602 lb. Ceylon, 49,616,139 lb. China, and 2,671,165 lb from other countries.

‡ Of this total 101,961,666 lb. were Indian, 34,516,469 lb. Ceylon, 54,873,592 lb. China, and 2,656,745 lb. from other countries.

Of this total 124,408,798 lb. were British East Indian, 59,513,397 lb. China, and 1,699,600 lb. from other countries.

Exports of Tea (all kinds) during the past five years :—

1891.	1890.	1889.	1888.	1887.
lb.	lb.	lb.	lb.	lb.
†32,983,334	*36,967,137	35,661,900	37,956,840	34,741,390

† Of this total 3,339,898 lb. were Indian, 2,093,029 lb. Ceylon, 25,284,825 lb. China, and 2,265,652 lb. other countries.

* Of this total 2,624,579 lb. were Indian, 1,431,931 lb. Ceylon, 31,493,125 lb. China, and 1,417,502 lb. other countries.

INDIA, CEYLON & JAVA TEA.—MONTHLY REVIEW, SEASON 1891-92.

From Geo. White & Co.'s monthly review we take a few extracts :—

After the issue of our last annual circular on the 20th March, 1891, the market for India tea showed little alteration up to May, when common to medium declined in value, owing to the dealers not being able to move off their stocks of these grades brought at top prices, and business continued dull until the arrival of the new crop, the first invoice of which was sold on the 4th June. By the end of the month only 2,900 packages New Season's had been brought to auction, against 3,600 packages in 1890. These first arrivals, although, as is usual, below the average, were considered about up to those of last year in quality. Dealers at this time were clearing out their holdings at considerable loss. The fall in value is indicated by the quotation for "Type" Pekoe Souchong, which in March, 1891, ranged from 10 3-16th d to, 10 11-16th d per lb.; on the arrival of New Seasons, in June, fell to 9 2-16th d per lb., and has continued to shrink during the subsequent months, as will be seen below.

Heavy sales of Ceylon tea took place during April, May and June, the result of excessive flushes. Quality was consequently not maintained, and this, together with a quiet demand, caused the monthly average to fall from 11¼d per lb. in March to 9¼d per lb. in June. The market was fully supplied with Java Teas. Fine, and those with "point," sold well, but prices declined for ordinary and common.

NOVEMBER, 1891.

The largest monthly total of Indias on record was reached, sales comprising 186,800 packages (about 16½ million lb.), of which 133,000 packages, representing garden invoices, sold at 9d per lb., against 10½ for 91,000 packages in 1890. Deliveries were still increasing as compared with the previous November. The heavy weight of tea sold taxed the capacity of buyers, and quotations for all common and ordinary gave way, fair Pekoes and Pekoe Souchongs being 3d per lb. under those of March and April. Fine and finest were, however, firmer.

Quotations for "Type" Pekoe Souchong ranged from 6 14-16thd to 7 4-16thd per lb.

For the past six months deliveries of India tea exceeded those of the previous year—viz., 52,763,000 lb. against 50,407,000 lb. Ceylon increased to 30,265,000 lb. in the same period against 21,261,000. Java deliveries were 1,865,000 lb. as compared with 1,992,000 lb. China, &c., receded to 36,891,000 lb. against 43,860,000 lb.; the complete figures from 1st July to 31st Dec. being 121,784,000 lb. against 117,520,000 lb. in 1890. After deducting the quantity exported—viz., India, 2,137,000 lb.; Ceylon, 1,244,000 lb.; China, &c., 14,014,000 lb.; Java, &c., 1,438,000 lb.; in all 18,833,000 lb., the total home consumption for the six months stands at rather under 103 million lb.

JANUARY, 1892.

The market opened for Indias, after the holidays, on Monday, the 4th, with the heaviest sale recorded to that date, 24,700 packages being offered, though on the following Monday 25,600 packages were brought forward, which quantity has not yet been exceeded, and the total for the month was 165,000 packages, of which 110,000 packages, representing garden invoices, brought 8¾d per lb. average, against 11¼d per lb. for 104,000 packages in 1891. At first there was a good demand at prices fully up to those ruling before Christmas, but later, owing to dull trade, partly caused by the influenza epidemic, there was less spirit, and rates declined for common and medium. One of the features of the month was the high quotation established for Choice Darjeelings and Assams.

Quotations for "Type" Pekoe Souchong ranged from 6 8-16d to 7 1-16d per lb. against 8 7-16d to 9 9-16d per lb. last year.

Sales of Ceylons were resumed on the 5th, and during the month 68,800 packages were brought to the hammer, realising an average of 9½d per lb. against 11¾d per lb. for 48,000 packages in 1891. In consequence of the large proportion of common to medium and the quiet state of business, prices fell away for these descriptions until the average, which, at the beginning of the month was 10¼d per lb., declined to 9d per lb. at the close. Fine and finest, however, were wanted, and remained firm.

Javas totalled 2,200 packages; sold at an average of 7d per lb. against 8¾d per lb. for 1,800 packages last year. There was a fair demand, principally for export, and some good prices were obtained for the best lines.

MARCH, 1892.

India auctions to date total 63,700 packages, of which 44,000 packages, representing garden invoices, realized 8¾d. per lb. against 11 ½d per lb obtained for 40,300 packages in the same month last year. Owing to the smaller supplies rather a better tone prevailed for useful leafy kinds and fine and finest broken pekoes. Common, especially brokens and low broken pekoes, however, were easier. Prices later improved for most kinds.

Quotations for "Type" pekoe souchong ranged from 6 3-16th d. to 6 8-16th d. per lb. against 10 3-16th d. to 10 11-16th d. per lb. during March 1891.

Sales of Ceylons for the past three weeks have aggregated 43,300 packages, the average for which was 9¾ per lb. against 11¼d per lb for 53,000 packages for the month last year. Moderate arrivals gave buyers more confidence. Common grades sold steadily at the low quotations previously established. Medium ruled irregularly with an upward tendency. Fine and finest generally firm.

About 800 packages of Javas have been offered, the average for which was 7d per lb. against 8½d per lb. for 6,900 packages in March, 1891. Continental buyers continued to support the market, and some good prices were obtained for fine lines.

GEO. WHITE & CO'S ANNUAL INDIA, CEYLON AND JAVA TEA REPORT.

LONDON, 31, FENCHURCH STREET, E. C.,
March 21st, 1892.

INDIA.—In reviewing the course of the India Tea market during the present season, and comparing it with the previous one, the principal difference noticeable is in the quotations for common and medium grades; for whereas at the date of our last annual report on 20th March, 1891, the value of fair Pekoe Souchongs had been forced up to 10d per lb * and Pekoes to 11d per lb partly by operations in the London Produce Clearing House they are now selling at 5½d per lb and 7d per lb respectively. This serious decline is no doubt consequent on the large proportion of these descriptions which has come forward, partly due, perhaps, to coarser plucking, and also to climatic influences, which, although in many districts inducing a large yield, were unpropitious to the manufacture of fine tea. It would appear that, since the reduction of the duty, consumers prefer to pay rather more for a better grade, and that consequently heavily supplies of common and poor liquoring teas cannot be dealt with here, except at a range which, on many estates, cannot repay the cost of manufacture, freight, &c. The effect of reduced prices, so far as proprietors are concerned, has, however, been minimised by the lower rate of exchange ruling for the rupee during the greater part of the present season, the average being about 1s. 5d., against 1s. 7d. Good medium grades have not shown much fluctuation in value, and.

* Spot Quotation for "Type" Pekoe Souchong, 10 7-16d per lb in 1891, against 6 7-16d per lb today.

fine and finest, owing to their comparative scarcity, sold well and at gradually hardening rates after Xmas.

Total deliveries for the twelve months ending 31st December, 1891 were disappointing, being 101,194,000lb against 102,845,000 lb. in 1890. There is no doubt that the high scale established in the spring months for teas under 11d. per lb. exercised an unfavourable influence on the clearances for home consumption during a great portion of the year. Dealers were encumbered with a considerable stock of these grades, which they were unable to dispose of, owing to the unexpectedly heavy supplies from Ceylon, selling at lower rates. This rendered buyers very cautious, as they were suffering under serious losses. Since October, however, an improvement in the deliveries is noticeable, which it is to be hoped will be more marked in future months, and to which the cheap rates current for fair liquouring Teas should conduce.

The quality of the crop has, on the whole, been below the average, though some invoices from Darjeeling and Assam have been exceptionally fine. Not only has the yield been increased, but shipments have again come forward more rapidly, so that in the autumn months it was not always feasible to regulate the public sales as was done to such advantage in the previous year. By the 31st December about 63 million lb. had been sold, against 53½ million lb. in the same period of 1890, and to date nearly 95 million lb. against 87½ million lb., so that the remainder to be disposed of will probably not much exceed that left to be dealt with at this time last year, reckoning the crop weigh out 112 million lb in London.

CEYLON.—The Ceylon branch of the trade has shown a further marked expansion, the imports and deliveries for the eight months ending 29th February last having both increased about 12 million lb., as compared with the same period in the previous season, when the addition was 7 million lb. The same causes which brought about full supplies of common and medium tea from India, singularly enough seem also to have prevailed in this island during the early part of 1891. Heavy flushes came on so rapidly that difficulty was often experienced in keeping pace with them. Consequently the crop was unexpectedly heavy, with a superabundance of inferior quality. This caused a gradual decline in the monthly average from 11¼d per lb. in March to 9¼d per lb. in August, since when it has fluctuated between 9¼d per lb. and 10d per lb. On the other hand, full prices were obtained throughout the season for fine-flavoured teas, and those estates which were able to send them benefited accordingly. It is, no doubt, satisfactory to owners of gardens that, with a lower exchange, 741,600 packages were disposed of in the year 1891 at 10⅛d per lb. against 545,000 packages at 10¾d per lb. in 1890, from which it may be inferred that reduced quotations have further stimulated consumption, so that the total clearances of Ceylon tea for home use exceeded those of China, &c., for the twelve months ending 31st December, 1891, being 51,000,000 lb. against 49,000,000 lb.

JAVA.—Chiefly owing to the severe drought in Java during the manufacturing season, shipments to this country for the past eight months were considerably restricted. Quality on the whole has been well maintained, and in consequence of the demand for export these descriptions have often realised above the prices current for similar teas of other growths.

EXPORTS.—Shipments of India and Ceylon tea to the Continent, &c., from London during the past eight months have shown a considerable expansion, as will be apparent on reference to the following figures:—

	India. lb.	Ceylon. lb.
From 1st July, 1891 to end of February, 1892	2,874,000	1,658,000
From 1st July, 1890 to end of February, 1891	1,604,000	941,000
and for the 12 Months ending 31st Dec. 1891	3,340,000	2,093,000
and for the 12 Months ending 31st Dec. 1890	2,724,000	1,432,000

The distribution for 1891, being as under:—

Continent of Europe.	United States	Canada. India.	Other Countries.	Total.
lb.	lb.	lb.	lb.	lb.
1,840,000	660,000	600,000	240,000	3,346,000
		Ceylon.		
1,049,000	419,000	414,000	211,000	2,093,000

The undermentioned averages have been obtained here this season, from 1st July to the end of February, compared with the two previous ones. During July and August especially, a good many fine China Black Leaf Congous were disposed of by private contract, which renders it difficult to arrive at an estimate, so far as that country is concerned, with much exactitude. The one given must, therefore, be taken as approximate.

	1891-92	1890-91	1889-90
India	9½d	11d	10½d per lb
Ceylon	9½d	11½d	11½d ,,
China	8d	9¼d	7¼d ,,

[Figures for home consumption and export are then given.—ED. *T. A.*]

These figures seem to indicate that the marked expansion expected in the Home Consumption, after the reduction of the duty on 1st May, 1890, has not yet been realised; the increase between 1890 and 1891 being on the same scale as between 1889 and 1890. At the same time, however, owing to the gradual displacement of China by the stronger teas from India and Ceylon, the quantity actually drunk is more than appears from the weight in pounds. The diminished export is no doubt due to the larger direct orders sent from Russia and the Continent to China, and also to the famine prevalent in the former country.

Should trade, therefore, progress on the ordinary lines, the total deliveries in the coming season for both Home Consumption and Export, it is reasonable to expect will be, in round figures, about 245,000,000 lb.

	lb.
Of this India will probably send ...	116,000,000
Ceylon ,, ,, ...	75,000,000
Java ,, ,, ...	4,000,000
leaving China to furnish	50,000,000
	245,000,000

Nothing reliable as to the size of the 1892 India crop has yet come to hand.

The latest estimates of the Ceylon outturn for the year 1892 vary from about 75 to 80 million lb. (though some more sanguine expect 85 million lb.), of which say 5 million lb. will be required for shipment to the Colonies and other countries direct.

Java will probably send more than in the present season, supplies having been curtailed on account of unfavourable weather.

[Then follow figures for seventeen seasons, during which imports from India rose from 25½ million pounds to 101, the estimate for 1892 being 112,000,000. Ceylon increased from 200 lb. to over 50 millions, the estimate for 1892 being 64 millions. Total British-grown rose from 25½ millions to over 151, the estimate for 1892 being 176 millions. China has gone down from 149 millions to 69¾, the estimate for 1892 being 66 millions. The total of all kinds has increased from 174½ to 221 millions, the estimate for 1892 being 242 millions. Consumption has increased from 4·46 lb. per head to 5·20 lb.—ED. *T. A.*]

Duty, until 30th April, 1890, 6d. *per lb., afterwards*, 4d. *per lb.*

N. B.—Transhipments for the Continent, on arrival from China, are not included in the above. Prior to season 1885-86, the Ceylon figures given represent the total exports from Colombo, the proportion shipped from there to foreign ports being inconsiderable. Shipments from Japan and Java are not taken into account, the former being unimportant and the latter varying considerably in different years, according to the Continental demand.

PROSPECTS.—As still larger areas will be available, both in India and Ceylon, for the production of tea

it is evident that fresh outlets, outside the United Kingdom, must be sought for and exports encouraged. With this object in view, arrangements are already being made to bring British-grown tea before the world at the Chicago Exhibition next year. Steps have been taken to solicit a grant from the Indian Government and to direct the attention of those interested in the cultivation of tea there, to the importance of being adequately represented. Hitherto, the expenses attending Exhibitions have fallen principally on London agents and brokers, while comparatively very little has been raised for the purpose in India. It is, therefore, now proposed that a small sum per acre shall be contributed by each estate in furtherance of the above project which appears a fair method of raising the funds absolutely necessary, not only to enable India to maintain her position, won after many years' struggle, but to open out other channels for her increased output. We also learn that considerable sums have been promised by the Government and planters of Ceylon; it is hoped that altogether about R200,000 will soon be forthcoming to forward the industries of the island on that occasion.

The interests of these two countries being to such a great extent identical, it seems of vital importance that they should if possible adopt a common policy in opening up new markets for their produce.

Increased shipments have been made both from Calcutta and Colombo to other countries besides Great Britain, the figures for the past two years, from 1st May to 5th February, being:—

	Australasia.	Bombay Chiefly for Persian Gulf.	Sundry Ports. India.	America.	Total.
	lb.	lb.	lb.	lb.	lb.
1891-2...	4,288,000	3,058,000	566,000	180,000	8,092,000
1890-1...	4,545,000	742,000	213,000	118,000	5,618,000
			Ceylon.		
	lb.	lb.	lb.	lb.	lb.
191-2...	2,310,000	460,000	508,000	144,000	3,422,000
190-1...	2,010,000	107,000	182 000	142,000	2,441,000

The low prices current here during the past eight months have, no doubt, been beneficial in developing the export from London to the continent of Europe, as, for the first two months of this year, India totalled 737,000 lb., and Ceylon 414 000 lb., against 423,000 lb. and 161,000 lb. respectively for the same period in 1891.

MANUFACTURE.—It seems probable, however, notwithstanding the assistance indicated above, that supplies will tax our consuming powers, and, therefore, planters should aim at a smaller outturn and better quality. We would draw attention to the following extract from our last annual circular, bearing on this subject which will also apply to the coming crop:—

"Heavy shipments being expected from all the producing countries, it behoves British planters to use every endeavour to prevent the market being flooded with mediocre teas of poor liquor. They will, therefore, probably find that by plucking a little finer than usual they will make much better tea, and in the long run show a more satisfactory result financially, as the enhanced prices obtained will more than recoup them even should the total output be smaller."

There is no doubt that during the past year owing to very heavy flushes, this in many cases was impracticable and a large proportion of coarse leaf was plucked, which realized insufficient to cover cost of making, freight and warehouse charges, the last two items falling proportionately heavier on low-priced tea. It would have been better if this had either not been plucked, or else consumed locally. Perhaps it might be feasible to use some of the dust and coarse leaf in the manufacture of Brick Tea, which is largely made in China for shipment to Mongolia. Many planters encouraged by the high rates ruling last spring for Pekoe Souchongs, no doubt were induced to go in for quantity with the result that, though their outturn was increased, the average price suffered, for it is not the tea which costs least to make, that as a rule will be found to pay best. Consequently moderately fine plucking with very careful supervision during the process of fermentation and manufacture, should under most circumstances prove the more remunerative.

SIZE OF BREAKS, STYLE OF PACKAGE.—The growth of the trade in British grown tea renders it necessary to economise the time of buyers as much as possible as, when sales are heavy, the samples to be tested are often more than can be properly gone through. Although the minimum for ordinary breaks remains at 12 chests *, 18 half-chests *, and 30 boxes* many of the dealers do not look at parcels of this size, In fact, so far back as in 1887, some decided not to taste anything less than 20 chest lines. To ensure full competition, therefore, for all excepting choice quality, the breaks should be as large as possible and invoices should not represent too many descriptions. The following assortment will generally be found to answer, viz.: a first class Broken Pekoe; a fine Pekoe; the bold leaf often sent with Pekoe to be left in the Pekoe Souchong; rough Souchong and Fannings to be equalised and packed as Broken Tea, thus making four kinds. Parcels containing Dust are unsaleable, therefore this should be sifted out and shipped separately.

Half-chests continue in favour, both with exporters and for home use, especially for pekoes. Leafy kinds, suitable for drinking alone, often sell well in boxes but, these packages should be under 28 lb. gross to avoid the 1 lb. draft allowed on those over this weight.

Factory-bulked teas are still liked, many houses giving them the preference. In the majority of cases, the efforts of planters to attain regularity of appearance have been successful, and they have thus avoided the expense of bulking in London, which is of consequence now that the average price has fallen so low.

Economy in all charges must be studied, and if the packing is regulated in accordance with the following scale, a considerable amount may be saved in the course of a season.

ANALYSIS OF CROP.—The 1891 crop from India has, on the whole been disappointing, fine teas being scarce throughout, as coarse plucking has been too general. Many of the Assams have been poor, and those gardens which have picked moderately fine have done well. Later invoices from many estates have shewn better quality, and where autumn flavour has been combined with strength, some high averages have resulted. Cachars and Sylhets, with few exceptions, have been of an undesirable character, the weather evidently having not favoured manufacture. Darjeelings have shewn much irregularity, but, when fine as in the case of some recent shipments, very satisfactory prices have been secured. Terais and Dooars varied considerably, but those possessed of full flavour, have sold satisfactorily. The crop from the Kangra Valley has lacked the rich quality discernible in former years, and these, together with Koumaons, have generally been below the average,

From Travancore and other parts of South India there has also been a marked falling off in the special characteristics which formerly brought these teas into favour, and whatever may have been the cause, it is to be hoped it will be remedied in the coming season.

As is usual with an excessive crop, the quality of Ceylons has depreciated, and a very low range has been reached for common and ordinary kinds. The bushes must have suffered from the continuous and somewhat severe plucking to which they have been subjected, so that, in all probability, a different course will be followed on most gardens during this year. Those estates, which were so circumstanced as to be able to make fine Tea, have no doubt reaped the full benefit, these grades having been scarce.

As noticed above drought has much interfered with the Java crop, and consequently the shipments to this country have been curtailed. The improvement noticeable in make and cup during the last few years has been maintained, so that, while these Teas remain in favour with continental buyers, they are also more largely used in this country, especially by Blenders.

* Smaller lots than these are sold after the auction.

Correspondence.

To the Editor.

MR. JOHN BROWN'S ASTOUNDING CLAIM *RE* COFFEE PULPERS DISPOSED OF.

72, Bishopsgate Street,
London, E. C. March 10th.

DEAR SIR,—In the report of the "Tea Roller Patent Case" in your overland edition of 18th ultimo, page 169, Mr. John Brown is reported as saying: "In coffee machinery I think I effected nearly all the improvements of any importance which were ever effected upon it."

To make use of a common remark, such a statement is "rather a large order," and out of respect to the memory of my late uncle, Mr. John Walker, I beg to submit the following facts:—

The Disc pulper, so well-known in all Eastern coffee countries, was invented and patented by Mr. Walker in 1860, and of that machine alone there has been made in Ceylon a larger number than all other coffee pulpers put together, made either in Ceylon or the United Kingdom —and it is still being made in Colombo Iron Works.

About the years 1870-1871 the "half moon" cylinder cover was invented and patented by the late Mr. George Clarke (some time partner in the firm of John Walker & Co.), an invention which saved the coffee planters tens of thousands of pounds sterling, as it practically did away with all "cutting" of the bean.

Again the "Gearless" pulper was designed by Mr. Walter Lamont, who is still in your town and can speak for himself. Of the larger coffee machines the "Gearless" was in every respect the king of all.

But all this is no doubt to you and many of your readers a familiar tale. Perhaps some friend of the late Mr. John Gordon may see your paper and say a word on his behalf.

I assisted to make pulpers in Kandy for about fourteen years, and I never heard of any improvements by Mr. John Brown. I knew of a very few home-made pulpers, one of which now and then found its way to Ceylon, and we in Kandy were always well pleased when one of these machines was erected at the entrance to a new district, as it made a good advertisement, and *no more* of *same make* went into that district. From 1870 to 1880, being the ten years of the good old coffee days, about eighteen pulpers large and small, reached Ceylon from outside—perhaps those contained the improvements claimed by Mr. Brown.—I am, dear sir, yours faithfully, FRANK WALKER.

P.S.—On 4th October 1877 the *Ceylon Observer* contained a kindly notice of the old home of pulper making at Bogambra Mills.

TEA IN LEAMINGTON: "ONE OF LIPTON'S TEA ESTATES."

Leamington, England, March 24th.

SIR,—I have interested myself while here in collecting a few particulars as to the retail trade in tea, and by this post forward some trade circulars, catalogues, &c. I had some difficulty in obtaining them as the givers appeared to suspect something when I asked for them.

Messrs. Burgis and Colbourne have, as you will see, three stores in Leamington itself (a town of 27,000 inhabitants), but in addition to this they also supply many of the retail shops in the small towns and large villages in the vicinity. You will probably be surprised to see that while their highes price for Ceylon tea is 1s 10d, that for China te is 2s 6d! going up to 3s for the choicest impor of 1891. You will also probably be surprised to learn from a leaflet I enclose that Ceylon tea may sometimes be drunk alone, the inference, of course, being that it is better when blended with China rubbish. By the way what is cinchona tea? (See page 9.)

The next firm is Melia & Co., who claim to be the greatest retailers of tea in England. They have two shops here, and about 50 more in other large towns. I do not know whether they (as they assert) get tea direct from the grower. (See page 63.) I noticed an old packing case marked Le Vallon in one of their windows.

But the most surprising and amusing of all is one of Lipton's circulars with a view of one of his tea estates in Ceylon. You will observe that in the left foreground there is a dock with a sea-going vessel in it. The tea grows right up to the quay, so that it is only a hop, skip and a jump from where the coolies are gathering tea leaves to the deck of the ship. There are no less than five tea-houses on an area of about 25 acres, while a string of three elephants are carrying something (presumably tea), to be loaded in the vessel aforesaid. But the artist, not satisfied with this, has placed a large Moorish mosque in the middle of the tea. Oh! Mr. Lipton.

You will also note that Mr. Lipton does not even profess to sell pure Ceylon tea. The teas he sells are all blends.

As far as I have had opportunities of judging, Mazawattee tea has a very large sale. It is sold as being pure Ceylon tea, but, if so, is not of good quality. The retail price is 2s 4d per lb in lead packets. Yours faithfully, E. HOLLAND.

P. S.—I omitted to mention that the picture with the dock, elephants, etc., is named "One of Lipton's Tea Estates." Can any of your readers identify it?—E. H.

THE TEA ROLLER PATENT CASE: JACKSON *VS.* BROWN.

79, Farringdon Road, London, E. C.

SIR,—I have seen a copy of your issue of Feb. 18th, giving an account of this case, and wherein Mr. John Brown, the defendant, is reported to have denied having ever had any conversation with me, or that he had ever spoken to me about Tea Machinery.

This somewhat surprises me; as I spent the afternoon of Wednesday, the 8th February 1888, in his company at Belgravia, in the Dimbula district, on which occasion were present, Messrs. Mackie, Sinclair, and the late Mr. John McLeod, when we talked about Tea Machinery among other subjects.

Thanking you in anticipation for kindly inserting this letter, I am, yours truly,

JAMES R. DALGARNO.

MR. P. D. G. CLARK AND THE EXPEDITION TO PERU.

R. B. Gardens, Peradeniya, March 24th.

SIR,—With regard to the discussion now engaged in by your correspondent in your issue of 22nd instant, relative to the postion held by me in the late expedition to Peru, I shall feel obliged by your publishing the enclosed extract from a memorandum of instructions received by me from the Peruvian Corporation, prior to my leaving England for Peru.—I am, yours faithfully,

P. D. G. CLARK.

(*Extract alluded to.*)

It is desired you should accompany this expedition, or undertake independent expeditions, and report generally on the products of the country traversed, and of the lands in the vicinity of any property selected for the purposes above mentioned, or which you may think it desirable for the Corporation to select, with a view to future development. This investigation should be directed to the actual economic products of the country, and the capability of lands for cultivation, specifying what class of cultivation would best tend to its development. You should also deal with the climatic conditions of the different localities, the labour available, means of transport, and similar subjects. Such for example as the industry of rice growing, cacao planting, cane growing, vanilla growing, rubber planting, etc. Information of a general nature as to the mode of life in the interior, the existing settlements and trading stations, and the flora of the different districts would be of great use in enabling the Corporation to determine the location of lands and the uses to which such land can properly be put.

Your official reports and communications had better be addressed to me here or to the Secretary.

(Signed) GERALD A. ALLARD, Manager.

66, Old Broad Street, London. 27th April 1891.

[The above certainly justifies Mr. Clark's independent action; but we can scarcely believe that a copy of this resolution was supplied to the Commissioners.—ED. *T. A.*]

MR. J. L. SHAND ON OVERPLUCKED TEA BUSHES.

Gampola, March 28th.

DEAR SIR,—I have been astonished that the local papers, which look after the planting interest, have allowed Mr. J. L. Shand's strictures on Ceylon tea planters, regarding the management of their tea bushes, to pass unchallenged.

Mr. Shand, is in my opinion, a very clever man, but is he an adept in tea planting matters? It is now some 5 or 6 years since Mr. Shand was last in Ceylon; and the management of the tea bush has *very much* altered in the interval: when Mr. Shand left Ceylon tea bushes were pruned every twelve months; *now* few people prune before the bushes have run 15 months; a good many planters allow them to run 18 months, and instances are known of the bushes having been allowed to run for 2 years. Because the bushes *look* ragged at the end of 18 months for pruning, is that a proper reason for saying that they are dying out?

When in Ireland amongst the farmers I have heard them speak of some of their cows as "strippers"; now a "stripper" is a cow which is milked straight on end for 2 years, or so, and when in her condition of "stripperhood" only gives about ⅓rds of the quantity of milk given by her sister-cow; yet a farmer would not say that the "stripper" had deteriorated. She is kept on milking for a certain purpose, and if I am not mistaken, the quality of the milk is above the average, just as the quality of tea plucked from long-run tea bushes is above the average. It is good and right to decry the inflated estimates of tea quantities given out by some people, amongst others your good selves,* and I think, and from the beginning have said, that inflated estimates of quantity are against the interests of Ceylon tea planters; but if it is allowed uncontradicted, to be stated by "An Authority" that the tea planting industry of Ceylon is ephemeral it will be a grievous wrong to Ceylon tea planters. My own opinion is that tea is going to be fairly permanent in Ceylon, as the country is essentially a leaf-producing land. Look at our eternal patanas! The *raison d'être* for this letter is that Ceylon planting interests exist to a great extent on borrowed British capital.—

Yours faithfully, J. F. R.

[It is for Ceylon planters to deal with Mr. Shand's statements. We have endorsed neither his statements nor his low estimate.—ED. *T. A.*]

* Our estimate was, and is, 85 millions, against 80 millions by Messrs. H. Bois and W. W. Mitchell. We deny inflation.—ED. *T. A.*

PUSHING TEA IN AMERICA: MR. LIPTON TO THE RESCUE.

Nuwara Eliya, April 6th.

DEAR SIR,—The still further curtailment of tea prices likely to take place in the near future, together with the fact of Mr. Lipton's presence in Ceylon, appear to me, to make it advisable at least to attempt to come to some understanding with him in regard to pushing Ceylon teas in America, rather than go on in the present one-horse fashion, which will not, I believe, appreciably affect the Ceylon tea crop within the next 20 years. There is no use of going back to the question of the present American company, with its wonderful ways of paying for advertizing, &c. further than to remark that many—very many—of our producers are keenly disappointed with the results of its sales.

It might be well, however, to ask Mr. Lipton to give the public, through your columns, his opinion of its ways of doing business and the probable results. As a dealer of American repute Mr. Lipton's opinion would be valuable and instructive; and it might be well to ask those gentlemen who (when Mr. Elwood May made his *début* as the guiding hand of its destinies) sang its praises so loudly here, and in London, whether one of them has invested a single dollar in the company beyond his original shares, which he could not get rid of.

I believe that the Chicago Exhibition expenditure will be wasted money, so far as the Ceylon tea enterprise is concerned, unless we have some means behind it, of *placing* the article in every city, throughout the length and breadth of America, and at rates that will compete with and oust Japanese and other teas now being sold there. I believe Mr. Lipton is the one man to do this, as his wealth is enormous and his influence in America generally, and in Chicago particularly is immense. And Mr. Grinlinton evidently recognised this, when he left a letter asking Mr. Lipton's assistance in Chicago (vide *Observer*). The *Observer* says that Mr. Lipton intends to sell only unblended pure Ceylon tea in the United States; but I conclude this must be a reporter's mistake, as no sane man would adopt this course unless he were prepared to face heavy losses.

I have seen Ceylon tea in America selling for $1 25 per lb. that could be bought in London at 1s to 1s 2d per lb wholesale, which means that while the Ceylon planter for all his hard work and estate expenditure, interest on capital, and shipping and selling charges was getting 1s, or say 1s 2d per lb, the retailer was getting for handling the tea about 4s per lb.! So there is a big margin for profit, and competition, and for pushing Ceylon teas.

I think it is less than 5 years since Mr. Lipton started as a tea dealer in England, and at present, according to the *Observer* he is selling 7½ million lb. of Ceylon tea per annum (half of 3,000 chests sold weekly); and if this is the case, he is the best friend the colony has in the buying market. And when he starts there he will, I doubt,

not, sell in America one ton for each half chest now being sold.

What does it matter to us whether Lipton sells his tea as Ceylon pure, or mixed with other teas, so long as he is able to place some millions of lb. of our staple annually on a new market.

Does a distiller care whether his whisky is sold pure, or blended by the retailer, so long as he is able to dispose of it at profitable rates? As in whisky so in tea, blending often improves both the kinds used.

There has been a vast amount of nonsense talked about selling pure Ceylon tea unblended, when what we want is a profitable market for it, blended or unblended, and our persistent course of refusing to sell it in America as a blended tea is depriving Ceylon of some millions of customers, who would gladly do business if we could give them a good blend such as can be got in England.

Apologising for trespassing so much far on your space, and trusting the matter may be well ventilated during Mr. Lipton's visit to Ceylon, and that some good may result, I am, &c., L. D.

MR. LIPTON ON THE PUSHING OF CEYLON TEA IN AMERICA.

Dambatenne, Haputale, 11th April.

DEAR SIR,—I have today read "L. D."s letter with much interest, and although I have never written letters to the Press regarding my business or intentions, I have much pleasure in responding to the invitation conveyed by your correspondent to place my views with regard to the Tea Trade of America before your readers.

The Ceylon American Tea Co. has certainly a great work before it, and under the able guidance of the Hon. Mr. Grinlinton and his friends ought to be of much service to the planters here. I must, however, say that the method of advertising adopted by the Company has not had the effect of making its establishments known outside a very few people in New York. For instance, last September, I, myself, who am deeply interested in all matters affecting the tea trade, spent several hours in trying to find out where they were located. Of course had I had their advertisement in my pocket I could easily have found their place out. I went to the shop they had been in one year previously and also to a place in Twenty-third Street where I understood they had been carrying on business since. I got several addresses where I was likely to find them, but after all had to give up the search. When this was my experience, you can imagine what it must be for would-be customers who were not sure of the address. No doubt there are hundreds of tradesmen in New York who would be as difficult to find, but for a business to be successful everybody should know of its whereabouts.

Two years ago I had the pleasure of meeting Mr. Grinlinton in Chicago, and of showing him over my slaughtering and packing houses, and I also met him in New York. It does not require me to state the interest he takes in Ceylon, but I cannot refrain from saying here that I never met anyone who was so devoted and anxious for the success of the Ceylon tea trade than is the gentleman who has been unanimously appointed Commissioner to represent the interests of the Ceylon planters at the Chicago Exhibition.

To make a big success of a retail business, it scarcely matters what value you offer unless it be well advertised and conspicuously put before the public. If this is not done the chances are the Company will only continue to be a "one-horse concern." It would be better for the retail shopkeepers, as well as for the planters, that there should be more competition in the tea trade in America. The more Ceylon tea is advertised and the more shops opened for its sale, the more talk about it would be caused and a greater demand for it created. Personally I would much prefer that there was more opposition in America than there is at the present time.

I hope to be able to make arrangements to start the retail tea business in the United States and Canada early next year. I would have been there as a tea dealer before now, but I do not wish to break up my staff in London in taking over those who have ably helped in making my tea business what it is until I have completed opening my new branches in the United Kingdom. My expectation is that by the end of this year I will have branches in every town of importance in Great Britain from John O'Groat's to Land's End. I have already now thirty retail stores in London alone, and expect by Christmas to have at least fifty. Scotland, I may say, I have finished, and England too, with the exception of a few south-eastern counties, and Ireland all but two or three towns. So that when this work is done I can devote my mind and employ my staff in opening retail tea shops from the Atlantic to the Pacific.

I have already a large provision trade in the U. S. over the whole of the country, to meet the requirements of which I have to kill in the Chicago stock yards several thousand head of hogs daily, but this business meantime is entirely wholesale. When I put my tea before the American public it will be as a retailer. My faith is so strong in the future of America as a field for the sale of British-grown tea that I mean to erect manipulating and distributing warehouses there, the same as I have in London.

From the way tea is handled in America, it is surprising that as much is sold as there is. For instance, I saw last autumn in Chicago at the door of one of the leading grocers in State Street, which is the principal street of the city, tea exposed to all kinds of weather, just as you would see rice or barley at home. When you purchase tea in those shops they put it up in a very careless manner, and in a cheaply got-up bag. I asked about Ceylon tea in some shops, and they said they had never heard of tea from that place, the only kinds you could get, as a rule, being oolongs, Japans, common sorts of green tea, and very inferior China congou. These teas, if ever they had been good, were entirely destroyed by the careless way in which they were treated, in adddition to which the prices charged were very excessive. This style of business does not tend to encourage tea drinking. When Americans visit the old country they drink as much tea as the English, and the universal cry is that they cannot get tea with the same flavor at their own homes. I have already regular orders for supplying hotels and families with tea in the United States; for instance the great Armour of Chicago, whose fame is deservedly world-wide, wrote to me some two months ago and said: "I consider both my own house and those of my children are incomplete unless they are well supplied with Lipton's teas. We cannot get such teas anywhere in our country which will give us anything like the same satisfaction."

I have frequently asserted, and I adhere to my formerly expressed intentions, that when I start in the tea trade in America, I shall sell a pure Ceylon tea, of course, in addition to such blends of Ceylon and Indian teas as I may consider advisable.

I notice that "L. D." says he thinks it is five years since I started in the tea trade. I am not, as a fact, three years in the trade until next month. The first week I began to sell tea my sales were over 20 tons, and then not half of my stores had any at all, while now my sales are over 3,000 chests weekly. I regard as one reason of the success of this branch of my business the fact that in offering tea to the public, I blend it on scientific principles to suit the water used in the district wherever each branch may be. For instance the tea I send to Edinburgh is quite distinct from what I sell in Glasgow, while that sold in Newcastle is totally different from the other two, and all widely vary from what I retail in London or Birmingham. The reason for this is that the chemical properties of water vary to an enormous extent, and nothing is more susceptible to the action of different minerals dissolved in water than tea.

What the result of my campaign in America will be has got to be proved, but one thing I do know, whether I am successful or not the consuming public will know what I am offering to sell, and where my stores are, and they will certainly get better value than what they are getting now.

Ceylon tea has a flavor which is not to be equalled, let alone beaten by any of its rivals, and if once the American public "catches on" to this tea, there will be no limit to the demand, provided the present high standard of excellence is maintained.

When I leave my estates I shall go, via Japan, to Chicago, where I hope to have the gratification of meeting Mr. Grinlinton, and if I can be of any service to the Ceylon tea planters through him it will certainly give me very great pleasure.—Yours faithfully, T. J. LIPTON.

THE INTRODUCTION OF CINCHONA INTO THE EASTERN WORLD.—With reference to the article we quote from the *Chemist and Druggist*, we may say that Mr. Ross was certainly in error in attributing to Mr. Clements Markham the credit of first introducing the cinchona plants into the eastern world. Had Mr. Ross said "into British India and Ceylon" he would have been perfectly correct; and we are rather surprised that Mr. Markham in the course of the discussion did not indicate that to a German botanist employed by the Government of Netherlands India belongs the credit of first introducing the fever plants into the eastern world. We have a very vivid recollection of quoting in 1854, paragraphs translated from the Dutch papers published in Java announcing the arrival of a supply of *kina* plants, and wondering at first what the queer word could mean. It is very true that the species introduced by Hasskarl were not the best; but the same may be said of those which Markham brought to British India and Ceylon in 1860. Some of the crown barks were very good, but all were surpassed by *C. ledgeriana*, a quantity of the seed of which Mr. Ledger sold to to the Dutch Government and this plant has so flourished in Java, that the Dutch Colony is likely to be the chief source of cinchona bark for the world. We well recollect the enthusiasm which prevailed and the fortunes which were anticipated as we quoted Mr. Moens's reports of barks which yielded 10, 11 and 13 per cent of quinine. These were special trees, however, and the general average of Java bark now runs from 4 to 7 per cent. Even so, over-production has rendered the enterprise a blessing to the world without a compensating reward to the planters.

CINCHONA IN JAVA.

The gentleman who has kindly translated the following report for us remarks correctly enough that "Cinchona looks as poorly in Java as it does here nearly." Of course the Java bark has the advantage of being richer in quinine:—

Soekaboemi Agricultural Union, Soekaboemi, Java.
Feb. 26th, 1892.

Gentlemen,—In presenting the fourth yearly statistics of the Java factory cinchona bark harvest, we have the honour to offer the following remarks:—

The statement has been delayed by the commission (consisting of two of our members Messrs. O. van Vloten and A. Massink) who kindly undertook its preparation for the purpose of making it more complete than it has hitherto been, for which we consider that our best thanks are due to these gentlemen. The remarks obtained by them are as follows:—

	Kilograms of bark.	Kilograms of Sulphate of Quinine.
That in 1891 the actual harvest has been	3,479,883	= 152,670
That in 1892 at the present price of the unit there will be harvested	3,117,701	= 144,154
That in case of a rise in the price of the unit say 8 or 9 ct. there will be harvested	3,512,144	= 150,729

On the above we beg to remark:

1st. That this statement virtually includes every existing cinchona plantation, so that the statistics are more complete than they have previously ever been.

2nd. That the statement shows what the factory bark harvested is and is likely to be and does not refer to pharmaceutical bark.

3rd. It is satisfactory to perceive from these statistics that there is likely to be 18,516 kilograms of sulphate of Quinine less harvested in 1892 than was harvested in 1891.

4th. True it is shown that in the event of a rise in the price of the unit, the quantity harvested in 1892 may go up to nearly the same as in 1891, but according to more carefully instituted inquiries, such increase can only be effected by anticipating the harvests of following years.

5th. We think it well to point out that it is of the greatest importance, for the stability of cinchona market, that cinchona planters should send as regularly as possible similar quantities of bark to be put up at each public sale: as experience has proved that large quantities thrown irregularly into the market speedily cause alarm in Amsterdam, and it would much conduce to the interest of planters if importers were more prompt in withdrawing bark, when remunerative prices are not offered.—On account of the directors, G. MUNDT, President, and D. BURGER, Hony. Secretary.

Translated for the *Ceylon Observer* by J. D. Y., 9th April 1892.

THE German Government have made arrangements with Apotheker Finselback, late assistant in the botanical laboratory of the Geneva University, to proceed to the Australian Colonies on a scientific tour of investigation of the medicinal and economic plants of that part of the world. Herr Finselback, who is timed to leave Bremerhaven for the Antipodes on April 13th, will devote particular attention to the northern portions of Queensland, making the Carpentaria country the chief seat of his labours. He is not tied to time, however, and, after looking through the Northern Territory of South Australia, he will in all probability pay a vist to British and German New Guinea and the Solomon Islands.—*Colonies and India.*

DR. TRIMEN'S REPORT ON THE ROYAL BOTANIC GARDENS.

Dr. Trimen's reports are always full of interesting information regarding the valuable institutions under his care and the plants cultivated in them or distributed from them. On this occasion fresh interest attaches to the report for 1891, just issued, on account of the descriptions given of the kindred institutions in the Straits and Java. All who have visited the Buitenzorg Gardens and the Library, Museum and other accessories of the Gardens will feel that the truly imperial liberality of the Dutch Government deserves all the praise which the eminent Ceylon botanist bestows on the institutions of which Dr. Treub is the very efficient head. The publication which Dr. Trimen mentions under the title of "Teijsmannia" perpetuates the name of a previous able Director of the Buitenzorg Gardens.—If we have it not already in Ceylon, we cannot doubt that Dr. Trimen will at once take measures to introduce and naturalize the tree known botanically as *Eusideroxylon*, the hard wood of which is never attacked by termites. The pepper so valued in medicine known as cubebs seems already to have been successfully introduced into Peradeniya, and no doubt plants will be available a few years hence.—The tank which has been formed at Peradeniya and which enables water plants to be grown in sunk pots is a great improvement, as well as the substitution of the scythe for the grass knife in the treatment of portions of lawns, which the mowing machines cannot effectually deal with. The prolonged wet had acted deleteriously on giant bamboos and young palmyra plants. The palmyra is essentially a palm of the dry zone; but we are familiar with some fine specimens close to the seashore at Colombo. On this occasion, as on all others, we would impress on the Government and the members of the Forest Department the duty of extending the cultivation of this useful palm in the northern and eastern portions of the island. As Dr. Trimen shows, valuable fibre is now added to the excellent timber, fruit and saccharine juice which the tree yields. There was a considerable increase of visitors to Peradeniya and Hakgala during 1891, including the heir to the Russian throne, who planted an iron wood tree at Peradeniya opposite to a bo-tree which had been previously planted by the heir to the British throne. The year to which the report refers was exceptionally wet in the south-west and central regions of Ceylon, the rainfall at Peradeniya showing excesses of 34 inches of rain and 63 rainy days over the averages. The figures were 117·71 inches, against an average of 84·99, and 212 rainy days against an average of 149. Of the rain 27·73 inches fell in October. Similar weather, varied by drought and frost, prevailed at Hakgala, to the great detriment of walks and the destruction of plants. Mr. Nock complains of the dilatoriness of the Public Works Department in regard to a reservoir to provide against drought, and states that he is using brick labels to distinguish the plants grown at Hakgala after the example set at Peradeniya. It is interesting to learn that in the mountain gardens a quantity of cowslips and oxlips flowered amongst the ferns in February. Plums of superior kinds grafted on common stocks and good kinds introduced from Japan promise to be very successful at Hakgala, whence they can be distributed to the gardens of planters and others. The American blackberry also promises to be a success. The same cannot yet be said of cherries and raspberries. It is encouraging to learn that some of the conifers in the gardens have begun to yield good seeds, for deodar seeds from the Himalayas have, we believe, uniformly failed to germinate in Ceylon. What is said by Mr. Nock about the roots of *Acacia decurrens* shows that this wattle and its congeners ought not to be grown amongst or even near other plants. The tree and its roots and root shoots simply monopolize the soil. *Cupressus macrocarpa* is a success at Hakgala. The more 's the pity that plants of this tree and of *frenela*, *pinus*, &c., which had been grown successfully on the patanas were destroyed by a fire supposed to have been wilfully kindled. The putting out of plants on the patanas goes on. Mr. Nock is justifiably enthusiastic about the effect of a bed of phloxes of thirteen different colours. He dwells on the necessity of manure and states that he has opened a permanent limekiln. Two of his cattle were killed by a leopard. The weather at Hakgala, it will be seen, was abnormal. The minimum temperature on the grass registered five times below 40° and nineteen times below 50° in January. On the 30th of that month the frost was very severe at Sita Eliya, more native plants having been blackened by it than Mr. Nock had ever observed before. Severe drought and heavy rainfall were equally trying. The total rainfall for the year was 118·65 which fell on 205 days, being 33·51 inches above the average fall of seven years, but only one above the average of rainy days, a curious result, surely. The rainfall in October was 22·85 inches. The temperature of the air was—maximum 73°, minimum 41·5°. Highest in the sun's rays 148·8°, lowest on the grass 33·8° on March 1st.—The rainfall of the tropical gardens at Henaratgoda is given for the first time: 120·17 inches on 172 days, 22·51 falling in October. Dr. Trimen laments the paucity of visitors to these gardens, which we believe is largely due to inconvenient railway arrangements. There is a favourable report of the growth of trees and plants in the Anuradhapura gardens, in which, however, the people intended to be benefited appear to take not the slightest interest. The few purchasers of plants *are all Tamils*. What is wanted to waken up the inert Sinhalese is the extension of the railway. A like good account is given of the Badulla gardens where conifers specially flourish, but nothing is said of how the Uva natives appreciate the plants grown for them. The year was excessively wet, 142·48 inches of rain having fallen, of which 87·74 came in the last quarter, October showing no less than 41·67 inches. Badulla has been visited by heavy rainstorms in 1892 also.—Dr. Trimen's notes on economic plants are, as usual, valuable and suggestive. He rightly attributes the defective quality of Ceylon tea in 1891 to the excessive rainfall. From his report alone we learn that *helopeltis* has done little damage on lowcountry estates. In India and Java, the insect is a formidable pest. Dr. Trimen is of opinion as a result of his visit to Java that the cultivation of Liberian coffee was too hastily abandoned in Ceylon. There were two reasons: the fungus was prevalent and injurious in proportion to the size of the leaves, and the proportion of skin to fruit was great and pulping very difficult. Prices also were not so good as they now are. As to cinchona, the real advantage of Java is the possession of the high quality species, *C. ledgeriana*. Dr. Trimen remains of opinion that the high prices paid for Ceylon cacao is due simply to the superior treatment of the beans by our planters. Government are trying experiments with indiarubber trees, and Dr. Trimen gives an interesting account of the cultivation and preparation of gambier in Singapore. On this subject Mr. Ridley has prepared a most exhaustive

paper which we have marked for insertion in the *Tropical Agriculturist*. The survival of a calumba root plant at Peradeniya, supposed to have been dead years ago, is a curious event to record. The introduction of a new and superior kind of mahogany tree is also interesting. Altogether the Botanic Gardens report for 1891, of which we give the larger portion as a Supplement, will be found interesting and suggestive reading. We shall next look for the Flora of Ceylon, copies of the first volume of which Dr. Trimen may be ableto bring to the colony when he returns from his mission to the Imperial Institue.

CEYLON TEA FUND.

Minutes of proceedings of a meeting of the Standing Committee of the Ceylon Tea Fund held at Kandy on Friday, the 8th day of April 1892, at half past nine o'clock in the morning (9-30 a.m).

Present:—Messrs. Giles F. Walker (Chairman) Planters' Association of Ceylon), John Aymer (Hony. Secretary Dolosbage and Yakdessa Association), L. Stuart (Chairman, Dolosbage and Yakdessa Association), R. S. Duff Tytler (Sabaragamuwa), J. Anderson (Kandy and Matale West), A. E. Wright (Maskeliya), W. Cross Buchanan (Dimbula), J. H. Starey, Kandy, A. Philip (Secretary to the Planters' Association of Ceylon), Kandy.

The notice calling the meeting was read.

The minutes of proceedings of a meeting of the Standing Committee held at Kandy on Monday, the 4th January 1892, were taken as read and were confirmed.

Read letter from the Silver Kandy, Ceylon Tea Company, Limited, Manchester.

Read letter from Mr. Robt. N. Anley, Wattegama.

Read letter from Mr. Eric S. Anderson, W. Chas. Witham and Hugh B. Roberts.

Read letter from Mr. Joseph Fraser.

Read letter from Mr. C. J. Donald, the New Oriental Bank Estate Company, Limited, Colombo. Resolved:—"That while the Standing Committee of the Tea Fund cannot see its way to publishing the information asked for, there is no objection to the Agent of the Company or any one appointed for the purpose of obtaining the desired data personally at the Secretary's office."

Submitted letter from Messrs. J. M. Robertson & Co. Resolved:—"That referring to previous correspondence Messrs. J. M. Robertson & Co. be informed that the subscriptions they may send into the Tea Fund will be devoted as far as possible to the objects they may specify in accordance with their wishes."

Read letter from Mr. E. Bowden Smith. Resolved:—"That Mr. E. Bowden Smith's request be complied with."

CEYLON TEA KIOSK.

Read letter from the Manager Ceylon Tea Kiosk.

Submitted accounts for additional works in connection with the Tea Kiosk at Colombo. Resolved:—"That subject to the amount already voted with interest thereon not being exceeded the additional claim be referred to the Sub-Committee appointed for the purpose of establishing a Tea Kiosk at Colombo."

Read letter from the Chairman, Ceylon Chamber of Commerce.

ALLOWANCE TO CHICAGO EXHIBITION COMMISSIONER.

Read letter from the Colonial Secretary to the Chairman and his reply relative to the proposed allowance to be made to Mr. Grinlinton as Commissioner for Ceylon at the Chicago Exhibition. Resolved:—"That the reply by the Chairman of the Planters' Association be approved of by the standing Committee of the Tea Fund."

DEPOSIT OF CHICAGO EXHIBITION FUND SUBSCRIPTIONS IN THE COLONIAL TREASURY.

Read letters from the Colonial Secretary and from Mr. J. J. Grinlinton. Resolved:—"That the sum of R5,000 be paid into the Colonial Treasury to credit of the Chicago Exhibition Fund, and that the question of depositing the Chicago Exhibition Fund Subscriptions in the Colonial Treasury be brought up again at next meeting of the Standing Committee."

CHICAGO EXHIBITION.

Read letters from the Colonial Secretary and from Mr. J. J. Grinlinton.

Read letter from Mr. H. D. Deane on the subject of Exhibiting green teas at the Chicago Exhibition. Resolved:—"That the question be taken into consideration."

CEYLON TEA IN GERMANY.

Submitted letter to Mr. Schrader, transmitting copy of resolution of the Standing Committee of the Tea Fund as regards the subsidy of Ceylon tea as follows:—"That the Standing Committee of the Ceylon Tea Fund do grant to Mr. Schrader 5,000 lb. of Ceylon tea in two instalments for free distribution in Germany the Committee understanding that Mr. Schrader is prepared to purchase an equal quantity of Ceylon tea on his own account." Notified that up to date no acknowledgment and reply had been received from Mr. Schrader.

CEYLON TEA IN VIENNA, PRAGUE, KARLSBAD &C.

Read letter from the Directors of the Imperial Royal Austrian Commercial Museum stating that they are unable to state which qualities of Ceylon tea would sell best at Vienna but suggesting that a collection should be sent embracing all the qualities of Ceylon tea which they would submit to Vienna importers, who will then single out the suitable qualities. Resolved:—"That the Ceylon Tea Company Limited be requested to purchase and forward to the Directors of the Imperial Royal Austrian Commercial Museum, the following samples of Ceylon tea, viz. 5. 2 lb. packets of each quality viz.: XX. X. Y. Z., as made up by the Ceylon Tea Company."

CEYLON TEA IN RUSSIA.

Submitted letter to Mr. Rogivue forwarding to him the following resolution passed by the Standing Committee of the Tea Fund, viz.:—"That, in acknowledging Mr. Rogivue's letter, he be informed that the Standing Committee of the Tea Fund trusts to receive further accounts showing an increasing sale of Ceylon tea in Russia during the present year when the Committee will be prepared to consider what further assistance they may be in a position to give Mr. Rogivue at the next fair at Nijni Novgorod."

CEYLON TEA IN SWITZERLAND AND AUSTRALIA.

Read letter from Messrs. Whittall & Co. intimating (I.) that effect had, as requested, been given by them to the execution of the instructions given in connection with the following resolution, viz.:—"That a grant of 500 lb. of Ceylon Tea delivered free at Trieste duty paid be made to Mr. C. Oswald for gratis distribution in Vienna by Mr. Weiner," and (II) that the tea will be shipped by first opportunity.

CEYLON TEA IN CANADA.

Read letter from Mr. J. Anderson with enclosures.

ADVERTISING CEYLON TEA.

Read letter from Mr. K. Macandrew making suggestions regarding an effective advertisement of Ceylon Tea.

MAKING KNOWN CEYLON TEA BY LECTURES AND BY PHOTOGRAPHS.

Read letter from Mr. W. Herbert Jones, F.R.C.I., offering to further thoroughly advertise Ceylon tea in Great Britain by lectures on Ceylon accompanied by photographic views. Resolved:—"That a copy of the letter be forwarded to Mr. John Ferguson of Colombo in London for his opinion; and that Messrs Skeen & Co. be requested to state on what terms they would supply a set of photographs as indicated."

CEYLON TEA IN HUNGARY ROUMANIA, BULGARIA AND SERVIA.

Read letter from Messrs. Walker Brothers transmitting a letter from Mr. Hugo Graepel, Budapest. Resolved:—"That a grant of Ceylon tea in ¼ lb. packets will be made to Mr. Graepel for free distribution in Hungary Roumania, Bulgaria and Servia on his furnishing information *as to the port* to which the tea should be sent and by what line of steamer,"

Laid on the table the Ceylon Tea Fund accounts for the year ending 31st December 1891 and intimated that copies had been circulated to subscribers and others interested.

The Standing Committee of the Tea Fund then adjourned.

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

INDIAN TEA DISTRICTS' ASSOCIATION.

The usual monthly meeting of this Association was held at the offices, No. 14, St. Mary Axe, E. C. on Tuesday last, and was well attended. Mr. R. B. Magor occupied the chair.

OCEAN FREIGHTS.—It was proposed that the Calcutta Association was in full accord with the views of the London Association as to the objectionable feature of the rebate in the agreement hitherto existing, and it was decided, unless the rebate clause could be eliminated, to leave the matter of freight to open competition.

INLAND FREIGHTS.—It was further reported that the Calcutta Association was here also in accord with the views entertained in London, the Calcutta solicitors having strongly denounced the terms of the agreement proposed by the carrying companies. Instructions were given to take legal opinion on this side on the draft agreement prepared by the London sub-committee.

NEW MARKETS.—The chief subject before the meeting was the consideration of the vital question of co-operation among the planters both in London and Calcutta, for the purpose of maintaining and strengthening the position of Indian tea, more especially in regard to the opening of new markets in America and elsewhere. An able paper, written by Mr. Verner, of the Doors Company, was read, and formed the basis of discussion. After a full expression of opinion on all sides, it was unanimously resolved that a copy of the paper be forwarded to Calcutta for information and that a list of subscribers be prepared in London with a view to the formation of a fund, to be based on an annual contribution of four annas per acre that the list should then be forwarded to India for completion that side, and that the Calcutta Association be invited to name one or two members of the community here in London to specially represent their views as to the uses to which the fund thus formed, should be applied.

A strong opinion was expressed that it would be an advantage if closer relations could be established between the London and Calcutta Associations, and also that the Calcutta Association should endeavour to obtain a more general support than hitherto from the planting community in the various districts so as to combine more strongly all branches of the industry for the common welfare.—*H. and C. Mail*, March 25.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, March 23.

CINCHONA.—A rather considerable quantity of bark was again offered for sale at Tuesday's auctions. There were nine catalogues, totalling as follows:—

	Pkgs.		Pkgs.	
Ceylon cinchona ...	812	of which	756	were sold
East Indian cinchona...	1,501	do	1,401	do
Java ...	76	do	76	do
South American cinchona	513	do	441	do
West African cinchona	180	do	180	do
Total	3,082	do	2,857	do

The superiority of the Indian barks over those from Ceylon, not only in quantity, but in quality as well, was again very marked. The Indian barks included several very good parcels of orginal Ledger and renewed Succirubra cinchonas. The competition came hardly up to the level of that at the previous auctions, but nevertheless, nearly the whole supply offered was sold (excepting always the old Cuprea barks, to which the holders appear to cling with a fidelity worthy of better prospects) the average unit of the last sales (1½d per lb.) being fairly maintained.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Mannheim and Amsterdam works	131,615
Agents for the Frankfort o/M. and Stuttgart works	93,722
Agents for the Brunswick works	87,430
Agents for the American and Italian works	66,878
Messrs. Howards & Sons	55,194
Agents for the Auerbach works ...	51,470
Agents for the French works ...	18,100
Sundry druggists	68,368
Total quantity of bark sold	572,777
Bought in or withdrawn	80,033
Total quantity of bark offered	652,810

LONDON, 31st March.

ANNATTO-SEED.—Eleven bags seed from Ceylon sold without reserve; fairly bright quality at the low price of 1⅞d; dark at 1d per lb.

CROTON-SEED much lower, 24 bags from Colombo being forced off at low prices at today's auctions. Fair bright seeds brought 17s; dark ditto 8s to 9s per cwt. A lot of 13 bags common quality was bought in at 20s per cwt.

NUX VOMICA.—Several parcels were offered today. One from Ceylon, consisting of 115 bags fair medium to bold silky, and slaty sold at 9s 6d per cwt. Another parcel of 292 bags fair silky slaty colour, rather small size, from Madras, was bought in at 10s per cwt.; 9s 6d would be taken. These prices show a slight decline in value.

ESSENTIAL OILS.—Of Lemongrass oil, 9 bottles from Demerara (Verbena oil) sold at 1s 8½d per oz., while for Singapore oil 1½d per oz was accepted. Thirteen cases good Citronella oil brought ¾d per oz today.

CEYLON EXPORTS AND DISTRIBUTION, 1892.

COUNTRIES.	Coffee, Cwt			Cinchona.	Tea.	Cocoa.	C'mons.	Cinnamon.		Coconut Oil.		Piba	
	Plantation	Native	Total	1892 B'nch & Trunk lb.	1892 lb.	cwt.	lb.	Bales lb.	Chips lb.	1892 cwt.	1891 cwt.	1892 cwt.	1892 cwt.
To United Kingdom ...	12146	..	12146	1482656	30056858	8394	88421	290590	40996	85.99	21912	42418	129738
,, Austria ...	4631	159	4790	...	38964	...	11134	2100	1400	6552	951	..	123885
,, Belgium ...	15	..	15	321508	...	...	2500	22600	14000	1511	804	4742	106770
,, France ...	138	..	138	...	...	...	...	50800	112	...	2300	683	131984
,, Germany ...	129	..	129	...	45	...	...	83600	96328	8737	5338	5862	
,, Holland ...	...	...	...	59240	36521	90	2854	...	...	...	...	3586	
,, Italy ...	...	...	...	...	...	...	...	21600	17024	505	203	...	
,, Russia ...	...	...	...	...	936	...	...	...	...	...	1001	...	
,, Spain ...	...	...	...	...	250	...	...	50000	...	...	...	...	
,, Sweden ...	...	...	...	...	800	...	...	...	...	...	...	...	
,, Turkey ...	...	...	...	...	...	...	...	...	...	...	...	...	
,, India ...	...	...	...	...	...	...	...	...	...	25308	29562	167	
,, Australia ...	...	...	...	...	217739	...	51402	4096	224	565	603	43	
,, America ...	246	112	297	...	1151279	93	...	610	4144	51968	31390	72227	
,, Africa ...	2683	475	3408	...	53983	466	...	...	...	...	...	...	
,, China ...	62	311	373	...	2239	...	...	...	...	...	...	...	
,, Singapore ...	...	...	...	...	8698	...	...	2000	...	56	1061	...	
,, Mauritius ...	23	...	23	...	2958	...	...	...	...	510	...	...	
,, Malta ...	2	...	2	...	...	267	...	...	...	...	...	...	
	16	...	16	...	61677	...	...	...	...	...	...	...	
	...	...	...	...	2870	...	...	...	...	...	...	...	
Total Exports from 1st Jan.	...	...	...	1482656	30056858	8394	88421	290590	40996	85.99	21912	42418	129738
to 25th April 1892	20190	1057	21247	1663404	21660717	9230	154811	467986	174228	133837			
Do 1891	28251	1929	30180	1768758	20746144	10295	107787	634766	123973	97910			
Do 1890	44248	1063	45311	2609165	12355512	7796	139657	531730	120160	38480			
Do 1889	27601	2605	34206	3340699	9347217	7251	119782	981656	206539	98621			

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current. London, April 7th, 1892.)

EAST INDIA, Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY	QUOTATIONS
ALOES, Socotrine	Good and fine dry liver...	£4 a £6
Zanzibar & Hepatic	Common and good ...	40s a £5 10s
BARK, CINCHONA Crown	Renewed	3d a 8d
	Medium to fine Quill ...	4d a 7d
	Spoke shavings	2d a 4d
	Branch	1½ a 2½
Red...	Renewed	2d a 7d
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£6 10s a £8
Yellow ..	,, ,, ...	£6 a £7
Mauritius & Madagascar..	Fair to fine	£5 15s a £6 12s 6d
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine...	1s 6d a 3s 3d
Malabar	Good to fine plump, cliped	2s a 2s 6d
Ceylon. Malabar sort	Fair to good bold bleached	2s 3d a 3s 3d
	,, ,, medium ,,	1s 4d a 2s 2d
	,, ,, small	1s a 1s 6d
	Small to bold brown	1s a 1s 6d
Alleppee and	Fair to fine bold ...	2s a 3s 3d
Mysore sort	,, ,, medium ...	1s 4d a 2s
	,, ,, small ...	10d a 1s 3d
Long wild Ceylon...	Common to good ...	6d a 2s
CASTOR OIL, 1sts	White	3d a 3½d
2nds	Fair and good pale ...	2⅝d a 2¾d
3rds	Brown and brownish ...	2½d a 2⅝d
CHILLIES, Zanzibar ...	Fair to fine bright ...	67s a 80s
	Ord'y. and middling ..	55s a 65s
CINNAMON, 1sts	Ord'y. to fine pale quill...	6½d a 1s 5d
2nds	,, ,, ,, ,, ...	6d a 1s
3rds	,, ,, ,, ,, ...	5½d a 10d
4ths	,, ,, ,, ,, ...	5d a 9d
Chips	Fair to fine plant ...	2½d a 7d
CLOVES, Zanzibar	Fair to fine bright ...	3 a 3½d
and Pemba.	Common dull and mixed	2½d a 2⅞d
STEMS	Common to good ...	¾d a ⅞d
COCULUS INDICUS ...	Fair sifted	11s a 11s 6d
COFFEE	Mid. Plantation Ceylon	100s a 103s
,, ...	Low Middling ,, ,,	95s a 99s
COLOMBO ROOT... ...	Good to fine bright sound	22s 6d a 30s
	Ordinary & middling ..	16s a 20s
CROTON SEEDS, sifted...	Fair to fine fresh ...	15s a 20s
CUTCH	Fair to fine dry ...	24s a 34s
DRAGONS BLOOD, Zan.	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah & Turkey	Fair to fine dark blue ...	70s a 80s
	Good white and green ...	60s a 65s
GINGER, Cochin, Cut ...	Good to fine bold ...	90s a 100s
,, ...	Small and medium ...	60s a 75s
Rough...	Fair to fine bold ...	46s a 55s
,, ...	Small and medium ...	37s a 44s
Bengal, Rough	Fair to good	35s
GUM AMMONIACUM ...	Blocky to fine clean ...	50s a 90s
ANIMI, washed ...	Picked fine pale in sorts,	£11 a £11 10s
	Part yellow & mixed do.	£10 a £10 10s
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£8 10s a £9 10s
	Medium & bold sorts ...	£6 10s a £10
scraped...	Good to fine pale frosted	
ARABIC E.I. & Aden ..	sifted	55s a 80s
	Sorts, dull red to fair ...	35s a 5 s
	Good to fine pale selected	40s a 50s
Ghatti ...	Sorts middling to good...	25s a 33s
	Good and fine pale ...	65s a 80s
Amrad cha.	Reddish to pale brown ...	25s a 50s
	Dark to fine pale ...	15s a 50s
Madras ...	Fair to fine pinky block	
ASSAFŒTIDA	and drop	60s a 140s
	Ordinary stony to middling	20s a 50s
KINO	Fair to fine bright ...	70s a 72s 6d
MYRRH, picked	Fair to fine pale ...	£5 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 11d a 2s 3d
East African Ports, Zanzi-	White softish ditto ...	1s 7d a 1s 11d
bar and Mozambique Coast	Unripe root	10d a 1s 4d
	Liver	1s 4d a 1s 10d
	Sausage, fair to fine onsticks	1s 8d a 1s 11d
Assam,	Good to fine ...	1s 6d a 2s 2d
	Common foul & middling	9d a 1s 5d
Rangoon	Fair to good clean ...	1s 8d a 1s 10d
Madagascar, Tamatave,	Good to fine pinky & white	1s 10d a 2s 2d
Majunga and Nossibe	Fair to good black ...	1s 5½d a 1s 10d
ISINGLASS or FISH MAWS Tongue.	Good to fine pale ...	2s a 2s 6d
	dark to fair ...	1s a 1s 10d
Bladder Pipe...	Clean thin to fine bold ...	1s 6d a 3s
Purse ...	Dark mixed to fine pale	8d a 1s 4d
Kurrachee Leaf ...	Common to good pale ...	1s 6s a 2s 8d

EAST INDIA *Continued* Aast Coast Africa. Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet ..	3s 10d a 5s
	Ordinary to middling ...	3s a 3s 8d
Kurpah	Fair to good reddish violt	3s 2d a 3s 6d
	Ordinary and middling...	2s a 3s
Madras (Dry Leaf).	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 8d a 2s 4d
IVORY—Elephants' Teeth-		
65 lb. & upwards ...	Soft sound	£68 a £75 10s
over 20 & under 60 lb.	,, ,,	£55 a £70
40 a 100 lb. ...	Hard ,, ,,	£44 a £56
Scrivelloes	Soft ,, ,,	£33 a £48 10s
,, ...	Hard ,, ,,	£21 a £30
Billiard Ball Pieces 2¼ a 3¼ in	Sound	£85 a £93 10s
Bagatelle Points ...	Sli. def. to fine sound ...	£70 a £80 10s
Cut Points for Balls	Shaky to fine solid sd...	£57 a £66
Mixed Points & Tips...	Defective, part hard ...	£45 a £54 10s
Cut Hollows ...	Thin to thick sli, def to sound	£35 a £56
Sea Horse Teeth—		
⅜ a 4½ lb.	Crvd. crkd & close strght	1s a 4s 7d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	10s 6d a 11s 9d
	,, II, fair pickings	7s a 8s 6d
	Jubbleporel, good & fine pale	9s 3d a 10s 6d
	,, II, fair rejections ...	7s a 8s 6d
	Vingorlas, good and fine	8s 6d a 9s 6d
Madras, Upper Godavery	Good to fine picked ...	10s a 10s 9d
,, ,, ...	Common to middling ...	7s 9d a 8s 6d
Coast	Fair	8s 9d a 9s 3d
Pickings ...	Burnt and defective ...	6s 3d a 7s 6d
MACE, Bombay ...	Dark to good bold pale...	1s 10d a 3s
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,, ...	65's a 81's	2s 8d a 2s 10d
	90's a 125's	2s a 2s 7d
NUX VOMICA Cochin, Madras and Bombay	Fair to fine bold fresh	10s a 11s
	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour..	½d a ¾d
LEMONGRASS ...	,, ,, ,, ...	1½d
ORCHELLA WEED Ceylon ...	Mid. to fine, not woody	20s a 25s
Zanzibar ...	Picked clean flat leaf ...	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy...	3d a 3½d
Alleppee & Tellicherry	,, good ,, ...	
Tellicherry, White ...	,, ,, ,, nom	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 25s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 8s
RED WOOD	Fair and fine bold ...	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	60s a 80s
	Ordinary to fair ...	40s a 55s
	Inferior and pickings ...	20s a 30s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs ..	Fair to fine flavour ...	£35 a £60
,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	50s a 80s
SENNA, Tinnevelly ...	Good to fine bold green...	8d a 1s
	Medium to bold green...	5d a 7d
	Small and medium green	2½d a 4d
	Common dark and small	1d a 2d
Bombay ...	Ordinar to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—bold c'ean...	87s 6d a 95s
	medium part stout	97s 6d a £5 10
	oyster and chicken	80s a 95s
large	BOMBAY—good to fine thic	75s a £5 15s
medium part stout	clean part good color	£5 10s a £6 17s 6d
chicken part stout	,, ,, ,,	£5 2s 6d a £6 12s 6d
oyster part thin ..	,, ,, ,,	65s a 90s
Mussel	bold sorts	45s 6d a 52s 6d
	small and medium sorts	31s a 43s
Lingah Ceylon ...	Thin and good stout sorts	6s a 12s
TAMARINDS	Mid. to fine black not stony	10s a 12s
	Stony and inferior ...	6s a 8s
TORTOISESHELL ...	Sorts goos mottle pathe ivy	22s a 25s
Zanzibar and Bombay	Pickings thin to heavy	9s 6d a 16s
TURMERIC, Bengal ...	Leamish to fine plump finger	17s a 19s
Madras ...	Fin. fair to fine bold brgt	23s a 26s
,, ...	Mixed middling... ...	16s a 23s 6d
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 18s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	6s a 12s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	4s a 6s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for May :—

Vol. III.] MAY, 1892. [No. 11.

IMPROVEMENT OF SEED.

THE SELECTION and production of good seed is a subject of the utmost importance to the agriculturist, and yet no attention whatever is paid to it by the grain cultivators of India and Ceylon. Mr. Hallet, whose name is associated with the improvement of wheat in England, started his experiments some 35 years ago, and proceeded in this wise: He chose a single head of fine quality, irrespective of size or vigour, $4\frac{3}{4}$ in. long, containing 47 seeds. These grains were carefully planted in rows, one seed 12 inches each way. At harvest the plants were compared, and the best head of the best plant planted next year, and so on year after year, chosing the head from the most prolific plant. The first year the best plant bore 10 heads, the second 22 heads, the third 39, the fourth 52, the best head of which was $8\frac{3}{4}$ in. long and contained 123 grains. This was the origin of Hallet's famous "Pedigree" wheat. Mr. Hallet, writing on this subject, gives it as the result of his mature experience, that every fully-developed plant, of any cereal, has one ear superior in productive power to any others on the plant; that every such plant has one grain more productive than any other, and this best grain grows on the best ear, and the superior vigour of this grain is transmissible to its progeny: that by selection this superiority increases: that the improvement is at first very rapid, but in successive years it gradually grows less: that an improved type is the result, and by careful selections the improvement can be kept up.

Experiments conducted by Dr. Gustave Marck at the Experimental Station, Leipsic, and at Halle, in Germany, go to show that a larger, better and more uniform growth is obtained from large seeds,—the superiority being shown in every particular, in height, luxuriance of growth, uniformity, aggregate weight, number of ears or pods, number of seed, weight of seed, quality of the crop; in fact every desirable characteristic was in favour of larger seeds. Prof. Lebemann of Munich had the same results. Prof. Buckman of England experimented with seeds from malformed and misshappen root crops, and finding that they produced greater deformities than their parents presented, concluded that a degenerate progeny and a poorer crop will, as a rule, result from badly-grown roots. Prof. Darwin states that since the cultivation of beet for sugar, in France, the plant has almost exactly doubled its yield of sugar, and this has been effected by the careful and systematic selection of roots for seeds. At one of the late Agricultural Conferences in Brisbane, the following piece of advice was given by Mr. David Clarke:—"Every farmer and gardener should select a well-enriched piece of ground for his seed-plot. This plot should be enriched by fertilizers to keep it up to the highest possible standard of excellence. Every tiller of the soil should acquire a habit of close observation. In passing through his crops his eye should be ever on the alert for a superior cob of maize, a cob ripening earlier, an ear of wheat with a larger grain, or possessing some superior properties. He may have several varieties to seclect from; let him select the best, the variety showing most good points, mark the plants by tying a piece of tape or something noticeable, when ripe, lay carefully past, and at sowing time plant it, leaving plenty of space for the plant to be fully developed. Let this selection be continued with care, and I will give a guarantee that the seed-plot will

be the most profitable portion of the farm. But remember it must be kept up to a high state of fertility."

Here then is instruction that can be followed with little difficulty, for the improvement of seed only by selection presents none of the difficulties encountered in attempting to improve seed by hybridising. Improvement by selection is carried on by tea and cocoa planters, and to some extent also by the more enlightened coconut planters of the present day, but owing to the fact of the coconut palm being a perennial growth, it will be a long time before good results are generally evident, while the bad results due to the carelessness of the coconut planters of past days, evidenced by the wretched condition of many estates at the present time, will remain yet a while to point a moral. It has been objected to in the system of paddy cultivation by means of transplanting seedlings raised in a nursery, that the plan is tedious and almost impracticable in the case of extensive paddy lands. If Mr. Clarke's advice be adopted, the result of raising up a hardy and prolific paddy crop might be arrived at by an easier though perhaps slower route : for if our cultivators keep small nurseries for improving seed, select the best seeds of the best ears each season for their specially cared-for nurseries, and sow the rest in the fields, while they improve the fertility of their land by more thorough and intelligent cultivation, they will at the same time improve the seed which is to be sown upon the land.

OCCASIONAL NOTES.

We accord a hearty welcome to Mr. Lye, M.R.C.V.S., the newly-appointed Veterinary Surgeon to the Ceylon Government. Mr. Lye will have his office at the School of Agriculture.

Mr. A. W. Jayawardene, who has performed the duties of practical instructor at the School of Agriculture since the foundation of the institution, intends before long to sever his connection with the School, whose interests he has faithfully served. Mr. Jayawardene began his studies in Science at the Ceylon Medical College, and subsequently left for Madras, where he entered the Agricultural College at Saidapet. On his return to Ceylon Mr. Jayawardene was chosen by Mr. H. W. Green, the founder of the Colombo School of Agriculture, to be the first pioneer Agricultural teacher in the Islsnd, and be it said to his credit, that with characteristic pluck he carried on his work in an unassuming manner through little good and much evil report, and helped greatly to bring the institution into its present satisfactory condition. Owing to the death of his father, Mr. Jayawardene wishes to be free to manage the family estates, consisting principally of land granted by the Government to his late grandfather for meritorious service rendered during the Cotta rebellion.

We have received from Mr. Tiathonis, the Agricultural Instructor at Madampe, Sabaragamuwa district, a small but excellent collection of fibre and ropes prepared by him, and consisting of the following:—Rope made from Kota-dimbula patta (*Ficus hispida*). Rope made from Kalawel patta (*Derris scandens*). Rope made from Wal-beli patta (*Paritium tiliaceum*). Rope made from Nava fibre (*Lasiosiphon eriocephalus*). Rope made from Walla patta (*Gyrinops walla*). Rope made from Patharaja patta. Rope made from Patt Eppala (*Urena lobata*). Rope made from Liniya fibre (*Heliceteres Isora*). Samples of nava fibre. Samples of bandakai fibre (*Hibiscus esculentus*), and rope made from bandakai fibre grown in the Experimental Garden at Wellandura. Rope made from telambo fibre (*Sterculia fœtida*).

When chemical science came at first to be allied with agriculture, it was fancied that the chemist had only to analyse the soil to say what was necessary to grow a particular crop, and that if he analysed the crop after being grown he would know at once what to apply to give a full return. Chemistry has done a great deal for agriculture; but in the matter of soil analysis it has as yet been able to give farmers very little assistance in regard to what manures should be used on particular fields. The analysis of a manured crop is also little guide as to what the manure to be applied should consist of. For instance, few crops contain more nitrogenous material than one of beans, peas, or clover; and yet on land in average condition nitrogenous manures applied to these crops are not only, comparatively speaking, useless, but if applied in large quantity are actually deleterious.

The cultivation of the sunflower has spread enormously of late in Russia, and in the south-east the sunflower furnishes a prominent product of the farm. Two kinds of sunflower are grown —one with small seeds, used for the production of oil, the other with large seeds, consumed by the people in enormous quantities as dainties. The oil, owing to its nutritive qualities, purity and agreeable flavour is said to have superseded all other oils in many parts of the country, and when properly prepared is equal to French table oil in colour, flavour, and taste. Poppy and hemp seed oil have entirely given place to sunflower oil which is in great favour with the people. The cake is used for cattle food, and is largely exported, principally to Germany and England. The Government of Saratov alone exports 2,000,000 lbs. to different countries where more oil is expressed before the cake is used as cattle food, for which purpose it is looked upon as the best in Russia, being considered even better than hemp or rape seed cakes. The sunflower shells, which are used for heating purposes, not only in private houses but large factories as well, form an article of trade in several districts. The seed cups are not wasted but are used as food for sheep; if dried and ground they can be very successfully used for cattle food. The sunflower stalks gathered from the field and dried in piles, have entirely replaced firewood in South Russia; in fact, they are preferred even to pinewood, producing a great and hot fire. About 2,000 lbs. of such firewood are gathered from one acre. The total number of oil mills in Russia was, according to the last accounts, 104; of there 85 are applied solely to obtaining sunflower oil. Twenty-four mills are worked by steam, the rest by hand power. In

the Journal of the Society of Arts for March 12th, an account of the process of the extraction of the oil is given. The cultivation of the sunflower in Russia is generally considered very profitable, and it is extending owing to the increased demand at home and abroad for the seed. At the average yield of 1,350 lbs. of seed to the acre, and at the average price of ¾d. per lb., there is an income of about £4 an acre, and this can be increased where the grower expresses his own oil. Two kinds of oil are obtained from the sunflower: the better kind is sweet and more expensive, the infeior having a bitter taste, and is ½d. cheaper. The oil not fit to be used as food is used in certain industries.

Professor Kinch of Cirencester, writing on plant food, in the *Farmer and Stock-breeder*, says, that the amount of water present in the atmosphere in the form of invisible vapour, is very varying, and may be from less than ½ to 3 per cent. The higher the temperature, the more water vapour can be held in the air. In England the average amount of moisture in the air is about $1\frac{4}{10}$ per cent. An immense amount of water is required by plants to carry on their life processes and make up the loss by transpiration. It is estimated that to produce a bushel of wheat, about 15 tons of water are required. In England about 3,000 tons of water are annually deposited. There is about 21 tons of carbonic acid gas for each acre of the earth's surface. The fact that carbonic acid was decomposed by plants, with the fixation of carbon and the evolution of oxygen, seems to have been first shown by Sennebier about a century ago, though Priestly and Ingelhousz had been very near it previously. It was however clearly proved to be the case by experiments of De Sanssure and Boussingualt.

The *Indian Agriculturist* referring to the Bombay Veterinary School, to which one of the assistant masters of the School of Agriculture proceeds next month, for a course of training, says:—"As a school of veterinary medicine it is doing useful work, as is evidenced not only by the number of young men trained within its walls, but also by the number of animals sent there for treatment. In its inception the hospital was intended as a charitable one for the assistance of those who were unable to pay the fees of high veterinary skill. But like other institutions of its kinds its benefits are more appreciated by the rich and intelligent classes than by the poor and the ignorant. It is only natural that the knowledge of such a hospital should spread more quickly among the intelligent than among the ignorant; but when we find that its benefits are in danger of being monopolised by well-to-do clients it is necessary that some change should be made to deter such persons from using the hospital without adequate payment. At present the only charge is for feeding the animals, all the rest is free. The time has come therefore to charge a sufficient fee for veterinary attendance. The fee, no doubt, will be paid gladly, for horses are sent there not to save money but to obtain the highest skill available, and these fees will permit the society to extend its usefulness by providing large accommodation for those who cannot afford to pay fees. If the horse stables are full the same cannot be said of the cattle sheds. There is accommodation for about two hundred beasts, of which not half is ordinarily occupied. The poor are ignorant and timid, and are naturally averse to sending their animals to a place where they are not allowed to interfere with them. They have no idea of the treatment which will be followed, of the time they will be deprived of their beasts, or of the cost which will be incurred. It is, moreover, a novelty, and the poor are suspicious of novelties. Many of them shrink from using the public hospitals when they are sick, and they do not see the use of sending their bullocks to hospital. These prejudices have to be overcome, and the hospital authorities have, we may assume, been working quietly but surely in popularising the institution. But it is clear that in the beginning the poor must be drawn to the place by the most liberal and considerate treatment, and by fees which must be nominal. When it has once taken hold of the public the rush to the hospital will be noticeable, and it will be time to raise the fees to something like the real cost."

A gentleman, whose duties impose on him a good deal of travelling, and who often meets with our Agricultural Instructors about the country, urges upon us the great importance of a proper system of inspection over the students of the school who have been stationed in remote parts of the island. By this system of inspections, we are told, the Agricultural Instructor will always have some one to consult in their difficulties, while the Agricultural Inspector will be able to personally (and that is the only satisfactory way) find out for himself what work is being done at each station, criticise and censure where necessary, approve and encourage where such action is warranted, and in fact give each Instructor such "tips" as in 9 cases out of 10 would never occur to his mind. Our informant spoke of these instructors in a sympathising tone: "Poor fellows," he said, "it is too bad to leave them all alone in some dark place of the earth and expect them often to solve agricultural problems that would puzzle an expert." In some cases, we were told, the Agricultural Instructors are under the sway and terror of some native provincial grandee who poses as Agricultural Director in his district, against whose dictum it would be madness to proceed. Others, again, we are informed, are being misdirected by those who it might be expected would guide them. Much more of the difficulties and dangers that attend the agriculturist abroad was poured into our ears, but our informant being a traveller, we may pardonably regard all we heard as "traveller's tales," till we can have the very best reason for believing it. Still, the fact remains that such things are possible, and while the possibility exists, the danger of the reality exists also.

In every department the system of inspection has been found not only to be good but absolutely essential for the satisfactory progress of the work of that department, and though a distinct agricultural department does not exist *per se*, it is most necessary that minor agricultural

officers should be regularly visited by an Inspector qualified to be conferred with our agricultural matters, involving points relative to soil, climate, elevation, rainfall, aspect and crops, and the hundred and one minutiæ embraced in the apparently simple process—the cultivation of the land.

THE CULTIVATION OF THE COCONUT PALM.

It may now be supposed that the imaginary estate of 100 acres having been planted, and protected, as far as possible, from enemies, has begun to yield crops—having some 9,000 good specimens of the palm originally planted 23 or 24 feet apart. The Indian corn and manioc which was raised during the early stages will have been sold off the land and yielded a fair return. The fences will have now past the stage when they require earnest attention and may be stacked away in some convenient place to be utilized as firewood. It will now be necessary to build a store for the nuts, and select a fine high site, fully exposed to the sun, for a copra ground.

It is usual to pick once in three months or four times a year, the nuts which keep falling during the intervals being of course collected. Where trees are young and small in stature the nuts are easily picked with a very short pole, but when the trees are tall, a long pole with a scythe-shaped cutting implement bound to the end of it is used. Bamboo poles are generally used when procurable. In the case of an old estate, where the trees are so tall as to make picking difficult, the nuts are simply allowed to fall in the course of nature. Nuts to be made into copra are cut into two with an axe (4 men will cut from 10 to 15 thousand in a day) and thrown into position by small boys trained to the work, that is to say, the two halves are placed kernal upwards on clean white sand and exposed on the barbacue to the burning rays of the sun ; on the approach of rain all the available lads are called in, and the position of the nuts reversed, that is, the husks upwards and the kernel downwards. When the sun comes out again the original position is reverted to, but at night the kernels are turned downwards again.

In very hot weather copra dries sufficiently in three or four days, some kernels falling out of their shells of their own accord. The bulk of the kernels are however scooped out of the shells by women and children, and the copra now separated from the shell is spread out for a final drying, and afterwards put into bags or stored away for some period before doing so.

Well-made copra should be perfectly white, and should crackle when crushed in the hand. When injured by rain or damp it gets brown, mouldy and discoloured, but will sell for not very much less than the good stuff, to owners of oil mills. In fact it is said that this latter description of copra yields oil more easily.

The drying of copra on hot sand is the most inexpensive process, and if sufficient care be exercised there need be no damage. I know of one instance where drying trays fixed to trollies are used, but this apparatus is too expensive to become popular.

From about the middle of November to the close of the rainy season, no copra can be made, as the rain will interfere with the process. All nuts should therefore be stored till the good weather comes round again. It is a good plan not to sell nuts unless a large number is demanded for export. One of the evil consequences of selling nuts in small quantities in the neighbourhood is, that there is no chance of identifying stolen nuts.

A coconut estate is a great blessing to the people in the neighbourhood, who in addition to the small earnings resulting from fishing or raising vegetables, have the opportunity of adding to their income by giving 4½d. worth of work on a coconut estate.

R. Atherton.

INDIGENOUS FOOD PRODUCTS: CULTIVATED AND WILD.

Chenapodiaceae.

70. *Basella Alba,* L. Sin. Niviti.

This is a plant with a twining stem. It is generally cultivated in the vicinity of houses and in vegetable gardens. The leaves are dark green and fleshy and of an ovate shape with entire margins. The flowers which spring from the axils of the leaves produce a large number of seeds in long clusters. These are at first of a green colour with a pinkish mark on the top, but when ripe they are jet black and soft, yielding a red-colouring matter in abundance when bruised.

The leaves and the stems which are all succulent are used as food made into curries. The clusters of young fruits are also much relished when fried in oil. The plant possesses very cooling properties, but native medical practitioners believe that it causes windy complaints. It is, however, one of the commonest vegetables and is consumed largely. There are two other varieties of Basella common here,—one is the *S. Ratniviti,* var. Rubra. This too is a perennial twining plant with succulent leaves and stems, but the stems and the harder tissues of the leaves are all of a red colour. It is not so common as the first noted variety, but it is used as a food whenever cultivated.

The third variety is only a modification of the first-mentioned two brought about by cultivation. The plant resembles one or other of the former, but does not grow to a large size.

Elæagnaceae.

81. *Elæagnus Latifolia,* L. Sin. Katuembilla.

This is a wild plant growing in the jungles of the warmer regions of the island. It has strong creeping stems with many branches having a large number of sharp spines. A characteristic of this plant is the ashy grey colour of the back of the leaves, and the surface of the stems.

The fruits are oval and are small in size. When young they are of a green colour, and when ripe attain to a pinkish white appearance, the fruit being succulent at this stage. The berries of the *E. latifolia* have a very pleasant acid taste, and are eagerly sought for by those who frequent the jungles.

Euphorbiaceae.

82. *Aporosa Lindleyana*, Baill. Sin. Kebella.

This is a tree growing in uncultivated places, sometimes attaining to a medium size but often seen as a low shrub. The leaves are ovate and entire, and have a shining green appearance.

The tender leaves of this plant form a good vegetable and are eaten made into curries.

The twigs are often used by native cultivators in shading small plants.

W. A. De S.

BLACK SAND.

The black sands which occur on the sea-shore in some places, are composed of titantiferous iron and magnetite—the insoluble residue of such rocks as basalt. Among other places, these sands are found in the Bay of Naples, Taranaki and New Zealand.

Titaniferous iron ore (Ilmenite) an oxide of iron and Titanium, is black in colour, and occurs as a common accessory mineral in basalt and other allied igneous rocks. Magnetite, ferroso-ferric oxide, is also black, magnetitic, and found as an accessory mineral in a very large number of igneous rocks, in some of which (as in basalt) it is often abundant.

In 1868 the fact of the occurrence of black sand around the Northern coast and the possibility of iron being remuneratively extracted from it, were brought to the notice of Mr. O. Russel, Government Agent of the Northern Province, by the Assistant Government Agent, Mr. Massie. The former having communicated with the Hon'ble the Colonial Secretary on the subject, a sample was sent to the Chamber of Commerce in order to ascertain its value. In the course of this enquiry as to the commercial value of black sand, the Master Attendant furnished some information from a Mr. Holliday of Calcutta. Mr. Holliday forwarded an analysis made by Mr. Waldie, (of the Chemical works at Calcutta) who stated that the black sand contained 29·2 of magnetic oxide of iron consisting of 22·2 % of the metal and 7 of oxygen. No other metal was found to be present, and the sand was said to resemble that of Canada and New Zealand, where it was of value, and where restrictions were placed on mining and digging for it. In Canada, where the black sand was found very pure and not mixed up with silica and earthy matter, gold was associated with it, and it was stated that the occurrence of black sand indicated the presence of other metals.

The late Dr. Koch, on being consulted, declared that no graphite was present in the black sand, and that beside containing oxide of iron, it also contained black mercurial dust derived from gneiss or granite. He had not tested quantitively for iron, but gave it as his opinion that he did not think there was sufficient iron present to pay cost of extraction.

The question also arose as to where the black sand which was so general, occurring as it did both in the North and South coasts of the island, came from; whether it was thrown up from the sea bottom or washed out by rivers from the land. Dr. Koch declared that it was brought to the coast by the sea, being found generally in the vicinity of rocks, and was not, as supposed by some, carried into the sea by rivers from inland deposits.

NORTHERN PROVINCE JOTTINGS.

Among the fibre-producing trees of the northern province are: Thalai (*Pandanus fascicularis*), Atti (*Ficus glomerata*), Inchu (*Phœnix zeylanica*), Âl (*Ficus Bengalensis*), Itti (*ficus retusa*), Maravili (*Cordia monica*), Maral (*Sansiviera zeylanica*), Erukalai (*Calotropis gigantea*), Vellam purri (*Hilicteres Isora*), Vinnanka (*Pterocarpus suberifolium*).

Other fibre-producing plants are Vel-itti, Urali, Vedatal, Tekil, Velai, Annamanna, Kayaddi, Mara-illupai.

Pul-paddy and pull-rice are the grain of *Panicum psilopodinm* taken from ant nests where they have been stored after collection by the ants. Chilanthi rice consists of the bulbs of a sedge (*Cypressus bulbosus*).

Tillai wood oil is the product of the tillai tree (*Dipterocarpus levis*) and tillai wax is a species of lac produced by the agency of an insect. Tillai wood tar is prepared by burning dried chips of the wood of this tree; it is purchased by toddy-drawers to tar coconut and other palm trees to prevent ants creeping into the toddy pots. The Tillai tree grows in marshy ground. Tillai wood tar is a good substitute for ordinary coal tar.

Palai oil is used like coconut oil, and there is a trade in this oil yet to be developed. The poorer classes go in crowds into the jungle in July and collect the fruit of the palai (*Mimusops hexandra*) upon which they temporarily subsist. The expressed juice of the fruit keeps for 8 or 9 months. The fruit is produced in abundance and is suitable for making jams and jellies.

Margosa toddy is the sap which oozes from margosa trees. It is said to be good for rheumatism.

The honey of the large bee sells at about R6 per gallon; paddy and pepper are put into the honey to prevent fermentation. The honey of the small bee is deficient in formic acid; it does not keep well nor is it much used.

Urupiray arrack is named after a village called Urupiray. It is illicitly got from jaggery, toddy, and vevel (*Acacia leucaphlœa*) bark, and is of a white and red (coloured by barks) colour. It is much in favour.

Mill coconut oil sells at about R1·25 per gallon; oil got by boiling sells at 5 to 10 per cent higher; gingelly, ilupai (Sin. *Me.*) and margosa at R3 per gallon; punnai (Sin. *Domba*) and castor-oil R1·50 per gallon; cow-ghee at R6 per gallon; buffaloe ghee at R4.

Other animal oils and fats besides ghee, prepared in the North, are fish oil got from the fat of fish and used for mixing with resins fo

dammar, dugong oil which resembles cod liver oil, turtle oil which is used medicinally, and bears' grease used in preparation for promoting the growth of hair.

The pure transparent vinegar known as crystal vinegar sells at R2 per gallon, while black vinegar—darkened by the addition of roasted paddy to white vinegar—sells at R1·25 per gallon.

Seed paddy, after a three days' drying, is stored in Mannar and the Vanny in large straw receptacles (*paddari*) or smaller ones (*churunai*). In Jaffna the seed paddy is stored in large or small ola bags, known as kudai and umal respectively.

THE KITUL PALM.

Uses.—The starch which is contained in the pith of the palm, is prepared into a kind of porridge called in Sinhalese *talapa*,—a very palatable dish, which I am inclined to think is as tasty as any plain English pudding. In the months of December or Jauuary the pith becomes full, and the people avail themselves of the season to cut down the trees for collecting the starch. It is worthy of note that those trees which have not been tapped for toddy generally contain a larger proportion of starch, probably owing to the retention of the elaborated sap within the tissues of the tree; while the amount of starch is appreciably smaller in trees tapped for toddy. When a kitul tree is cut down (which is always a fully developed one) the leaves are first stripped off, and the stem is split into two. At least, four persons are required to carry on this operation. The starch which is found collected in the upper part of the tree is sliced into fine pieces and washed repeatedly. It is then put into a clean mortar and pounded till the pieces are reduced into very minute particles. After this it is put into a strain with water. The filtrate enters into another vessel half full of water placed beneath, and settles down at the bottom in the shape of a fine semi-liquid flour. The water is then removed, and, after a while, the partially-liquid substance coagulates into a solid. The flour which is of a light brown colour is then put into a pan and gently heated over a fire and continually stirred while being heated. The result of this cooking is talapa—a dark brownish substance with a very pleasant odour. It is not desirable to partake of talapa as soon as it is prepared owing to a peculiar though not unpleasent taste which it then has; it is usually prepared in the evening and eaten the next morning either alone, or with jaggery, treacle or sugar, or with a mixture of coconut milk with a little salt. The addition of salt is not so much to bring about flavour, as to counteract certain bad effects and to promote speedy digestion. Native medical practitioners prescribe talapa as a very effective remedy for patients suffering from bilious diseases and other com plaints. It is also good for drowsiness. Talapa, besides being cooling and refreshing, thus possesses valuable medicinal properties. It is believed that one of the Kandyan Kings relished talapa to such a degree that he specially set apart a man to prepare this pudding and bring it to his palace every morning, granting him fields in con sideration of his services. In this connection I may mention that the pith of the Katu Kitul (or wild kitul palm), which has also a pleasant taste, is eaten raw. I was surprised to see whilst ascending the Ambuluwawa mountain, which is about 3,507 ft. in height, during the last vacation, about a hundred of these palms grown in very close proximity to each other. The trees, which looked very flourishing, were grown at abcut the middle of the mountain, and closely resembled arecanut palms, both in height and circumference, except that the epidermis of the former is intersected with a thick coating of acicular and penetrating spines, which make it quite impossible to any mortal to climb up the tree. The sheaths are used as rude water receptacles by the poor peasants, and the leaves which are very inflammable make excellent torches. A kind of dark brown cotton is found sticking to the midribs of the leaves, and a white kind of cotton in the inflorescence. The Kandyan villagers collect this cotton, dry it in the sun, and keep it preserved in the house; and in cases of emergency when no fire is to be got, they take some of this cotton, place it on a stone, and strike it forcibly with another stone or a hammer, with the result that the sparks emitted by the concussion seize on the cotton and set fire to it.

The spathe of the kitul palm inflorescence is always used in the extraction of oil from the nuts of the kekuna tree (*Aleurites moluccana*), and also for the construction of Singhalese measures, such as seers, chundoos, &c. I am also informed that the tender leaves at the crown of the palm are sliced and made into an excellent pickle and a curry by the people of the Southern Province, and that the spathe is also used in the preparation of "jaggery horns.' If a needle-shaped splinter of kitulwood were to prick the human body, the result is a swelling of the part accompanied by much pain.

It is said that the kitul trees in the metropolis and subsurbs are not tapped for toddy, owing to the difficulty of procuring the services of professional toddy-drawers. There is no doubt that the most important process connected with this palm is the extraction of toddy and the preparation of confections which result thereform. The Kandyans are admittedly experts in the art of kitul toddy-drawing. In the course of conversation with men versed in the art, they have expressed their willingness to serve in Colombo on condition of receiving half the produce of the trees, or a months' stipend of R10 or R15 with a supply of food and cloth.

In my next contribution in continuation of this subject, I shall give a traditional account of the origin of kitul toddy-drawing, and a description of the various methods adopted in the extraction of toddy.

T. B. Pohath Kehelpannala.

[In my contribution on paddy ceremonies to the March number, the term for bags should be *pellali* and not pellai: the expression goyanmadinawa is used for threshing and not for ploughing.]

(To be continued.)

INDIAN FOREST PRODUCTS.

Indian forest trees, says a writer in the *Indian Agriculturist*, which number more than 2,000 species, differ entirely from those which are common in Europe; in Great Britain, for instance, there are only about 40 species of indigenous trees. The following which are the most conspicuous forest trees are referred to: The Deodar sometimes reaches a height of 200 feet; of all timbers its wood is the most durable, lasting for centuries.

The sandalwood of South India is a small evergreen; the heartwood is the valuable part, being used for incense and carved work.

The teak is hardly less durable than the Deodar, and its timber has taken the place of oak. Gold is among metals what teak is among woods. It is durable, light, not very hard, easily polished, and does not split or warp.

Mahogany is hardly indigenous, and is said to have been brought over by Carey the Missionary; the Indian timber is said to be as good as that of the American tree.

Both Sal (*Shorea robusta*) and sissoo (*Dalbergia sisso*) produce very durable timber; the sal is very hard, but the sissoo is much used for furniture with fine polish.

Khair (*acacia catechu*) produces a wood used for oil mills and rafters, as well as the valuable tanning material known as Catechin or Cutch. The Indiarubber tree (*Ficus elastica*), produces the caoutchouc exported from Calcutta; the export of rubber from India alone is sometimes of the annual value of £150,000.

It is the *people* of India, says the writer, who supply the forest revenue in their payments for firewood, charcoal, grazing dues, bamboos, gums, fibres, and other minor produce. To the Native of India the bamboo supplies almost everything, even food in time of scarcity. Besides the ordinary uses the different parts of the bamboo are put to, it is said, that under proper appliances the fibre seems destined to have an important influence on paper manufacture. The lac insect which is artificially propagated in Bengal and the Central Provinces, produces the substance which yields the shellac and lac-dye of commerce, so well known in sealing wax. The wild gums of forests are now beginning to be valued as they deserve. The yellow gum of the gurjun or wood balsam tree (*Dipterocarpus levis*) has been discovered to be a specific for leprosy. The naturalized paper mulberry of Japan yields the Tapa cloth of the South Sea Islands.

The excellent collection of forest products at the late Agri-Horticultural Show in Colombo was a most interesting and instructive object lesson, and the only pity is that the collection was not preserved in its integrity in the Colombo Museum or the School of Agriculture, and a catalogue with notes on the different exhibits was not drawn up. There is of course a collection of this nature being made by the Director of Botanic Gardens at Peradeniya, but the existence of such a collection would not lessen the value of, or interest in, a similar one that would be easy of access to students in the Metropolis.

GENERAL ITEMS.

Some interesting experiments were carried on on the three Government Farms at Seebpore, Burdwan and Samraon during the past year. At the last mentioned place, fields under paddy were subjected to deep-ploughing and treated with different kinds of manures. With transplanted paddy a mixture of crude saltpetre and linseed cake gave the heaviest out-turn, and with broadcast paddy cowdung produced the best results, while deep ploughing, to a depth of 4 or 5 inches, gave an increase in out-turn of 24 seers of grain, and 3 maunds 20 seers of straw per acre. The *Indian Agriculturist* considers these experiments uncertain, and remarks that the results of the same experiment vary much in different seasons.

Canon Bagot mentions that a substance called lactite, which resembles ivory, is now being manufactured from skim-milk. The water is expelled from the milk, and the solid matter is first compressed and then turned in a lathe into various shapes.

The plan of killing the orange scale insect in California would seem to be an intricate and expensive one. An air-tight tent is placed over the tree, and this is charged with gas generated in an open earthenware vessel by mixing one ounce each of sulphuric acid and dry cyanide of potassium with two ounces of water.

Very successful artesian well experiments have been concluded on a large cattle station in Queensland. Altogether 6 bores were made to an average depth of 2,000 feet, and in each case a supply of clear, pure water has been obtained.

Synocardia adorata, from which the fruit we know as Chalmoogra is obtained, is found in the Terai jungles, running along the base of the Garrow hills, and no doubt at one time, ere the destructive *jhumer* so ruthlessly dealt with the forest, extended all along the adjoining ranges. The tree attains a height of about 20 feet ere it flowers, but occasionally it reaches 60 feet; and as the localities in which they are found are covered with dense jungle these forest giants are surrounded by their self-sown progeny in all stages of development. The rainfall in this Terai jungle averages 300 inches. The soil in which the plant is found is a sandy loam, submerged several times during the year by water impregnated with lime particles from the formation of that mineral, which abounds in the vicinity. The oil is much appreciated in China and Persia; but whether it possesses all the therapeutic properties claimed for it, we are not in a position to say, though we have no reason to infer the claims are exaggerated.

Mr. John Speir, of Glasgow, lecturing lately on the principles of manuring, began his lecture thus:—Plants, like animals, require a certain quantity and quality of food, and unless they are provided with such they dwindle and die, no matter how favourable their other surroundings may be. In the animal world we have one class of beasts called herbivorous, which feed on

plants, and another class called carnivorous, which feed on flesh, and the one can no more live on the food of the other than a fish can live on the land, or a cow in the water. So with plants, we have three great families, reckoned from a manurial point of view, to which all plants belong; and, as a rule, what is food for a crop of beans, peas, or clover, speaking roughly, is no more food for a cabbage or ryegrass than a bunch of clover is for a dog, or a pound of steak to a bull calf. In speaking of our own food, we have a proverb which says, 'That what is one man's meat is another man's poison,' and although this is only true of the human race in extreme and isolated examples, it is an ever-present fact in the case of the food of plants.

In the neighbourhood of dense forests, the air near the ground is moister and the dew heavier than in the open country. A guage placed upon the crowns of the trees in forests, collects more rain than one outside at the same height. Well stocked forests are a perfect shelter against scorching winds. There is no doubt as to their value in protecting the soil and regulating the natural drainage, while they diminish floods and control torrents.

THE REPOPULATION OF PALESTINE.—Practical steps have at last been taken towards founding a colony of Russian and Polish Jewish exiles in Palestine. Finding that the funds at the disposal of the Chovevi Zion Association and those that are likely to come in are limited, and that it is not considered advisable to establish a colony with less than a hundred families, the committee have negotiated with the New York and Odessa societies, and arranged to purchase, through the intervention of Baron Edmond de Rothschild a tract of land, forty miles east of Lake Tiberias, which is described as extremely fertile. The cost of the land is two thousand pounds only, of which sum about two-thirds are already in hand. The general emigration will, we learn, be preceded by a pioneer mission, for which also funds will be required. It will consist of ten or twelve young men, who must leave their families and go out prepared to "rough it," to live in tents and till the land, to make paths and roads and to sink wells. When this work is done the first set of families will be sent out; and from year to year others will follow as their resources increase.

The Consul for Sweden and Norway at Bombay writes to say that as the seed of Wagner's improved *Lathyrus sylvestris* and that of the wild variety are very much alike, the latter is sold for the former, with the result that the properties in the former do not appear. The Consul offers to put correspondents in the way of getting the best and hardiest seed at a fair price, and give any information about the plant.

The total import of palm oil into England is about 50,000 tons valued at over £1,000,000, but it is considered that this is an exceedingly small trade, compared to what might be the case were the enormous resources fully utilized. Besides being used in the manufacture of soap and candles, palm oil is used in the process of preparing tin plates. Its non-drying qualities render it valuable as a preservative of the surface of the heated iron sheet from oxidation until the moment of dipping into the bath of melted tin, the sheets being rapidly transferred to that from the hot oil bath, which consists almost entirely of palm oil.

The students of the School of Agriculture visited the Royal Botanical Gardens, Peradeniya, and the Dematagoda slaughter-house, last term.

At the last meeting of the School of Agriculture Improvement Society, Mr. Nallatamby reda a paper on the Palmyra Palm.

Mr. J. T. de Silva of Moratuwa (an old boy, now engaged in work under the Forest Department) writes:—There is an enormous granitoid rock at the foot of a hill in this (Pasdum) Korale known as Pahingala by the villagers who hold it sacred, and have built near it a temple. At one time wild beasts sought shelter under it, but it is now believed by the villagers to be the abode of a very large bird called by them "raja-kurulla" or royal bird. Great numbers of bats also seek shelter in the hollows of this rock, and the excreta of these birds have been collected by the villagers for manuring their fields.

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FORAGE GRASSES AND FOREST RESERVES.

THE point discussed between Sir Arthur Gordon and Mr. John Ferguson on the recent occasion of the latter's reading his paper before the Royal Colonial Institute, as to the retention of forest reserves in our higher ranges, is of interest in more than one respect. Substantially, perhaps, both those gentlemen were in real accord in their views, though these appeared to differ. Both desire that the crests of our mountains which still are crowned with forests should retain their pristine glory of wood, but Mr John Ferguson believes that these might yet be utilized, and made to become a source of considerable revenue. The idea of the latter gentleman is that, while retaining the forest trees as conducing towards an equable distribution of rainfall, the undergrowth might be cleared away and superior grasses cultivated which would become extremely valuable for pasturing live stock. Now many experiments have been tried to improve the grasses growing in this country, but hitherto it can scarcely be said that anyone of these have been attended with success. Certainly in every instance under our own observation grasses introduced and sown with this object have rapidly and fatally deteriorated. Even with all the care and attention that can be and has been devoted to such small areas as garden lawns, that deterioration has soon become manifest; and it seems to be hopeless to expect to induce imported grasses to retain their valuable characteristics when exposed to the fierce heat of the tropical sun of this island. But Mr. John Ferguson's proposition seems to us to open out a vista of some chance at least of success. No one can have passed through the dense forests of our lower and most arid districts without coming across considerable areas of fine succulent grass growing beneath the shade of the giant trees. Of this all cattle eat freely. We do not know by what name this grass may be istinguished, but it seemed to us to partake dore of the character of a clover than of grass properly so-called. But at all events it is certain that it is a valuable fodder growth; and perhaps, were attention fully directed to the subject, it might be possible to become so acquainted with its full characteristics and with its needs as regards soil and shelter to enable it to be widely propagated throughout our hill forests when the undergrowth has been removed therefrom. We should welcome any suggestion that can be offered upon this subject. The question, as it seems to us, is as to whether it would be better to extend past experiments made with imported grasses, or to study more closely the nature and habitat of such as are seen to flourish in certain protected situations of the character we have described. So far as we ourselves recollect, the short rich grass we have mentioned flourishes on a very poor soil. It is more dependent, we suspect, upon moisture and shade than upon richness of soil; but such conditions would be readily obtainable in the forests which yet crown our hilltops. The only doubt upon our minds is as to whether the sloping land which prevails in these situations would permit of moisture being retained sufficient for the nutriment of this grass. But, on the other hand, if drainage is more rapid, so is the rainfall more constant and regular. It would be very desirable if the undergrowth were cleared in such forests to try the growth of a finer description of grass than they at present yield and which we suspect to have but little value as a fodder grass. The close short herbage of the forests of our lower country would fully supply such a want could it be induced to grow in our higher altitudes, and the attention of our foresters might profitably be given to some experimenting with it in the direction named. From opinions offered by the late Director Thwaites of Peradeniya and from experiments tried on the Nilgiris by the Madras Government Botanist Dr. Lawson, it seems certain that several of our indigenous hill grasses can be largely improved in fodder quality by being converted into hay. There would be the additional advantage in this process, that the utilization of forest-grown grasses in this mode would obviate the objections which forest officers might offer to cattle grazing amongst the forest trees.

PREHISTORIC CORN.

A dispatch from Burden, Khan., says:—A. J. Mercer, living near this city, has a patch of corn which is the rarest ever grown. The patch is small, but the grain is a kind that has never been seen in this country before. Last spring Mr. Mercer opened an ancient mound on his farm, and in it found a lot of corn, along with certain prehistoric relics, showing that the corn had been put in there years ago. There

was a peck of it, and it was in a sealed jar. He gave about half of it away to neighbours and others who wanted it for a curiosity. He thought it would be a good idea to plant some of it, and prepared a piece of ground near his house for that purpose, planting about two quarts of the seed. It sprouted and thrived well under cultivation given it. The ears came well, when harvested. They are about six inches long, and the grains, which are small, being about one-fourth the size of the ordinary corn, are close together, standing up with sharp points. Mercer thinks that this must be the original corn of the country, from which the present Indian corn has sprung through long and high cultivation. What is remarkable about it is that the mound from which it was taken is undoubtedly very old, for on it are growing trees that show by their rings that they are over 200 years old. The relics found with the corn are similar to those found in mounds of Ohio and Illinois, and this mound must be co-existent with those which are thought to be over 1,000 years old. Mercer has sent samples of his corn to friends in the East and the Government officials at Washington.—*American Miller.*

THE HOME OF THE TEA KING.

(*Communicated.*)

Crowning a respectably sized hill somewhere about five miles beyond Stanger township the traveller notices an extensive, imposing building in Renaissance style, which commands a vast and distant view, even as far as to the Etshowe camp in British Zululand. The rugged, hilly nature of this part of Natal has not interfered with what has turned out a remarkably successful colonial industry, viz., the tea planting, and it is no idle boast to say that the success of this now flourishing industry has been due to the indomitable perseverance and dogged pertinacity of our energetic colonist, Mr. John Liege Hulett, M.L.C. The start of this great work was made with a few hundred tea bushes in 1887, which were obtained from seed as far back as 1880. The preliminary five acres of five years ago have developed into over 300 acres on Kearsney estate alone, quite 170 acres on Mr. Hulett's adjoining estate, Kirkly Vale, and over 100 acres on a third and new estate called Bulwer, situated about nine miles from the first, the leaf being, however, all treated at the central works adjoining Kearsney Hall.

The Bulwer estate specially will be worked on the Central Mill system, that is, leasing portions of the land to small growers, the proprietor purchasing the leaf and manufacturing as before mentioned.

Being a great lover of good tea, the visitor soon spotted the active anti-responsible leader in one of the enormous fields, covered with the profit-bringing low bush, planted in long rows of marked regularity.

The information required was most willingly given by Mr. Hulett, who said the Natal tea plant was originally obtained from Indian seed, a variety of Assam, and proved itself admirably adapted for the colony, so much so that the yield in Natal per acre is far in advance of the same tea per acre in India, and fully equal to the producing power of other tea countries, such as Ceylon, &c.

"Mr. Hulett, it has often been stated that the rainfall in Natal is too small to give a successful tea leaf crop, compared to India and Ceylon? As one of the veteran growers you can no doubt give me information on this point?"

Mr. Hulett answered deliberately, that his experience was the hard fact, that with the smaller rainfall the returns are actually larger in Natal than other tea-growing countries, because in these the rain comes down with tropical violence in great masses, whilst in the garden Colony of South Africa the rain descends in the form of genial showers, which the thirsty land absorbs thoroughly, and the water therefore is not wasted. The rainfall in this part of Victoria County is usually about 35 to 50 inches per annum, and the usual climate experienced is the day breaking with heavy fogs, obscuring the distant country, and on lifting giving a hot sweltering heat which is most suitable for tea culture. No frosts are experienced which would be fatal to the plants.

Tea takes seven years to mature, though the first picking is done at the end of the third year from time of planting, increasing year by year as the plants develop. The yield and quality of the leaf depend entirely on the class of soil, favourable seasons, and care bestowed in cultivating the plants. Between the second and third year the yield of the tea leaf, that is, the light green flush or young leaves which sprout out on the top of the bush, may range between 100 lb. to 200 lb. of dry tea per acre, and even more. The following season that return may be doubled, and by the time the tea bush is at its maximum power, the yield can be from 800 to 1,000 lb. of dry tea per acre per annum. The proprietor of Kearsney has, for instance, taken from an area about 20 acres in extent quite 1,200 lb. of dry tea per acre in a year, and that from plants between five and six years old. This wonderful bush gets an age of quite 25 years, but in Indian plantations, plants growing for 20 or 40 years are still flourishing; and it is also interesting to learn that the tea tree grows naturally to a tree, ranging from 28 to 30 feet in height, with a stem having a diameter of about six inches, but is, of course, always kept stunted to a bush not above two or three feet in height. It is cultivated for plantation purposes in long rows, each bush four to five feet apart, and trained by pruning into the shape of saucer-shaped tops, in order to have the maximum area extent for picking surface. At Kearsney Estate the plantations cover hills and valleys for long distances, and are protected by huge hedges in the shape of tree belts, mostly blue gums, which break the cutting power of the winds.

The natural labour supply of Natal only being available to a very limited extent the veteran tea planter finds it necessary to employ about 200 Indians, who, with their wives and children are all busily employed either in the fields, picking leaf or pruning and weeding plants, or in the large works, of which a description follows. To the casual visitor in Natal it is most pertinent that the many agricultural and planting enterprises in the colony in which large capital has been sunk, similar to the tea industry that takes years to develop, the whole success depends entirely and solely on a reliable and steady labour supply, which is efficiently kept up by the Indian immigration system. In contrast to this, the genus "Arab merchant" might well be dispensed with, for more than one reason, from the colony.

The yield of tea in 1887 was about 300 lb. This industry has developed in the last five years to such an extent that this season a market will have to be found for Kearsney teas for over 300,000 lb. of dry tea.

The adjoining tea plantations are Clifton and Nonoti from which large quantities of young teas are being sent, also some very good qualities, and from 10 others; from the latter the leaf is all manufactured at the extensive Kearsney works. The total extent of the tea planted in the immediate neighbourhood of Kearsney is about 1,500 acres.

Being anxious to know how the tea is made into the palatable beverage "we all love so," from old ladies downwards, I followed the genial proprietor into the large works adjoining the stately mansion, and here met Mr. Drummond, the gentleman who is in charge of them. From him I gained the following interesting details regarding the various processes.

The green leaf is brought into these works by the coolies who deposit their baskets, containing about 25 lb. on the scales to be weighed. It is calculated that the green leaf is about four times the weight of the dry tea; that is, 1000 lb. of green leaf will yield about 250 lb. of tea. From the scales in the about... leaf is carried to the withering basement, the... evenly and thinly spreading lofts, where it is ... by the active out over huge flat stacks ... little coolie and rapid hands of dozens of ... children. This being the first process, takes about ... hours on a warm day. Usually the plucked leaf is ready the next morning to undergo process No. 2. From the lofts the now withered leaf passes through

shoots below into the huge iron rollers driven by steam, and consisting of two large flat tables moving in rapid rotating motion. Usually half-an-hour suffices, but in cool weather it is often extended to an hour. The third process is the fermenting stage. This is a most important process, as under-fermentation produces poor quality tea, and overfermentation is fatal to quality and gives sour tea. The leaf is fermented to a bright even salmom colour, and when the correct stage is reached, it passes into the drying machine, called a Barry & Gibbs' long, cylindrical, rifled dryer. The tea leaf once inside is precipated round and round for about 15 minutes in an intense heat, and after the whole tea leaf has passed through, it goes through the same treatment a second time more rapidly, and issues from the machine virtually as tea, as we know it. The remaining process is the fourth one, viz., the sifting. Various sieves, with of course differently-sized meshes, produce the fine or rough qualities in the tea; the rougher kinds being the poor sorts and cheaper ones.

These large works at Kearsney are well worth a detailed visit. Ample lofting accommodation, two huge steam rollers, two patent dryers, sifters and cutting machines, with two steam engines of not less than 10 horse power, do the ever increasing work. Large store rooms, where an enormous stock of tea is kept in bins, with a large packing department, with busy children packing up the fragrant leaf and labelling packets for outside trade form a busy and most interesting scene. Mr. Hulett's sturdy sons have built nearly the whole of these works, including a large steam saw mill, where the trees from the estate are cut up until they issue as neat packing cases and also extensive stabling. Over 200 Indians are employed on the estate, who are in charge of Sirdar Poniah Pillay, a learned Bengalese, who, besides supervising his flock, is quite capable of entering into a philosophical argument with the visitor.

Kearsney Estate, its proprietor and his family show a most remarkable illustration of the old proverb, "Unity is strength;" and that the industry initiated by Mr. Hulett and his family will prosper to a still greater extent must be the sincere wish of everyone who desires to help in the local watchword: "Advance fair Natal."

—*Natal Mercury.* L. W.

MR. A. ROSS'S PAPER ON PERU.

MR. CLEMENTS MARKHAM ON CINCHONA PRICES.

At Monday's meeting of the Royal Geographical Society Mr. Alexander Ross read an interesting paper on his journeyings in Peru. Mr. Ross is a Ceylon planter, who formed one of a small party of Englishmen sent out to Central Peru last year under the auspices of the Peruvian Corporation (Limited)—to whom a considerable part of assets of the country has been pawned by its rulers—for the purpose of investigating its economic resources from a planters' point of view. In the course of his paper Mr. Ross observed that he had come across a Peruvian coffee-grower who had many cinchonas around his coffee-fields, and who told him that fifteen years ago, when he started coffee-planting, the land was covered with large numbers of the same trees; but, as he did not know what they were, he simply had them cut down and burnt. (N.B.—South American cinchona bark was worth from 3s to 5s per lb. at that time.) Mr. Clements Markham was present at the meeting, and took part in the discussion. In the course of his remarks he called attention to the fact that whatever economic products Peru produces are usually the best of their kind; and he instanced coffee, rubber (the Pará rubber of commerce, much of which is really produced in Eastern Peru), wool, and cinchona. Although of the 43,000 bales of bark imported into London in a year only 8,000 came from South America, he said, it was a significant fact that East Indian bark did not now rise in value above 9d per lb., whereas that grown in Peru realised 1s 9d to 2s per lb. The moral he deduced from these figures was that "if you (the Peruvian Corporation) undertake the cultivation of cinchona on your new land in Peru, the average prices of bark will advance to more than double o what they are now." It may seem presumptuous to contradict Mr. Markham on a subject upon which he is so eminent an authority; but we must take leave to challenge these statements of his. The cinchona barks to which he apparently alludes are the "Loxa" and "Huanoco" barks of commerce, which realise high prices (though not so high as he stated) not on account of their richness in quinine—which is much less than that of good East Indian bark—but simply because there is a certain demand for them in some Continental countries for certain pharmaceutical purposes—a demand which rests, we think, entirely upon a fanciful basis, and which would be altogether unequal to the absorption of large quantities than are now placed upon the market. Apart from this, the cost of carriage and of harvesting these barks is so great that they could never pay if grown as quinine barks. The cultivated Calisayas of Bolivia have not paid their growers for a long time. Only last year, as we announced at the time, one of the principal among them had to give up the struggle, and about the worst use, we should think, to which the Peruvian Corporation could put their acquisitions would be to plant cinchona upon them.

THE PIONEERS OF THE EASTERN CINCHONA INDUSTRY.

Mr. Ross's statement that "the valuable medicinal plant cinchona was first introduced to the Eastern world by Mr. Clements Markham" is also one which in justice to a distinguished botanist now living in ripe old age and in close retirement in a small German country town, should not pass unqualified, especially as the services rendered by Mr. Markham himself are so conspicuous that his brilliant reputation can suffer nothing by the recapitulation of the strict facts of the case. Leaving out of account the introduction in the forties of cinchona plants and seeds by Weddell into France, and by certain unnamed individuals into Algeria, as these efforts led to no practical result, the honour of first introducing the cinchona plant into the "Eastern world" belongs unquestionably to Justus Karl Hasskarl, a German botanist sent to South America in quest of the plant by the Dutch Government, and who, after a long and perilous expedition, delivered twenty-one Wardian cases of cinchona seedlings on board of a Dutch man-of-war, sent there expressly to receive them, in the port of Callao on August 21st, 1854, some years before Mr. Markham set out from Europe. Hasskarl's surviving plant reached Java in December, 1854. Mr. Markham shipped the 456 seedlings which were the pioneers of the cinchona industry in British India at the port of Islay, in South America, in June 1860. But in the meantime a quantity of *Lancifolia* seed, procured by Karsten in Colombia, had also been sent to Java on account of the Dutch Government in 1854. Mr. Markham's exploits might also have been run close, but for untoward accidents, by Mr. George Ledger, who, about the same time as Mr. Markham himself, succeeded in collecting a supply of seeds and plants in Southern Peru, but whose expedition was destroyed by Indians on its way to the coast. It is owing principally to Mr. Markham's powerful advocacy of the claims of his less fortunate rival that Mr. Ledger's merits in the pioneer-work of the cinchona industry have been somewhat tardily acknowledged as they deserve. Flückiger and Hanbury, in the 1879 edition of the "Pharmacographia," for instance, make no mention whatever of Mr. Ledger's expeditions.—*Chemist and Druggist*, April 1st.

SALE OF CEYLON GOLDEN TIPS IN SYDNEY.—The *Queenslander* of 2nd April says:—

Messrs. Murrell Bros., of Sydney, have forwarded us a sample of the golden tip Ceylon tea, which was offered at Messrs. Fraser and Co.'s tea sale last week on account of Messrs. Parbury, Henty, and Co., and of which they became the purchasers after brisk competition. The price paid was 57s per lb. A larger price for a similar sample has been obtained in Melbourne, but this is the highest sum ever paid for tea in the Sydney market. The tea is of excellent flavour, having that delicate aroma which is a distinctive feature of the Ceylon leaf.

REPORT ON PERU BY MESSRS. A ROSS AND A. SINCLAIR.

We now publish (see page 885) the Report of the Commissioners, and very able and interesting it is. We feel as we read that of a large portion of the land of the Incas it may be said, "If there is an Elysium on earth it is this!" It is a land of tropic luxuriance, the forest trees of which are said to dwarf those of the Ceylon jungles into insignificance, with a soil rich beyond comparison, requiring only to be scratched, or in the dry region irrigated to laugh with abundance of all possible products, from wheat and potatoes, to coffee and cacao. With all this the demon malaria does not haunt this earthly paradise. How he came to be banished is the problem we should like to see solved; for prominent in history stands the record that the Countess of Chinchon, wife of a Viceroy of Peru, was cured of malarious fever by a decoction of that "Peruvian bark" which perpetuates her name in the mutilated form in which Linnæus wrote it, and which Markham has chivalrously but vainly striven, although with the aid of the Indian Government, to restore to its proper proportions in the shape of CHINCHONA. Thomas Moore during a visit to Byron in Italy commenced a glowing appreciation of a glorious sunset when his brother poet stopped him with "Come, Tom, don't get poetical." The Commissioners from the Peruvian Syndicate having no mentor but their own Scotch sense of propriety and "douceness," that state they found it difficult in describing the land and its riches to adhere to the usual sober language of official reports. On the banks of the Perené river there is the selected tract of forest land one and a quarter million acres in extent interspersed with a few "pajonals" (the equivalents of our patanas), the forest trees being magnificent, while the wealth of orchids gave evidence of sufficient rainfall for coffee and other tropical products. The nature and the luxuriance of the vegetation were the only means available to the Commissioners by which the amount of rainfall could be estimated for, Messrs. Ross and Sinclair affirm that not only has no record of the rain ever been taken in Peru, but that such a thing as a rain-gauge has never been introduced into the country! What has the representative of Peru in Britain, who recently read a paper on his country, to say to this token of backwardness? He can no doubt point in compensation to a railway which ascends the Andes to over 12,000 feet altitude, and to a series of good roads in course of formation. But in most countries an essential preliminary to such works is to ascertain the rainfall to which the works in course of construction and when completed are likely to be subjected. Peru is, however, a land of anomalies, a tropic land with a rainless seashore climate, varying only from 68 deg. to 72 deg.; no malaria, no land leeches, very few mosquitoes, and wheat and potatoes growing to altitudes of 8,000 and even 10,000 feet, while the Peruvian satinwood is an ebony. The "alfalfa" (lucerne) grows luxuriantly; and on the elevated grass lands llamas, vicunas, alpacas and sheep in plenty are fed. Specimens of cinchona—succirubra and calisaya—were seen 6 feet in circumference! These trees had probably seen Peru a Viceroyalty of Spain. The coca plant, so valuable for the anesthetic it yields, formed the undergrowth in much of the land selected, and its cultivation on a large scale is recommended. The land is in 11 deg. South, and is described as suitable for tea amongst other products; but as the Commissioners specially describe the land and climate as differing from those of Ceylon in being a land of flower and fruit, rather than of leaf, we should think attention will be specially directed to such products as coffee (which yields at the rate of 24 cwt. an acre) and cacao. The great difficulty will be that of a good labour supply. The indigenous labour cannot be depended on, and there are but few Chinese left of those introduced in former years. We should think, therefore, that all the labour which can be procured will be required for the cultivation of coffee, cacao and coca. It is stated that the Chinese make good labourers is kept away from centres of population, but naturally enough the chief reliance is placed on Tamils, so that we may ultimately look for competition from Peru in our region of labour supply. We need not be much alarmed, however, as the Indian Government is not easily satisfied with the proposals to remove its people to remote and foreign countries. Like Mr. Clark, Messrs. Ross and Sinclair, in their glowing accounts of Peru, say nothing of liability to seismic and political disturbance. The Commissioners make much of the exemption of Peru from the effects of tearing monsoon winds, and that evening breeze which in Australia is so disagreeable and in India so deadly. But we in Ceylon are beyond the region of volcanic disturbance, we enjoy the *pax Britannica* and with occasional little difficulties we have the essential advantage of a sufficient, steady and reliable labour supply. There is one point in this able and interesting report, regarding which we should like to have an explanation. It is stated that there is a potato yet to be introduced from Peru superior to anything hitherto known. Let us have this new variety of potato by all means. It is amusing to read that besides calculating the rainfall by the general character of the vegetation, the proper zone for coffee was indicated to the ex-Ceylon planters by the existence of *ageratum*,—the much abhorred "white weed." It is also curious to learn that oats are a prevalent indigenous weed in Peru, while such exotics as the Australian eucalypts flourish amazingly. Amongst the native trees is a beautiful evergreen willow, which, it is believed, would be a great acquisition to Ceylon. The species of screw pine of which the Panama hat is made is also common. Cultivation is carried on in this wonderful country to over 12,000 feet altitude, while grazing is successful up to 15,000 feet. Only the mineral region seems to be cold, barren and so rugged as to be difficult of access. Extensive pampas and beautiful lakes are spoken of as adding to the attractions of the scenery. Sugar culture at present absorbs attention in Peru, the rum which accompanies it being unfortunately a source of demoralization of the people as well as of profit to the distillers. Let us hope that this culture may be superseded by that of coffee, which with irrigation can be grown almost anywhere in Peru, under 7,500 feet of altitude. At present rates of transport by pack animals are prohibitory, and so a railway is recommended in addition to water carriage on the Amazon, for the accommodation of the tract selected on the banks of the Perené. Naturally enough, a land in which wheat, barley and potatoes grow in close juxtaposition with sugar, coffee and other tropical products is deemed suitable for being colonized and settled by men of all races and from the most varying climes. With the opening of the Oroya railway, and the completion of roads in course of construction, it is stated, the facilities will be all that could be wished and such as never previously existed in Peru,

FROM THE METROPOLIS.

April 1st, 1892.

"PERU" AND THE ROYAL GEOGRAPHICAL SOCIETY.

The reading of the paper by Mr. Alex. Ross took place on Monday evening last, and I send you a copy of the same, for which no doubt you will be able to make room in the *Literary Register* as well as *Tropical Agriculturist*. Here it will be sufficient to give the summary which appeared next day in the London *Times*:—

CENTRAL PERU.

Last evening, at a meeting of the Royal Geographical Society in the theatre of the University of London, Burlington-gardens, a paper by Mr. Alexander Ross, on "A Recent Journey to the Head Waters of the Ecayali, Central Peru," was read by Sir Alfred Blunt. Sir M. E. Grant-Duff, the president, took the chair. There was a good attendance, including Lord Donoughmore, Mr. Clements Markham, Sir Beauchamp Walker, General J. T. Walker, Major Darwin, Colonel Church, Mr. P. L. Sclater, Señor Pezet (Peruvian Consul-General), Mr. J. Scott Keltie, and the author of the paper, who is understood to have been prevented by a cold from reading it himself.

Mr. Ross said that the journeyings of which he proposed to give some account were undertaken by desire of the Peruvian Corporation of London for the exploration of the central territory of Peru, with the view of selecting and inspecting lands which the corporation had the right of acquiring, and to report generally upon their suitability, climatic conditions, and other matters affecting the industrial geography of that part of the country. He was accompanied by Mr. Arthur Sinclair, who, like himself, had spent many years planting in Ceylon; and also, for research in economic botany, by Mr. P. D. G. Clark, assistant at the Royal Botanic Gardens, Peradeniya, near Kandy, Ceylon. Their travels, which lasted five months, were confined to the central portions of the interior, and extended, leaving out the railway journey from Lima to the terminus at Chicla, from the latter point in the direction of the Amazoner basin as far as the rapids the Rio Perené on the east, the towns of Cerro de Pasco and Huanuco—the latter on the Rio Huallaga—on the north, to Jauja, Huancayo, Comas, and Andamarca on the south and south-east, also, to a limited extent, on the western coast north of Callao. The area visited was not of great extent, regard being had to the immense territory they had set out to explore, and had been visited by several competent travellers in the past, while in quite recent years the Peruvians themselves had done much for a knowledge of their interesting country. After a close description of the country, Mr. Ross stated the conclusions at which he had arrived. Not much of the Sierra visited by them, he said, was suited to modern systems of tillage. But in the Montana there were vast areas at suitable altitudes well adapted for settlement by European immigrants. In the lower parts of the Amazon basin, in a climate more or less unsuited to white labour, immense tracts awaited only the introduction of Chinese or the Indian coolies to turn what was now a magnificent forest wilderness into a rich and thriving province. The Central Railway would have been completed to Oroya in June next, and the Chanchamayo road would be opened soon thereafter. In continuation of these, and to connect them with the navigable waters of the Amazon, the survey of a railway line had already been ordered. The immense influence these would have upon the future of Peru and its progress would then become apparent. At present, to those who had not seen that country's varied and unlimited mineral resources, its grand forest, its rich soil and splendid rivers, a full realization of the future of Peru was impossible.

In the course of the discussion which followed the reading of the paper,

Mr. Clements Markham dwelt upon the improved fertility of Peru, pointing out, among other things, that four crops of maize were to be got there every year, and that each head of this maize was four or five times larger that that of any other part of the world.*

Señor Pezet and Lord Donoughmore also bore testimony to the opportunities which the natural richness of the country afforded.

I may mention, in addition to the above, that the dinner which preceded the lecture Mr. Ross had the opportunity of giving in a few minutes a brief indication of the contents of his paper, at the request of the Chairman, Sir M. Grant-Duff, in responding to the toast of his health. The Chairman was further interested when he learned that Mr. Ross's colleague was his old acquaintance Mr. Sinclair who took Eden House, Banff, from Sir M. G.-Duff, when he retired from Ceylon. At the public gathering, there was a fairly good assembly, though "Peru" is not so attractive a subject as the "Antiquities in Mashonaland" which in Mr. Theodore Bent's hands, drew an overflowing meeting, or even "Ceylon" which filled the "Whitehall" Room." Sir Alfred Dent read the paper very deliberately, while Mr. Ross pointed out the different places mentioned from time to time. After that, there was an exhibition of a number of interesting photographic slides by lime-light, showing views in the Andean railway, tunnels, gullies, &c., also bridle paths traversed, and in the Perené river and forest, tomb of the Incas, markets of the Indians and so on.—The PERUVIAN CONSUL-GENERAL (whose lecture on Peru was recently given) opened the discussion, and he was followed by LORD DONOUGHMORE, a hardy specimen of the British, or rather Irish peer, who has large interests in Peru where he has spent 2½ years. He thought enough had not been made of the sugar enterprise, which he maintained was in as favourable not to say strong a portion as any planting industry in the world and able to compete profitably even in these days of low prices and Continental adverse duties. He spoke in high terms of Peru and its people and the rainless region where irrigation did such wonders. To him succeeded Mr. CLEMENTS MARKHAM, who, of course, spoke with authority and with a wider scope of knowledge than anyone else present, respecting a country of which he had made so special a study. He gave a very interesting *résumé* of the early history and referred to unpublished manuscripts in his possession, descriptive of certain districts and resources down to minute particulars, by Spanish monks and travellers. Then he gave a general picture of the outlook in the different divisions of Peru, telling us how one portion greatly resembled the Nilgiris save that in place of the colouring afforded by rhododendrons (when in flower), there were flowering shrubs of other varieties and colours but equally striking and gorgeous. Then as to products, Mr. Markham maintained that the great matter was the superiority of the quality of these in Peru, rather than the greatness of the quantity. Peruvian coffee, for instance, was absolutely the finest in the world. [I thought of Mocha, and no doubt the dry Peruvian climate is comparable with that of Arabia.] Then in cinchona India and Ceylon might send some 40,000 to 50,000 bales to Europe against 7,000 from South America, but see the vast superiority of the latter—double and more in value per lb. And so with "Rubber," how vastly superior was the article got from the Amazonian basin to that of Africa or Asia; and so with "Cocoa"; and then there was "Coca" which required the

* Mr. Clements Markham's highest character alone induces us to credit four crops per annum of maize with cobs four or five times the usual size!—ED. *T.A.*

most careful handling—as much so as tea—in the leaves; and still again the Indian corn of Peru where was its equal; or the wool of the country and so on!

I felt much inclined to get up at the end of this, and correct Mr. Markham in respect of cinchona bark, by pointing out how the South American article came from trees of great age, or at any rate of maturity, while in India and Ceylon, the planters had to harvest back from comparatively young trees, not because if left alone these would not have developed a richer bark, but from necessity—in too many cases, it was with Eastern planters:

My poverty, and not my will consents.

But it was getting late and there was no time, COL. CHURCH followed in a long and rather prosy speech which gradually sent away a good many and tired out the President, who jumped up at its conclusion, proposed a vote of thanks to the writer of the paper and hastily left.

One paragraph, arising out of Mr. Markham's speech is given in the *Daily Graphic* as follows:—

On the authority of Mr. Clements Markham, speaking at the Royal Geographical Society on Monday evening, Central Peru has amazing fertility, four crops of maize being obtainable from the soil in one year! Moreover, the cobs of the corn "are four to five times larger than the heads of any other part of the world." Now, as we can grow in Essex and Norfolk thirty tons of green maize to the acre—planted in May, and gathered early in October, with tasselled heads fully eight inches long—the marvel crop of Peru would produce 120 tons to the acre with cobs two feet long. Such a wondrous result would read like a "traveller's tale" but, coming from Mr. Markham, has to be accepted as authentic record. At the present date the maize crop of La Plata is on offer in London, May-July shipment, at the very low price of 19s 9d per 480 lb. underselling the cheapest American maize, 20s 6d, and unsettling the English trade, being 2s 6d a hundred weight cheaper than oats.

THE CEYLON AND ORIENTAL ESTATES CO., LD.

I enclose the prospectus, just out, of this new Company alluded to previously by me. No doubt the Ceylon Agents will give the opportunity for local investments by advertisement. The Board of Directors is a strong one with Mr. Hugh C. Smith, Director of the Bank of England, as Chairman, and Messrs. H. A. Hancock, Cyril E. Johnston, T. J. Lawrance (formerly of Ceylon), C. A. Reiss—all men of high character and standing in the City—not to mention the Managing Director, Mr. Huntley Thring, who is a tower of strength in himself. Mr. A. J. Denison continues to be Inspector of Estates, and Mr Hugh Chapman, Secretary,—both capital appointments,—as the Ceylon and Oriental Investment Corporation, Ld., is absorbed in this new Company. Already £100,000 of debentures have been provided for, so there can be no doubt of ample financial support, and it will be noted that out of £250,000 nominal capital, only £150,000 is to be called up. As for the rest the prospectus can only be quoted, and all good wishes offered for the success of this youngest, but by no means least powerful or important of Ceylon Planting Companies:—

PROSPECTUS.

This Company has been formed primarily to take over as a going concern the Business, Estates, and Assets, of the Ceylon and Oriental Investment Corporation, Limited, a Company formed in 1890, with a capital of £37,050, subscribed by the Directors and their friends, including in such assets the Tea Estates known as Moralioya and Wilton, Pathragalla, Narthapana and Deegalla, well secured advances on estates and crops, and the benefit of a contract which the corporation recently entered into with Messrs. Baring Bros. & Co., for the purchase from them of the following further important estatesin Ceylon, viz:

Bogahawattee.	Le Vallon.	Peacock Hill.
Peradenia.	Keenakelle.	Rajatalawa.
Wiltshire and Hampshire.	Denegama (one half).	Oodewelle (one half).

The opportunity of acquiring these estates being exceptional, the contract has been arranged on terms which the Directors of the corporation considered to be advantageous, but the constitution of that Company appearing inconvenient for the purpose of carrying out this contract and others in contemplation, it was decided to reconstitute the corporation by the formation of the present Company.

The Company has also entered into a contract for the purchase from Mr. J. Huntley Thring of the Ceylon Estate known as Wangie Oya. Mr. Thring, who has accepted the appointment of Managing Director of the Company, has agreed to take payment of one-half at least of the price of the above-mentioned Estate in Shares, thus retaining a substantial interest in the Company, and he also guarantees the net profit from the working of the Estate during the next three years to average not less than £2,500 per annum.

The price to be paid to the Ceylon and Oriental Investment Corporation, Limited, for its goodwill, property and assets, as above mentioned, is £37,050 in ordinary shares of the Company credited with £3 per share paid up thereon, to be issued in substitution, Share per Share, for the Ordinary Shares issued by the Corporation, and £1,176 in cash, and 392 fully paid-up Preference Shares of the Company, to be issued in exchange for the Founders' Shares of the Corporation, being at the rate of £6 and two fully paid-up Preference Shares in exchange for each Founder's Share, which will be thereby extinguished. The price to be paid for the Estates of Messrs. Baring Bros. and Co. and Wangie Oya is £119,000, payable as to £82,000 in cash, which will be provided out of the proceeds of the issue of the Debentures, as to £9,000 in fully paid-up Preference Shares of the Company, and as to the balance, partly in cash and partly in Ordinary Shares credited with £3 per Share paid up.

The Estates purchased from Messrs. Baring Bros. & Co., and Mr. Thring made a profit of over £10,000 for the year ending 30th June, 1891, and owing to the large acreage of Tea which has since come into bearing, the Directors estimate for the present season a profit of £13,000 from these properties, equal to over 10 per cent. on their purchase price, and they confidently anticipate that the other properties which they hope to acquire by means of this issue will give equally satisfactory returns.

The Tea on the Estates, which will be taken over by the Company as from the 1st January, 1892, is for the most part young, and a large proportion of the acreage planted has yet to come into full bearing, hence the output in the future should steadily increase and largly augment the profits. The present depreciation of silver is greatly in favour of the industry, lessening, as it does, the cost of producton.

Taking the Forest and Cheena portion of the Estates at £2 10s per acre, the cost of the cultivated area which the Company purchases averages under £33 per acre, which compares favourably with prices recently paid for similar land. The average Capital value per acre of the Estates of 27 of the largest Indian Tea Companies registered in London is stated to be over 47 per acre and the average profit earned by such Companies for the year 1890 is returned at 9·39 per cent.

The business of the Company will also comprise advancing money upon Estates and produce, managing estates, and receiving crops for realization on commission, and from their experience of the business the Directors feel confident that favourable opportunities will arise for the profitable employment of the capital now offered for subscription.

The enormous increase in the consumption of Ceylon Tea in the United Kingdom during the last few years is shown by the subjoined figures, supplied by the Ceylon Association in London:

1885.	1886.	1890.	1891.
3,218,000 lb.	6,245,220 lb.	34,516,469 lb.	51,227,602 lb.

In the Schedule at foot are given particulars of the acreage cultivation, and elevation of the estates to be acquired. The finest Teas are grown at an elevation of from 30,000 to 6,000 feet, and the area of such land being very limited, it will at once be apparent that most of the estates are favourably situated.

The following contracts have been entered into :— An agreement dated 31st March, 1892, between the Ceylon and Oriental Investment Corporation, Limited, of the one part, and the Company of the other part. An agreement between the Ceylon and Oriental Investment Corporation, Limited, and Messrs. Baring Bros. and Co., contained in letters dated the 11th January, 1892, from the Corporation to Messrs. Baring Bros. & Co., and 15th January, 1892, from Messrs. Baring Bros. & Co. to the Corporation. An agreement dated the 31st March 1892, between the Foreign and Colonial Debenture Corporation, Limited, of the one part, and the Company of the other part. An agreement dated 31st March, 1892, between John Huntley Thring of the one part, and the Company of the other part.

The Ceylon and Oriental Investment Corporation, Limited, in carrying on its operations to the present time has entered into various other contracts, of the ordinary business nature, but which it is impossible to enumerate in detail. Applications for Shares will, therefore, be received only on the footing that the applicants have notice of such contracts, and have waived the specification herein of the particulars of such contracts or any further information with regard thereto to which they may be entitled, whether under the 38th section of the Companies Acts, 1867, or otherwise.

The Memorandum and Articles of Association of the Company and the above contracts can be inspected at the Offices of the Solicitors to the Company.

It is intended to apply for a Stock Exchange quotation for the Company's Shares.

Application should be made on the Form accompanying the Prospectus, and sent, with deposit money payable on application to the Company's Bankers.

Prospectuses and Forms of Application may be obtained at the office of the Company or from the Bankers or Solicitors.

SCHEDULE OF ESTATES TO BE ACQUIRED.

Name of Estates.	Acreage Tea.	Acreage Coffee.	Cores and Cheena.	Total Acreage	Approximate Elevation. Feet above sea level.
Bogahawatte ...	518	22	78	618	4,500
Le Vallon ...	873	...	06	1779	3,500
Rajatalawa ..	283	...	33	316	3,500
*Denegama (one-half) ...	112	48	64	224	3,500
Peacock Hill ...	300	...	88	388	3,500
Keenakelle ...	225	210	538	973	3,000
Peradenia ...	333	..	767	1,100	2,500
*Oodewelle (one half) ...	158	50	179	387	2,500
Wiltshire and Hampshire ...	295	...	245	540	2,500
Wangie Oya ...	430	...	137	567	4,700
Moralioya and Wilton ...	130	...	293	423	500
Pathragalla ...	147	...	438	585	700
Narthapane and Deegalla ...	140	...	310	450	300
	3,944	330	4,076	8,350	...

* The figures represent the Company's one-half share in these estates.

CEYLON TEA.

I had a talk with Mr. Boustead about tea preparation and prospects: he does not approve of tea-drying at a low temperature and as regards the cry for "keeping qualities" in Ceylon tea, a great change has taken place because our teas now pass so quickly either into consumption or to the small distributors, having last year and this ousted China very widely. A considerable difference in tea preparation has been effected in some cases by shifting a factory or at any rate withering sheds from a damp hollow to a breezy sunny height. But this refers more especially to the lowcountry. On the other hand I am told of very favorable reports on some Indian teas treated with low temperature drying, and I have been asked to call and see the report of a member of the well-known Mincing Lane Firm, Messrs. W. J. & H. Thompson, which I must do.

FUEL FOR TEA FACTORIES: SOLIDIFIED PETROLIUM BLOCKS.

I am indebted this morning to Mr. Wm. Gow (head of the well-known Broking Firm and tea planter himself), for some important papers with striking testimony to the value of a new patent solidified petroleum as an efficient and useful fuel. Mr. Gow writes :—

"As the supply of a cheap and good fuel for the drying of tea is exercising the minds of so many planters, I am sending your enclosed some particulars I have obtained regarding the new "Solidified Petroleum blacks' that you may bring this fuel to the notice of your friends in Ceylon. I am told that in the form of blacks this fuel is non-explosive and therefore perfectly safe in transit.

Apart from a very large number of favourable press notices, a special circular contains the attested reports on this new process and result of the following gentlemen :—

Sir Edward J. Reed, K.C.B., F.R.S., M.P.; G. J. Snelus, Esq., F.R.S., F.C.S., Bessemer Medallist, &c., past Vice-President Iron and Steel Institute; D. A. Sutherland, Esq., F.I.C., F.C.S., London and Berlin; Boverton Redwood, Esq., F.R.S.E., F.I.C., F.C.S., Technical Adviser to Oil Trade Section of the London Chamber of Commerce; James Dewar, Esq., F.R.S., Fullerian Professor of Chemistry Royal Institution, Jacksonian Professor of Natural Experimental Philosophy, University of Cambridge; Alfred Blyth, Esq., (late J. & A. Blyth, Engineers, Limehouse).

I will only quote one paragraph from Sir E. J. Reid's report dated Nov. 14th last :—

It is not necessary, I presume, for me to furnish detailed calculations, and estimates of cost and profit, but I may observe that, even when based upon the present limited scale of operations, such calculations and estimates as I have made, show that at the present prices of crude petroleum and of other fuels, a very large, I may say an enormous, margin of economy results in favour of the solidified petroleum in the production of a given amount of heating power. Even this margin will be increased, of course, when the operations assume the proportions of a large manufacture. There is no reason to suppose that the price of crude petroleum will much increase even with a greatly increased demand, because new sources of supply are frequently being discovered. But a very large increase of price might take place, and still leave the solidified petroleum a vast field for economical and highly profitable extension.

Messrs. Snelus and Sutherland's summary runs :—

SUMMARY.—We may summarize the advantages of this process for solidifying petroleum, by saying that it is rapid, extremely simple, and requires no skilled labour. The fuel produced can be handled in much the same way as other solid fuel and a very much greater amount of heat obtained from a given quantity. Its chief advantage over previous experiments in this direction, is that it does not fuse when burnt under the before-mentioned conditions,

There can be no doubt from previous experiments with petroleum as a fuel, that in relative effective heating power it is immensely superior to coal.

We might further add that as it contains no Pyrites it will, therefore, unlike coal, not be liable to spontaneous combustion.

The experiments we witnessed were, of course, on the small scale, but we see no reason to doubt that the

process can be carried out on a large manufacturing scale, when further valuable experience will doubtless be gained,

From Messrs. Dewar and Redwood's Report, I take one paragraph :—

In respect to the commercial value of a successful process for the manufacture of a solid Petroleum fuel we may point out that in any localities where the cost of Petroleum in relation to that other fuel is sufficiently low, such a process should admit of being advantageously carried out on a scale of great magnitude. The enormous extent to which in Russia, and in the United States, liquid feel is now employed, and the rapidly growing demand for this heating agent for use in metallurgical and other industrial operations as well as for steam raising, conclusively demonstrate that the well-known theoretical superiority of Petroleum over coal as a fuel has been confirmed in practice. Liquid fuel, however, requires for its satisfactory combustion the adoption of special appliances, and in many cases, a soil Petroleum fuel which could be burnt in an ordinary fireplace or furnace, would be preferable or even capable of being used where the other could not. Moreover there are some descriptions of Petroleum occurring in nature in great abundance which from their viscid character are not adapted for transport or use in a liquid state, and if as we see no reason to doubt, the Chenhall process can be applied to such Petroleum it would be possible to utilise the raw material which is at present practically unmarketable. If therefore, by the adoption of the process in question a fuel capable or being transported in the solid form and satisfactorily burned in furnances and fireplaces of the usual construction can be economically manufactured from Petroleum the results should of great industrial importance.

Having regard to the presumably enormous undeveloped resources of petroleum in various countries, there does not appear at present to be any reasonable ground for apprehension in respect to future supplies. But, as the matter is one of such special interest to Ceylon Tea Factory owners, I quote the last report in full:—

London, 18th Nov. 1891.

To the Directors of the Solidified Petroleum (Pioneer) Corporation, Ltd.

Gentlemen,—I have had the pleasure of examining at Hackney Wick the Chenhall process of converting crude Petroleum into a solid mass for the purpose of burning it in lieu of coal, and must say that the experiments I witnessed were of a most satisfactory character, more especially in cases where fuel is used to generate steam. It has long been known that by burning Petroleum a greater amount of heat and steam producing power can be obtained than by burning coal, and up to the present time numbers of trials and experiments have been made with a view to introducing this description of fuel, but it has been found that by using Petroleum in a liquid state a certain amount of oxygen has to be combined with it, and in order to do this the Petroleum has to be sprayed in the furnace by means of either a steam or compressed air jet, such process meaning a loss of coal, besides the necessity of having to alter the furnaces into which this Petroleum is sprayed to effect perfect combustion.

In the consolidated system referred to, the crude Petroleum is mixed with a chemical compound equal to about 15 per cent. of its bulk. This is subjected to a moist heat equal to about 210 degrees Fahrenheit, which causes the solid matter to dissolve and amalgamate with the oil. In this state it is subjected to a dry heat of from 400 to 500 degrees Fahrenheit, and commences to solidify; when cooled it is in a pasty state. When in this condition it is placed in a press, pressed into the form of bricks, perfectly solid, and can be transported and used as desired.

The fuel in this form when burned on an ordinary fire grate without any application for spraying presents a bright flame of intense heat without giving off any liquid or smell, and after it has burnt until all the carbon contained has been consumed, it leaves little or no ash.

As a steam generator it is, in my opinion, far superior to the best Welsh coal or patent fuel made from coal and pitch combined, for the following reasons:—

First.—The heat obtained from it is undoubtedly greater (as all who have burnt Petroleum will admit) than that of coal.

Second.—It requires little or no stoking, as its heat comes from the surface and not from the mass.

Third.—There is no refuse left—(it burns itself out) —and consequently there is no clinker or ash to remove from the furnace bars.

Fourth.—It has little deteriorating effect on the fire bars, and can be used in any ordinary furnace.

I have not gone into any detailed calculation as to the comparative cost of this material and coal, but I am sure that at the present price of crude Petroleum and the small cost of solidifying it for steam-generating purpose, it would be much cheaper than coal, and I am of opinion that this method of solidifying Petroleum for the purpose of using it as fuel completely overcomes the difficulties that have hitherto been experienced in burning Petroleum in a fluid state.

Under these circumstances there must be a great future for the fuel in generating steam, both for marine and land purposes, and from the experiments I have witnessed and the observations, I have made, I can confidently say that a pound of water can be evaporated by its use more cheaply than the use of coal.—I am, Gentlemen, Yours faithfully,

ALFRED BLYTH.

(*Late* J. & A. BLYTH, *Engineers, Limehouse.*

THE AMSTERDAM CINCHONA AUCTIONS

Amsterdam, March 31.

At today's auctions 2,648 packages of Java bark sold at an average unit of 6⅝ cents, or equal to about 1⅝d per lb., thus showing no alteration in value upon the last London sales. The following prices were paid :—Manufacturing barks in whole and broken quill and chips 9 to 63 cents (equal to 1¾d to 11½d per lb.); ditto root 16 to 43 cents (equal to 3d to 7½d per lb); druggists' barks, in quill, broken quill, and chips 10 to 133 cents (equal to 1¾d to 1s 11½d per lb.); ditto root 11 to 27 cents (equal to 2d to 4¾d per lb.) The principal buyers in the order of their purchases were the Auerbach Quinine-works, the Brunswick works, and the Amsterdam factory.—*Chemist and Druggist.*

JAPANESE PERSIMMONS.—The Japanese persimmon, when unripe and not properly cured, is astringent and unpalatable; but when fully ripe, is highly nutritious, luscious, and of delicate flavour. Mr. Ellwood Cooper, of Santa Barbara, Cal., gives the following direction for use: "Place on shelf or sideboard or table for ornamentation until it becomes soft. It will shrink somewhat and turn a darker color; if it ripens properly will be uniformly soft in every part—must not be eaten until it is—then peel from the top. The skin is very thin and will leave the pulp readily."—*American Grocer.*

"CANELLA" NOT CINNAMON.—It may be worth while pointing out that the *canela* spoken of in Messrs. Ross and Sinclair's report on Peru is not cinnamon, though in most of the European languages the name for Ceylon's spicy bark is some form of the diminutive of the Latin *canna*, a cane. What the tree referred to in the Peru esport is, is shown in the following extract from the Treasury of Botany :—

CANELLA.—The tree yielding Canella bark has been placed in various natural groups by different writers. The characters of the genus, in brief, are the presence of three bracts, and five sepals; no petals; twenty stamens united below, and having narrow anthers; a one-celled ovary, with two or three pendulous ovules. The tree is a native of the West Indies, and furnishes a pale-orange-coloured bark, with an aromatic odour, which is used as a tonic. The negroes of the West Indies use it as a spice. The plant is frequently grown in botanic gardens.

ON THINGS IN GENERAL, AND TEA IN PARTICULAR.

The thing that's most "in general" is the weather, and about that there's no mistake now, seeing that every afternoon a considerable water-spout bursts over every estate upcountry. Just when we have most flush and want most coolies, the weather steps in and stops works over and over again. But more than enough about the weather.

Now about "Lipton"! I wish we all had estates like "Lipton's" as depicted in the home papers recently to hand. We there see a beautiful lay of land, four Europeans looking after thirteen women plucking, two more weighing leaf, and of course plenty more inside all the factories. This not being "Lipton's" estate, I have to do the work of all that lot single-handed, barring, perhaps half-a-dozen or so—of whom we see only one—whose work it is to attend to the shipping which is only just across the road from the factory. But it's of little use asking "if there is such an estate in Ceylon." Lipton's advertisements appeal to millons while his critics only find a few scores of readers.

Like the man himself, his picture is clever and far-reaching. He has crowded into one picture all that his tea passes through in Ceylon. He *has* tea fields among the hills, he *has* a lot of factories on his several places, and he *has* a lot of suprintendents, all told; and his tea *is* loaded into ships at Colombo, and there are still some elephants in Ceylon, Clever man!

Now, thanks to "L D.," this oracle has spoken, and has written a letter which defies adverse criticism. Our brother planter Lipton is a clever man, with such a load of business that I wonder he can find time to sleep. What his head "counting-house" will he like when he has opened retail shops all over America "from the Atlantic to the Pacific" cannot be very easily imagined. I think he must be a good friend to Ceylon, while Ceylon continues to produce 60 per cent of coarse rubbish called Pekoe Souchong, Congou, Red Leaf and Dust. Somebody must absorb this stuff so long as all Ceylon is mad enough to flood the market with it. But how much of our good tea does Mr. Lipton meddle with? Let his advertisements answer this question. Here are his selling prices:—

Everywhere:—India and China Blend	1/ a lb.
Ceylon, India and China	1/4 a ,,
Ceylon and India	1/7 a ,,

"No Higher Price."

"No higher price" for what he declares is "the finest tea the world can produce," and he adds "these are planters' prices" !!

Now what do we learn from, and what do we suffer from, these world-wide advertisements? Take his highest-priced tea, that at 1/7 per pound to the consumer. We know that upon this tea he pays duty 4d a lb.

His outgoings for advertisements and all other expenses must, I should say, amount to quite	4d	
more	4d	,, and
if he is satisfied with a profit of	2d	,,
this runs it up to	10d	
leaving only a balance of	9d	

as the price paid by him for the "finest" 1/7 tea Ceylon produces," and for which the planter in Ceylon receives 7½d!!—his own price, according to Lipton. My figures for his outgoings and profit are haphazard, I know; but seeing that other retail tea men look for and take 6d a lb. profit, they can't be far wrong.

Is not Lipton, therefore, the greatest enemy the Ceylon planter has? Great in proportion as his influence is world-wide? He posing before the whole world as a Ceylon planter, assures all the consumers in the world that the planter's price for the best tea the world produces is 1/7, free to their doors, through retail dealers. Now we planters in Ceylon —who are not also advertising retail tea-dealers—know that if we get only a fair profit of 2d a lb. on our finest tea no consumer could buy it anywhere under 2/7, even if the retailer did not stick on more.

Owing to over-production all retailers are now getting their profits out of the planter, instead of legitimately out of the consumer. Well, every man for himself as so, small blame to Lipton as a retail tea man, but bad luck to him as a planter for the bad turn he does us in the world.

But, after all, who gives him the opportunity which he is wise enough to seize? Who but the Ceylon planters themselves? Every ounce of rubbishy tea we send into consumption displaces the same amount of what ought to be good tea People drink their cup of tea as they want it. If good, they are satisfied and pleased; if bad, they evince disgust, but it has served its turn. No tea ought to be procurable under 2s a lb. to the consumer. But, the fact is, our over-production of "pekoe souchong" is killing us. And what is the secret of our flooding the world with this grade of tea? Perhaps I had better whisper the answer to this question, or keep it to myself, seeing the hornets' nests I shall disturb. But bah! who cares? Whence comes our pekoe souchong but from the indigenous and high-class hybrid jât? Isn't that tree a beauty? Doesn't it flush? Well, it does, with a vengeance! If you don't look out and get sharp round—coolies or no coolies, weather, or no weather—its "tips" will be half opened and the other half bangy; its pekoe leaves a couple of inches long and its pekoe souchong leaves as big as your hand! Compare it with the smaller hardy hybrid and semi-China tree in another field, or not unfrequently growing next to it, producing the very tea we most want, but neglected by the pluckers, because the high-class pekoe souchong leaves of the splendid indigenous is so much easier to pluck and weighs so much more! I will return to this subject.

BROKEN PEKOE.

THE PERUVIAN CORPORATION, LIMITED.

REPORT ON LAND IN PERU SUITABLE FOR AGRICULTURE.

BY ALEXANDER ROSS AND ARTHUR SINCLAIR.

To the Directors of the Peruvian Corporation, Limited.

Gentlemen,—In the month of May, 1891 we undertook, at your request, a mission to Peru for the purpose of selecting and reporting upon land suitable for agriculture, but with more especial reference to its fitness for tropical products.

In fulfilment of this mission we left England in the same month of May, arriving in Peru at the latter end of June; and, after a sojourn extending to December, 1891, we returned to England in January, 1892.

We now have the pleasure to submit to you, in the following report, the result of our special explorations, our observations with reference to the adaptability of the country as a field for the investment of capital, and the opinions we have formed in regard to the extremely interesting and beautiful country we have visited.

We propose, in making our report, to deal with the subject under the following heads, viz:—

1. Climate.
2. Soil.
3. Vegetation.
4. Routes taken, with short description of the country passed through.
5. Locality and extent of land selected.
6. Planting, past and present.
7. Transport and outlet.
8. Labour.
9. Peru as a field for Colonization.

CLIMATE.

The climate of Peru may be safely said to be unique, and whether we regard its influence on vegetation or on human health, it is alike remarkable; tropical, yet temperate; variable, yet equable. The influence of the Pacific (Polar) currents on the one hand, and the cool air from the Cordilleras on the other hand, are sufficient to account for this; while the comparative dryness of the atmosphere tends to abundant fruitfulness in the vegetable kingdom, and sufficiently accounts for the marked absence of malarial fever amongst the native inhabitants.

On the coast, where there may be said to be literally no rainfall, the temperature is lower than that of any country, in the same latitude, we have ever visited: and yet there is an absence of the chilling evening breezes so disagreable in Australia —so deadly in India.

The temperature during our stay of several weeks on the coast—in July and October—rarely varied more than 4 deg. in the 24 hours, viz., 68 deg. to 72 deg.

At a medium altitude of say 10,000 feet above sea level the difference between day and night temperature is of course greater, the thermometer ranging from 70 deg. to 75 deg. during the day and sinking to 50 deg. at night. Still, there is a crispness in the air which renders the climate peculiarly invigorating, and the robust health of the native Chola amply testifies to its salubrity.

On the upper tributaries of the Amazon we approach a more humid and truly tropical climate, still, however, with a general immunity from malaria. Moreover, that insect pest, the *mosquito*—which Providence seems to send as a warning to indicate danger —is very rarely met with, while the land leech so troublesome in India, is never seen here.

The rainfall in the great Montana districts seems ample for all purposes. The nature of the vegetation sufficiently indicates this, though neither here nor elsewhere in Peru has ever any record been kept of the actual amount of rainfall, nor as far as we can ascertain, has such a thing as a rain-gauge ever been introduced into the country. The temperature of the Perené Valley is very much the same as that of Kandy, the central capital of Ceylon, viz., 70° to 85°. The climate, however, is evidently much healthier, and much less windy. No bare brown ridges here indicate the drift of monsoons. Every mountain side is uniformly clothed in majestic trees, above and below all being strikingly calm and silent.

SOIL.

It need scarcely be said that there is a very great variety of soil in Peru, where the geological characteristics are so exceptionally varied; and, as soils partake of the nature of the rocks from the decomposition of which they originate, it may readily be inferred that, in a country so rich in those minerals which form a peculiarly valuable food for plants, the soil is largely impregnated with substances which have a most marked and beneficial effect upon the vegetation.

The prevailing character of the soil on the Montana is a deep rich loam, naturally so rich in humus that all that is required is the simplest tillage. Even on the coast where all appears to be driven sand, cultivation seems at once to change its appearance and character, and no manuring is ever dreamed of.

On the steep mountain slopes, where, up to 12,000 feet, the ancient "Inca" terraces are still to be seen, and where the industrious and healthy "Chola" still grows his splendid wheat, barley and potatoes, the soil is marvellously rich and deep. Six to eight feet of dark mould may frequently be seen on a bed of conglomerate, and again a stratum of dark vegetable soil below.

On the great "Pajonals"—corresponding to our "Patnas" in Ceylon—where the forest abruptly ceases and a treeless sward of rather poor grass supervenes, the soil is a stiff infertile clay. These Pajonals occasionally crop out in the great sea of forest, the extent varying from a few hundred to a thousand acres; and if they do not enhance the intrinsic value of the land, they do add much to the natural beauty of the scenery. The soil of these forest lands is generally speaking, all that could be desired for the tropical products at present most in demand, such as:—Coffee, cocoa, coca, coconut, nutmegs, pepper, cinchona, cinnamon, cardamoms, rice, rubber, sugar cane, sago, tea, tobacco, vanilla, &c. And speaking more particularly of what we have specially examined in the valleys of Paucartambo and Perené, for a distance of from 50 to 60 miles, the nature of the soil is not only unquestionably suitable, but is specially well adapted, for the permanent production of any or all of the products above enumerated.

VEGETATION.

In writing of the vegetation of a country, where the luxuriance is such that Nature in sheer wantonness seems to run riot, it is difficult to keep within the usual bounds of an official Report.

There are perhaps few countries where first impressions prove more at fault that in Peru.

Few who sail along the coast could imagine the luxuriance of the Valleys of Chiclayo, Chicama, Cartavio, Chimbote, or the Rimac. Few who travel by the Central Railway, and look upon the apparently bare brown hills, could conceive the cereal and floral wealth which clothes and adorns them. We were particularly struck with this in climbing a few thousand feet above the Matucana Station, where the hills look so bleak in the distance, yet, where nearly all the most prized flowers of our British gardens cover the rugged ground in their native profusion.

And these modest little plants have their uses beyond the mere gratification of the florist and botanist. In an economic sense their presence sufficiently indicate where other products, more valuable commercially, might also best be grown. At the same time they indicate the altitude more correctly than some of our Aneroids. The Ageratum, for instance, so formidable an enemy to us when coffee was at its best in Ceylon, serves here to show a soil suitable for "the fragrant berry," though the locality may not in other respects be convenient. Acres of luxuriant Heliotrope scent the air, testifying that—though at a height of over 8,000 feet—we are still safe from frost. The more hardy Calceolarias come next, and with the curious Cuphea, the red and the blue Salvia flourish up to 10,000 feet. After these the chief representative is the blue Lupine, beds of which may be seen covering thousands of acres up to 12,000 or 13,000 feet, leaving a few Sedums, Anemones and Dandelions, to dispute the limit of 16,000 feet with the snow.

From 8,000 to 10,000 feet above sea level, wheat, barley and potatoes grow to great perfection, while the oat is a wild weed, giving, when ripe, a yellow tinge to whole mountain ranges where the feet of man never tread.

The cultivation, such as it is here, is laborious enough, and is hardly suited to our European ideas of husbandry. To scramble over the miles of precipitous paths leading to these terraced fields of a few yards in breadth seems a day's work in itself; but the merest scratch in the shape of ploughing is sufficient, and such is the richness of the soil that no manuring is ever necessary to grow heavy crops of grain and excellent potatoes, oca (oxalis), &c. Europe has already been indebted to Peru for many valuable acquisitions to the field and garden, and there is still to be introduced a potato, unquestionably superior as a food to anything of the kind now grown in Britain.

From 12,000 to 14,000 feet altitude barley continues to grow luxuriantly, but ceases to mature its grain.

The *Alfalfa* as it is here called, grown so extensively from the coast up to and over 10,000 feet, is really a native of England. The Lucerne (*Medicago Sativa*), so well known to our forefathers, has here in Peru become the most productive and nutritious of all fodders for cattle. On the mountain plateau, which extends for hundreds of miles, the rains seem somewhat fitful and uncertain, but not more so than in most parts of Australia; and it is curious to note how kindly Australian trees, chiefly the *Eucalypti*, take to this climate, growing with great luxuriance wherever planted. Amongst the rest of the somewhat scanty vegetation here, we observed the *Elder*, and by the watercourses the *Alder*, both natives of Britain. Again, amongst the native trees a very beautiful and useful evergreen willow (*Salix Humboldtiana*) abounds, a tree that would be a great acquisition to Ceylon, North Burma, India, &c. We will now pass over these rather grassy lands, on the eastern side of the Cordilleras (upon which llamas, alpacas, vicuñas and sheep seem to find ample pasturage), and after a journey of about 60 miles N.E. from Tarma, plunge at once into the primeval forest, at an altitude of 4,000 feet.

The first thing that struck us was the marvellous variety of the gigantic trees. In most other countries large groups of the same family are found growing up together; such as Pines in North America, Gums in Australia, &c. Here diversity is the rule, and seldom

do we find two of the same kind growing in company,—nature delighting rather in variety and contrasts,—one tree upright as an Areca palm, another sloping over a chasm; one with bark smooth as ivory, the next prickly as "Acacia horrida." Exceptions there are, and one might be seen on most river banks, viz., the Balso wood (*Ochroma piscatoria*), as if providently placed there for the natives, who invariably use its remarkably light wood for their rafts. The Ochroma has a cotton-like fruit which might be used for stuffing beds, &c.

The graceful ivory palm (*Phytelephas*), may also be seen in small groups, indicating the very richest spots of soil. Near to this may be found a solitary Cacao (*Theobroma*) 30 to 40 inches in circumference, and rising to the mature height of 50 feet. Coffee of course is not found wild here, but at intervals we came upon gigantic specimens of the *Cinchona*, both Calisaya and Succirubra, 6 feet in circumference. The *Walnut of Peru* is frequently seen in the Perené Valley, growing to a height of 60 to 70 feet. Satinwood there is also, but not the Satinwood of Ceylon (*Chloroxylon*); for though the wood looks similar, the family (*Ebenacea*) is in no way related to our Ceylon tree. The indigenous *Coca* as an undergrowth we rarely came across, except in semi-cultivated patches. Gigantic cottons, the *Screw Pine* (*Carludovica*) from which the famous Panama hat is made, the grand scarlet flowering *Erythrina*, and another tall and brilliant yellow flowering tree—probably the *Laburnum* of Peru—add much to the beauty of the scene. Many other leguminous plants we also noted, particularly *Calliandra* and *Clitoria*.

Innumerable *Orchids*, *mosses* and *ferns* sufficiently indicated the humid nature of the climate and fully satisfied us as to the rainfall.

Probably the chief distinguishing feature in Peruvian vegetation is that it is an essentially flowering and fruit-bearing vegetation, rather than the excessive leaf-producing which so distinguishes the luxuriant greenery on the Island of Ceylon. Peru undoubtedly possesses a richer soil and a climate more favourable to fruit bearing; while, compared with the massiveness and grandeur of the Trans-Andean forest monarchs, the jungles of Ceylon are somewhat diminutive. A few plants we missed; the beautiful and useful yellow *Bamboo* is not there, nor are the *Palmyra*, *Talipot* and *Coconut* Palms. The Jak and Breadfruit trees might also be introduced with great advantage. The cultivated grasses of the East, the *Guinea* and Mauritius grass, are here already, but as a nutritious fodder they cannot be compared with the "Alfalfa" (Lucerne). Of the leaf products, perhaps none are destined to become more important than the *Coca* (Erythroxylon), which is bound to increase in value commercially as its undoubted virtues become better known. The land we have specially selected on the Perené, as hereafter shown, may be said to be the native home of this invaluable plant, and as we doubt if it can be grown in any other part of the world with equal success we would strongly recommend its being planted out on an extensive scale to meet the growing demand.

The various kinds of Rubber found here might also be cultivated, or rather planted out, on a large scale with much profit and at little cost.

ROUTES TAKEN, WITH SHORT DESCRIPTION OF THE COUNTRY PASSED THROUGH.

Having thus indicated the nature of the climate, soil, and vegetation of the country we visited, it may be of some interest, before dealing specifically with the land selected, to state shortly the routes taken in our search after land suitable for the purposes of tropical agriculture, and, as briefly, to describe the main features of the districts we passed through.

The western slopes of the Andean range extend, in the valley of the Rimac, from Callao, the port of our arrival, to Chicla, the temporary terminus of the Central railway.

The altitude of Chicla, at which the approximate limit of cultivation is reached, is 12,215 feet above sea level.

From the sea the valley is wide and flat, but it narrows beyond Lima, and becomes steeper and somewhat rugged near Chosica, when the hills lose upon the plain. The valley is highly cultivated between Lima and Chosica, and at Chosica tillage of the terraces, at the base of and along the mountain slopes, begins.

After leaving Chicla, beyond Casapalca, the Cordillera is encountered and crossed. The Country—especially the first twelve or fifteen miles—is wild and rugged, producing on the slopes and in the valleys only the shortest grass, affording but scanty food for the llamas and donkeys proceeding to and returning from Chicla and the railway, with ores, produce and merchandise.

From the summit, near Galera, the country becomes more undulating, and, as Pucara and Pachachaca are reached, it is more suited for grazing. Between Pachachaca and Oroya lies a fine grazing Country, along which sheep in large numbers everywhere find abundant pasturage.

Oroya, a hamlet consisting of an hotel or hostelry and a few huts, is at the point where, by a wire suspension bridge, the bridle road leading to Tarma, Jauja, &c., crosses the Oroya river. Thence about a mile and a-half out, the roads to these towns diverge—for Tarma to the left, and for Jauja, Huancayo, &c., to the right. The former road ascends abruptly to over 16,000 feet and, crossing the Cordillera, descends towards Tarma by a rough and steep path leading through populous and thriving villages. Near that town the valley widens and becomes a scene of busy agricultural industry. The road to Jauja continues through bold, undulating, grazing country, ranging from 12,000 to 15,000 feet altitude, till, from near Acola, the whole area appears terraced and cultivated, the soil being everywhere exceedingly rich and friable.

Tarma is a town of importance, having a population of about 6,000, engaged chiefly in trading. There are good hotels and schools, and a weekly market, to which the produce of the surrounding country is brought. It is the centre of a considerable agricultural district, comprising a great portion of the terraces and slopes of the surrounding hills; and from it roads lead to Jauja, Cerro de Pasco, Chanchamayo and other places.

The country along the above route is mountainous and the slopes are steep, but where possible they are terraced and cultivated. A few miles below Palca, however, agriculture ceases, and the old bridle road—for which a fine new road at a gradient of 1 in 20, and about 9 feet wide is being substituted—trends along the shoulder of a precipitous gorge, through which the Chanchamayo river, in a series of tumbling rapids, finds a tortuous course.

Huacapestana, an hostelry, and Pan de Azucar, near the upper limit of tropical vegetation, are on the river bank, in a deep and narrow ravine. From the latter place to Chalwapuku and Naranjal, (the commencement of the Chanchamayo Valley, where we first saw the cultivation of sugar-cane) the hills recede towards Port San Ramon—near to which the road to Vitoc turns off to the right. The mountains close in again near and beyond La Merced, a thriving village, having two hotels, some good shops and stores, and situated in the centre of a sugar-cane and coffee growing district, the cultivated portion of which is now confined chiefly to the river banks.

The valley is limited in area, and is bounded on all sides, especially on the south, by high and somewhat precipitous hills and ranges.

From the Rio Blanco, near the eastern boundary of Chanchamayo, the road trends along the left bank of the Chanchamayo River to its junction at Port Wertheman with the Rio Paucartambo. The whole country along this road, excepting two or three small "chacras," or gardens belonging to natives, is uncleared; but on the right bank of the Chanchamayo, which is rocky and bare, there is forest only at the base of the hills.

From Port Wertheman, where there is a fine flat of limited extent, to San Luis de Schuaro, is a continuation of country as above described. Opposite the latter place, which consists of a convent and a few huts, begins the western boundary of the lands selected by us along the valley of the Rio Perené.

These lands ranging in altitude from 6,000 feet to under 1,000 feet above sea level, are densely wooded, save where broken by pajonals (grassy areas), and abound in valuable and magnificent timber trees. The lay is chiefly undulating, though here and there precipitous, but it is also in parts flat and easy of irrigation.

The Rio Perené which intersects longitudinally our selection, is a large river into which from north and south streams of some volume flow. The land selected extends to 20 kilometres, or 12½ miles, north and south of the river and from Port Wertheman eastward to the terminus of navigation near the confluence of the Perené with the Ene, with a like distance on both shores of the Ene from its mouth for a distance of 20 kilometres ascending. Port Wertheman is situated at the confluence of the Rio Paucartambo with the Chanchamayo, where these rivers become the Rio Perené.

The road from Tarma to Cerro de Pasco is the same, for six miles, as the route from Tarma to Chanchamayo. At Acobamba it turns to the left or north through an easy lying and fertile valley of no great breadth. Near Cacas steep ascents—first through a rocky and precipitous gorge, and then over the Puno—have to be surmounted.

From the summit the country opens out into a flat grazing plain of great extent, with some undulations at the far end, reaching Cerro de Pasco, through Junin and Carhuamayo, whence via Ninacaca a road branches off towards Huancabamba and Pozuzo.

Cerro de Pasco, the centre of a great silver mining industry, is cold and bleak. It is situated on a low terrace on the shoulder of a high slope of the Cordillera, and is partly surrounded on the east and north by rocky mountain ranges. The road towards Huanuco, after crossing for a short distance the plain in which are the silver mines, leads past the source of the Rio Huallaga, down a steep, wild, rugged gorge, and thence through more undulating and richly cultivated ground to Huarriaca, where there is a comfortable hostelry.

From the latter place to Ambo, after hugging the river, the road is carried along the face of a series of precipitous mountains, down to the Huallaga, hundreds of feet below. Before reaching Ambo we saw the first coffee field.

Huanuco is reached from Ambo by a flat wide road, which, at its northern end, runs through a fine avenue of Eucalypti and other stately trees, and the route of which lies near to the Huallaga, intersecting a richly cultivated valley. The hills on either side are bare and dry, the only growth visible being large Cacti. All cultivation is carried on by means of irrigation. Rain falls only at periods during the rainy season, from November to May. There are no forest trees, nor is there any forest nearer to Huanuco than 15 leagues or 45 miles.

Returning via Cerro de Pasco, the road leads through the Pampa of Junin towards and around the lake of that name. The Pampa is very extensive and the lake is a magnificent sheet of water. Around the lake graze herbs of cattle and sheep, and there are many kinds of water-fowl. The road via Incapilca and San Blas passes through a great extent of Puna, at varying altitudes, to Banios, where are hot springs and an hostlery. The latter place is situated in a fine grazing country, and close to streams about which their is an abundance of wild ducks, geese and other wild fowl.

The plain connecting Jauja with Huancayo is 30 to 40 miles long, by about ten in breadth, including the raised tableland on the west. From Huarripampa the Oroya river intersects the plain, which it, in parts, overflows. Numerous towns and villages are situated throughout the valley, which possesses rich and fertile soil, an excellent climate and an abundant population. Jauja, Concepcion, and Huancayo are towns of some size and importance, and are the centres of considerable trade as well as the resort of invalids suffering from pulmonary complaints. At all these towns there are good hotels. Nearly half-way between Jauja and Huancayo, and situated at the foot of the steep hills up and over which leads the road to Comas and Andamarca, is the Convent of Ocopa, the chief seat of the Franciscian brotherhood.

The road to Comas ascends to 15,000 feet above sea level, at which altitude, down to 12,000 feet, the greater portion of it lies. Comas is a small town or village situated on a saddle between two deep valleys. Agriculture is the only pursuit of the inhabitants who till their ground entirely by means of wooden implements of very primitive construction. The country is exceedingly rough and wild, and is bare of anything but grass. It is essentially a grazing country where not too high; but for the most part it is cold and bleak, with hardly a shelter or the possibility of procuring food for man or beast.

Matapa, a small village at 8,100 feet, and Andamarca, likewise of small extent, at 8,300 feet altitude, situated about two miles apart, in a deep recess among precipitous mountains. Neither these villages nor the country around have any attractions excepting the wild grandeur of the rocky and snow-clad ranges—through which the bridle track threads its way—and their utter isolation and romantic surroundings.

LOCALITY AND EXTENT OF LAND SELECTED.

The best available land within easy distance of the Oroya Railway, and suitable for Coffee, Cacao and other tropical products, we found to be in the Perené Valley, about lat 11 S., long. 75 W., altitude from 4,300 down to 1,050 feet above sea level. The area might be indefinitely extended from Pangoa on the one side, to Pozuzo on the other; but taking only 20 kilometres on each side of the River Perené—traversed by us for 40 miles—we have about 1¼ million acres of almost unbroken forest, of inexhaustible fertility, and all, as far as we could judge, admirably adapted for the successful cultivation of every known tropical product. It seems but a small patch from the vast reserves of this country; yet it is capable of producing more coffee than the whole Eastern world at present supplies; and it will be remembered that when Ceylon was the third coffee producing country, it had only 200,000 acres in cultivation, or about one-sixth of the extent selected in the Perené Valley.

Specifically our examination of the land commenced where the "Eñeno" rivulet falls into the Perené. The altitude is 1,900 feet, and the rainfall is evidently ample. The land, rising from the river on the north side, is somewhat steep, but with its rich open subsoil is specially well adapted for coffee; and a few thousand acres might be planted here at an altitude of from 1,900 feet at the river up to 3,500 or 4,000 feet on the ridge. Immediately opposite—on the south side of the river—there are a few hundred acres of rich flat land, suitable for any tropical product; but here, as a rule, the north side is decidedly the best. Pursuing our journey downwards—the river being at all times quite navigable—we were greatly delighted with the ever-changing yet always enchanting scenery, the rich but not over-dense, undergrowth, the gigantic trees, covered and festooned with creepers and parasites, all indicating a forcing climate and virgin soil of amazing fertility. About three miles downwards we stopped to examine a salt spring, evidently indicating a salt mine at no great distance. From the fifth to the sixth mile a grassy ridge or "pajonal" rises up to about 4,000 feet, in extent probably about 500 acres—a good point from which to view the surrounding forest—while on the south side of the river there are numerous patches of similar grassy land. Beyond this there is a vast unbroken tract of the richest forest, from which occasional rivulets fall into the Perené.

The largest tributaries received by the Perené come from the south side. "The Pichana," about 16 miles from our starting point, is a permanent stream of considerable volume, sufficient as a motive power for any ordinary purpose for which it may be required, while about 20 miles farther down, the "Ipuki," about equal to the Tweed in volume, adds palpably to the depth and force of the Perené. From the 15th to the 20th mile there is a large tract of flat alluvial land on the north side of the river, probably extending to 1,500 or 2,000 acres, admirably adapted for rice culture, for sugar cane, cacao, or for nurseries

of coffee and cacao; and when planting is decided upon this will probably form the first scene of operations. From this point onwards to "the Cascades" the current of the river averages about four miles per hour. On either side the forest increases in density and continues equally fit to produce inexhaustible supplies of *cocoa*, *coffee canela* and *rubber*. Many of the gum trees such as *Acacia Arabica*—the produce of which is becoming so scarce—would also find here a congenial home. Our balsas (rafts) now began to glide more rapidly onwards; indeed, we came upon the Cascades—more properly *rapids*—rather unexpectedly, and had suddenly to call a halt, which we effected with some difficulty. None of our so-called guides having ever been here before, they were as much taken by surprise as ourselves.

Our aneroids registered 1,050 feet above sea level, and the distance from the mouth to the Eneno, from which we started, we estimated to be about 40 miles. All around these rapids we found the land forest to partake much of the same characteristics as for the last ten miles, only that now both sides of the river seemed to be equally good.

Perhaps the one great advantage possessed by this land in the Perene Valley is the fact that it lies within reasonable distance of either outlet. Chanchamayo, Vitoc, or Huancayo, may be conveniently situated for the Oroya railway, but in the case of a temporary breakdown would be comparatively helpless. Land nearer to the Ucayali, on the other hand, would not for many years to come participate in the undoubted advantages of railway communication and if planting is to be done on a large scale—as, if done at all, it ought to be—the question of a double outlet ought to be seriously weighed. Hitherto this, the greatest reserve in the world, has been merely sending samples of its indigenous products. It is now high time that planting enterprise should be undertaken methodically, and on purely commercial principles.

PLANTING, PAST AND PRESENT.

If one is to judge from the principal planting district—Chanchamayo—there has really never at any time, been the remotest approach to methodical Coffee planting in Peru. The land, a mere fringe along the river side, had been selected without much discrimination, some 20 years ago, and planted in the first place with indigo, which grew well, and is still a thriving weed; but the proprietors not having taken the precaution to procure managers acquainted with the preparation of the article, the enterprise collapsed.

Coffee was next tried under similar conditions, and the plants seem to have thriven as they seldom thrive in the East, even with greater care; but inasmuch as the bean was not prepared in a way suited for the European markets, and the local prices were not sufficient to repay production and transport, this too had to be abandoned. Only a few scattered patches now remain, sufficient, however, to show the capabilities of the soil and climate. The crop we saw on many of these uncultivated trees would not be estimated by any competent coffee planter at less than 20 cwts. per acre. And yet the export from the whole district is insignificant—variously estimated as from 1,500 cwts. to 2,000 cwts.—a quantity which might be produced by 200 acres properly cultivated.

Sugar-cane now absorbs the attention of the planter here, although not an ounce of sugar is manufactured, the local demand for rum being such as to exceed the present possibilities of supply. It may be conceded, that no previous venture ever paid the Chanchamayo planters so well; but the effect of the product upon the natives may well be imagined, and can scarcely fail to be disastrous upon the local labour supply.

The district of *Huanuco*—so famous for the quality of its coffee—was a disappointment to us, the extant under this crop being quite insignificant; and all the land around the township was said to be in private hands. On some of the principal haciendas, the extent in coffee is only from 2 to 3 acres, which, though bearing enormous crops, gives a total export of under 1,500 cwt. Unlike Chanchmayo, every plant has to be irrigated here; and it may be remarked that, with irrigation, coffee could be grown almost anywhere in Peru, under 7,500 feet of altitude. In the neighbourhood of Lima, for instance, we have seen coffee growing, with no particular care but with a sufficient supply of water, bearing as heavily and looking as healthy as the best we ever saw any where, and some of the finest samples we have seen came from the west side of the Andes, about 100 miles north-east of Salaverry.

The Sugar Estates on the coast, particularly in the valleys of *Chicama* and Chiclayo are exceedingly well cultivated, and even at recent low prices leave an ample marking of profit. Some admirably managed properties we have the best authority for stating, yielded an annual net profit of over £20,000 during the past three years; and this grand industry might be extended indefinitely for hundreds of miles along the seaboard of Peru.

TRANSPORT AND OUTLET.

The means of transport from the lands allotted to the Corporation are in course of being made easy; and though objection may be taken to the cost of transport as compared with that prevailing elsewhere, the difference need be no barrier to a close and successful competition with better known countries, whose interests it may affect.

Apart from this, Peru offers the advantage of a large local demand certain to increase, proximity to North and South American centres of trade, and facilities of transport thither; and there are in addition the usual European and Asiatic markets, to which vessels trading to these markets would necessarily carry its products.

Whatever may be the requirements of the Perené Valley in future years, when transport will be necessary for millions of cwts. annually, there can be no doubt that for present purposes a light railway to Oroya would be most suitable, though for future exigencies it would only be courting misfortune to have such an important district confined to one outlet.

The cost of extending the railway would be comparatively little; the present road from Tarma to Chanchamayo might be largely utilized for the purpose, and from thence, through an undulating country with abundance of timber, 30 miles of rail would not be a serious undertaking. The railway would also tap such labour supplies as the country affords.

The other, or alternative outlet, via the Amazon, might be effectually secured by blasting the rocks in the rapids or cutting around them a road, the highest estimate of which does not exceed a length of 12 miles. With these two outlets the district would only be sufficiently supplied; for while it would be exceedingly inconvenient to be cut off from the capital of the country and the means of drawing supplies from the Pacific side, it would at the same time be hazardous to be entirely dependent upon one thread of railway.

At present, rates of transport by means of pack animals are prohibitory. But with the extension of the railway to Oroya within a few months, the speedy completion of the road from Tarma to Chanchamayo, and the substitution of roads at easy gradients for those now used between Oroya and Tarma (a distance of about 20 miles), La Merced and Port Wertheman (about 12 miles), all what we indicate can be accomplished.

LABOUR.

Of the gratest importance to the future of Peru is the speedy, ample and successful introduction of labour from ditant countries.

The Chola inhabitants of the hills, and the mixed Indians of the towns and villages, who with the Chinese on the coast haciendas, at present constitute the supply, are insufficient of the wants which any extension of agricultural industry would create. The former, living as they do within reach of their homes, cannot be depended upon for the efficient and economical working of plantations. Advances are made to them, amounting to their pay for periods of three months. These advances they work off after which they are free to, and often do, leave for

their villages. Frequently the engagment is renewed with advances, to be worked off as before. No system of agriculture, more especially tropical agriculture can be carried on successfully if dependant for its labour upon a supply so fitful and so scanty. It is of importance, therefore, to introduce a class of emigrante who would have neither the desire to leave, nor the means of leaving, their employment, excepting at fixed periods of some duration and under definite engagements. On the coast there are still numbers of Chinese emigrants whose engagements date back many years. These however, are dying out; they are not being replaced, and it will become a matter of serious consequence to *all* employers of labour should there not, at some early date, be preparations made to supplement them, as well as to arrange for an increasing supply from China or India.

Chinese we found to be excellent labourers if kept away from centres of population. As it is not proposed to take them to or keep them near any town or village, but to settle them where in the interior agricultural work will engage their time and attention, no hesitation should be felt in regard to their introduction in large numbers, or in making arrangements for a constant supply of a people whose characteristics are excessive thrift and untiring industry; by whom too, the benefits accruing from these are so keenly appreciated.

Indian, i. e., Hindoo or Tamil coolie laborers, and their families, if introduced, would also prove a source of wealth to the country, improving as well their own condition as that of their employers.

Of the *Tamils* we have long personal experience, and we are convinced, that with their aid, and under the skilled direction to those accustomed to work them the fine slopes of the Perene, and any other part of Pesu where tropical agriculture might be tried, would speedily be rendered productive and valuable.

Unquestionably numbers would elect to settle in a country, and amid surroundings, so congenial to their wants and desires.

There can be no objection on the part of employers to give such guarantees as would both satisfy the Government of India, and secure to the coolie all the benefits of profitable, healthy and constant employment in country, the climate of which—from our Ceylon experience we are assured of it—is so free from malaria and in all respects so suitable to his mode of life.

PERU AS A FIELD FOR COLONIZATION.

This land of the ancient Inca has such vast undeveloped resources, at altitudes and temperatures so varied, that people from every known climate might here find a congenial home; and we cannot conceive of any healthier, more interesting or profitable occupation for European agriculturists, with a little capital, than might be found on the borders of the great grassy pampas, at an altitude of 4,000 feet and upwards, where a mixed cultivation might be introduced, including cereals, potatoes and other vegetables, around the homesteads, with a field of coffee or coca below, all interesting and profitable to the grower.

It is only to be regretted that so little is known in Lima of these localities, and that the facilities for approaching them have hitherto been so indifferent.

With the opening of the Oroya railway, however, all this will be changed, and the prospect of successful colonization rendered such as was never before possible in Peru.

For trained planters, with a command of labour, and judiciously backed by capitalists, we believe, there is not in the wide world a better opening than in the upper valleys of the Amazon and its Peruvian tributaries. We are, Gentlemen,

Your obedient Servants,

ALEXANDER ROSS;
ARTHUR SINCLAIR.

POULTRY FARMING IN INDIA.

BY A LADY CONTRIBUTOR.

So many people who have tried poultry farming out here have told me that, leaving time and trouble out of the question, it never pays and is, in most cases, a dead loss. In the rearing and selling of ordinary fowls only, I most certainly agree with them: as a native can always undersell a European, especially in livestock, as natives seldom give their animals a regular meal. In the case of chickens, a few grains of boiled rice and some crumbs of *chapati* left from his own meal are thrown to them and they are left to find what they can for themselves. A native can afford to sell a roast fowl from four to six annas, where we should be sorry to part with one for fourteen annas or a rupee. So it is really almost impossible for us to compete with them. The only way in which to make a poultry farm pay, and I find it pays me handsomely, is to keep everything, fowls, guinea-fowls, ducks, geese, turkeys and pigeons. For those who go in for gardening on a large scale this is not feasible, unless their grounds are unusually large, and then both the kitchen and flower, garden should be hedged in or railed off in some way, otherwise the fowls, ducks and more especially, guinea-fowls make fearful havoc in it. The only two ways I know of preventing this are, if you have a large compound, to make the fowl-house in the opposite direction of the gardens and at a good distance, or the bettter plan is to keep a small boy and make him guard the entrance to the garden.

My plan of housing the poultry is to make a large rough mud house, have it scraped and smoothed down and white-washed inside and out, with a tiled roof; the house is divided into six separate rooms with a door and window opposite each other in every room, excepting in the pigeon room, which has only one door; every door has a trap so that the poultry can go in and out at will during the day.

In the first room I put all the cocks and hens besides the cockerels and poulets over two months old at night giving them perches and boxes and not overcrowding them. The second room is given to the ducks, geese and guinea-fowls; perches are put up for the latter and straw placed on the floor for the two former, as they generally lay at night or very early in the morning. The third house belongs to the turkeys, and the fourth to the pigeons, in the wall of which I have large holes made in which they lay and bring up their young. The fifth room is planked off into four compartments which I shall call A. B. C. and D. for convenience. In A. all the chickens under two months old are kept from sixty to seventy and sometimes more. In B. I put a goose who is given all the goslings, which she readily takes. In C. I place a couple of large boxes with high sides perforated with small holes into which I put all the ducklings, D. belongs to the guinea chicks with their adopted mothers—a couple or three pens (not guinea fowls). The sixth room is kept for all and only setting hens. Sometimes twenty or more boxes are placed on the floor and baskets hung firmly against the sides of the wall; in these they sit and hatch their eggs.

Every morning at half-past five o'clock all the doors of the fowl-house are opened, and all the poultry dare let out, fed, and allowed to wander over the grounds till evening, a small boy looking after all the different broods of chickens, ducklings, &c. These are fed three times a day on good sound crushed grain-greens and table scraps with a little meat twice a week, and are locked up from 11 a.m. to 2 p.m. during the hour of the day, while the boy in charge has his food and a rest. All the six rooms are carefully swept and thoroughly cleaned every morning, and a layer of fresh ashes put into each. The native servants each getting an old kerosine tin for collecting them in, so that there is always a large supply of ashes in hand. The sitting hens are given plenty of good sound grain and fresh water every morning, and are then allowed to roam about for an hour after which they are brought back, and locked up till the next morning, being fed once in twenty-four hours, and having one hour's exercise when they generally take their dust baths. Ducklings are considered difficult to rear, but I find mine do very well, they are fed on *chapati* soaked in water, hard boiled duck's eggs with a little boiled rice of the cheapest kind, till they are a fortnight old, when they get bran, crushed grain and potatoe peelings.

My guinea chicks are fed on *tangen*, a kind of millet and white ants till they are a fortnight old, and then they are fed on *bajra*, and after a little time will eat almost any grain and a little meat. Goslings I have only been able to rear on *tangen*, letting the mother goose have them all day with her in the river and seeing them fed every morning and evening. Turkey chicks are given bread and milk or rice and milk at first, and then, later on, bran, onions and grain with a little meat or milk. The rest of the poultry are fed twice a day on peas, Indian corn, unhusked rice and wheat sometimes mixed and sometimes in turn, as they tire of the same thing every day.

In conclusion, I may add that my notes though hurried, may be serviceable to those who live in the district, where butcher's meat is not to be had, and a variety of food is very necessary and beneficial, and the only things procurable in the bazaar are the ordinary tasteless, the fleshless *moorghie*, occasionally wild duck, and quail, and the everlasting goat. Poultry farming does pay, as anyone, who will try my plan for a year or two, will find very few deaths occurring. In fact I may say so far all the deaths in my farmyard have been accidental such as ducklings being carried off by kites, fowls being torn by pariahs, &c., and these have been few and far between."—*Indian Planters' Gazette.*

ALLSPICE.

The term "allspice," like many other trade terms, is merely a conventional one; it has probably been applied to the small brown globular berries because of their curious compound flavour, which is thought to comprehend that of cloves, cinnamon, and nutmeg. The so called "allspice" is really the fruit of the *Eugeni pimenta*, a member of the natural order of *Myrtaceæ*. The tree is a beautiful evergreen, growing often as high as thirty feet, and it can be conveniently described as a species of large myrtle. The natural habitat of the *Eugenia pimenta* is the West Indies, but it is now cultivated almost exclusively in the island of Jamaica, where it seems to thrive without much attention. If a plantation be near a town it usually forms a favourite resort for the inhabitants, who love to saunter along the "pimento walks." There are nearly ten thousand acres of pimento trees under cultivation in Jamaica. After flowering, small racemes or bunches of tiny green barries appear upon the branches, and before they reach maturity they are picked, and spread out in the sun to dry. Some growers prefer to kiln-dry their produce. If the berries were allowed to ripen before being gathered, much of the characteristic flavour would be lost, for the essential oil, which chiefly resides in the shell, is most abundant in the unripe state. After a few days' exposure to the sub-tropical sun the barries are sufficiently dried, and their green colour has changed to a characteristic clove-brown; they are then stripped from their stalks and packed for export. The berries chiefly consist of a woody shell containing a kernel, and in the shell are tiny spaces which serve as receptacles for the essential oil.

The history, of allspice, like that of most spices, is involved in much that is merely legendary. A very high value was set upon species by the ancients, which was due, perhaps, not to their being of any remarkably good use, but rather to their being difficult to procure, for means of communication, especially with tropical countries, were limited and dangerous. The old Spanish navigators gave the name *pimienta* to the berries which we now call allspice, because they thought they resembled in shape and pungency of taste the pepper berries with which they were already familiar. Allspice appears to have been first mentioned by an old chronicler named Clusius, who wrote a good deal in the early part of the seventeeth century. We first hear of its appearance in England from Parkinson, who informs us that at about the same time it was "being obtruded for amomum, so that some more audacious than wise put it in their compositions instead of the right." This amomum of which Parkinson speaks is probably the round cardamom seed. A writer in the latter part of the seventeenth century called Ray is the first who speaks of Jamaica as the source of allspice. He also tells us that it was used as a condiment like pepper, and commonly known by the name of "sweet-scented Jamaica pepper." It was during the latter part of the eighteenth century and especially, the early part of the current century that allspice developed into such an important commodity.

In order to recognise any article that is liable to adulteration, it is important to be familiar with the microscope structure. Familiarity with appearances under the microscope can of course be best acquired by actual study, but here are the most important features. A section of the husk exhibits cells filled with essential oil, and stellate cells embedded in cellular tissue with spiral vessels and bundles of woody fibres. Membranes separate the shell from the inner kernel, and in these the microscopist will notice elongated and angular cells; one of these membranes contains cells of a deep port-wine colour which is very characteristic. Starch granules will chiefly be found in the kernel, and mixed up with them will be noticed angular and transparent cells of characteristic appearance. The chemical composition of allspice, strangely enough, has not been throughly investigated; it is difficult to obtain access to any very recent complete analyses. In many respects it seems to resemble the composition of cloves. The berries contain a volatile oil, which contributes the peculiar flavour; tannin, which accounts for their slightly astringent taste; and starch, which is unimportant for flavouring purposes. Dragendorff states that he has isolated an alkaloid from allspice which has an odour resembling that of conine; now this substance smells like nothing so much as the odour of mice, so that it is a lucky thing for allspice that it contains so minute a quantity. The essential oil is the most important constituent of the spice. Pereira informs us that it really consists of two oils; these he distinguished as light oil of pimento, which is a hydro-carbon, and heavy oil of pimento, which is a substance possessing acid properties. The oil chiefly resides in the shell, and is best extracted by distillation with water. The yield of pimento oil is 4 37 per cent. of the total weight of the seed, according to the authority of Whipple.

Amongst other scientists, Olser and Gladstone have contributed to our knowledge of the chemistry of the fruit of pimento, but still there is room for more information. Perhaps the reason of our comparatively imperfect knowledge of the chemistry of allspice exists in the fact that it is not much adulterated. If it had been subject to much adulteration, it is certain that analysis would have found it necessary to thoroughly investigate its constitution. When the spice is in a ground condition we may possibly find starch, flour, or other fine cereal matters mixed with it. The percentage of starch is small in the natural spice, so that this trick would easily be discovered. Ground allspice is well known as an important ingredient of "mixed spice." Of course, such a promiscuous name as "mixed spice" may cover a multitude of ingredients, but it really ought only to represent a mixture of ground allspice, ginger, cloves, and cinnamon. Mixed spice is rarely adulterated with anything but floury matters. Of the "substitutes" for allspice which are sometimes mixed in with the berries there are only the *Pimento acris* berries, those of the bay-berry tree, and those of the *Pimienta di Tabasco*. or Mexican spice. These berries are somewhat larger than those of true allspice, and by anyone who knows how to examine a sample, ought at once to be recognised from their different external characteristics. The consumption of allspice in Europe and the United States has considerably increased during the past few years; being inexpensive and possessing a very agreeable flavour, the spice forms a popular ingredient for domestic cookery.—*Grocer.*

MEXICO AS A COFFEE GROWER.

ONE of the best authorities in the world on coffee and coffee raising, says *American Export and Finance*, is Mr. Joseph M. Walsh, the author of an able and exhaustive work on the subject and himself an expert dealer in coffees in Philadelphia. What he has to say about the suitability of Mexico for coffee cultivation, and about the quality of the Mexican grown coffee, is therefore entitled to the highest credence and the greatest consideration. He gives his views in the following letter:—

"*Philadelphia, February 6, 1890.*—There is no field for capital that I know of at the present moment that promises such large returns as that of the overlooked and much rejected one of coffee cultivation. Among my reason for this statement may be mentioned its high market price now, and the fact that it costs no more to grow it than when it sold for one-half its present figures. If planters made money when the selling price ranged from 8c., to 10c—and it is generally admitted that they did make money—how much more can be made, do you suppose, at 100 per cent advances? The area of coffee cultivation must be increased to meet that increasing demand for the commodity in this country particularly, for here the per capita consumption of pure coffee is larger than in any other country on the globe. When prices are high we cannot do as dealers did in Europe—reduce the price by reducing the quality—by the mixture of chicory, rye, date stones, and burnt figs—because the American consumer insists, and justly too, in buying his coffee in the bean.

"For this reason if for no other coffee culture cannot fail to pay large dividends on investments. Yet in addition to these there are the questions of comparatively small outlay and cheap labour. The latter has been the great difficulty up to the present time, but is now overcome by the use of improved machinery and other labour-saving appliances. The decreased supplies from Java, Ceylon, and other countries in the East Indies owing to what is claimed to be the worm disease rot and other causes of a like nature, but which is in reality due to an overworked and worn out soil make the time ripe and favourable for a new departure in coffee culture in this country.

"It is a fact not generally known to Americans that on their own continent, nay at their very doors, there exists the agricultural capacity and climatic conditions for the production of all the coffee that is required for consumption in the United States, and in addition, to supply Europe eventually. Along the entire length of the Andean Range, coming up from Peru in the south and extending north through Central America into Mexico, and including the West India Islands, there is every facility and opportunity for the successful and profitable cultivation of coffee, rivalling, if not actually excelling in quality, the much vaunted products of Java and other countries in the eastern hemisphere.

"The topographic and climatic condition of Mexico and Central America are especially adapted for the production of varieties as choice in bean and as rich in flavour as the finest products of Java, and so excel nine-tenths of that grown in the latter country, which, were it not for the fact of being grown on that Island, would not deserve to be ranked with the average products of the former countries. While the most favourable coffee producing district in Mexixo are to be found on the arable lands of the Andean Range, excellent coffee may also be grown on the plains of the interior as far north as Sinaloa as well as on the Gulf coast from Yucatan to Tamaulipas. The great mass of Mexican territory consist of an elevated plateau formed by an expansion of Choterdilleras, from which terraced slopes descend with a more or less rapid inclination toward the Atlantic on the east, and the pacific on the west. This vast tract composes one of the richest and most varied zones of the world for while its geographical position secures to it tropical vegetation, the rapid differences of elevation which characterise it, afford it the advantages of a temperate climate, thus combining within its limits an almost unparalleled exuberence and multiplicity of natural products.

"The differences in climate depending on the degrees of altitude are so great that the products including coffee comprise all that are to be found between the equator and the polar circle. Its adaptability to the production of fine coffee has been thoroughly tested by more than fifty years of experience in its cultivation, which experience has fully and satisfactorily demonstrated that in profit to the planter as well as in the superiority of its product, Mexico has no rival among the coffee producing countries of the world. The area adjustable to its profitable cultivation is almost illimitable as far as natural capacity is concerned, being only limited by the extent of land brought under cultivation. The cost of labour is also cheap, never exceeding 25 cents per day.

"The finest coffee in the world comes now from Guatemala, bordering on the little known, and until recently almost totally neglected States of Chiapas and Tabacco, in Southern Mexico. Excellent coffee is now grown, but in limited quantities in the former, and coffee of very fair quality in the latter this too without the aid of intelligent cultivation or modern appliances for hulling or properly the bean for market. On the district of Toepic is grown a coffee rivalling, if not actually exceding, the far-farmed Mocha and Cordoba produces a coffee superior in size, style, colour, body and flavour to many of the much vaunted Java growths. The product of Oaxaca excels that of Jamaica and Ceylon, while the product of Michocan equals the finest of the Maracaibo varieties, or the best of the East India coffee so much prized in English markets.

"That Mexico has not heretofore assumed first place in point of production and exportation of coffee and that rank to which its merit entitles, it is due to other causes than to unadaptability of the soil and climate, limited capacity of area, quality, or profit to planters. It is attributable alone to those that have so long retarded all the other agricultural and commercial developements, among which may be mentioned the civil disorders, lack of knowledge in intelligent cultivation, modern methods in curing, and scarcity of capital to prosecute the industry in a successful and profitable manner.

"Under the stable and practical government of Diaz and his Cabinet, the Republic of Mexico had become one of the greatest and most progressive countries in our continent. The era of revolution appears to have passed away for ever the pronunciamento exists there no longer? railroads, telegraphs, telephones, the electric light, newspapers, and schools are rapidly superseding them, the eyes of the home seekers of the world are turning towards the rich possibilities of a country so long dormant and awaiting development. In a very few years from now, the rich and fertile plains of Mexico will be peopled by a population as energetic and progressive as they who built of and made progressive the erstwhile wild and uncultivated lands of our western country."—*Indian Agriculturist.*

PINEAPPLE-JUICE DIGESTS ALBUMEN.—It is not generally known that the juice of the pineapple contains a proteid-digesting ferment; its action is weak, it is true, for 3 oz. digest only 10 to 15 grains of coagulated albumen, but it acts equally well in acid and alkaline media, and best in a neutral fluid. The juice also contains a milk-curdling ferment. When we speak of any enzyme being weak, it does not follow that the dose of it must be proportioned to its strength; for it is probable that a small dose will act as well as a large one, by setting up the process of digestion in a fresh line when the digestive function of the stomach is impaired. Then the peptic secretion follows the lead. On that basis, a slice or two of pineapple at dinner is not a bad thing.—*Chemist and Druggist.*

NOTES ON PRODUCE AND FINANCE.

NOT CREDITABLE TO THE NATIONAL TASTE.—The latest suggestion anent the popularity of Indian and Ceylon teas as compared with China is that the palates of consumers are vitiated, and that their present preference reflects on the national taste. This is the opinion of a writer in the *Liverpool Courier*, who says:—"Commercially there is no necessity to regret the change which has taken place in the course and volume of this important item of merchandise. India and Ceylon are British possessions, and British capital has been invested to an enormous extent in this particular trade. And yet the transformation which has been achieved is not at all creditable to the national taste. Indeed, there is reason to fear that we have ceased to have any just ground for sneering at the French lack of appreciation for tea on the score of their inability to brew it properly or recognise it when it is really good. In the days of the China monopoly there also existed a high duty. An impost of 2s per pound might be very unjust, but at all events it rendered the importation of rubbish a business not worth embarking upon. We do not say that if the high duty were to be re-imposed the old conditions of the trade would be restored. Far from it. Primitive habits in an isolated way may live far into modern civilisation, but when once they have been eradicated it is, whether for weal or woe, for ever. But why has China tea fallen into the third place? First of all, because it continues dear. It is still prepared by the old manual processes, while Indian and Ceylon teas are dealt with by machinery, which, for anything that we know, may be capable of making tea out of almost anything. Even new laid eggs can now be fairly well counterfeited by machinery. Secondly, China tea is mild in flavour, and the doubled consumption in Great Britain has brought with it a great deterioration of taste. A 'strong syrupy tea' is what the advertiser announces, and apparently this notion of the plant has become popular. It is not realised that strength means tannin, and that tannin is another term for indigestion. Thirdly, while Ceylon and Indian teas are much cheaper to the consumer, as that individual mistakenly supposes, they pay the retail dealer much better than China teas, and therefore the latter misses no opportunity of extolling them while disparaging the virtues of the more delicate beverage."

SUCH GOOD OLD DAYS.—Presuming that the writer is not personally interested in the China tea trade, but is really lamenting the good old days when he could satisfy his desire for Chinese tea without the "strong twang" he so much dislikes, his picture of the "once upon a time" is quite touching. "Good strong full-bodied tea at eighteenpence per pound," he says. "That is the brand in vogue today! Once upon a time one could have gone to the house of a friend with the certainty of receiving an enjoyable cup of tea, whether one liked it with milk or sugar, or without one or both of these additions. Now the almost universal assumption seems to be that the visitor likes a strong 'twang' to the cup which ought to cheer without inebriating. We can easily imagine that those who tell us we should take our tea without either cream or sugar may be right, and that it would be no great punishment to the sweetest-toothed to drink what used to be three-shillings China tea prior to the last reduction by the Chancellor of the Exchequer under such conditions, if properly infused. But what amount of sugar and milk can sufficiently modify the character of the coarse, pungent liquid as a rule now purveyed as tea?" The transfer of patronage from China to Indian and Ceylon teas is commercially all right. We are far from saying that the two latter may not be discriminatingly used without any material injury to the consumers. But the fact remains that the change in taste has been artificially brought about. The consumer likes to have what seems the cheapest tea, and it pays the retailer to encourage the natural tendency. This is why so many people now regard China tea as at once costly and insipid. In point of fact, it is to those who know how to prepare it absolutely economical, and it provides a delicious delicacy otherwise unobtainable. It is the custom of the age to sneer at epicures, even though all classes in their various spheres profess in some degree to belong to the order. But perhaps the most regrettable circumstance connected with the revolution in the tea trade is the fact that it is so difficult even for people who are willing to pay for China tea to get it pure. They have, as a rule, to be content and feel thankful when they can obtain a moderately decent blend. It is sad to think of the writer, with epicurean taste and stoical philosophy, yearning for pure China tea, willing to pay for it, yet only able to obtain a moderately decent blend, and withal generously admitting that, in spite of this, it is "commercially all right." But he should kindly remember that it is all a matter of taste, and that his views as to the delicacy of the Chinese teas he so fondly admires may be due to some natural deficiency in his power to appreciate the more robust, but nevertheless admirable, teas grown in India and Ceylon.

THE CROP OUTLOOK.—Discussing the position of Indian tea, the *Grocers' Chronicle* says:—It is now pretty well known in the market that there is only about as much of the crop unsold as there was at same date last year; and, as the 12,000,000 lb. surplus is all disposed of already, and prices have had all the fall they are likely to have, a more confident feeling prevails, and importers are taking heart of grace to refuse bids which a month ago they would have been willing to accept. The only disturbing element in the forecast of events is: What will Ceylon do during May and June? It will be remembered that at the moment when Indian tea was up to 10d. last April, heavy supplies of Ceylon, owing to a heavy rainfall, were unexpectedly sent forward, and smashed the market here down to 8d inside a week or two. This year, however, prices are 40 per cent lower. Ceylons themselves have never been previously so low, and it is no secret that the agents of several leading gardens have cabled out instructions to pluck fine, so that it is improbable that supplies will be much in excess of last year even allowing for the natural expansion of the industry and the bringing into full bearing of young gardens which last year sent nothing to market. The season is now closed at Calcutta, and it is expected that the crop will weigh out 111 millions or thereabouts in London.

LAST WEEK'S TEA MARKET.—Of last week's market the *Grocer* says:—There having been a considerable lightening of supplies in importers' hands, and the parcels now offering not being pressed forward so eagerly as they were a short time back, the market for Indian tea has acquired much more stability than of late, and the auctions of about 23,000 packages this week have been characterised by greater buoyancy than before at again stiffer rates. This remark, however, applies more directly to fine and finest grades, strong in cup, and with other points of excellence—such as being last of the season and of autumn flavour—which teas, being briskly competed for when they are comparatively few left, have fetched another advance of quite 1d to 2d per lb.; and this helps to prove that the trade in the article is in a sounder and healthier condition than has been generally supposed. Medium and useful qualities have likewise gone off more favourably for holders, though not, of course, to the same extent, whilst the broken kinds, with fannings and very low sorts, have been taken slowly at only a trifling, if any, improvement in value. More animation was noticed at the sales of Ceylon, and the market has a better tone. Useful medium and fine teas sold very well, and values for some of these marked an upward tendency. The absence of finest grades has its effect on prices, and no rise can be looked for until there are fewer common kinds offering. Low rates are still recorded for the latter.

WHAT IS A BROKER?—The *Produce Markets' Review*, taking its cue from the correspondence on the subject in the *Public Ledger*, has been discussing the question, "What is a Broker?" It says:—"A very remarkable and serious change has taken place among City

brokers of late years, and a considerable proportion of them appear nowadays to consider themselves no longer bound to act within the old and settled lines of trade. It is the commonest thing in the world for a broker to act in one or all of the capacities of importer, merchant, wharfinger, dealer, or exporter, obtaining a profit in each capacity, though signing contracts as a broker, and charging a commission which is supposed to disclose the whole amount of his profits. In addition to this, there is, of course, a large pawnbroking department in almost all leading brokers' offices, but this may be regarded as quite a legitimate development of their business as they make an open charage for their services in this line. It is here, in fact, that the division line may be found. There is no objection whatever to a man, who generally calls himself a broker, and acts as such, obtaining any profit he sees fit, so long as he discloses the fact, at the time of the sale or purchase, that he is buying or selling on his own account, and that in addition to his commission he is making a gain which he does not desire to disclose. To such a course there can be no moral or legal objection; but it is very different when an intermediate profit is obtained without such disclosure. The question would certainly, eeven in such a case, still remain whether it is desirable for a person who is purporting to act for A or B, or for both of them, to be in the position of a professional man accepting a fee for disinterested advice, when he was really all the time looking after number one, and acting in his own interest. But if A and B chose to agree to his doing so, it could only be their judgment that could be questioned, and not the propriety of the action of the broker."

BROKERS WHO DEAL ARE NOT DISINTERESTED.—"It is nowadays a very ordinary occurrence to hear the so-called brokers in the produce markets state that it is impossible for them to live by their brokerage, that prices are so low that they could not exist on half or one per cent., while expenses are increasing; so that the only method by which they can keep their heads above water is to obtain a profit beyond their brokerage. This state of things cannot be too widely known especially among buyers in the country, who imagine that by going to people who call themselves brokers, they can get at the fountain-head, pass by intermediate profits and buy as cheaply as the dealers who have hitherto supplied them. To those acquainted with the working of the produce markets, such a delusion would be so ludicrous that it could never occur. This is only one aspect of the matter, because the question arises of how the interest of the importers of commodities can be promoted by such a state of things. If a broker is buying on his own account, he cannot be a disinterested adviser as to markets. Consciously or unconsciously, his advice to the importer must be governed by the state of hi own stock, and by the opportunities he sees of making a profit for himself, beyond what he discloses. From the importer's point of view, it is sufficiently undesirable that a commission could be jointly paid by the buyer as well as by the seller, but this sinks into insignificance by the side of the fact that the nominal broker is, in many cases, the actual purchaser on his own account."

THE SILVER QUESTION.—It is the special plea of the bi-metalists, says the *Financial News*, that their theories, caried out in practice, would produce stability between silver and gold. It is not our intention to discuss the advantages or demerits of a double standard today; but it is worth pointing out that the relative value today of an ounce of gold and an ounce of silver is, roughly, as 23 to 1, which is slightly different from the formerly-accepted ratio of 16 to 1. It is, however, of the highest importance that some approach to stability should be maintained between the two metals, and we understand that a committee has been formed with the special object of impressing upon Mr. Goschen the necessity of trying to create some stability between the two currencies of the Empire. What can be done to permanently remedy the difficuly is a problem which has long troubled the wisest heads; but until some solution be found there willbe an unavoidable element of speculation in the ordinary business of banks with Indian connections, which is as undesirable for the public as it is for the banks themselves. If the manager in London carry on his business on ordinary lines he must sustain a loss by a continued fall in the rupee. On the other hand, it might be thought that the loss in London must be to the profit of the Eastern branches; but, unfortunately, experience proves that this is not by any means always the case. As a result, nearly every Indian bank manager finds himself compelled in self-defence to "take a view," and the bank has, against its will, to speculate in order to try and avoid the speculative risks of constantly fluctuating exchange. A considerable fall has taken place lately in the shares of some of the Indian banks, presumably on the ground that they must lose heavily by the fall in the rupee, which yesterday was only 1s 2 15-16ths d. Apart from the special circumstances of the Hong Kong and Shanghai Bank, it does not follow that any part of the capital of any of them is permanently gone. No doubt if their resources had to be brought over from India to this country tomorrow, there would be a serious loss; but the deposits of these banks are nearly all for fixed terms, and much is retained in London to discount Eastern trade bills and practically never leaves this country.—*H. and C. Mail*, April 1st.

SERMO SINENSIS.

(Communicated.)

"Well, Awai, what's the news and how are prospects?" I enquired, as I took a proffered seat in the great teaman's sanctum.

"Allow that tea news b'long welly bad, London market b'long welly culio, that Mincing Lane man have got that *inferlenza*, Loo-sha * man no got lice (rather a bold statement, I thought), and Melican man welly sick along that silver pidgin. Plospix! no got plospix."

In such not very encouraging manner did the Napoleon of the tea trade commence what subsequently proved to be a rather interesting statement of his views, or so much as he cared to disclose of them, upon the present position and prospects of a trade with which his name has been identified for the past thirty years, and of which he personally has been the burning and shining light for the last quarter of a century.

Here a preliminary eructation appeared to have the double effect of clearing his throat and of freeing his ingenuous thoughts of that pidgin English dress with which he usually delights to clothe them, and he delivered himself of his views of the situation much as follows:—

"There is no doubt about it that the China tea trade is in a bad, nay in a very critical position. It is fashionable at the present moment—but fashions happily change or they wouldn't be fashions—to place nothing but Injun and Saylong teas before the London public. To decry China tea, in fact to cry stinking fish, is the silly inspiration of the moment. And those most guilty of this defamatory practice are the very ones who have fattened and battened upon the profits of China leaf, for many a long year past.

"Perhaps there never was a time in the history of the trade when the public got such good value in China teas for their money as they are getting today, clean, pure, innocuous, and yet they prefer the coarse, strong, astringent stuff which India and Ceylon turn out by the shipload. Well, if this isn't fashion, and a velly culio, fashion, too, I should like to know what it is."

"But you don't think the British public will take to China tea again, do you?" I asked.

"Can see, can savey. This year will present one of the last chances of reviving our trade. If we send

* Chinese form of "Rooshia," of course.—ED. *T. A.*

but small supplies to London our fate is sealed. What is wanted is a large crop, not necessarily of very high quality, at low cost. The attempt must be made to undersell our rivals, and so re-establish ourselves in public favour. The weather all along favours the idea of a crop certainly not smaller than that of last year, and exchange and freights will contribute to lay it down at an unprecedentedly low cost. Personally I don't wish to see high prices at Hankow, and I hope foreign buyers won't pay them."

"You said just now that China could undersell India and Ceylon. Is that a fact?" I enquired.

"Certainly. I hear that the average cost of the Indian crop is 8d. per lb., and of the Ceylon 8½d.* The average price paid last year in China was Tls. 16, Shanghai sycee, or thereabouts, and that at 4s 2d exchange and a possible 25s per ton freight would make the lay down cost 7d per lb."

"Do you think that there is any probability of a reduction of the inland burdens China tea is called upon to bear?"

"I hope so, but I don't think so. The mandarins appear obdurate (*very strong stomach* were the exact words) We native teamen want to see the taxation lightened just as much as foreigners do, but the Tsungli Yamên does not hold the guild in very high esteem, nor does it appear to have had much regard for the elaborate reports on the question drawn up by the foreign Chaszees some two years ago. At the risk of being tedious let me once again show you how China tea is handicapped. The first charge on the "made leaf" is Tls. 1·25 per picul, the shroffage in fact, exacted by the various local authorities. Then another Tls. 1·25 per picul is the well-known likin tax, levied to defray the cost of protecting the article in transport; and finally there is the Customs' export duty of Tls. 2·50 per picul. These make a sum of five Haikuan taels a picul, or 2d per lb. So a clean, sweet, strong Keemun at Shanghai Tls. 18 per picul, relieved of these burdens could be laid down in London at 6½d per lb., and a Tls. 10 Shantam at 2¾d per lb. And if that wouldn't knock the stuffing out of Injun and Saylong, I don't know what would."

After this little flight of fancy on Napoleon's part, I asked him what sort of preparation was being made for the coming season.

"Well," he said, opening his press copy letter book, "this is the substance of what I have written to the sixty teamen with whom I usually do business. 'You must be prepared for very much lower prices than you got last year, and a slower market to commence with. If you don't fire your teas with proper charcoal, tar will develop, and you must look out for squalls. Tls. 60 per picul, which after all is only 2s 1½d per lb., will doubtless be paid for a few crack chops, and then begins the sheer descent. And these are my ideas of safety. I give you last year's prices paid and the laying down cost in Hankow that you should not exceed this season.

"Ningchows,	last year	Tls. 85	this year	60
	do	70	do	35
	do	50	do	26
	do	40	do	22
	do	30	do	17
	do	20	do	14
Keemuns	do	55	do	38
	do	45	do	29
	do	35	do	21
	do	25	do	17
Hohows	do	25	do	16
	do	18	do	12
	do	15	do	11
	do	11	do	8
Oanfas	do	60	do	40
	do	50	do	30
	do	40	do	22
	do	30	do	18
	do	20	do	13
Oanfas	last year	Tls. 15	this year	10
Oopacks	do	58	do	28
	do	40	do	22
	do	30	do	16
	do	20	do	12
Shantams	do	26	do	18
	do	18	do	15
	do	11	do	9
	do	8	do	7

"And do you think that your correspondents will confine themselves to your limits?"

"Well, they certainly ought to be able to buy the leaf in the country to give them a very good profit at my limits. If they exceed them, and grief arises, they will have only themselves to blame."

"As regards the size of the crop, what are your views?"

"Truly, I don't think that on the whole it will turn out to be any smaller than last year's, and I hope it will be as big, to prevent our being 'crowded out' by Indian shipments. There will be a falling-off in the supply of Kiukiang teas, as only 250 hongs are opened in the Kiangsi districts as against 358 hongs last year, and the falling-off will be chiefly visible in the medium Ningchow kinds, which lost money heavily for both producer and shipper. The number of hongs in the Hankow districts shows an increase, but supplies will not much exceed last year's. I look for a very large business in all teas costing from Tls. 7 to Tls. 17. These, then, briefly are my views; a couple of months will show how far I have been off the mark. Just tell me two things before you go: what like are the Russian orders, and how much China tea will London take this year?"

"I could well wish," I rejoined, "that you had asked me something easier. However, it is generally held that Russian orders will be for 30 per cent. less tea at 30 per cent. less cost."

"Yes," he replied, "but telegrams can alter those conditions." And I was compelled to admit the possibility.

"As regard consumption," I added, "you had better keep your eye on the London Board of Trade figures. If you look them up you will find that the year's deliveries were 233,000,000 lb., made up of

Indian tea.....101,000,000
Ceylon..... 54,000,000
Java..... 4,000,000
China..... 74,000,000—233,000,000

but as the Indian export is estimated at 120,000,000 and Ceylon 80,000,000 lb. for 1892, unless home consumption increases it will be a bad look-out for China unless she can do the thing on the cheap. But tell me one thing more. Did the teamen lose much last year?"

"Why, of course they did, all along the line. I lost Tls. 85,000, and am not afraid to own up to it."

This sum appeared to me rather a staggerer, and I dare say that he observed a look of incredulity on my face, for he soon observed: "Some fiens had a little share inside that loss"—a fact I never doubted, for it must have been a cold day, indeed, when "our good old friend Awai" got left, I thought.

Opening a pint of the celebrated "Shun Fat" white seal, he invited me to drink to better times, and "largee chance" this season, and the genial operation having been duly performed, he obsequiously bowed me out with "a smile that was childlike and bland."—*N.-C. Herald*, March 25th.

* Ceylon costing 8½d per lb., against 8d for India! is rather a different idea to Ceylon costing only 6d. But we have seen that calculation made.—ED. *T. A.*

THE CHINA TEA TRADE.

To the Editor of the NORTH-CHINA DAILY NEWS.

Sir,—It is consoling to find from the "Sermo Sinensis" in your yesterday's issue that the Napoleon of the tea trade is still vigorous. His plan of campaign is certainly a bold one; viz., to send to London big supplies at low cost, to fight and undersell our rivals and thus re-establish ourselves in public favour. He is, however, too sanguine in my opinion in thinking that China tea, taxed as it is, can ever undersell India and Ceylon, and he is certainly quite wrong in his figures as to the average price paid

in North-China last year; which was about Sh. Tls. 29 per picul, instead of—as he puts it—Sh. Tls. 16. The cost to the teamen moreover must have been considerably more than Tls. 29, as they are supposed to have lost heavily. As to the low exchange, etc., this of course benefits our rivals equally with ourselves.—I am, etc., CHAA-SZE.

23rd March.

To the Editor of the NORTH-CHINA DAILY NEWS.

Sir,—It was with great pleasure I read the article communicated to you under the heading of "Sermo Sinensis." If the "Sermo Sinensis" has done no other good, it has at least led people to talk over what will soon be the "business of the hour." I think it would be a great pity to let the matter drop now, and some good may perhaps be expected from the great teaman's co-operation. The statistics in your correspondent's article were only too correct, and it is an indisputable fact that, if the China export falls off this season, China as a tea producing country is irrevocably doomed. I noticed that your correspondent estimates the Ceylon export next year at 80,000,000 lb. I believe it will be nearer 100,000,000 lb., and if so, it makes the position so much the worse. The China tea trade has now come to a critical period and instead of as in former years meeting with no competition, it has now to contend against British colonies with no taxation and is therefore handicapped. That internal levies are likely to be established I quite agree with the "Napoleon of the tea trade" is most improbable, but that export duty must be done away with, there is no doubt, or otherwise the China tea trade is finished.—I am etc.,

23rd March. TEA MERCHANT.

To the Editor of the NORTH-CHINA DAILY NEWS.

Sir,—The opinion of the "Napoleon of the tea trade" in China is doubtless of inestimable value to would-be tea-buyers in forecasting the "plospix" of the coming season, but a more important factor upon which to base one's action is the opinion of the dealers at home.

This, as far as my information goes, is unanimous that the British public does not want China tea at any price, an opinion, at first sight, hardly consonant with the fact that seventy million pounds of China tea were delivered in London last year, which, deducting the export of twenty-five million pounds, gives an actual home consumption of forty-five million pounds or nearly one quarter of the total of the tea actually drunk in Great Britain and Ireland. In the year of grace 1891, the total consumed, of all kinds, was 200,000,000 lb. The Home consumption of China tea in the preceding year, 1890, was fifty-five million pounds out of a total of 194,000,000 lb. or in percentages:—In 1891, 22½ per cent of the consumption was China tea; in 1890, 28 per cent; and in 1889, 31 per cent.

Thus roughly speaking, one-fourth of the tea drunk in England is still China tea, and this appears to have been taken mainly on account of its cheapness for the purpose of "blending." Messrs. Shepard & Co., the well-known Mincing Lane brokers, write in their Annual Tea Circular, published in January of this year:—"As regards good common to medium Blacks received the last few months, though laid in on apparently favourable terms, the heavy supply and very low level of prices current for good common to fair Indian and Ceylon Teas, especially the latter, have weighed down the value of anything in China Congous selling over 6d. per lb." Messrs. Shepard further state "There has been a more general and widespread effort on the part of dealers throughout the country to revive an interest in *fine China Congou*, which is being pressed on the notice of consumers at and under 2s. per lb."

In the face of such low prices and of such unprecedented efforts the only result we see is *a steadily dwindling consumption*. With an anticipated production this year in India and Ceylon of 200,000,000 lb. Mr. Awai's anticipation of "a very large business in all teas costing from Tls. 7 to Tls. 17" if realised, will, I hold, only result in forcing down prices still lower in London.

Happily for the native tea-man, the only one other large black-tea consuming country, Russia, still sticks to the Celestial leaf and, as long as that market remains as it is, the Chinese may continue to pack tea for Russian consumption under existing conditions, but as long as their trade is handicapped with differential imposts in favor of India of twenty-five per cent. (and, given the preference of the "masses" at home for strength with coarseness as against delicacy with weakness), no efforts of producers and shippers can succeed in placing China tea on the London market in any quantity with the hope of a profitable result.

The moral of which is that, as long as the Export Duty remains in force, the China tea trade with England is *doomed*, and hence producers and shippers should perseveringly devote all their efforts to the removal of this burthen. To pursue their trade under its weight is but to go on from year to year "flogging a dead horse" until nothing of the carcase is left.—I am, etc. A. J. L.

24th March.

—*N.-C. Herald*, March 25th.

THE COST OF CEYLON TEA.

To the Editor of the NORTH-CHINA DAILY NEWS.

Sir,—With reference to the correspondence appearing in this morning's issue of your paper on the subject of the China Tea Trade, may I be permitted to make a few remarks, with a view to comparison, touching the cost of production of tea in Ceylon, having recently visited the Island, where I had an opportunity of gaining an insight into the working of a tea estate. Assuming, as stated by "Chaa-sze", the average price paid per picul in North China last year to have been Shanghai Tls. 29, and the cost to the teamen Tls 30 as they are stated to have lost, the cost per lb. to the teaman would be about 22½ cents* or 10¾d. sterling with exchange at 4s., this being the actual cost of bringing the finished article into the Market.

Taking this into consideration the following figures may be of interest to your readers as furnishing some idea of the necessary expenses incurred by a tea planter in Ceylon, in order to enable him to place his tea on the London market.

Cultivation	5	cents† per lb. of made tea.
Plucking	5	" " "
Manufacture including fuel, tea makers' pay, cost of packages tea lead, etc.	6½	" " "
Salaries and contingencies	7½	" " "
Repairs to Factory	½	" " "
Transport to Colombo	1½	" " "
Freight and selling charges	10	" " "
Total ...	36	cents at Ex. 1s 4d=5¾d.

The cost of plucking varies, according to whether the planter wishes to pluck fine or coarse; if the latter, which means plucking five or more leaves instead of three or four,‡ the coolies are enabled to bring in a very much larger quantity of leaf at the end of the day's work. The manufacture being done entirely by machinery, the cost, whatever the quantity of leaf to be manufactured, remains the same, and as roughly speaking 4 lb. of green leaf=1 lb. of made tea, it follows that the larger the quantity of green leaf, the less is the cost per lb. of made tea.

* Of a dollar.—ED. *T. A.*

† Of a rupee.—ED. *T. A.*

‡ Ordinary plucking is confined to the bud and two leaves.—ED. *T. A.*

On the subject of fine and coarse plucking, there is a considerable amount of controversy in the island, owing to the fact that although plucking coarse enables a planter to turn out large quantities of manufactured tea, the quality is inferior, the coarse leaves being broken in the rolling process and mixing with the finer grades when being sifted, thus detracting from the appearance of the dry leaf and causing a deterioration of the liquor. The argument in favour of coarse plucking is to the effect that, in addition to the initial cost being less, quantity realising less per lb. is more remunerative than a less quantity of a superior quality, and it is owing to this view of the case being mostly in favour, that such large quantities of common teas have been shipped to London during the past year. Planters are alive to the fact that shipping these common teas is injurious to the reputation of the island, and in all probability this view, coupled with the strong demand for fine Ceylon teas and the high prices being obtained for these, will prevail in the end,—I am, etc. TAYELLI.

—*N.-C. Herald*, March 25th.

"FISHING FOR PEARLS IN AUSTRALIA."

The article so headed in the *Century Magazine* ought to have been entitled, "Fishing for Mother-of-Pearl Shells." The writer, Mr. Hubert Phelps Whitemarch, an American, speaks of those large shells as if they were the exclusive source of the pearls of commerce and adornment; although he states that ten tons of them are sometimes opened without the finding of a single pearl. In the case of the true pearl oyster it is rarely the case that 100, weighing about 10 lb., are opened without some pearls, "seed pearls" at least, being found. Had Mr. Whitemarch added a study of the literature of the subject to his practical experience, he would have known that the large shells, *Avicula (meleagrina) margaritifera*, are sought for and valued primarily on account of the masses of mother-of-pearl they yield, and only secondarily for the sake of the pearls occasionally found in them. On the other hand the true pearl oyster (really a mussel), *Avicula (meleagrina) fucata*, is, from its small size of little or no value for mother-of-pearl purposes, but is immensely superior as a pearl yielder. Banks of this mollusk exist off the coast of Western Australia, as well as in Ceylon, the Persian Gulf and other places, the Ceylon banks being probably the most productive. The interest of the paper in the *Century Magazine* is not scientific but practical, being written by a man who not only took part in "pearling" as the pursuit is called, but actually dived (in a diving dress) in search of the precious shells, when he lost the services of the man he had employed from the prevalent curse of drunkenness. Experience in these Australian fisheries confirms the conclusions arrived at by those who have watched the fisheries on the north-west coast of Ceylon, that beyond a depth of ten fathoms it is not safe for an ordinary, unprotected diver to go. Seven fathoms is the average on the Ceylon banks. At greater depths there is not only danger from the pressure of the superincumbent water but from the coldness of the temperature. For greater depths than ten fathoms, therefore, the Malay divers are replaced in Australia by Europeans protected by the diving apparatus of indiarubber dress, metal helmet, glass face piece, pipes, air pumps, &c. The hazards which such divers run are vividly described. The illustrations given with the article include: —a picture of the shells of the oyster; native divers (with neither string, stone, nor basket); examining the catch; diver and turtle; diver and shark; diver (in diving dress) at a depth of 100 feet; finding the bottle (with an advertisement on it!); after a squall; and necklace of diamonds and American pearls. The obviousness of this latter illustration to Australian "pearling" is not so apparent as the beauty of the ornament. Omitting prefatory matter on the general history of pearls, and the erroneous statement that the true pearls of fashion are yielded only by the so-called pearl-oyster, or mother-of-pearl shell,—the mother-of-pearl shell *not* being the true pearl oyster,—we proceed to extract as follows:—

Around the northern and western coasts of Australia the mother-of-pearl shell has been found in great quantities, and it was on these coasts, which are still unexplored, and inhabited only by natives, that the writer gained what knowledge he possesses of pearl-diving as it is followed today.

Formerly it was carried on in two ways, by native divers and by dress-divers. A few years ago the aborigines were easily induced to sign a contract binding them to their employer for the diving season, and in remuneration for their labour received the usual pay—food, tobacco, clothing from the neck to the knees, and a blanket. They lived aboard a schooner on the fishing-grounds during the five summer months, diving from small boats without the aid of sinker or other appendage, and in water from twenty to sixty feet deep. Each boat was in charge of a white man, who sculled the boat along and kept his "boys" up to the mark. Excepting an hour for dinner, they remained away from the schooner from sunrise to sunset. A good native diver, if shells were moderately plentiful, would get from sixty to one hundred pairs per day.

A curious feature among the native divers is that toward the end of the season their long, curly, jet-black hair becomes a straw color, presumably through the action of the salt water and the sun, and forms a ludicrous contrast to their intensely black faces and bodies. Since bleaching the hair has become a "fad" among civilized nations, perhaps the above recipe may prove useful to some of my readers.

Native divers are not in much request at this time, owing to the shell being pretty well worked out in shallow waters, and it has been found by long practical experience that naked native divers cannot work with any degree of success beyond a depth of ten fathoms. For this reason it will be readily understood that, as the greater part of the shells now found have to be searched for at a depth of water exceeding ten fathoms, they can be obtained only by means of the well-known diving-dress.

During three years spent on the coast of Western Australia I never knew an instance where an aborigine had been broken in to work in a diving-dress, their objection to it arising from some superstition. The greatest depth at which pearl-shells were found in payable quantities when I left, in 1888, was eighteen fathoms, and the main portion of the diving is now done by white men and a few Mongolians.

Dress-diving is by far the most approved method, as the diver can remain under water an hour or two if he chooses, can dive much deeper than the natives, and is able to work all the year round.

The difference between the mother-of-pearl shells and the true oyster shells becomes pronounced when we are told that a pair of the former weigh about two pounds, while it is certain that a pair of the latter (shells only in both cases) must be under two ounces. The former sell for £100 to £150 per ton, while the latter are left in thousands of milions on the beach opposite the Ceylon banks, with no demand for them even as sources of lime. To quote again:—

One of the most essential adjuncts to a dress-diver's outfit is a good "tender." It is he who manages the boat, holds the life-line, and looks after the general safety of the diver when below. A tender must keep his weather-eye open for squalls and collisions, must attend to signals, and must not get his man mixed up with a diver from another boat. He should so hold the line that he just

feels the movements of the worker below, never so tight as to retard free action, and never so slack as to drag on the bottom and probably get foul round a coral-cup's base, and so condemn the diver to a watery grave. Indeed, he should be a wide-awake fellow, quick to act in an emergency and constantly alert.

The mode of working is as follows: A "patch" of shell having been discovered, the boats beat up to the windward edge, and then drift down over it with a fouled anchor; that is, with the anchor upside down, so that it does not catch, but allows the boat to drag slowly over the ground, the speed of drifting being regulated by paying out more or less chain. When the diver finds that he is off the patch he comes up, the boat takes to windward again, and drifts over it as before. A patch being often one or two square miles in area, it is next to impossible to go over the same ground twice, though the entire fleet of 150 boats often work on the same patch.

The author's personal experience as a diver is thus given :—

Once again we were ready to start, all except Joe, who, knowing I could do nothing without him, wanted a few more days to finish his spree. I coaxed and entreated, but to no purpose; expenses were going on, and nothing coming in, and, after two days of impatience and chafing under my own helplessness, I made up my mind to try to dive myself, and the next tide I left the creek with that intent. The following day I made my first descent, and it is impressed very vividly on my memory.

Long before old Sol had made his appearance above the horizon that morning I crept up on deck to take a survey of my surroundings. The first streaks of dawn were lighting up the eastern sky, and in the distance I could see the dim outline of the "ninety mile" beach, ninety miles without a hill or tree, creek or habitation—nothing but white, glistening sand. Beneath, the "mighty liquid metronome" lay calm and peaceful, unruffled as yet by the morning breeze, and all around were anchored the pearlers. At sunrise I called the boys, told them of my plans, and chose one named Ketchee for my tender. After partaking of our morning coffee I proceeded, with Ketchee's help, to don the ponderous diving dress. The rubber suit, all in one piece, and which one gets into through the neck, was the first article to put on; then the leaden-soled boots and the corselet, to which the helmet is screwed, and the chest- and back-weights—in all weighing some fifty or sixty pounds. I stepped on the ladder hanging over the boat's side, and had the life line, air pipe, and helmet attached; then the order to pump was given, and, last of all, the face glass was screwed up. Oh! that there had been a wrench with which to screw up my courage as well. It had sunk to the bottom of those leaden-soled boots, and though Ketchee tapped the helmet, intimating that all was ready, I felt loath to let go. Thoughts of sharks, octopi, and other monsters of the deep flew through my brain, and I felt sure that the pipe would burst, or the boys stop pumping, or some unforeseen accident would occur.

As I hesitated, thinking of some excuse to have that face-glass taken off again, I glanced up at Ketchee, still undecided what to do, and saw him grinning all over his yellow face at my discomfiture. That decided me; I could n't stand being laughed at by a Malay; so without more ado I grasped the guiding-line firmly, and dropped.

Splash! The water closed over me with a buzzing sound, and the air whistled in at the top of the helmet with a weird noise, and I saw the bottom of the boat just above me. My ears began to ache, and the pain increased as I slid down and down, until I fairly yelled with the agony caused by the unusual pressure of air on the ear-drums. Still swiftly down I went—would the bottom never touch my kicking feet? At last I reached it with a thud, and instantly all pain ceased, and I scrambled to my feet, full of curiosity.

My first thought was, how foolish I had been to dread leaving the monotonous sea and sky above, when, only ten fathoms below, lay an everchanging scene of beauty—a paradise, although a watery one. The ground I stood upon was rock of coral structure, grown over with coral-cups from minute size to four and five feet in diameter. Sponges as high as one's head, sponge-cups, graceful corallines, and sea-flowers of new and beautiful forms, and tinted with all the hues of the rainbow, waved gently to and fro; while, like butterflies, flitting and chasing one another in and out among them all, were hundreds of tiny fishes, so gay with colors that the historical coat of Joseph would have paled beside them.

Truly it was an enchanting scene, so bright, so beautiful, and so novel withal, that I walked about with curious delight, forgetful of all the means which enabled me to intrude upon the fishes' dominion until I was brought to my senses by a sharp jerk on the life-line. This being an interrogation from Ketchee as to whether I was all right, I answered it in a similar way, and, as I did so, a familiar object caught my eye in the shape of an empty beer-bottle. It stood upright on a little ledge of rock, and I could read its flaming yellow label of world-wide reputation. "Ye Gods!" I cried, "what vulgarity! An advertisement even here! Is there no place on the earth or under the waters where one can escape the odious advertiser?" And then for the first time I began to realize my position: my head was aching, and I was breathing in quick, short gasps; I was oppressed, and an uncanny, eery feeling crept over me as I tried to pierce the dim azure of the distance beyond, where the shadowy sea-fans moved so languidly, and my imagination conjured up huge forms in the distance.

I was getting nervous, and had therefore been down long enough; so I gave the signal to pull up, and in a few moments was greedily drinking in the pure, fresh air of heaven through the open face-glass. My nose and ears were bleeding profusely, and I spat a good deal of blood also, but as I had been told that this would happen the first time, I was not alarmed. The pressure had opened a communication between the mouth and the ears, and I could now perform the extraordinary feat of blowing a mouthful of smoke through my ears, which all divers can do. After this I experienced no pain whatever when descending, and soon became a fairly good diver.

It was on my third descent that I found the first shell. It contained three pearls which I had set in a ring as a memento, and were until quite lately, when I discovered that it showed to better advantage on a whiter and more delicate hand than mine, and in the cause of art transferred it thither.

My largest day's work was three hundred and ten pairs of shells; this is rather over a quarter of a ton. The greatest number on record collected in one day is one thousand and five. These were picked up by "Japanese Charley," a little Jap about five feet high, who was always tended by his wife, and whose boat was the prettiest model and the smartest sailer in the fleet. The most valuable pearl discovered on this coast is that known as the "Southern Cross"—a cluster of six pearls in the shape of a crucifix which was exhibited at the Indian and Colonial Exhibition, London, in 1886, and was valued at $50,000. This pearl was found at low water by an old breach-comber, and was sold by him for £10.

The diver, as the reader may imagine, gets many scares when below. A fifteen-foot shark, magnified by the water, and making a bee-line for one, is sufficient to make the stoutest heart quake, in spite of the assertion that sharks have never been known to attack a man in dress. Neither is the sight of a large turtle comforting when one does not know exactly what it is, and the coiling of a sea-snake around one's legs, although it has only one's hands to bite at, is, to say the least, unpleasant. A little fish called the stone-fish is one of the enemies of the diver. It seems to make its habitation right under the pearl-shell, as it is only when picking them up that any one has been known to be bitten. I remember well the first time I was bitten by this spiteful member of the finny tribe. I dropped my bag of shells, and hastened to the surface; but in this short space of time my hand and arm had so swollen that it was with difficulty I could get the dress off, being unable to work for three days, and

suffering intense pain the while. Afterward I learned that staying down a couple of hours after a bite will stop any further discomfort, the pressure of water causing much bleeding at the bitten part, and thus expelling the poison.

One of the strange effects that diving has upon those who practice it is the invariable bad temper felt while working at the bottom; and as this irritability passes away as soon as the surface is reached again, it is only reasonable to suppose that it is caused by the unusual pressure of air inside the dress, affecting probably the lungs, and through them the brain. My experience has been that while below one may fly into the most violent passion at the merest trifle; for instance, the life-line held too tight or too slack, too much air or too little, or some imaginary wrong-doing on the part of the tender or the boys above, will often cause the temper to rise. I have sometimes become so angry in a similar way that I have given the signal to pull up, with the express intention of knocking the heads off the entire crew; but as the surface was neared, and the weight of air decreased, my feelings have gradually undergone a change for the better, until by the time I reached the ladder, and had the face-glass unscrewed, I had forgotten for what I came up.* It is evident from the number whom I have known to make a first descent, and who afterward positively refused to try again, that all men are not born to be divers. At one time I had for my tender a brawny young Scotchman named Rob, a six-footer, about twenty-three years of age, and as fine a specimen of the genus *Homo* as I ever came across. As was to be expected, Rob had a sweetheart in the "auld countree," and the one aim and end of his life was to make a fortune wherewith to return and marry the girl of his choice. He had tried the Kimberley gold-fields, and the Silverton silver-fields, without success, and was now anxious to try his luck at diving. I told Rob that I would put him down the first slack day we had to see how he liked it, and when that day arrived, with a few parting injunctions from me as the face-glass was put on, down he went, I acting as his tender. I felt him land on the bottom and begin walking from the boat; he answered the signals all right, and I anticipated no trouble, but before he had been down three minutes he was foul of the anchor-chain, and I had to pull the anchor and Rob up together. By this time he had become thoroughly frightened, and was screaming inside the dress to be pulled up; he had also lost his presence of mind, and had screwed the used-air escape-valve at the side of the helmet the wrong way, thus keeping in the constant supply of air from the pump above, and the dress was in danger of bursting. As soon as we got him alongside I unscrewed the valve, and he was soon on deck, laughing over his mistakes.

About a week after this he made a second attempt, and this time nearly lost his life. As before, he became alarmed, thought that there was too much air in the dress, and tried to let it out by the escape-valve, but screwed it up the wrong way again, shutting in the air; and then, finding the air still increasing in pressure, his presence, of mind again deserted him, and he began to take off the face-glass. Fortunately for Rob, his girl, and my apparatus, he lost consciousness before he quite got it off, and we hauled him to the ladder, kicking and yelling like a madman. He remained delirious for several hours, and when at length he came to his senses, and recovered from his fright, we concluded that diving was not his forte, and that his fortune would have to be made in some other way.

Though pearl-diving, if the fates are propitious, is a lucrative occupation, its dangers are manifold. In the community in which one has to live may be found some of the "toughest" men on earth. A mixture of all nationalities far worse than one meets on a gold-field, and an exciting calling, without restraint or law, are not likely to form a peaceful community. A diver is always at the tender mercies of his Malay crew, and the slightest accident to his apparatus, such as the breaking of the pump or the air-pipe, ripping the dress, getting entangled on the bottom, or even losing his presence of mind, may end fatally. Then, again, it is most injurious to the health, some dying from the effects after a few months, while deafness and incipient paralysis are common features. But worse than all these are the terrible cyclones that visit the coast, carrying everything before them, and leaving only a track of death and the flotsam and jetsam of wrecked hopes to mark their passage.

* Another proof of how largely dependent our moral nature is on our physical, and of the importance of a good supply of oxygen or pure air.—ED. *T. A.*

CEYLON TEA IN THE ANTIPODES.

Sir Andrew Clark, who praised China tea to his students at the London Hospital and deprecated the use of Indian, is having his opinions prominently brought before the good folks of New Zealand by traders who go in for blends. This is how it is done:—

LECTURE ON TEA TO THE STUDENTS OF THE LONDON HOSPITAL.

Extract from the *Pall Mall Budget*.

"Tea, to be useful, should be first of all black China Tea. The Indian Tea which is being cultivated has become so powerful in its effects upon the nervous system that a cup of it taken early in the morning as many people do, so disorders the nervous system, that those who take it actually get into a state of tea intoxication, and it produces a form of nerve disturbance which is most painful to witness."

Although we are the largest dealers in India and Ceylon Teas in the colonies, we have always strongly advised the public to drink our Blended Teas in preference to Indian or Ceylon alone. We maintain they are too sickly for 90 per cent. of the tea-drinking public; and in England, where such large quantities are shipped, over 80 per cent. are used for Blending with China Teas, which are undoubtdly as pure as Indian and Ceylon, and far more refreshing when properly blended. Many inexperienced firms push Indian and Ceylon, on the public because it is beyond them to produce a regular, true blend, and the profit is larger, for cheap common Indians give out a strong, coarse liquor, without any quality, and make people for a time fancy they are getting a bargain, till they find out to their cost that Sir A. Clark is right. The leading medical men in England are condemning the use of Indian and Ceylon Tea alone, and the above extract from Sir A. Clark's lecture must convince all that a taste for Indians, which has to be acquired by force at first, is a serious and dangerous thing.

We are publishing the above extract for the benefit of those who have not seen it, and support what we have always maintained. This is against our own interests, for the profit on these Teas is equal if not more than that on other kinds.

Those, however, who know the colonies are aware that authority does not carry very much weight among the masses; and that there Jack is not only as good as his master, but a great deal better. Sir Andrew Clark may be a power among the dyspeptic and worn-out in the old country, but in New Zealand where the strongest and healthiest specimens of the Anglo-Saxon race are to be seen, it will amuse them to be told of "tea intoxication." The following is the reply from another trader who believes in pure Ceylon teas, and is very amusing. It is noteworthy that the London physician's name is slightly altered, and that there are more letters to his name than he usually rejoices in.

ANOTHER CITY IMPROVEMENT.

The Ceylon and Indian Tea Association have undertaken to provide the public with a means of testing the various grades of tea supplied by them. Their idea is to construct—and the carpenters and decorators are now at work—a large and handsomely furnished aroom at the bark of their commodious premises Princes street, where at a nominal cost a cup of y class of tea or coffee—as supplied by the Asso-

ciation—will be provided at a moment's notice. Waitresses will be in attendance, and every effort used to make "The Ceylon Kiosk" a favourite and convenient resort for ladies or gentlemen when in town. The attendants will be instructed to give every information—if solicited as to the class, price, and quantity of tea used, and the Association trust that this attempt to provide for the convenience of their present and prospective customers will be heartily availed of.

Eschewing all those attempts at presumptious and impertinent coercion adopted by various aspirants for public patronage, with which all are now so familiar, the Association refrain even from following the example of that aged and eminent tadoist Sir Edwin Clark, LL.D, F.R.S., F.R.C.P. (M.I.L.K.), for however desirous they may be to introduce and maintain their teas in public favour they dare not presume to dictate in a matter concerning which all are equally qualified to judge. All they do is to from time to time place the public in possession of certain facts—concerning which all tea experts are perfectly and unanimously agreed,—and acquainted with which every one can safely be left to use his or her own discretion and taste.

The soil of China has during many centuries been subjected to a continuous drain—without any opportunity for recuperation—of all the chemic l constituents essential to the production of good tea, and is now so thoroughly impoverished as to be incapable of supplying the world with anything more than a mere weedy, sickly-looking representative of what should be a succulent and healthful article of diet. Ceylon, on the other hand, endowed with a rich and generous soil scarcely tested as yet, and in the hands of skilful and scientific culturists, who can be relied upon not to exhaust, far less "kill the goose that lays the golden egg," is producing a tea so brimful of all that is appetising and invigorating that it is scarcely astonishing to learn that old gentlemen unaccustomed to its strength have, like the poor old doctor Sir Edwin Clark, actually become slightly intoxicated by its use. The Association trust that the good citizens of Dunedin will not fall into the egregious blunder of mistaking the spurious article for the "Real Mackay"; not that we believe it possible that intoxication would result, but for the sake of avoiding waste, for every one should know that *Ceylon tea goes much further than China tea*, and consequently should not be used with the same liberality. The world, however, has passed judgment in the matter, and the result shows the verdict given—China's export is yearly decreasing, Ceylon's export is increasing by leaps and bounds.

Tea in Fiji.—A Suva correspondent reports that the cultivation of tea is rapidly extending in the Fiji Islands. It has already been proved beyond doubt that the soil of these islands is capable of producing a very superior quality of tea, and some of the tea grown on the late Mr. Mason's estate on Taviuni was regarded as equal to the best Ceylon of the time. Under Sir John Thurston's capable administration planters in Fiji are now surrounded with but few of the old difficulties, and there is no reason why tea and coffee should not become as good-paying lines as sugar in the islands.—*Colonies and India*

Ceylon and Indian Tea Planters.—A correspondent writes to the *Englishman* and draws attention to the lamentable want of energy which has distinguished the Indian tea industry in its competition with Ceylon. Every device known to the "new advertising" has been employed in popularising the Ceylon product in the home market, and the methods which have proved so successful in London, are now being extended to Chicago with the view of securing a practical monopoly of the American market. As announced some months ago, the Ceylon Planters' Association has voted a considerable sum for the purpose of sending a representative to the World's Fair, who shall convert the free citizens of the United States from their present faith in the Chinese product to an enlightened taste for Mazawattee; and the local Government has identified itself with the scheme by a grant of R80,000. There is no reason to doubt that the ingenuity and enterprise which have procured for Ceylon tea a wholly disproportionate share of the English trade will be less successful in Chicago than in London. The American market is at present large, and the enormous increase of population gives promise in the future of practically unlimited expansion. Those who are interested in the Indian tea industry will have only themselves to blame if they are shut out in the future from their due share in the tea supply of the New World. The correspondent states that the Indian Tea Association is now collecting funds for the purpose of providing an exhibit of Indian Tea at the Chicago Exhibition, but it is doubtful whether, even with a contribution of from R5,000 to R10,000 from the local Government, the amount subscribed will exceed R35,000. In view of the scale upon which the Exhibition has been conceived, this sum is, it need scarcely be pointed out, hopelessly inadequate. It is far less than the individual contribution of scores of enterprising firms; and if this is to be regarded as the maximum. Indian tea growers may be content to abandon the attempt to compete with their more enterprising rivals in Ceylon.

Tropic and Semi-Tropic Fruits in the United States.—For the first time the Census Office has made a special investigation for the purpose of ascertaining the extent and value of the production of oranges, lemons, figs, almonds, coconuts and other tropic and semi-tropic fruits and nuts as industries of the United States. The material from which the statistics contained in the Census bulletin just issued are compiled was obtained direct from the growers upon schedules specially prepared for that purpose and by personal visits of special agents to sections of the country where these products are grown. From the figures it appears that in addition to the tropic and semi-tropic fruits and nuts grown for home and family use in the United States there were in the census year 13,515 acres of almonds, 677·50 of banana, 169·88 of citron, 9,864 of coconut, 4,477 of fig, 550 of guava, 1,362·25 of kaki, 7,256 of lemon, 495·58 of lime, 12,180 of Madeira nut, 7,097 of olive, 184,003 of orange, 2,189·50 of pineapple, 171·89 of pomelo, and 27,419·50 of pecan trees, representing 658,566 bearing and 800,010 non-bearing almond trees, 577,782 bearing banana plants, 4,237 bearing and 14,110 non-bearing citron trees, 123,227 bearing and 1,199,549 non-bearing coconut trees, 138,186 bearing and 285,201 non-bearing fig trees, 32,943 bearing and 120,529 non-bearing guava trees, 58,390 bearing and 124,522 non-bearing kaki trees, 167,663 bearing and 498,784 non-bearing lemon trees, 19,069 bearing and 44,255 non-bearing lime trees, 188,409 bearing and 411,248 non-bearing Madeira nut trees, 278,380 bearing and 331,022 non-bearing olive trees, 3,885,890 bearing and 9,705,246 non-bearing orange trees, 21,750,000 pineapple plants, 3,279 bearings and 12,867 non-bearing pomelo trees, and 214,988 bearing and 657,980 non-bearing pecan trees. Excluding pineapples and bananas, which are all counted as bearing plants, as they commence fruiting within a year of planting it is seen that the average number all non-bearing trees is about double that of the bearing trees, the product of which in the census year was, as far as reported, valued at $14,116,226·59, divided as follows:—Almonds, $1,525,109·80; banana, $280,653·75; coconut, $251,217·41; fig, $307,271·76; lemon, $988,099·92; lime, $62,496·90; Madeira nut, $1,256,958; olive, $386,368·32; orange, $6,602,099·06; pineapple, $812,159·17; pomelo, $27,216; and pecan, $1,616,576·50. On the basis of present prices, with all the non-bearing trees in fruitage, the next census ought to show a value of product of more than $50,000,000. As a forecast of the future growth of these branches of horticulture, in addition to the acreage already planted, the number of acres of land in the United States susceptible of development in plant in any one or all of the fruits and nuts named has been ascertained, and the aggregate figures are also given in the same bulletin.—London *Times*, April 16th.

PROPOSED CINCHONA CULTIVATION IN VICTORIA.

If ever it becomes worth while to cultivate the cinchona plants in Australia, a writer in the Melbourne *Leader*, whose article we reproduce, ought surely to have seen that the scenes of culture ought to be chosen in the tropical portions of Australia, Northern Queensland and the Northern Territory of South Australia. But if the enterprise has ceased to be remunerative in Ceylon, with its advantages of climate, labour and experience, it surely is not likely that the culture would pay anywhere in Australia with the wages of labour at a standard at least six times higher than that which prevails in Ceylon, India and Java. The interest of the question, therefore, for Australians in general and Victorians in particular is merely theoretical. The writer of the article had possessed himself of a copy of Mr. T. C. Owen's valuable manual of cinchona culture, published at the *Observer* office, so that the information he affords is generally correct. But there are exceptions; and how on earth the English Mr. Ledger, who gave his name to the richest of all the quinine-yielding barks, came to be transformed into "Mon. Ledger," would be inexplicable but for the fact that the chief names connected with the history of research into cinchona were French. The name of the Countess of *Chinchon* is wrongly spelt, after the error which Linnæus committed and which has been perpetuated and will be, in spite of all Mr. Markham's protests. The name of Mr. McIvor of the Nilgiri plantations is wrongly associated with that of Mr. Gammie as connected with the manufacture of cinchona febrifuge, which, by the way, Mr. Howard did *not* recommend—quite the contrary—his commendation was confined to the qualities of the bark grown by Mr. MacIvor on the Nilgiris, especially the crown or officinalis barks. Mr. McIvor never took any part in the manufacture of a febrifuge from cinchona bark, experiments in that direction in Southern India being entrusted to a quinologist, criticism of whose work it is believed led to his suicide. Mr. Gammie of the Northern India plantations has been successful in the culture of the bark and in the manufacture from it successively of a mixed febrifuge and of pure quinine. Mr. McIvor, besides his success in the cultivation of the cinchonas, invented the process of removing alternate strips of the bark, which has been confounded by the writer in the *Leader* with the still better shaving process adopted by Mr. Moens of Java. The reference to the richness of the Ledger bark in Java, and the enormous profits from an acre of those trees, at first realized, reads now like a chapter of old world romance. Alas! for the glory departed and the profit which has ceased to be made from cinchona, overproduction in Ceylon being the chief cause. We wish we could agree with the writer that there are any special evidences of improvement apparent. The use of quinine still needs to be popularized; but the preliminary of cheapening the product can scarcely be carried further than it has been, seeing that in less than a generation the price has gone down from £1, and 12s. per ounce to 9d! At that price it can scarcely pay the manufacturers, and certainly it affords no profit to the growers. Jamaica is not likely to occupy the field from which Ceylon, after an export of 16 millions of pounds of bark in one year, is gradually retiring. Java, which grows the very best quinine-yielding bark as yet known, is likely to be ultimately the source of the world's supply of the valuable prophylactic, febrifuge and tonic; and it will certainly be cheaper for Australia to buy the product of her near neighbours in the tropic island of cheap labour than to attempt to grow and manufacture on her own account.

THE CULTIVATION OF THE CINCHONA.

Quinine is the medicine *par excellence* of the influenza epidemic, which for the last year or two has proved itself such a cosmopolitan curse to humanity. Whether owing to this fact, or to the success of individual experiments in cultivation is not ascertained, but it is certain that many inquiries have appeared of late regarding the probability of Cinchona, the quinine giving tree, proving a valuable addition to the products of Australia. A slight sketch of the history of this plant and of its varieties, as chiefly cultivated by Europeans, may therefore prove of interest to the readers of *The Leader*. Until a comparatively recent date Peruvian bark was the generic name of this invaluable drug, and chemists say it is still not infrequently asked for as simply the bark. This sounds commonplace enough, but the origin of quinine is nevertheless bound up with one of the most brilliant and romantic periods of the world's history. In 1532 the intrepid Pizarro, with a band of Spanish adventurers, descended upon Peru. Luckily for them they found the naturally rich and wonderfully developed country of the Incas a prey to civil war, owing to the great Inca when dying, having bequeathed a division of the kingdom which was foreign to customs. With his usual astuteness Pizarro at once decided to offer it as an "additional jewel to the already brilliant diadem of Spain." Seizing the advantage he therefore soon became master of the country, but before long insurrections, naturally incident to such a conquest, arose, and were suppressed with such incredible cruelties by the adventurers that Spain decided to form Peru into one of its South American viceroyalties. About the middle of the 17th century the Countess Del Cinchon, a very talented and shrewd woman, was at Lima with her husband, the then vice y suffering from the fever of the country, an intermittent ague. She was much struck with the marvellous properties of a powdered bark procured from an indigenous tree, the Kina, thence quinine, and on her return to Europe largely exerted herself to secure a constant supply and encouraged its use among the fever stricken people of the Spanish Vegas. In course of time Linneus, with due courtesy, in recognition of the immense service with the countess had rendered named the plant Cinchona, and under this name all the varieties of the tree since discovered or propagated are classified. While Spain held her ascendancy in Europe, quinine, as we shall now call the Kina powder, made rapid strides as an ingredient in fever medicines. Unfortunately, it was however, more or less a monopoly of the Jesuits; Protestants absolutely declined to be doctored by "Priests' powder," and thus the invaluable drug fell for almost a century into comparative disuse, attracting attention only through such channels as French quacks or advanced apothecaries. Italy has now perhaps the largest quinine factories in the world. Germany also absorbs large stocks of bark, chiefly for brewing purposes, but on the whole its place in continental pharmacy is still far too low. On the other hand, it attained about the end of last century a rapid celebrity among the leading physicians in England, and thus quickly as has been said, "opened up a new departure in the history of medicine." Its value in time of war and epidemics has long been indisputable, and now that it is the chief factor in grappling with the greatest pesce scourge of our time any effort which might eventually tend to cheapen or popularise the febrifuge should not lightly be discouraged. Seed or plants in wardian cases can easily be procured, and at a comparatively small cost, from India, Java or Ceylon, and there are portions of Victoria combining a free dry soil with sufficient moisture, which indicates the strong possibility of a suitable habitat.

To those interested in this remarkable plant, it may be of interest to trace some of the extreme diffi-

culties attendant on the first introduction of cinchona as a cultivation. Until recently South America was the sole, and often difficult and uncertain, source of supply, and while Spanish rule continued there the utmost caution was exerted, to prevent the Cinchona forest from being exposed to the curiosity or cupidity of foreigners. In fact, Markham, the greatest of all the authorities on cinchona, says:—"We did not even have a description of the Quinquina tree till Jussieu, the botanist, accompanied the memorable French expedition which went to Juito to measure an arc of the meridian, and so determined the shape of the earth. M. M. De la Condamine joined Jussieu, and for 15 years they remained toiling in the forests, only to be robbed of their plants in mistake for gold Butenos Ayres *en route* to France. This was about 1735, and for about another 100 years the cinchona forests were all but forgotten, when it struck the Dutch Government that Java, being of a similar lattitude and climate to Peru, might become a still more valuable possession to them if it could produce cinchona trees, the bark by this time having become a large and important article of commerce. Mons. Hasskarl, of the Java botanical gardens, was therefore despatched in 1853, with a permit and guide to the forests, but again comparative misfortune overtook the enterprise, for the guide wilfully or ignorantly misled him into selecting the seed of such a worthless variety, *i.e.*, so poor in alkaloids, that even yet a watchful eye is kept to uproot any plant betraying by a grey baniness beneath the *petiole* its inferior place in the genus cinchona. Since the discovery of the alkaloid quinine, and of several other less powerful alkaloids, such as cinchonine, in the bark, the bark itself has almost fallen into disuse powdered directly, and is therefore sold not as formerly, according to its regular and handsome appearance, but on the merits of sample analysis. Hence the extreme caution necessary in selecting for cultivation varieties which have proved themselves richest in alkaloids. Of all cinchonas yet known, the most valuable in this respect are the calisaya or yellow bark, and of these C^a Ledgeriana, named from its importer Mons. Ledger, is so far supreme. It has this advantage, that while it not only secretes a very large percentage of quinine, it also does so in a remarkably pure state and in the outer cells of the bark.

The seed of this variety Mons. Ledger found very rare, even in South America, and a few years ago it was literally worth its weight in gold. In Jave, where M. Ledger sold the bulk of his seed, the plantation from it proved one of the most successful undertakings on record. A paragraph from an interesting manual on *Cinchona Cultivation*, by Mr. T. C. Owen, Ceylon, the procuring of which should be the initial step in experimenting with the product, will give a fair idea of how valuable the Dutch have found this variety. Fourteen acres of C. Ledgeriana planted in 1866 showed "a return of 10,126 florins per acre during the seven years, from 1872 to 78, or 1448 florins per annum. In spite of this enormous return the plantation shows no signs of thinness, and were it now uprooted would give a return of at least £2,000 per acre. The bark of one tree of this remarkably plantation, No. 67, has been found to contain the wonderful proportion of 13 per cent. of pure quinine besides other alkaloids. Another 78, has yielded a bark containing 10·5 per cent of quinine, and no other alkaloid." This was written before the very considerable fall in the price of bark, but as he goes on to say "By the method of harvesting now employed, this result will be greatly increased," the immense value of healthy plantations of a good variety of Cinchona is even now indisputable. The method of harvesting alluded to by Mr. Owen was invented by Mr. Moens the director of the Java plantations, and is both curious and interesting. It is a system of removing the bark in strips from the living tree. This is done by a sort of spoke, shave so regulated that whether operating on a thick or thin bark the knife avoids touching the cambium, or layer of mucilaginous viscid matter, which is intercepted between the wood layers and the bark. When care is exercised in this particular, not only does the bark renew, but also secretes even a larger percentage of alkaloids. A covering of rough grass is usually tied over the wound to protect it from the sun. On account of the Dutch success in Java a proposal was in 1853 laid before the Indian Government to attempt a similar undertaking. It was calculated that 1,000,000 of people died annually of fever in India, and that nearly a half of their lives, besides an incalculable amount of suffering, might be spared if only some low priced alkaloid could be made available in every village. The laudable idea was therefore seized upon with enthusiasm, and the Government spared neither time, trouble nor expense, even to a special steamer to carry the collections directly across the Pacific. Mr. Markham happened at the time to be exploring Peru in search of objects of an antiquarian and ethnological character, and to him, assisted by Mr. Cross, was entrusted the great undertaking. At much personal toil and peril they penetrated the vast primeval forests, carefully studied the conditions under which they found the parent trees growing when they collected seed, as well as the soil and temperature natural to the various varieties, persevering through every difficulty and discouragement till they had not only succeeded in estalishing the now world renowned Government plantations of India, but also, as at a later period, in conjunction with such men as Messrs. M'Ivor and Gammie, found those factories which work up the so-called inferior alkaloids into febrifuges inexpensive enough to be within reach of the poorest villagers. Howard, the great quinologist, expressed the highest opinion of some of these preparations. These are yearly improving, as factories increase, which is especially the case since Government, meeting the complaint that they were competing with private industry in this cultivation, withdrew their bark harvests from the open market, and with great fairness agreed to use up Government bark for Government purposes only. South India and Ceylon have been the great centres of private enterprise in the east. There is some cultivation also in Bolivia and Peru, while in Jamaica it is under the auspices of the Government, who were fortunate in securing as director Mr. D. Morris, F.R.S. Besides his general extensive knowledge of botanical subjects he took very special knowledge of cinchona cultivation with him from Ceylon, and Jamaica now bids fair to be the quinine producing country of the western hemisphere. Some of the hardier varieties have grown and harvested in Ceylon at an altitude of over 5,000 feet above sea level. It has been a rule there to avoid any appearance of a damp subsoil, and some of the finest trees to be seen in that island are on poor ridges of moist districts. The experience of cinchona cultivation among the hills of Ceylon would therefore, of all cultivating countries, be the safest basis for Victoria experiments. From large stock of bark flooding the market, and including a South American bark called Cuprea, of which it was said there was an inexhaustible supply, cinchona bark fell suddenly and disappointingly, so that even yet only the finer classes pay. The South American indigenous supply is, however, failing, and till lately little effort, if any, was made to restore the forests. Cuprea has been proved to secrete a very small quantity of quinine, and from its hardness presents so much difficulty in extracting the alkaloid that it can only come freely into the London market when prices are high. Ceylon has chiefly turned its attention to tea, and, as has been said, the Indian Government uses its bark for Government purposes. The product is thus bound ere long to find its true level again, and any serious check to its production would be an incalculable loss to humanity and to the brute creation. The boon of a cheap effective febrifuge has yet to be placed within reach of the ordinary veterinary surgeon. Quinine, the only specific yet known for malarious fever, must freely find its way to the terrible coasts of Africa, to the fever stricken portions of America and North Australia, and the day is also likely to come when quinine will replace opium, now the least expensive, but most ruinous of fever cures among the teeming millions of China. Wherever, therefore, it is

found that cinchona can be successfully grown, the industry should meet with the strongest fostering encouragement. As the cultivation requires little labor, and as there are districts where both soil and teperature point as very possibly suitable to the product, there appears no reason why Victoria should not yet possess sucessful cinchona plantations.—Melbourne *Leader*.

THE TEA FUND: CEYLON TEA IN RUSSIA.

Mr. Philip Secretary to the P. A, sends us the following copy of a letter received from Mr. M. Rogivue on the subject of pushing the sale of and making known Ceylon tea in Russia:—

TEA FUND.

(*Copy.*)

Moscow, March 1/13 1892,
Maroseika, House Lebedieff.

A. Philip, Esq., Secretary to the Planters' Association of Ceylon, Kandy.

Dear Sir,—I beg to acknowledge receipt of your favour of the 29th January, annexing copy of resolution passed by the Standing Committee of the Ceylon Tea Fund on the subject of further assistance to be given to me for the pushing of Ceylon tea in Russia.

It would have given me great satisfaction if your Committee, in acknowledging my last report, had expressed an opinion, good or bad, as regards the work and progress I have done during the 10 months in 1891 I reviewed, because, as it came to my knowledge, some indirect remarks have been made as to the relatively small quantity of tea sold by me in the course of that time. The spreaders of these remarks seem entirely to forget that before I came to Russia, no such a thing as Ceylon tea was drunk nor a pound of it was sold *pure* in the country, whereas now, if I am well informed from high quarters in London, 400 to 500 chests are shipped weekly from London to Russia. Custom House statistics may be consulted in London; and as I have already mentioned the fact, it is clearly noticeable that large quantities of Ceylon tea are now used in Russia for the blending of cheap and inferior Chinese. As far as I am concerned, I will repeat what I very often said the ways and means *of selling* this tea are no difficulty for me to find, but the means *of getting it duty paid* in sufficient quantity is the chief obstacle I meet with to increase its sale."

More *réclame* must be done and more tea ought to be placed at my disposal, as my capital is not sufficient to extend now my business. I have been trying lately, with the help of some friends in London to form a Syndicate with the necessary capital required for the extension of the business (herewith for your perusal copy of my prospectus), but the present unfavourable financial circumstances all over Europe seem to be against the realization of my project. Should it perhaps be possible to manage such a scheme in Ceylon or to induce some Ceylon planters (proprietors of tea estates) to consign to me, for sale on their accounts, some of their invoices according to the instructions I could give them as regards the qualities suitable for the Russian taste, or to standard samples deiposited as reference in the hands of the Colombo tea brokers, shipments could be made direct to Odessa, or via London to St. Petersburg, Revel or Libau, and no doubt the shippers of such breaks would find their advantage in selling them there through me by retail and for wholesale combined.

Since my last report, I have sold monthly the following quantities:—

November 1891	Russ. lb.	3,395	13,933 lb. almost all in packets.
December	„ „	2,967	
January 1892	„ „	3,689	
February	„ „	3,882	

which figures, although December was a small month on account of the holidays during which time business was closed, and notwithstanding my already mentioned difficult financial circumstances, still show a small increase over the preceding months, and make the total quantity sold *from my magazine only*, almost all in packets, over 40,000 lb. for 12 months out of 50,000 lb. I have imported; and it is important to remark that these 40,000 lb. were all of *pure Ceylon tea* which have gone in the Russian consumption.

My Nishny magazine is doing very well indeed selling *presently* an average of 1,000 lb. per month and had I had larger quantities duty paid, to put at that market, I would I am sure, have tripled the quantity.

I am now making arrangements for the fair to be held next July and have already secured a magazine at the "Fair Town" where I ought to sell if the provisions of my own people are not exaggerated, something like over fifty thousand pounds tea, as many merchants from several parts of the country have promised to buy it.

But to be able to do this, it is absolutely necessary that sufficient stocks are kept at hands, in the Moscow Customs, that sufficient funds are at my disposal for the clearing of the tea whenever required, and that some more money should be spent for *réclame*. At the last Nishny Fair, I missed many good and important sales for the want of *available duty paid stocks*, and it is indisputable that if we gain the public and the merchants to purchase our tea *at the Fair*, we will have gained the whole of Russia.

Some facts worth mentioning as a proof that Ceylon tea has already a good name and is making its way into the country are the following:—

During a recent visit I made in Nishny one of my regular clients there, proprietor of a tractir, told me that when he was formerly using Chinese tea he cleared a profit of R4 per lb. whereas now since he has replaced it by "Ceylon" his profit is R8 on every pound!

I heard lately from Saratow, where my tea is sold in packets on a pretty large scale, that same retailer to whom I refused credit is now selling a bad imitation of Ceylon tea in packets. And it will perhaps interest you to hear that my Ceylon tea is going as far as Siberia.

In conclusion I will again try to impress upon your Committee, and every Ceylon planter, the interests of whom I have greatly at heart, that, although I am certain and very sanguine that the sale will greatly and rapidly increase as soon as I can overcome the financial difficulty for the pushing and extension of my operations, a great deal of work is still to be done in order to attain the desired results; and trusting that the Tea Fund will not only reimburse me my over-expenditure as per last accounts rendered, but also continue to give me further assistance for smy work of *reclamé*, and the welfare of my mission, I remain, &c., (Signed) M. ROGIVUE.

"THE INDIAN IMMIGRATION ORDINANCE A BURDEN."

(*To the Editor of the "Pinang Gazette."*)

Under the above heading you reprint, in your issue of 23rd instant, a letter written to the *Straits Times* by Mr. E. V. Carey, the sum and substance of which is that "either the agricultural development of the Malay Peninsula must be retarded or free immigration must not only be sanctioned but, be supported by Government."

How far immigration is supported by Government is doubtful; but that free immigration is sanctioned, Mr. Carey himself admits when he complains of its being "the duty of the Immigration Agent to board steamers and explain to immigrants that they are quite free." Mr. Carey's interpretation of "free" is, I presume, when coolies are given an advance in India by a "reliable agent" and brought over under a verbel contract to work it off. These coolies must not be told by the Immigration Agent that they are free, but the "reliable agent" must be allowed to take them off to work for years on some out of the way plantation, where he supplies them with the necessaries of life so long as they are able to work, and even gives them a few cents on rare occasions with which to buy petty luxuries from himself at five times their value. The balance of their 25 cents per day wages they are told goes to pay off coast advances with interest.

The disclosures made in Ceylon some years ago will surely prevent this mode of immigration being substituted even for our present one. Had Mr. Carey taken the trouble to visit the Province Wellesley estates and seen the contented and prosperous condition of the Tamils, both indentured and unindentured then he could never have written as he has done, no matter how great a sensationalist he may be, nor would he have said that the coolies are underpaid. There is nothing to prevent Mr. Carey increasing his rate of pay as much as he likes, and he can easily get protection for his "reliable agent" in India by getting recruiters' licenses for them; so what more does he want? If the coolies are free, there can be no harm in telling them so.

It is an old story about the minimum rate of wages being fixed to suit the Province Wellesley sugar planters, but perhaps Mr. Carey is not aware that Government did that on account of the planters' good looks (*sic*). It ought to have been altered long ago in favour of Ceylon coffee planters, but Government is so old fashioned that it sticks to a tried and trusty friend in spite of the attractive gilding which Mr Carey has given to Ceylon's outcast—coffee.—I am &c.,

Caledonia, 25th March 1892. JOHN TURNER.

CEYLON TEA IN AMERICA.

Mr. R. E. Pineo sends us a copy of the *Washington Post* of 10th Feb. containing the following :—

THE WHITE HOUSE TEA-CADDY.

The Elephant's Foot from the Island of Ceylon.

One of the most unique as well as interesting articles to be seen in the family dining-room at the President's house is an immense elephant's foot which is devoted to the purposes of a tea-caddy. Inside a silver lined box reposes some of the finest Bhud tea ever produced, and which was sent from the Island of Ceylon, where it was grown under the auspices of the Planters' Tea Company of that place.

For a week past frequenters of the mammoth fancy groceries establishment of John H. Magruder on New York avenue, near Fifteenth street, have noted a magnificont window display under the direction of a representative of the Ceylon Planters' Tea Company. Two natives of the island—a man and a woman—the latter said to be the only one of her sex who has ever visited this country, have presided over and dispensed the cheering beverage, Attired in the costume of their country, these people have attracted a great deal of attention, the woman in particular coming in for a large share, by reason of the ornaments used by her in bedecking herself. On the left side of her nose a hole has been bored, from which there is a pearl suspended, the gem being one of the finest for which the Island of Ceylon is noted. Her costume is a bizazre, but effective one, in which red silk and gold lace and fringe predominate.

Incidentally the islanders are useful in handling the wares called Bhud, Tiffin, and Bungaloe, which the company is just introducing to public notice. Accompanied by Manager Beireck, they called upon Mrs. Harrison at the White House and were accorded a gracious reception in the Blue Parlor, a privilege which they seemed to appreciate very highly. For the next week or so the exhibit of the tea company will continue at Mr. Magruder's up-town branch store, No. 1122 Connecticut avenue, where samples of this valuable commodity will be shown and its merits explained. Ceylon Bhud, Tiffin, and Bungaloe tea enjoys the distinction of being the best flavored of all teas, and it excels the products of China and Japan so much that it has drawn a large proportion of those teas from the English market.

The same paper contains an account of a State reception by President and Mrs. Harrison, at which Mr. and Mrs. Elwood May were present. The following paragraph is devoted to them :—

Mrs. May wore a gown of black velvet profusely trimmed with rare old family lace, her jewels being rubies and pearls from the Island of Ceylon. Mr. May has recently returned from abroad, where he was entertained by many of the English nobility.

Mr. Pineo also sends us a copy of the New York *Mail and Express* of 12th March, containing the following as an advertisement :—

FROM THE ORIENT.

Any one visiting the Health Food Exhibition at the Lenox Lyceum will notice with considerable interest the Orient exhibit of the Ceylon Planters' Tea Company. famous for their "Bhud," "Tiffin" and "Bungaloe" brands of tea. They occupy alcove D, which they have turned into a veritable native bazaar, decorated profusely with cloths and ornaments from the island of Ceylon.

Among many curios we notice an elephant's forefoot made into a lady's workbox; the companion of which was presented by the president of the company, Mr. S. Elwood May, to President Harrison, filled with the choicest tea valued at $183 a pound.

Among the pyramids of tea, which consists of over 5,000 packets, three native Ceylon servants of the company's in full Oriental costume, glide gracefully in and out, serving to all who desire cups of "Bhud" Tea, celebrated throughout the world for its refined and delicious flavor, and also is a nerve tonic, owing to the soil upon which it is grown being very strongly impregnated with iron. Hence upon all their advertisements appear their insignia "Nervousness farewell."

It is not generally known in America that the planters of the island of Ceylon are younger sons of English noblemen, and gentlemen, invariably graduates of Oxford, Cambridge, Harrow and Eton. Educated and intelligent, they have advanced methods and have invented their own machinery, so that the tea is now untouched by hand from the time of plucking.

As the writer was enjoying his cup of tea he overheard one of the representatives of our old Knickerbocker families say: "Everything connected with the Ceylon Planters' Tea Company is of the highest order, their 'Bud' tea and 'Lanka' coffee, their picturesque servants, their advertisements, etc." Her companion, an English lady, replied with a touch of national pride, "There are interested in this company in England such gentlemen as Sir Arthur Birch, K.C.M.G., late Governor of Ceylon, now manager of the Bank of England; Right Hon. Sir Wm. Gregory, K.C.M.G., twice Governor of Ceylon; Sir Arthur Gordon, G.C.M.G., late Governor of Ceylon; Sir Roper Lethbridge, K.C.I.V., M.P.,; Sir James R. Longden, K.C.M.G., late Governor of Ceylon; Sir Richard Cayley, late Chief Justice of Ceylon; Sir G. H. D. Elphinstone, Bart.; Gen. Sir Redvers Buller, V.C., K.C.B., K.C.M.G; Gen Lord Chlmsford, G.C.B."

It is well worth a visit to the Health Food Exhibition to see the picturesque Ceylonese in their Oriental splendor. Their jewels are heavily antique wrought and set with precious stones. The pearl the woman wears in her nose ring is very valuable and one of the finest small specimens of the island.

The *Mail and Express* of 14th March gives an account of a dinner to the President's son; and it is stated :—

"Among the guests was S. Elwood May, of New York, president of the Ceylon Planters' Tea Company, of which Mr. Harrison is a large stockholders" &c.

In this connection we may quote as follows from the letter of a correspondent :—

"I think Mr. Lipton's statemen's in his recent letters should not go uncontradicted about the Tea Company not having advertised. Mr. Lipton was there on September 8th. Possibly the large advertisi g contracts (190,000 dollars worth) have been entered into since then. Mr. May sent you on 5th February a lot of newspapers, journals, &c., in which the Company were advertising."

We take blame to ourselves for not having corrected Mr. Lipton's erroneous statement.

CEYLON TEA IN RUSSIA: ANOTHER LETTER FROM MR. ROGIVUE.

The Secretary of the Planters' Association sends us the following copy of a further letter with enclosure received from Mr. M. Rogivue on the subject of pushing the sale of and making known Ceylon Tea in Russia :—

Copy. Moscow, 7/19th March 1892,
Maroseika, House Lebedieff.

A. Philip, Esq., Secretary to the Planters' Association of Ceylon, Kandy.

Dear Sir,—In continuation of my respects of the 1st/13th inst., I herewith beg to hand you the copy of a letter from Mr. Milawidoff, the Assistant in charge of my permanent Magazine at Nijini-Nowgorod, giving his appreciation as regards the further extension of Ceylon Tea in Russia and the steps to be taken in view of the coming Fair.

I shall thank you to submit the same to the Committee of the Tea Fund.—I remain, &c.,

(Signed) M. ROGIVUE.

I enclose one of my new Price Lists.

Copy of a letter of M. Milowidoff in charge of M. Rogivue's Magazine in Nischny Novgorod.

Nischny-Nowgorod, March 2nd, 1892.
Translation.

Enough time has elapsed since the Nischny fair of 1891 took place to enable me now to form an opinion as to the future "Ceylon Tea" is going to have on the Russian markets.

The Nischny Fair has been the *touch stone* of Ceylon tea, when already a large number of persons were eager to try this new product. It is true that the business of the fair did not, relatively, get to an important extent because most of the people bought this tea merely as samples, with the chief object to taste it. But the results of the fair have nevertheless been very satisfactory, thus proving above all what a good *réclame* it has been for the tea; the merchants, the public and the newspapers having already taken a great interest in this tea, quite new in Russia.

From the Nischny Fair and later on from the Nischny Magazine Ceylon Tea has been sent to the most remote places of the Country: *Valogda, Astrakan, Viatka, Orenburg, Kostroma, Ufa, &c.* We have every reason to believe that the tea made a favourable impression upon the general public, and this because, just after the Fair, many of the former buyers renewed their purchase and new clients came forward. In short, the fact that Ceylon tea is making by degrees its way amongst the public of Nischny accustomed to drink good tea, and spoiled in this respect thanks to the Fair, this fact, is a guarantee for its brilliant future. The Nishny Magazine although only opened since six months may safely be expected to sell 12-15,000 lb. in this year, without bringing in account the quantity liable to be sold at the Fair. This, I think, is another striking proof that this Tea is already known and appreciated. If the Nishny Magazine balances the accounts of this first year with perhaps no profit or even a small loss, the following reasons may be accounted for: 1st the novelty of the business, 2nd the high rate of gold, 3rd the expenses caused by the installation of the magazine and 4th the occasional want of stocks which have sometimes *failed.* As you know it every well, we have been and we are still very often obliged to refuse sales, giving for instance 5 lb. when 50 lb. are asked; this of course has made a bad impression, shaken the credit of the firm and driven away numerous clients. I can boldly assure that the Nishny Magazine would have sold *twice* the quantity if the goods had been readily at hand.

To my opinion, Ceylon Tea will spread fast enough and considerably under the following conditions: 1st if it is sold *cheap* enough to compete for prices with Chinese Tea; 2nd if a thoroughly good *réclame* is done; 3rd that the Nishny Fair be well conducted with sufficient quantities; and these conditions are all indispensable for the success of the Fair and the further extension of the tea. Judging by the results of the first Fair and of the magazine, one can safely presume that the demand at this year's Fair will considerably exceed the last one. It is therefore necessary that larger stocks should be available. I should say that for the Fair *alone* we must have at least 100 cases* of different marks, besides about 5,000 lb tea in packets, not speaking of larger orders (orders exceeding 5 cases of one sort) which will be executed in Moscow where sufficient stocks should be kept. I will repeat that the *réclame* is absolutely necessary for our success and I would suggest that a sum of about 500 Rbs. should be assigned for this purpose. The Nishny Fair is the centre of the whole of Russian trade; amongst the heap of all kinds of new products brought on this market it is easy for an article to pass unnoticed and this is the reason why *réclame* plays such an important part. Every firm starting business there spend up to *thousand roubles* in advertisments and the expenditure is justified. I would propose to begin advertising in the newspapers of the provinces, already *before* the opening of the Fair. Another way to increase the sale of Ceylon tea would be to open, after the fair, new magazines in one of the towns on the Wolga, *Kazan* or *Saratow*, as branches of a well established firm are the safest and the best factors of a good *réclame* the establishment of which would cost about 3,000 Rbs. per annum. These outlays would certainly be covered, and largely, considering that if at Nishny, a relatively small town, where business is not so important, the expenditure is covered, one can the more so reckon on Kazan and Saratow—important commercial centres on the Volga, thrice more populous than Nishny.

I found it is necessary to account you with my ideas in view of the coming fair so that you might see what you are about and take in due time the necessary steps.

(Signed) MILAWIDOFF.

LADY TEA MERCHANTS IN LONDON.

Women are generally credited with being the greater tea drinkers, and men, when they wish to retort on being accused of smoking too much, answer that tea takes the place of tobacco amongst the luxuries appertaining to the gentler sex. This may or may not be, but in either case it seems that there is little or no reason in these days of womanly enterprise why ladies should not be purveyors as well as consumers of tea. This thought appears to have struck two ladies who have for some time been doing good business in quite a private way in this most necessary article. Under the title of "The Ladies' Own Tea Association, Limited," a Company has now been formed and registered, consisting of seven lady shareholders, and directed, and managed by the two ladies who originated the scheme, Miss R. G. Bartlett and Miss A. M. Lambert. Premises have been taken at 92, New Bond-street, where the tea association may be seen in full working order. There is an office—or, perhaps, to be perfectly accurate, a shop—fitted up with every requisite for the blending and tasting of tea. A counter as bright as polishing can make it, gleaming brass scales, and tin scoops; tin cases to hold five, seven, and ten pounds, huge layers of brown paper, and paper bags, all proclaim the business-like nature of the enterprise; whilst an inner room, fitted with the pretty tables, Japanese ware, Oriental rugs and mattings, and the soft-toned draperies we associate with high art, invites lady customers to partake of a refreshing afternoon cup. These are some of the aspects of this latest development of feminine industry. Its objects are primarily to provide a new employment for necessitous gentlewomen at their own homes by establishing agents (who must be ladies) in every town, district, suburbs, and village of Great Britain and Ireland. Secondly, to sell the best tea at a low price. This can only be achieved

* Duty paid (costs by M. R.)

by importing the goods direct from the estate, which is in Ceylon, and thus avoiding the possibility of adulteration and the profits enjoyed by the middleman. Besides, the lady agents there are to be blenders, packers, and sellers of the same sex, and the promoters are most anxious to make the Association known as widely as possible, in order to benefit all those for whose benefit it is intended. Although the Association especially recommends the Ceylon teas, it supplies various other kinds and blends, thus suiting the tastes of all customers. It is always said that Ceylon tea is more wholesome and much cleaner than that of either China or Japans as it is prepared entirely by machinery and not by the hands and feet—frequently unwashed—of the natives. The prospectus issued by the Company contains a few hints on the brewing of tea, and there is no doubt whatever that in many households these hints are are most necessary. The terms of the "Ladies' Own Tea Association" are strictly cash, and the prices vary from 1s. 8d. to 4s. Orders of seven pounds and upwards will be delivered carriage free to any part of the United Kingdom, and those for less than that weight will be sent subject to the usual Parcels Post rates. Sample packets of 14 ozs. will be forwarded post free for the price of 1 lb. Should a chest of 10 or 20 lb. be required, it can be packed on the estate itself and sent direct and unopened to the purchaser. No agent incurs any liability, and the principal injunction is that she must always deliver each parcel to the customer unopened and in the condition in which it is received from the Association. Also that small weekly orders should be accumulated at least to the amount of 7 lb., which will be sent free to the agent for distribution amongst the purchasers. Any agent who is not able to dispose of five pounds of tea per week will be disqualified, and another appointed for that District. Good commission is paid by the Company, and the amount of it is forwarded every Saturday to the agents. At Christmas a bonus of 2½ per cent. is given on the amount of commission obtained during the year.—*M. Mail.*

MR. WILLIAM JACKSON.

[We greatly regret the delay in republishing the following memoir of Mr. Jackson, the great tea machinist, which appeared, with a very good likeness, in the *Indian Planters' Gazette.* Illness, from which even newspaper editors are not exempt, must be our excuse for overlooking this and perhaps some other matters, in the avalanches of "exchanges" which reach us from all parts of the world.—ED *T. A.*]

We have already given our subscribers the portrait and history of more than one tea-planter whose inventions have made them famous, and the fact of the original of this picture being on a visit to India enables us to publish the following sketch of a gentleman whose wondrously clever patents have made him deservedly renowned wherever the tea industry flourishes.

Mr. William Jackson was born in 1849 at the farm of Davo, on Lord Kintore's estate of Ketthall, in Aberdeenshire, Scotland.

At the age of 6 years his father died and he remembers little of him; but in after life was told by his mother that his father had more than once remarked, "We will make something of that laddie yet."

His most vivid recollection of early life was about the age of 10 years. About this time he fell a victim to typhoid fever, and when sufficiently convalescent to be getting about, a portable engine and thrashing machine was for the first time brought to the farm to thrash the crop, and the engine-driver's name was George Wood.

Being fascinated with the engine and not strong enough to move about, a "winlin" of straw was placed near the engine for him to sit on and he so plied "Geordie Wid" with questions, that his patience got exhausted and he was told "If ye spere ony mare questions I 'il pit ye in the furnace."

Being enamoured with the wheels and belts, nothing would now satisfy him but make a working model of a thrashing machine, and this he so constructed in a very primitive way in the carpenter's shop and smithy, which were on the farm for repairing and sharpening agricultural implements, and the belt was passed over the grindstone to gain the necessary speed on the drum, the farm servants willingly driving the handle on the summer evenings; whilst moss plucked from the roots of trees was passed through the small machines, the sand and grit coming out as the corn whilst the moss was delivered as straw.

Mr. Jackson's eldest brother James, and whom he describes as one of the worthiest men who ever lived, now came of age, and took over the management of the farm, and seeing how hopeless it was to keep him out amongst wheels, set to work and got him into Messrs. George Murray & Co.'s iron foundry at Banff, on probation.

In the meantime an excellent neighbour, Mr. Bisset of Artannies, and a Mr. Annand of Inverurie, thought that Willie Jackson should serve his time in a more advanced engineer's shop than that of Banff, and on their own account went to Aberdeen and obtained from the celebrated firm of Messrs. Hall Russell & Co., engineers and ship-builders, an apprenticeship for him.

From this time onward Mr. Jackson remembers all that happened to him. He quickly showed abilities above the average apprentice, and long ere he had completed his 5 years he had individual responsibility placed on his shoulders, and on the completion of his time, Mr. Russell, the manager, was most unwilling to let him go, and wages were offered much in advance of the usual as an inducement for him to stay; but Mr. Jackson was bent on foreign lands, and nothing would then alter his decision to go abroad.

His brother John was at this time Manager of the Scottish Assam Tea Co. in Assam, and had suggested Calcutta as a likely place for him to come to. On reaching this Mr. John had a letter waiting for him, stating that if nothing turned up suitable to come on to Assam, and probably he might become a tea planter.

Nothing suitable was found and Mr. Jackson went off to Assam, and singularly enough to say, Mr. William Lawrie, now the successful Manager of the Jhanzie Association, was then assistant to Mr. John Jackson, and a week before Mr. William Jackson's arrival resigned his appointment to take the management of the Loajan Estate, and Mr. John simply put his brother in Mr. Lawrie's place. Mr. Jackson relates rather an amusing incident of his first experiences of Assam life. When he reached Kookleamook, the steam oat station on the river, it was about 4 p.m., and a letter awaited him from Mr. John giving instructions to put himself in the bearer's hands who would bring him safely to Mazengah. This was done and the first two hours were spent in a dug-out boat which took him into a *bheel* or shallow piece of water, the edges of which terminated in mud in which the buffaloes wallow.

Here an elephant was waiting him which was brought alongside the boat and caused to kneel down in the mud for Mr. J. to mount.

On attempting to do this, however, the monster beast trumpeted so loudly, that Mr. Jackson made a bounding leap, and landed himself headlong in the mud and water as far from the beast and boat as he could, out of which mess he was lifted by the coolies and put on the *hattie*, and in this state reached Mazengah about 10 p.m. little or none the worse of the fright he had got.

Mr. John Jackson about this time had decided on manufacturing all the leaf at Helbakah, and resolved on making this a central factory for the whole of the Company's gardens; and as a consequence Mr. William was transfered there with himself and got charge of the tea-house and the making of the tea.

The leaf now being all brought to one centre for manipulation greatly increased the work to be accomplished in the tea-house; and as there was only a two plated Kinmond's roller, which only partially rolled the

leaf, and a very small engine to work it, Mr. Jackson's duties often extended far into night, and it was this and this alone that gave him his first start in tea machinery.

He made his first resolution in the lonely midnight hour that he would produce a machine that would do the work so as to give him time for sleep at any rate, and before 3 a.m. next morning he had made a model disclosing exactly the motion imparted by coolies in rolling leaf on tables by hand.

On showing this to his brother permission was given to make a machine, which in course of time was done, and proving a success it was thought desirable to patent it.

The patent specification was crudely drawn up, and as most of our readers will know was subsequently the subject of much and severe litigation between Mr. Jackson and Mr. Kinmond.

Mr. Jackson has much gratification in the fact that some of the very first rollers he made have stood the test of some 20 years' work and are well spoken of at the present day. Soon it began to be known that a new roller had been invented that would actually finish the rolling of the leaf, and orders began to come in; but who was to make the machines?

Mr. John Jackson at this time resigned the management of the Scottish Assam & Co. and returned to Scotland, and with him took some 8 or 10 orders for the new roller, but singularly enough to say much difficulty was found in getting any firm at home to make the machines. No engineers of standing had ever before heard of tea machinery, and it being quite a new venture, as they termed it, one after another declined to take it up, till at last a firm in Glasgow was prevailed on to make them. They made about 60 rollers in all, when Mr. Jackson went home and to his great delight got Messrs. Marshall Sons and Co., Ld., to take up the manufacture of them, and from that day to this Mr. Jackson has been able to give Planters the highest class machinery.

Everything now went well till the crash came with Mr. Kinmond, which swept all from under the brother Jacksons' feet and caused a dissolution of partnership, Mr. William still holding on to it, whilst Mr. John retired and went to America.

Mr. Jackson had a long and severe struggle to regain lost ground and speaks very feelingly of Messrs. Marshall Sons & Co.'s, Messrs. Balmer Lawrie & Co.'s, and the Planters' great kindness to him at this time, and says he could not have survived the blow but for them.

The single action and Standard Rollers had up to this time been his productions. The Standard Roller, although a good machine, was expensive in construction, and for a considerable time in his home in Aberdeen Mr. Jackson had been thinking of a possible mechanical means of producing a less costly machine that would have the same action on the leaf as the Standard Roller. Careful thought thus produced the well-known Excelsior Roller, the peculiar crank motion of which is said to be unique in the list of mechanical movements.

Having now got a good roller Mr. Jackson began to turn his attention more closely to Drying machinery, but it is only within the last 5 or 6 years he has given special thought to it, and in this short time it surprises us to learn he has sold over 500 Victorias, 300 Venetians, and since May this year, when his first new Britannia Dryer was started in Ceylon, something close on 100 orders have gone home for them, and from all we hear of this fine new machine he is likely soon to creep on to the four figures with it.

Mr. Jackson also surprises us by stating that there are some 50 patents granted in Calcutta alone for rolling machines, and with some feeling of pride says:—"I think I am the only one who has come through from the start in Tea Machinery," and expressing great thankfulness to genuine old friends still in Assam and Ceylon, who have supported him through good and bad times, he still hopes for many years to devote his whole energy to the development and improvement of machinery used in the manufacture of tea.—*Indian Planters' Gazette.*

NOTES ON PRODUCE AND FINANCE.

TEA AND TANNIN.—Life would be monotonous if it were not for the flip given to it by those little alarmist rumours with which the medical papers beguile the weary hours and excite the imagination of their readers. Those who gape for the lack of something to do, and must have a new sensation at any price, find the first moment of a startling announcement positively exciting. Between the *Lancet* and the *British Medical Journal*, the average human being who eats and drinks food subject to analysis may always feel on the *qui vive*, is so disposed. The *British Medical Journal*, for instance, in the course of its researches into the mysteries of tannin in tea, and in that of China in particular, as compared with teas of Indian and Ceylon growth, gives the following result:—"China, 7·44 tannin, 3·11 theine, 30 minutes' infusion; Indian, 17·73 tannin, 15 minutes' infusion; Indian and Ceylon blended, 10·26 tannin, 8·91 theine, 15 minutes' infusion." If this be correct, the Indian and Ceylon teas appear to contain nearly double the quantity of tannin to be found in China tea, even when the latter is infused for a much longer time than the former. The *British Medical Journal*, in the article referred to, says:—"Some examples which have been forwarded to us of the results of analyses for tannin and theine in tea indicate considerable variation in the amount of tannin, according to the quality of the tea and the stage of growth at which it is picked. In some blends of China teas the percentage of tannin extracted by infusion for thirty minutes was 7·44; theine, 3·11; and a similar result was given in the examination of the finest Moning; while, on the other hand, with fine Assam tea a percentage of 17·73 of tannin by weight was extracted after infusion for fifteen minutes; and two blends of Assam and Ceylon tea gave respectively 8·91 and 10·26 of tannin. On the whole, it is probable that the Indian teas are much more heavily loaded with tannin than the China or Japan teas. Moreover, the common method of prolonged infusion in boiling water is well calculated to extract all the tannin, while it dissipates the flavour of the tea. To be drunk reasonably, tea should not be infused for more than a minute, and with water of which the temperature does not exceed 170° Fahr. It should be taken without sugar or milk, which would drown the flavour of the delicate and aromatic infusion thus obtained. This, at least, is how tea is drunk both in China and Japan, whence we have borrowed the use of it. With our European method of prolonged infusion in boiling water we destroy all the best flavour of the tea, and we extract such heavy proportions of tannin as to cultivate indigestion as the result of tea-drinking. Indigestion is unknown among tea-drinkers in the East, and it is, in all probability, only the result of our defective use of the leaf." The idea of tea infusing for one minute only is certainly novel, and will amuse Mincing Lane. As for the consumers of tea, they will, no doubt, with that perversity which characterises the victims of a bad habit, continue to drink tea infused as usual, audaciously selecting the teas of India and Ceylon in preference to those of China, because the former are stronger and give better value for the money.

TEA PLANTING AND TEA RETAILING.—The sequel to the brief correspondence which appeared in our columns about two months back about the advantages—real or imaginary—which the grocer who was himself interested in tea gardens possessed over the tea retailer who was not, is now to be found in the prospectus of the May-Bloom Tea Plantations, Limited, which appears in several papers. It is evidence of the keen competition in the tea trade and the necessity for novelty of idea, if of nothing else. The company, in its prospectus, appeals to the grocer to take shares, and thus "become" his own planter, and he will then (assisted by powerful advertisements) "be in a position to successfully contend against the severe competition arising from firms who style themselves 'planters,' or who, by weight of their advertisements, threaten to monopolise the sale of one of the most profitable articles of the retail dealer." The

proprietary rights are offered to only one grocer in a district, and can be acquired by the purchase of one or more proprietors' shares of £10 each, bearing a preferential minimum dividend of 5 per cent., the holding of which confers the following advantage :—"The teas from the plantations acquired by the company will be packed in the usual way in chests, half-chests, and boxes, and will be offered on arrival direct to the proprietors, thus doing away with the intervention of middlemen, and giving the proprietors an opportunity to buy at prices considerably under those usually charged by the London wholesale dealers. Samples will be submitted in reply to enquiries, and it will be quite optional for a proprietor to purchase or not. By this means his method of buying, or his existing style and uniformity of blends, will not in any way be disturbed. Each proprietor will thus be in a position to state that he supplies teas direct from his own plantations, of which views and full particulars can be obtained for exhibition on his premises, as well as forcible handbills, &c. ; these, with well-directed advertisements, as stated hereunder, will form a very powerful medium to attract fresh customers. The following arrangements,' the prospectus states, "have been entered into with the Planters' Stores and Agency Company, Limited, of 1, Great Winchester Street, London, E.C., who are largely interested in tea planting i—1. The Planters' Stores and Agency Company Limited, undertake to pay to the company, for the benefit of the holders of proprietors' shares, an aggregate sum equalling 5 per cent on the amount of such shares for the time being issued, to be distributed amongst the holders as remuneration for their services as resident agents for the sale of May-Bloom Tea, subject to such payment ceasing when the profits of the company suffice to pay the full amount of the preferential dividend. 2. To manage the plantations and entire work of the company at a moderate remuneration. 3. To advertise in conjunction with the grocers' names in the country Press, by board at railway stations, and various other ways. 4. To confine the sale of the now well-known brands, 'May-Bloom Tea,' exclusively to the proprietors in their respective districts. 5. To offer to the proprietors at specially-reduced rates their well-selected stock of original teas from India, Ceylon, &c., standard blends and other packets held at their "May-Bloom Tea' depôt at 32, Middlesex Street Aldgate."

THE INVESTOR WARNED OFF.—We notice that an evening paper, *The Echo*, refers to the above concern [Ceylon and Oriental Estates Co., Ld.] as "A Baring Relief Company," and it says:—"How is it, for instance, that no names of old Ceylon planters are given as applying for shares? If the 'opportunity of acquiring these estates is so exceptional,' how is it that a large proportion of the capital required has not been subscribed by rich proprietors and retired planters, of whom there are scores in London? Let the directors proclaim that in answer to a prospectus posted up in the room of the 'Ceylon Association in London' some two or three thousand shares have been taken by Ceylon men, and we shall unhesitatingly advise the public even to pay a good premium for the remainder of the shares. Less than a month ago Mr. Ferguson addressed a room-full of Ceylon residents, active and retired, at the Royal Colonial Institute; how many of these are assisting to relieve the Barings and Mr. Thring of their Ceylon estates at a valuation based upon the profits of 1891, when tea averaged a fair higher price? We venture to say, not many. Nor are the estates themselves by any means the pick of Ceylon properties. On Peacock Hill and Bogahawattie the wind is damaging, both occupying exposed situations. The former is situate just below the Upper Peak estate of Mooneragalla Mountain, and the latter at the Gap (Bogahawattie Gap), between Dimbula and Kotmalie. For obvious reasons, it would be fatal to fell any additional jungle land, if by so doing it gave access to the violent wind prevalent during two months of the year. Be all this as it may, however, the fall in the price of tea, and its entire ommission from the prospectus, is quite sufficient warranty for us to recommend prudent people to leave the Ceylon and Oriental Estates Company to those persons who are well acquainted with the estates, and also with the rational forecasts made of the tea market by brokers and dealers."

THE BI-METALLIC QUESTION.—A numerously attended meeting of bankers and merchants was held on Tuesday night in the Board room of the New Oriental Bank, London, to consider the position of the currency question, with special reference to the interests of the City of London. Mr. J. Howard Gwyther occupied the chair. After some discussion the following resolution was unanimously passed :—"That a City of London Committee of the Bimetallic League be formed to urge upon the British Government the necessity of co-operating with other leading nations for the establishment by international agreement of the unrestricted coinage of gold and silver, at such fixed ratio as many be agreed upon, and that the following gentlemen constitute such Committee, with power to add to their number :—H. H. Gibbs, M.P., Sir Thomas Sutherland, M.P., S. Montague, M.P., A. D. Provand, M.P., Sampson S. Lloyd, H. R. Grenfell, Sir Hector M. Hay, J. Howard Gwyther, Edward Sassoon, Reuben Sassoon, Edward Langley, J. T. Horley, A. Von Andre, H. R. Breton, David M'Lean, H Schmidt, J. F. Ogilvy, Herbet C. Gibbs, Thomas A. Welton, Henry Coke, R. T. Rhode, A. Zimmern, A. Cotterell Tupp, W. Keswick, and W. Paterson." It was also decided to hold a public meeting at the City of London Institute soon after Easter, at which Mr. S. S. Lloyd has consented to take the chair, when Mr. H. C. Guibbs will read a paper on silver question in relation to the interests of the City of London —*H. and C. Mail*, April 8th.

AVERAGE PRODUCT OF FRUIT TREES.—To those who desire to estimate the crops of the future, the following table will be of some interest. It is based upon a fair average production of trees in full bearing and under proper treatment, planted as usually in orchard :—

	TONS PER ACRE		TONS PER ACRE
Apples	4	Walnuts	1½
Apricots	5	Almonds	1½
Prunes	6		BOXES PER TREE.
Pears	5	Oranges, budded	6
Figs	8	Oranges, seedling	12
Peaches	5	Lemon, budded	5

—*Rural Californian.*

COFFEE CULTIVATION IN JAVA.—A report from the British Minister at the Hague on Netherlands-India describes the connexion of the Government with coffee cultivation in these colonies. The greater number of the coffee plantations in the Dutch possessions are directly under Government management, the natives being compelled to cultivate coffee in place of paying taxes, while the authorities receive the whole of the produce at the fixed price of 15 florins (£1 5s) for every picul of 133 1-3rd lb. A certain amount is then disposed of in the colonies themselves, and the remainder is sold in Amsterdam and Rotterdam, the usual practice being not to sell one year's crop in Holland until the following year, although, as an exception, part of last year's crop was sold towards the close of the year. The fluctuations in the returns from coffee have of late years been considerable, owing mainly to variations in the yield. But it also appears that a change has come over the conditions of cultivation in consequence of the exhaustion of the soil, which has had the effect of compelling the Government to bandon it in some districts. The labour on the plantations is not now the only form of taxation to which the natives in Netherlands-India are liable. Formerly feudal service, in the form of so many days' labour, was enacted, not only for public works, but for the private benefit of native officials. In 1882 these services, so far as the native officials were concerned, were abolished, compensation being made to them in the shape of an increase of salary, while a poll-tax of one florin was imposed on the natives. The amount of this tax was found to be more than was required for the increase in salaries, so that the authorities have been enabled to abolish all compulsory services, the surplus yielded by the tax defraying the expenses consequent on the abolition.—London *Times*, April 16th.

MR. JOSEPH HATTON'S ARTICLE ON "COCOA" IN THE "ENGLISH ILLUSTRATED MAGAZINE."

The article which we quote (see page 912) is interesting not from any special knowledge which Mr. Hatton possesses of *Theobroma cacao* and its cultu e as from the graphic description he gives of the gigantic works and the multitudinous machinery by which the seeds are manufactured into various preparations at the Messrs. Fry's extensive works in Bristol. Mr. Hatton indeed quotes a so-called "technical authority" as writing "Coca leaf, cocoa-nut, cocoa; it requires thought before one can rightly attribute the properties and uses of these vegetable products." We should think so, since there is no such vegetable product in commerce or the pharamacopeia as cocoa leaves: indeed cocoa itself is a most unfortunate corruption of cacao. What the "technical authority" misnamed "cocoa leaves" are the leaves of *Erythroxylon* coca, which the Peruvians chew as a stimulant, and which has been recently found to yield a most valuable anesthetic. Neither is there any vegetable production in existence, which is properly named "cocoa-nut." The fruit of *Cocos nucifera* is properly coco-nut, and the tree on which it grows is the coconut palm. The grand old lexicographer, Dr. Johnson, knew this, and he described the palm by its proper name. The confusion arose from the mixing up by the printers of the definitions of coconut and *Theobroma cacao*. Let us recapitulate the three strictly correct names, to the orthography of which all intelligent writers ought to adhere :—

Coca leaves.
Coco nuts and palm.
Cacao seeds, nibs, Fry's, &c.

"Cocoa" is absolutely inadmissible; and yet a practised literary man, like Mr. Hatton, not only quotes the "technical authority" as we have shown, but himself writes :—"Many think *cocoa* nibs are made from a root, others associate them with the *cocoa*-nut palm." And then he mentions an established dictionary in which an engraving of a "*cocoa*-nut" palm is used to illustrate the word "cocoa." The leaves of *Theobroma cacao* may in shape resemble those of a plum tree, but they are really gigantic leaves, such as no plum tree ever wore. We should say that "100 nuts or more" in a cacao pod was a rare occurrence, 25 to 50 being a more common average. But, as we have said, the interest of the article centres in the complicated and numerous manufacturing operations described, and here Mr. Hatton is at home describing what he actually saw. Cacao differs essentially from coffee and still more from tea in requiring so much preparation before it can be used as a beverage, or a confection. All that is necessary in the case of coffee beans is that they should be roasted, ground, and treated with hot water, while the dried tea leaves require simply to be infused in boiling water poured over them and allowed to remain not more than five minutes. As to cacao it is positively bewildering to read of the processes to which the beans or nuts are subjected by means of machines fully illustrated in the article we are noticing. Amongst other machines there are hydraulic presses of great power, some of which are used to express the oil which exists abundantly in the cacao beans. The coffee bean and the tea leaves have each a subtle essential oil on which their flavour depends, but we never heard of coffee beans yielding a fatty oil, and in the case of the tea plant such an oil is yielded only by the seeds. We have never heard that this oil was of any economic value, like cacao butter; Cacao, in truth, is a food (*theobroma*, food of the gods): while tea and coffee, although by no means wanting in nutritive properties, are more specially valuable as cheering and restorative stimulants, without producing any of the reaction which accompanies the use of alcohol. The first illustration is an engraving from a drawing taken in Ceylon of a portion of a cacao plantation with four characteristic Tamil women opening the pods and dropping the seeds into baskets. Then we have :—A corner of the roasting room; grinding pure chocolate; a pug mill or mixing pan; rolling sweet chocolate; hydraulic presses for extracting "cocoa" butter from concentrated "cocoa"; stirring the sugar cream; filling packets of "cocoa"; and finally packing fancy chocolate. In the two last women only are represented, many of whom find employment on the works, connected with which altogether, when a new factory is completed, there will be very nearly 3,000 men, women and children. For the spiritual as well as the physical and intellectual well being of their people the Messrs. Fry have conscientiously provided. It seems that a bad roast would be as fatal to cacao as a bad wither would be for tea, and granite rollers are used for grinding, as iron would set up injurious chemical action. It will be seen that immense quantities of refined sugar are used in the manufacture, and that the Messrs. Fry make most of the machinery they use, manufacturing also wooden, tin and paper boxes &c. It will be noticed that artificial cold is essential to some, of the processes. But for details of great interest, on which we cannot touch, we must refer our readers to the article we quote. Before we read it, we had no idea of the large measure of employment afforded by the manufacture in Britain of the twenty-one millions of pounds of cacao seeds on which duty was paid in 1891. From the points of view of home employment and the elegance and delicacy of the articles turned out,—some of them, orange flavoured,—cacao certainly excels either tea or coffee. Our staple has the great merit, however, of reaching the Home market and the consumer perfectly ready for conversion into

"The cups which cheer but not inebriate,"

which is really the form in which Cowper described tea. It is something for this colony to boast that her coffee, her tea and her cacao have been amongst the best the world has produced. As to the cacao, there is certainly no question.

In Ceylon we produce a small quantity of high quality *coca leaves*; a considerable quantity of highest quality *cacao*; and many millions of excellent *coco-nut*.

BARK AND DRUG REPORT.

(From the *Chemist and Druggist.*)

LONDON, April 7th.

CINCHONA.—The fortnightly auctions held on Tuesday were of small extent, the catalogues comprising of

	Packages	Packages
Ceylon bark	611 of which	577 were sold
East Indian bark	1,128 do	1,110 do
Java bark	6 do	6 do
South American bark...	249 do	118 do
Total ...	1,994 do	1,811 do

The assortment was a good one, and included a large quantity of Indian Officinalis bark, both original and renewed, and several very good lots of red and yellow bark. The sales were very irregular, competition being almost confined to two firms. Ordinary qualities were generally lower, but for rich barks full prices were paid. The average unit remained 1½d per lb.

The following are the quantities bought by the principal buyers :—

	Lb.
Agents for the American and Italian works ...	142,175
Agents for the Mannheim and Amsterdam works	124,565
Agents for the Frankfort o/M and Stuttgart works	56,860
Agents for the Brunswick works ...	35,112
Agents for the Auerbach works	40,778
Messrs. Howard & Sons	34,203
Sundry druggists	28,250
Total quantity of bark sold	461,943
Bought in or withdrawn	44,820
Total quantity of bark offered ...	506,763

ESSENTIAL OILS.—Small sales of Citronella oil are reported at ¾d, and of Lemongrass oil at 1 9-16ths d. per oz on the pot.

THE EXPORT TRADE OF CHINA FOR 1891.

was the highest in value ever known, even tea showing a large increase over the previous year. Curiously enough India takes an appreciable quantity of China green tea. We quote as follows from the *China Mail* :—

The total value of exports abroad for the year aggregated Hk. Tls. 100,947,000, which is the highest point ever reached, and shows an advance over the figures of 1890 of Hk. Tls. 13,800,000. The majority of products enumerated in the table of exports on page 10 compare very favourably with the shipments of the previous year; but the three great staples—tea, silk and cotton—contributed most to the increase in the total given above. In value and quantity the gain in favour of 1891 yielded by teas of all sorts was Hk. Tls. 4,365,000. White and yellow silk added Hk. Tls. 5,928.000, with 24,574 piculs over the export given in last year's returns, and silk piece goods, Hk. Tls. 1,143,000, representing 2,028 piculs above the total of the previous twelvemonth; while raw cotton, with an increased export to Japan of 56,698 piculs over 1890, added Hk. Tls. 852,000. Wool, camels' and sheep's, from the northern ports exceeded the shipments of 1890 by 36,625 piculs, estimated at Hk. Tls. 258 000. The other articles, which should be noted as showing conspicuous gains over previous statistics, are paper for Chinese consumption abroad, camphor from Formosa, matting from Canton, and musk—each of these exports contributing more than Hk. Tl. 170,000 over the figures of the previous year to the total for 1891.

The shipments of raw silk were: white and yellow silk, 84,948 piculs; wild silk, 17,043 piculs; and refuse silk, 60,703 piculs—these amounts being much over those of 1890, a low rate of exchange favouring the consumption of Chinese silks in Europe,

The export of tea of all kinds, including the shipments from Kowloon and Lappa to Hongkong and Macao, amounted to 1,750,034 piculs, showing an advance of 84,638 piculs over the total for 1890. From Kowloon and Lappa the export of black tea in junks to Hongkong and Macao is more than double that of the previous year, the large increase being ascribed to a reduction in the provincial duty on that article when shipped by junks. The addition of this junk-borne tea to the total quantity sent abroad in foreign vessels raises the export to more than the shipments of 1890, and for the time being has arrested the decline which characterised the black tea trade of recent years, the excess in favour of this year being 52,565 piculs above the crop of 1890, which is returned at 1,149 311 piculs. Green tea also shows an improvement of 7,256 piculs, and brick tea for Russian account 31,693 piculs. Russia appears to be the only large market in Europe where the demand for China black tea is maintained. Supplies continue to be sent *by sea* in increasing quantities, shipments having risen from 93,467 piculs in 1887 to 189,025 piculs, or double the quantity; and while the consignments by sea and land to Russia in 1887 aggregated 267,000 piculs, they now amount to 287,000 piculs, representing a gain of over 20,000 piculs. It is worthy of note that the demand for China tea (chiefly green) from India has doubled within the last five years—13,947 piculs being credited to the Empire in 1886, against 30,819 piculs during the year under notice.

From the *North-China Herald* we take the figures for tea exports, with comments on the still great tea trade of China :—

	1891. Hk. Tls.	1890. Hk Tls.
Tea Black	24,979,259	20,579,818
„ Green	3,545,911	3,700,488
„ Brick	2,328,755	2,136 720

The three great staples, tea, silk, and cotton, gave, it will be seen, the highest increases, Japan being the most eager customer for cotton; the large increase in silk is to be attributed to a great extent to the lowness of exchange; but the large increase in the value of the black tea exported will come as a surprise to many. Judging by the falling-off in the demand for China tea in England, we have come to think of the whole China trade in tea as a declining one; but fortunately for China she has one customer, Russia, that has not yet been affected by the craze for Indian and Ceylon teas, and thus the export for 1891—although none of the numerous suggestions that foreigners have made for the rehabilitation of the trade have been put into practice—from all China shows an actual advance of pls. 52,565 over that in 1890. Green tea also shows an improvement of pls. 7,256, and brick tea for Russian account pls. 31,693. The proportion of tea sent to Russia by steamer via Odessa continues to increase rapidly, for while only pls. 93,500 were sent by that route in 1887, rather more than double that quantity took that route in 1891. Of the large consumers of tea we find that the principal were in 1891 :—

Russia, Siberia, and Russian Manchuria	Pls. 636,000
Great Britain, Hongkong, and India	„ 540,000
United States	„ 276,000
Australia and New Zealand	„ 106,000

In the Russian figures are included some pls. 330,000 of brick and tablet tea; but they do not include some pls. 50,000, which are sent from Hankow up the Han river for overland carriage to Siberia. The total export to foreign countries of pls. 1,750 034 in 1891 has to be compared with pls. 2,217,295 in 1886, the largest in the past ten years.

THE ALLEGED QUININE SYNDICATE.

We have received the following from Germany, dated, by the way, April 1:—"A project has been formed by London importers to establish, in conjunction with the Amsterdam importers, a ring for the maintenance of the price of quinine. The capital to be invested in this object is 300,000 florins (25,000*l*). The representative of a large London firm has been staying in Amsterdam since the beginning of this week to bring the project to a conclusion. If he succeeds in his object the quinine-makers might easily be forced, through the reticence of the bark-holders, to ask for quinine a price very much in excess of the present one. It is reported from America, by certain persons well acquainted with the market, that some German quinine-makers have sold large quantities of quinine (1,500,000 oz.) for future delivery at from 17½ to 18½ cents, c.i.f. New York. Such sales would prevent any substantial increase in the price of quinine, as quantities of such magnitude placed upon the market at regular intervals would provide second-hand holders with an abundance of cheap material."

THE AMSTERDAM VIEW OF IT.

We have made inquiries from some of the best-informed persons in Amsterdam concerning the truth of the report above alluded to, and are told that it is believed to be a fact that a London gentleman interested in cinchona has tried to persuade the chief importers in Holland to consent to the formation of a combination, to embrace planters in Java, Ceylon, and British India, for the object of strengthening the bark market. It is not denied that "something like a meeting" may have been held with this object just before the last Amsterdam bark sales, and that this meeting may have had something to do with the

firmness of certain importers, which led to the buying-in of about one-third of the bark catalogued. But, notwithstanding all this, the representatives of the Java planters in Holland, without it is believed, a single exception, are convinced that if the Java growers were now to ally themselves with those of Ceylon, they would in the words of the first Napoleon —"s'allier à un cadavre"—bind themselves to a corpse, and commit a fatal blunder. An Anglo-Dutch syndicate therefore, seems to be out of the question. If any combination is formed in Amsterdam it will consist on Java planters only.—*Chemist and Druggist*, April 9.

FOOD OF THE GODS.

How to make a perfect cup of chocolate, is an art not mastered in many households. A cup of chocolate as served by Menier or Maillard, is a very different thing from a cup prepared by Bridget, in the early hours of the morning and served to one who must hasten for the morning train. The Directeur of the American branch of Chocolat-Menier, of which over 30,000,000 pounds are consumed annually, gives the following directions for preparing Menier Chocolate as a beverage: "For each cup desired, break into small pieces one-half of the six divisions into which every half-pound package is divided. Place in a saucepan and add sufficient boiling water to reduce the chocolate to a smooth paste by stirring it constantly with a wooden spoon over a brisk fire. When thoroughly dissolved add a cup of unboiled milk, either cold or warm, and boil for about four minutes, stirring it frequently. Serve while hot and you will have a *perfect cup of chocolate.*"—*American Grocer.*

CEYLON TEA PLANTATIONS COMPANY, (LIMITED)

Report of the Directors to be submitted at the fifth annual general meeting of Shareholders to be held at Winchester House, Old Broad Street, E.C., on Friday, 29th April, 1891, at 2-30 p.m.

The Directors have the pleasure to submit the General Balance Sheet and Profit and Loss Account for the year ending 31st December, 1891, duly audited.

	£.	s.	d.	£.	s.	d.
The net amount at credit of Profit and Loss Account, including Balance brought forward at 31st December 1890, and after providing for General Expenses, Directors' Fees, Income Tax, &c., is				31,439	3	3
An *interim* dividend of 7 per cent. on the Ordinary Shares was paid 27th October, 1891	10,254	6	0			
It is proposed to pay a final dividend of 8 per cent. on the Ordinary Shares (making 15 per cent. in all, free of Income Tax) which will absorb	11,727	4	0			
A Dividend on the 7 per cent. Preference Shares was paid on 30th June, 1891 ..	1,018	3	11			
A Dividend on the 7 per cent. Perference Shares was paid on 31st December, 1891	1,732	13	2			
It is proposed to add to Reserve Fund	5,493	8	0			
And to carry forward to next year a balance of ..	1,213	8	2			
				31,439	3	3

The Directors are pleased to be in a position for the fifth consecutive year to recommend a total dividend of Fifteen per cent. on the Ordinary Shares.

It is proposed to place £5,493 8s 0d to the Reserve Account, making that Fund up to £20 000, and to carry forward £1 213 8s 2 l to next year.

The gross average price realized for the Company's Teas, sold in London, was 9¼d per lb., this being 1¼d per lb. under that of 1890, but the net cost of production was ¼d per lb. less than that of previous year.

There were 5,090 acres from which leaf was plucked, and this area yield 414 lb. per acre, the crop being as under:—

Tea from Company's Estates.	Bought Leaf Tea.	Tea manufactured for others.	Total.
lb.	lb.	lb.	lb.
2,086,291	886,565	1,318,735	4,291,591

The Company's properties consist of the following:—

Descriptions.	Acreages. At 31st Dec. 1891.	Purchased 1st Jan. 1892.	Total.
Tea in bearing ...	5,090	303	5,393
,, not in bearing ...	2,245	301	2,546
,, seed ...	27	—	27
,, to be planted 1892 ...	82	—	82
Coffee	60	—	60
Jungle and timber clearings	1,789	—	1,789
Patena and waste land...	363	34	397
Totals ...	9,656	638	10,294

It is gratifying to the Directors to be able to assure the Shareholders that the Company's properties are in excellent condition. The Factory accommodation and machinery, which were scarcely equal to our requirements during the past year, are now being increased to meet the largly-expanded business of the Company.

The Directors have again to record their high appreciation of the services rendered by the various Officers of the Company in Ceylon and London.

Mr. G. A. Talbot, the Company's Manager in Ceylon, having been granted leave, it is proposed that he be appointed a Director during his stay in England in the place of Mr. Henry Tod, who has resigned his seat on the Board.

Mr. R. H. Miller, of Messrs. Harper Bros., Auditor, retires from office, but offers himself for re-election.

DAVID REID, Chairman.

London, 14th April 1892.

WHAT DR. LEMON WILL DO?

Do you want to know the name of one of the best all around household doctors, and certainly the cheapest that can be found in any country?

It is Dr. Lemon. Yes, an ordinary, sour, yellow lemon, which you can buy at any grocery for a few cents.

Here are some of the things Dr. Lemon will do for you if you give him a chance,

Squeeze him into a glass of water every morning and drink him with very little sugar. He will keep your stomatch in the best of order and never let Mr. Dyspepsia, whom he hates cordially, get into it.

If you have dark hair and it seems to be falling out, cut off a slice of the doctor and rub him on your scalp. He will stop that little trouble promptly.

Squeeze him into a quart of milk and he will give you a mixture to rub on your face night and morning and get a complexion like a princess.

Pour him into an equal quantity of glycerine and rub your hands with the mixture before going to bed. If you don't mind sleeping with gloves on that is better still and helps the doctor considerably in his task of whitening your hands. In the morning wash your hands thoroughly in warm water and apply the doctor again pure, but only a few drops of him this time. You must not keep this up too long or your hands will show such a dazzling whiteness as to make all the other young ladies in the vicinity jealous.

If you have a bad headache cut Dr. Lemon into slices and rub these along your temples. The pain will not be long disappearing—or at least in growing easier to bear.

If a bee or an insect stings you clap a few drops of the doctor on to the spot and you will find yourself he better for it.

If you have a troublesome corn the doctor can be again put to good account by rubbing him on the toe after you have taken a hot bath, and cut away as much as possible of the troublesome intruder.

Besides all this the doctor is always ready to sacrifice himself in the cause of Russian tea—slice him in without sugar—or in the preparation of old-fashioned lemonade, than which no drink is more wholesome.

Altogether Dr. Lemon is an individual few people can afford to get along without.—*Exchange.*

PLANTING IN THE NEW HEBRIDES.

From a letter dated to a gentleman in Colombo, we quote as follows :—

"Santo, New Hebrides, Feb. 10th, 1892.

"Just a line to let you know that we are applying to *Japan* for coolies, and as far as we can see at present, *any number* can be had for the cost of transport and about sixpence per diem for their work.

"It may not have struck you that in these islands a man has advantages that cannot be formed elsewhere.

"No restrictions with regard to imported labour which he can get from China, Japan, Malay or anywhere at his own price and on his own terms.

"If a few planters came out we could send our own chartered vessels and bring as many labourers as we require, and as to the question of titles to the land, that would be perfectly secure as we could get the islands annexed without trouble if settlers were here, and you have time to make a fortune or lay the foundation of one before there are too many laws or restrictions. Sugar planters could send the labour vessels up to Japan and load up thousands and there is nothing to prevent going to work at once. This end of Santo, Malo and Mallicolla has good low land for sugar and the natives as you are aware are anxious to sell for what they can get.

"We have been pushing the authorities for annexation, and no doubt shall get it in time, but it is questionable whether we should not be acting more to our advantage if we sent a vessel up to Japan for 200 coolies.

"We are getting islanders now by the mail steamer under the same laws that enable the mission stations to obtain native cooks and teachers from other islands.

"We pay their passages by steamer and the expense is less than in any part of the world, £3 per head and no restrictions. I think we can get them from Japan under £5 per head. What more do the planters want? There is no drought here to burn up the cane fields, and no heavy timber to clear.

"Price of land about one penny per acre cash or 100 acres for a musket and you would never be troubled by seeing a native unless you encourage them and come to trade or work."

COCOA.

By JOSEPH HATTON.

(*Illustrated by W. H. Margetson.*)

"Cocoa-leaf, coco-nut, cocoa," remarks a technical authority, "it requires thought before one can rightly attribute the properties and uses of these vegetable products." Many persons think cocoa-nibs are made from a root, others associate them with the coco-nut palm. I could hardly realize the existence of so much ignorance or indifference about one of the most familiar of popular beverages and confections until I opened an established dictionary and found an engraving of the coco-nut palm illustrating the word "cocoa." The great Encyclopedias do not however leave one in doubt. Cocoa is the product of the seeds of the *Theobroma* (Food of the Gods) *cacao*. The tree flourishes in Mexico, Brazil, the West India Islands, Columbia, Equador. The finest qualities are grown in the island of Trinidad, and in Venezuela. Caracas has given its name to a popular brand. Of late years, Ceylon also has produced a bean of high character. A drawing made in a leafy corner of that sunny island supplies us with our initial illustration. The *Theobroma cacao*, better known as the cocoa tree, rises with a bare stem to the height of six or seven feet, and then dividing into many branches climbs upwards some ten or fifteen feet higher. The branches spread out not unlike an oak, but with a dark green leaf something of the shape and character of a plum tree. The fruit is a large pod that hangs pendulous from the tree by a tough timber stalk. Its surface is grained and hard. At first the pods are green, but as they ripen they become yellow, the side next the sun red. The tree attains its full vigour in seven or eight years, and yields two principal crops in the year. There is not what may be called a harvest time, not in the sense of our cutting of corn or the vintage in France. The pods do not ripen all at the same time. One or two from a tree are cut as they appear to the eye of the expert as ready for stripping. These are gathered together in heaps, and by and by the plantation hands, men and women, burst open the pods, strip away the rind and extract the nuts, each pod containing a hundred or more packed in the closest compass. The nuts are then laid out upon mats to dry, after which they are packed for exportation in bags, each of which holds about 112 lb.

Recently, in company with a friend, I saw vast quantities of the luscious-looking bean turned out of its Oriental packing in "the cocoa metropolis" of the West of England, and watched its gradual conversion into that particular "food of the gods" which has become universal among men. Bags from Trinidad, Venezuela, Ceylon and other cocoa regions were being swung through the air into the storage and grinding room of Fry's factories at Bristol. Pausing in one of the galleries that unite the different factories to watch the busy scene below us, we find ourselves on a level with the vane of St. Bartholomew's Church steeple. The sacred edifice is literally embedded in the secular buildings that have grown up all round it. The children pouring out of the church-schools might be part of the working-folk of the factory going to dinner. They all look free and happy and well nurtured, the working children as well as the scholars with their books and slates. St. Bartholomew's is one of those out-of-the-way churches which you often find in old cities lost in the noisy thoroughfares of growing industries, their congregations dispersed among other houses of prayer. A new site will evidently have to be found for St. Bartholomew's. From the first it would seem as if trade and commerce had been struggling at Bristol for supremacy with ecclesiasticism. In the fifteenth century it was "a city of towers," eighty monasteries and churches crowning its embrasured walls. Prior to the edicts of Henry VIII., it was indeed more or less an ecclesiastical city, crowded with devotional guilds, hospitals, hermitages, churches, chantries, the population picturesque with the typical costumes of Franciscan, Benedictine, Carmelite and Dominican monks, priests, and friars, the air (says one historian,) "thick with clouds of incense." If the possible conversion of the site of St. Bartholomew's into business purposes should strike a note of regret in some minds we would hasten to offer the compensating fact of the annexation of the county gaol for the firm's stables and timber stores. Indeed the exigencies of cocoa manufacture seems to have compelled a general making free with the western city. Fry's brassplate meets the eye in the various business quarters of the city, setting up fresh landmarks for old ones, and filling the air with a perfume at some points hardly less noticeable than was the incense of Bristol's olden days.

We had paused at the open door of the roasting room, not only to witness the unloading of tropical cargoes but to take a glance over the red-tiled roofs and gabled houses of Bristol away to St. Paul's in Portland Square, busy streets right and left and at all points, suggestions of the historic character of the famous old city and its merchant venturers, its battles for king and parliament, its royal and civil banquetings, its reform riots, its literary côteries, and its varied enterprises maritime and otherwise.

A fine old city Bristol, full of ancient landmarks, rich in architectural treasures, a vein of romance and poetry running right through its history from the days when Cabot sailed out of its picturesque port to discover new worlds to the present time when ships from every sea float upon her lazy tides and moor themselves in the very heart of the city as they do to this day in Amsterdam and Yarmouth. But our courteous guide awaits us and we must postpone for the time being such wayside reflection as do not come within the immediate focus of our work. The bags already mentioned are upon this floor, emptied into several roasters, cylindrical pans slowly revolving over open coke fires. The bean is stirred now and then by experienced attendants who can tell by the flavour of the vapour that arises from them when the operation is complete. This first process is the most important of the series of treatments which the cocoa bean undergoes before it is ready for the breakfast or dessert table. A bad roast is fatal. The bean is destroyed. But a bad roast is a very exceptional incident. From the roasters the beans are conveyed to large hoppers connected with the floors beneath by shoots that convey the roasted bean to the winnowing room. Here a machine cracks the nut, removing its hard outer skin or shell, and both are together hauled to a point over the winnower where the blowers separate the husk from the nut, and the latter now being thoroughly cleaned from all *débris* of the shell becomes what we know as cocoa-nibs which are now ready for grinding.

As there are four main factories, each more or less reproductions of the other, the various departments are known in the works by numbers, but for the better understanding of the reader we prefer to give them proper names. Thus from the grinding room we come to the sugar-grinding room, which is incidental as it were to the next operation which belongs both to the manufacture of chocolate and the ordinary drinking cocoa. We might now be in one of the floors of a flour-mill, so white is the atmosphere, so ghost-like the workpeople. Tons of loaf-sugar are here ground and sifted until it is as fine as the finest flour, and as soft and silky to the touch. As the salt-sea waves leave their flavour upon the lips, so does the flying dust of the sugar-room leave behind its sweet if not cloying flavour; and one also leaves the room as to beard a trifle grayer than one entered it. This little world of "sweetness and white" gives upon the pan or pug-mill room, where the cocoa-nibs, in great revolving pans, are mixed with the fine-dressed sugar and pounded between granite rollers into paste. No water is used, but the material is kept warm. There is a large percentage of oil in cocoa-nibs, and encouraged by a gentle heat it is brought forth, and thus the nut or bean becomes liquefied. Sugar is added until the cocoa is of the consistency of dough. The beds of the revolving pans are of granite like the rollers. Iron would set up a chemical condition inimical to the delicate flavour of the product. When the nibs find their way into these heated mills they are hard and brittle, and one might expect to see them ground into powder. Not so; they become paste as we have seen, and in this form are made to perform all kinds of strange evolutions. It is whirled hither and thither in the great pans, making graceful curves, now ejected in liquid columns like miniature Severn "bores" or enormous snakes, rich brown tortuous never-ending boa constrictors; thence it goes into batteries of rollers where it is conducted over granite cylinders, flattened out and rolled by a series of ingenious machines invented and made in Paris, and comes out chocolate, except that it has to cool. This hardens the oil of the nib, called "cocoa butter," and the chocolate is then ready to be prepared for use.

Skipping the floor we have just described a certain proportion of the ground nibs come to the department to which we next descend, falling into hoppers that make the powder finer and finer. For storage purposes there is a curious little machine here, originally made for pressing patent fuel into blocks. Later the inventor applied it to cocoa in this way. The material is placed in an automatic metal box, the lid is closed, then by pressure the bottom is forced upwards until the lid opens to let out the compressed brick of cocoa which is then stored. Passing this little machine we are in one of the most picturesque departments of the factory. There is no more artistic form than that of a wheel, nothing in continual motion that gives a greater idea of power. The avenging Jupiter could think of no punishment so persistent as that of the whirling wheel to which Mercury bound the banished Ixion. In every manufactory the wheel is familiar enough. It is the motor of the place, the guide and controller of miles of straps and bands; it is beginning and never-ending in almost every nook and corner; but we have rarely seen it in such striking evidence as in one particular department of these great cocoa factories. Here on this floor of hoppers into which the ground nibs are deposited to make concentrated cocoa the sense is bewildered, the mind fascinated, by the incessant repetition of wheels. They fill the ceilings in two or three vast circles, that have their revolving satellites like moons each on its own axis, and each governed by the master wheels. The curious part of the scene for a novice is literally a ceiling of moving wheels as well as a continuation of the same right, left, and centre. Watch them for any length of time and you might find yourself presently going round and round with them until you whirled yourself out of existence like the gyrating maiden in the fairy-tale. To the turn of these many wheels the mills perform their eccentric motion until the chocolate is sufficiently ground. It is then collected in batches and placed in canvas bags, which are packed into the receivers of a long array of hydraulic presses that also constitute a very interesting scene. At first blush you might think you had strayed into the counting house of the firm of Gogs and Magog whose letter-copying presses stopped the way; but these double-handled machines are worked by a power greater than that of a thousand Go$_4$s and Magogs with an army of Polyphemuses thrown in. The canvas bags subjected to hydraulic pressure give forth most of the oil which the cocoa contains. It runs off into tin pans and leaves behind the dry pure cocoa of commerce. The oil is of a dark brown colour, but as it cools it gradually becomes white and in solid blocks. Later we come upon it turned out of the tins "cocoa butter" in great solid pats. On this and other floors there are large artificial cooling rooms, for which there is on the ground floor extensive frost-generating machinery on the brine and ammonia system. The shafts go up through the various factories as do also the lifts or elevators. Even in summer days the artificial snow has to be collected and removed from the freezing closets.

Passing through the rooms devoted to the mixing of miscellaneous chocolates we now leave what may be called the manufacturing departments. We have not thought it necessary to mention the separate treatment of different varieties of bean, Trinidad, Caracas, Ceylon, and others. The process does not vary. In quitting the grinding, winnowing, milling, pressing and other operations we leave behind up the men's work. Not that the master hands do not appear in the lighter sections of the factories, but girls and women predominate in the later departments which belong to the production of chocolate creams and fancy confections. On our way to the ground floors we come upon one of the rooms set apart for the filling of cocoa tins and packets. Here crowds of girls are weighing and packing the brown powder. They are a healthy, well-dressed company of young women, and of a more than ordinary look of intelligence. The ground floor of the factory is devoted to many varied purposes. First, we come upon the busy scene of sugar boiling, long rows of boilers, long rows of men in white French caps and aprons. From the boilers the sugar is emptied upon great stone slabs where a little army of more white-capped labourers stir and beat up the cream-like compound with white wooden spades. Thus prepared it is transferred to the moulds; and this brings us to another department that repeats the atmosphere of the sugar mill. Moulds for iron castings, as you are aware, are made of sand.

The creamy sugar which we have seen boiled and manipulated for the next process is poured into moulds made of starch. We find ourselves in the midst of stacks upon stacks of these square moulds, flanked by bench after bench of men and boy moulders. Wherever labour is divided by machinery or hand, one operation dependent upon another, there is no time for idleness. The machine, human or otherwise, must be kept going. Here moulds are filled and emptied with a steady and effective monotony. On one side the sugar cream is poured into the moulds from handy funnels; on the other, when solidified, resultant creams are collected for ultimate coating with chocolate. Leaving the moulding rooms we seem to drift to and fro into various other departments where thousands of trained dainty fingers are giving the finishing touches to fancy forms of creams and plain chocolates that gradually develop into all kinds of boxes, from the cheap popular little *bonbon* boxes to the handsome and artistically arrayed and decorated cabinet of mixed sweets fit for the notice of a Princess.

And now once more in the fresh air we make the acquaintance of the engines and boilers all on the most perfect scale, even to the oldest mechanical servant of the firm, a great old beam engine of the melancholy mad-elephant kind described by Dickens. It has been in use over fifty years, and in its present site was erected the first engine that Boulton and Watt introduced to Bristol. The old-fashioned but powerful engine has been supplemented by many others. It takes eight powerful sets to drive the works in these days. They would be a surprise to the writer of a paragraph in the *Bury and Norwich Post*, of June 6, 1798, could he once more visit the glimpses of the moon. "Since the great improvement of the steam engine," he wrote on that particular date, "it is astonishing to what a variety of manufactures this useful machine has been applied; yet it does not a little excite our surprise that one is used for the trifling object of grinding chocolate; it is, however, a fact, or at least we are credibly informed, that Mr. Fry of Bristol, the maker of the famous Churchman's chocolate, has in his new manufactory one of these engines (improved by Mr. Jones, an ingenious millwright of that city) for the *sole purpose* of manufacturing chocolate and cocoa. Either the consumption of this little article must far exceed our ideas, or, which we think much more likely, a very large portion of what is drunk in this kingdom must be made by him." This is the very thought that occurs to us after walking for hours over only one of the four main factories that rise aloft tier upon tier, with their tall smokestack, giving employment to more than *two* thousand people. Fry's had been established some half a century when the *Norwich* paragraphist quipped about the "little article" of cocoa, and yet with four factories *en bloc* and several outsiders there is still room for competition in the supply of the United Kingdom, which in 1891 paid duty on 21,601,825 lb.

The water supply for the eight sets of engines is obtained from the river Frome which runs under the factories a prisoner beneath stone arches, the old story of the bright and cheery brook arrested on its way through pleasant meadows for various industrial purposes, dammed up to turn a mill, then released for a brief freedom to be the playmate of village children, to floating tiny boats and murmuring beneath ancient bridges, finally, to be caught and imprisoned under city roads and compelled to feed the boilers of hot and steaming-engine houses. If the Frome were sentient, the strong child of the Avon might be content to know that it was helping to produce the pretty boxes of chocolate creams that come to happy children at Christmas time, not to mention those canisters of cocoa extract that give wholesome drink to thousands of busy people. "We shall want a larger supply than the Frome can give us," remarks our guide, "when the new factory is finished," and he draws our attention *en passant* to a block of buildings in course of erection. Here we have an opportunity of noting the principle upon which all the factories are constructed. Each floor is supported by iron pillars, with girders and cross girders, the spaces between the girders being filled with slate pavements; where stone is used it is Cornish granite. The completion of the new factory will increase the number of hands employed to between two and three thousand men, women and girls. It is a surprising story, the multifarious operations that belong to the production of a cup of cocoa or a chocolate cream.

Incidentally we ought to mention that traversing one of these factories and parts of the other four, making excursions over bridges from street to street, we have noted with pleasure evidences of the care both physical and moral which the firm takes of its work-people, more particularly of the younger members of their staff. More than once we have passed through meal-rooms and school-rooms. The firm provides the means of cooking in the factories, and the great majority of the young people only leave the works to buy their daily food or to supplement the tea and dinner baskets with some trifles from the adjacent markets. In one of the main factories we came upon a large and handsome lecture room which is also once a week used as a night school, once for boys and once for girls, the firm providing them with teachers. Every morning at a quarter to nine, one of the seniors of the firm attends in the lecture room and reads a chapter in the Bible; and a hymn is also read. The hall is occasionally lent to them for meetings of their own, the employers and employed are evidently on the best and most friendly terms with each other. There are also sick clubs and other organizations of great usefulness connected with the factories, and indeed the whole concern is conducted as if the persons engaged belong to a special community outside and apart from the busy city to which it has given the name of "the cocoa metropolis."

We have already seen how the growth of great industries has compelled manufacturers to extend their businesses in directions never contemplated at the outset. Fry's is a remarkable instance. Besides chocolate makers, they are engineers, boxmakers, carpenters, tinworkers, and are concerned in various other occupations. Beyond the factories we have described, we found ourselves driving in cabs and tramping through the ancient ways, visiting other concerns that belong to them and are an integral part of their main business. Our first visit was to Wapping, where they have a steam saw-mill with all kinds of implements, circular, whip and other saws, planers, nailers, and what not on the newest principles. The nailing-machines are ingenious contrivances; they work automatically, are fed with nails and supplied with boxes in sections which, passed from hand to hand, from machine to machine, are completed with remarkable rapidity. There is a new saw here, circular and pliable, which cuts two planks at one operation and does not need to be fed; one man gives it occasional attention. Fenced off in the mill are several printing machines for labelling the box lids. How many separate packets these boxes are made to hold it would be difficult to say, but the firm in its Wapping carpentry turn out some thousand dozens of them every week. After inspecting the mechanical work of the mill, we entered the store-rooms to find what almost seemed to be acres of boxes ready for use.

From Wapping we drove to the county gaol. It is many years since the present writer visited this once formidable house of detention, the occasion being the arrest of Sir William Don, while that "tall monumental warning" of reckless expenditure (as he called himself in one of his local speeches) was fulfilling an engagment at the Bristol Theatre in King Street. Those were the days before the abolition of arrest for debt, when the bailiff though shorn of much of his power was still a formidable officer. Sir William was a good deal put out when he was not allowed to finish the play in which he was acting; but great sympathy was shown for him, and he found exceptional accommodation at the castle, where the Governor, Mr. Gardener, gave up to him one of his own private rooms and made his brief incarceration as pleasant to him as possible. This included a very agreeable luncheon the next day, at which I was a guest. Sir William related to us some of his numerous adventures. One may be excused after all these years for feeling a curio

sensation at finding the little garden, in which one had walked and smoked after that breakfast with Sir William and the Governor, now occupied as stables for the large working team of Messrs. Fry, and part of the castle turned into a store for their box timber. But there are many other remarkable changes in Bristol, and it seems as if our guide had a curious facility for impressing them upon us. He takes us to Quay Street and introduces us to the card box factory of the firm. We had already in the stationery department of the main factory seen the cardboards cut into shape by various curious little machines and prepared for this outer shop. Here the boxes are made and decorated and the tops embellished in gold with the names of the firm. The atmosphere of one of the *ateliers* was full of gold leaf. Stray bits of it here and there looked like golden butterflies, their fanciful motion aided once in a way as to realistic effect by a ray of sunshine that came in through an open window. Throughout this building there were heard the cheerful voices of girls whose division of labour began with a plain bit of cut cardboard and ended in the perfected box.

Once more threading the traffic of the city, we come to premises where the firm has converted a comparatively new building into a store chiefly used for the Christmas fancy trade; here cases are being filled with chocolate dainties by scores of busy hands, while one floor is dedicated to the making of "orange flavouring," and a very attractive operation it would prove, we fancy, to most young people. Stacks of loaf sugar and baskets full of oranges are being used up. The oranges having been rubbed upon the sugar to extract the flavour of the rind, they are then returned to the baskets which are emptied into presses made on the principale of the cider-press. The juice is squeezed out with the impregnated sugar and the whole place is full of the aroma—"orange groves and music from sweet lutes" might be added by the imaginative writer.

From Quay Street we pass on to Nelson Street, and here, like the cuckoo, the firm occupies another nest built for other birds. This time it is the old Trade School that has been annexed for a tin industry. The shops are fitted with remarkable machines that deal with tin as easily as if it were paper, cutting it, twisting it, making it into canisters round and square with the greatest ease, but not without a certain amount of noise and clatter. For instance, there are machines that at one operation make the tops and bottoms of canisters, embossing them at the same time with everlasting labels.

There are other minor industries in which the firm is engaged—they make much of their own machinery with the exception of castings, for instance—but it would need a week's stay at Bristol and an entire magazine to follow the ins and outs of this cocoa and chocolate industry. We have said nothing about its offices, its carts, its shipping arrangements, little about its history; nor paused to mention the political and judicial honours that belong to the family; these things are part of the history of Bristol; but luxuriously ensconced in a Great Western railway carriage, with a rack full of literary souvenirs of the western country, and one of those bright boxes of sweets made from the beans which the dusky maidens are collecting in our first picture, it would have been impossible not to think of a few parting words about the literature of this "food for the gods" that takes so many people to prepare and provides so many with pleasant refreshment.

White's in St. James's is the direct successor of White's Chocolate House, which is represented with St. James's Palace in the fourth plate of Hogarth's *Rake's Progress*. Chocolate was the excuse, gaming the object of White's. Yet the beverage was much drunk and very fashionable in the days of *The Tatler* and *Spectator*. The Cocoa Tree was also in St. James's Street. It was a Tory house. De Foe mentions it to remark that "a Whig would no more go to the Cocoa Tree, than a Tory would be seen at the Coffee House of St. James's." Eventually the Cocoa Tree, like many of the taverns and coffee houses of the time, developed into a club. As an instance of the familiar terms which many of the men of fashion permitted between themselves and the menials of these famous *rendezvous*, it is related that a favourite waiter named Samuel Spring, having occasion to write to George IV. when he was Prince of Wales, commenced his letter in these words: "Sam, the waiter at the Cocoa Tree, presents his compliments to the Prince of Wales, &c." Next day the Prince saw Sam, and after a quiet rebuke as to the freedom of the style of his note, remarked: "This may be all very well between you and me, Sam, but you will find it will not do with the Norfolks and the Arundels."

These passing thoughts with a few mental memoranda as to the literature of White's, and the Chocolate House, have scarcely been supplemented by a glance at the evening papers when we run smoothly into Frith's Railway Station, having made the journey of a hundred and eighteen miles in the time that it would have taken the wits of St. James's to get from the Cocoa Tree to Richmond.

A PERAK COFFEE ESTATE.

The following notes by Sir Graeme Elphinstone are on the Waterloo Arabian Coffee Estate, Perak, and are from the *Perak Government Gazette*:—

ELEVATION.—The elevation of the average of the present opened area of Waterloo, and also of the surrounding forest, which I consider most suitable for the successful cultivation of Arabian coffee, is some 2,300 feet.

This elevation is similar to the elevation of what in Ceylon was termed the lower districts, but, although similar in that respect, there is a very marked difference in the temperature, and certainly the comparison is favourable to Waterloo. I presume that the comparative coolness of the Waterloo climate is mainly attributable to the fact of there being so large an adjacent area of high mountain ranges covered with virgin forest, and also to the close proximity of the sea.

Anyhow, there is no gainsaying the fact that at the elevation of the present bungalow, some 1,850 feet, the climate is both pleasant and salubrious.

QUALITY OF SOIL.—The present opened area of Waterloo is in extent some 270 acres. In the opened land there are four distinctly different qualities of soil, and all of them seem to be very suitable for the successful growth of coffee. Dr. Ridley, who visited Waterloo last month, was highly pleased with the nature of the soils he passed through, and agreed with my opinion as to their fertility; there is a very good average depth all over the estate of some 20 feet (this is a much greater average depth than in any district in Ceylon). I cannot speak with any certainty of what the soils may be deficient in, as I have not as yet been able to get samples analysed; but if, as both Dr. Ridley and I believe, there may be a deficiency in lime, this deficiency can easily be supplied from the adjacent lime-kilns. However, that is as yet merely a conjecture, and at no very distant date I hope to have more certain information to work upon.

ASPECT.—In Ceylon we always preferred an eastern aspect, and here I find, from careful observation, that it is of equal importance. Waterloo has an almost uniform eastern aspect, and this, I consider, reflects considerable credit on those who first selected the land. Whenever I select land for coffee, I shall most certainly be most careful to select forest land with as much of an eastern aspect as can be obtained, and I would certainly advise intending planters to be careful on this point.

RAINFALL AND CLIMATE.—The information I can gather from the estate books leads me to believe that the total annual rainfall is some 95 inches, and this, apparently, divided over the twelve months; but, for want of exact records, I cannot speak with certainty as to the amount. Now a careful record is kept, and will furnish correct data to go upon. From personal observation since the date of my arrival on the 11th December, 1891, I have noted the fact that on no single day has there been continuous rain, and on

no single day have we been without some sunshine. This is very different to the average of the Ceylon coffee districts: there it is a frequent experience in both monsoons to have incessant squalls and heavy rainfall with a complete absence of sunshine, sometimes for ten days to a fortnight. The effect in Ceylon of the heavy rains and absence of sun-heat is very marked, and has a most prejudicial effect both upon the yield and the vigour of coffee and tea. I have also noted that the sun-heat is of greater strength here than in Ceylon, and it is most beneficial, as it acts favourably on the strong soils, pulverising and drying the soil down to a depth of fully 15 feet. This, again is of benefit in the prevention of wash. In Ceylon, a heavy shower in the rainy season simply runs over the surface; here on the contrary, it passes down the sun-cracks and thus fertilises the soil.

CULTIVATION—WEEDING.—The great importance of keeping clearings clean and in hand, weeding from the commencement, has been the Waterloo experience. The sunshine and showers, which are almost daily, favour a growth of weeds almost incredible, and I am of opinion that it is a *sine qua non* for successful planting—clean weeding from the date of the burn.

PRUNING AND HANDLING.—From what I have observed, I believe that, with careful and judicious treatment of the bushes from the commencement, knife pruning would not be required. Handling is most important. Great care must be taken in keeping the centre of the tree for 6 inches entirely free of wood, and the outside branches must be carefully and systematically singled out so that the lower primaries may not be excluded from the light. The same effect experienced in the growth of weeds, caused by the sunshine and showers, is also to be found in the growth of young wood, and it is essential for the health of the bush, as well as for regular bearing, that the wood should be limited to what is actually required.

MANURING. — The opportunities for cultivation, on a liberal scale are all that can be desired. There is an abundant supply of lime, a similarly abundant suppy of bat guano, and, from the fact that both Guinea grass and the native grass grow with such luxuriance, cattle can easily and profitably be kept. This is a most important fact, for in Ceylon many a good estate dates it decline from the date that it could not obtain the necessary help from cattle manure.

LABOUR.—On the point of the labour supply there will, I expect, for several years yet be a difficulty. The Tamil labour will gradually increase, and once more estates are opened there will, I believe, be a supply quite equal to the demand; but it would be folly to consider planting at present impracticable because Tamil labour is not yet completely organised. I have, through necessity, been obliged to employ Malays, Chinese and Javanese. I have found them all most efficient workmen. I am exceedingly glad that I have had cause to employ others than Tamils, otherwise, I might have continued in ignorance of the valuable labour supply locally available. I cannot at present fully particularise on this subject, but I will do so at a later date, and will supply figures showing actual cost of work done by Chinese, Javanese and Malays, which will compare favourably with what is done by the Tamil in Ceylon.

SORGHUM.

Sorghum has been used as a forage for stock in this country for many years. As such it is adapted to a wide region, and its cultivation has extended over the entire extent of the United States. In other countries it has been used for the manufacture of sprits, glucose, beer and vinegar. Its seeds have been used as a food for men and beast, and in this country a large part of the profit of growing sorghum consists in the value of its seed as a stock food. For nearly thirty years syrup has been made from it, and during that time high hopes have been entertained of its power to produce profitably sugar. The attempt to make sugar from sorghum has been made almost exclusively by Americans. In China, where the sorghum has probably been grown for thosands of years, we are told by Dr. S. Wells Williams, Professor of Chinese in Yale College, that there is no evidence that it has ever been used for either syrup or sugar making.

It is curious to read in the earlier publications on sorghum, the contradictory opinions and opposite views so positively asserted by the authors. As to the kind of sugar present; the best varieties; the period of growth; of maximum sugar content and the exact time to work after cutting, nothing was known definitely until the beginning of the scientific investigations by the National Department of Agriculture in 1878. Since that time this Department has assiduously continued its investigations in sorghum, and while we write the Fort Scott experiments in diffusion and corbonatation are being brought to a conclusion by the eminent government chemists. The publications of this department upon sorghum since '78, have been numerous and instructive and to-day every farmer has within his reach valuable and definite information in regard to this plant, the result of patient investigation conducted by trained scientists at government expense.

BOTANICAL RELATIONS OF SORGHUM.

Sorghum is one of those plants, whose origin is utterly unknown. By long cultivation, its habits and characteristics have been so changed that no resemblance can now be found to any wild plant. Formerly the different cultivated varieties of sorghum were regarded as distinct species, but modern botanists have been gradually led to the conclusion that all our sorghums and jurphees, including broom corn, chicken corn, durra, milo maize, etc., are but varieties of a single species—Sorghum Vulgare. These conclusions have already inspired many seedsmen, farmers and scientists with the belief, that ultimately by selection of seed, proper fertilization and cultivation, a true sugar bearing sorghum may be obtained, which can be profitably grown and worked, instead of the true sugar cane or beet. Differentiation in plants is accomplished by extending the area of cultivation, taking in differences of soil, climate, rainfall and manures; by careful selection of seed; by cross breeding, etc. In this way varieties are produced. Some plants have greater capacity for variation than others, and sorghum is perhaps surpassed only by Indian corn, in its tendency to assume new varieties under changed conditions. Hence we find a large number of varieties of soghum on our market, differing in every conceivable character, from content of sugar to color of seed. It is therefore of first importance in growing sorghum to select those varieties best adapted to our wants, remembering the modifying factors of soil, climate and manures.—*From Bulletin No. 5 of the Louisiana Sugar Experiment Station.*

NEW JOINT-STOCK COMPANIES.

The following tea company has just been registered:—Maybloom Tea Plantations, Limited, with a capital of £50,000 in 10 shares. Object, to acquire, either in India or any Colony or dependency of the United Kingdom or elsewhere, land suitable for the cultivation of tea, coffee, cinchona, &c, to stock and manage the same, and generally to carry on business as tea, coffee, &c., planters and merchants, brokers, &c. The first subscribers, who take one share each, are:—E. G. Rock, 1, Great Winchester Street, E. C.; T. H. Trotman, 69, Highbury Quadrant, N.; C. H. Wellard, 10, Gray's Inn Square, W. C.; J. W. Aubrey, 55, Dallview Road, Stamford Hill; T. E. Munday, The Poplars, Buckhurst, Hill; Gr. R. Davey, 4, Fasset Road, Dalston; C. T. Wale, Bourne Hill, Palmer's Green, N.

The business of the company is to be under the control of managing agents, the first being the Planters' Stores and Agency Company, Limited. No particulars given as to qualification or remuneration.—*H. and C. Mail.*

THE TEA ROLLER PATENT CASE.

DECISION AGAINST JACKSON.

In the District Court of Colombo today (May 2nd,) Mr. Owen Morgan gave judgment in favour of the defendants in the action for infringement of tea-roller patent, Jackson *v.* Colombo Commercial Company and Brown. The following is the full text of the deliverance :—

This is an action for an injunction to restrain the two defendants from importing into the island and using and selling the tea-leaf rolling machine known as "Brown's triple action tea-roller," and from otherwise infringing an invention of the plaintiff's for the rolling of tea-leaf for which he had acquired certain patent rights. The plaintiff also prays for an account of all gains and profits derived by each of the defendants from the importing and using and selling in the island of tea-leaf rolling machines infringing as aforesaid.

The plaintiff alleges that he was the first and true inventor of a certain new and useful invention for improvements in machinery or apparatus for rolling tea-leaf as declared in his specification and called "The Excelsior."

The defendants deny that plaintiff was the first and true inventor of the invention by him alleged to have been new and useful, or that it is new and useful or that the specification filed by plaintiff describes the nature of the plaintiff's invention, or that the defendants infringed any exclusive right granted to the plaintiff and they allege that the first defendant (as the importer) is the inventor of the invention known as "Brown's triple-action roller," and that the same was an invention new in Ceylon and was not only useful within the requirements of the requirements of the Invention Ordinance, but possessed an utility as a tea-roller far superior to that realized by any machine designed or constructed by the plaintiff.

The specification filed by the plaintiff states that he is in possession of an invention for improvements in machinery or apparatus for rolling tea-leaf and he therein describes the nature of the invention and in what manner the same is proposed. In figure II of the drawing filed with the specification, A is the top-rolling surface usually composed of wood, B is a case or jacket loosely enclosing the rolling surface A so that it (A) can be weighted to give the required pressure to the leaf and can be raised or lowered within the jacket by means of the chain C for the purpose of feeding the machine from the hopper D; and E is a bar firmly attached to the case B and arranged to slide in the bearing F which together with the crank P in K carries the case B and prevents it bearing its weight on the under table at any time although the case B actually comes nearly in contact with it. Having described the nature of the invention and the manner in which it may be used, he asserts what he considers novel and original and therefore claims as his invention three arrangements or combinations, the first of which only the Court has to deal with in this case, for that is the infringement which plaintiff complains of. It is this: "The arrangement of transmitting motion to the top rolling surface through the case or jacket surrounding it whereby such rolling surface is left free as regards vertical movement from the mechanism operating it." That is the invention in the Excelsior which the plaintiff complains has been infringed by "Brown's triple-action roller."

The first machine for rolling tea leaf which the plaintiff also claims as his invention and which he calls the Standard, was a machine which plaintiff invented in India and which he patented there. This machine involved him in India in litigation with Kinmond who asserted that plaintiff had infringed his patent in respect of a machine which he had previously invented, and the plaintiff was obliged by arrangement with Kinmond to manufacture the Standard under a license from Kinmond. The Standard was never patented in Ceylon and only one of the Standard was sold in London and imported into the island and worked on Loolecondra estate. The jacket of the Standard rested on the lower surface, and its heavy weight made it stiff to drive. The driving mechanism of the Standard was connected with the upper plate or surface or cap, the jacket surrounding the cap being left free or loose. It was an expensive machine, and a good deal of time was wasted in getting the leaf through the centre of the cap. The jacket had to be made heavier to prevent jerking and jumping whilst in motion. This led the plaintiff to contrive a machine which was less costly and more easily driven and he hit on the Excelsior which he states is just the converse of the Standard. In the Excelsior he took the driving mechanism from the cap and attached it to jacket, and this machine proved to be a great improvement on the Standard.

There can hardly be any doubt that the plaintiff was the first and true inventor of the Excelsior and that it was a novel and useful machine. The only question remaining for consideration is whether the defendants' "triple action roller" has infringed the arrangement in the Excelsior of transmitting motion to the top rolling surface through the case or jacket surrounding it.

The case or jacket, the plaintiff asserts, consits of a wooden case attached to a metal frame and secured to it by bolts—all forming one piece and designated by him "the case or jacket."

The top or upper rolling surface moves vertically and can be raised or lowered into the case or jacket which loosely encloses it.

What is the case or jacket of the Excelsior? Is it the woodwork or wooden lining combined with the metal frame to which it is attached, or is it the woodwork or wooden lining alone? In appearance the whole upper part of the machine is one piece, and can be tilted up in its entirety; nevertheless it consists of two distinct parts—the metal frame and the woodwork or wooden lining. This metal frame, by whatever name it may be called or whatever shape it may assume, is still what engineers call "a connecting rod," for it has all the adjuncts or parts which constitute a connecting rod. It takes the form in the Excelsior of a metal frame or plate, and is so attached to the crank pin at one end and the guiding rod at the other, that it may be the means of converting circular into rectilinear motion. There has been a good deal of conflicting evidence on this point, but the weight of testimony is in favour of the defendants' contention, that the metal frame is a connecting rod, and that the case or jacket is the woodwork or wooden lining alone; that the metal frame is a part of the driving mechanism of the machine and gives motion to the woodwork or wooden lining, this woodwork or wooden lining being the case or jacket which drives the upper rolling surface

Upon the evidence it is abundantly clear that the upper rolling surface receives its reciprocating and horizontal motion entirely through the wood work or wooden lining, which is truly the case or jacket by impact with it, that is it receives its motion from the case or jacket immediately adjacent to it. If the case or jacket is removed the upper rolling surface would have no motion, except the vertical movement upward and downward which it has quite independent of the case or jacket, acting merely as a weight on the tea leaf and giving pressure to it.

In the triple action roller motion is not imparted to the upper rolling surface by or through the case or jacket. The upper rolling surface has no impact whatsoever with its case or jacket. The whole machine can be worked and motion imparted to the upper rolling surface without the case or jacket. The upper rolling surface has its horizontal as well as its rotatory motion complete, and quite independent of the case or jacket. The machine is complete without the case or jacket, for, it was removed from the machine and it worked perfectly.

Both machines—the Excelsior as well as the triple-action roller—have the same object in view; both

have a lower and upper rolling surface and a case or jacket; but in the Excelsior the case or jacket not only holds the tea leaf, but it also drives the upper rolling surface and transmits motion to it, whilst in the triple-action roller the only use to which the case or jacket is put is to hold the tea leaf and that appears to be its only office. As the Excelsior was an improvement on the Standard so the triple-action roller is an improvement on the Excelsior, and is decidedly a far more efficient and satisfactory machine.

On the whole I am of opinion that the defendants have not infringed the plantiff's right by the arrangement of transmitting motion to the upper rolling surface though the case or jacket surrounding it, and that plaintiff's action must be dismissed with costs.

OWEN MORGAN, D.J.

PETITION OF APPEAL.

In the District Court of Colombo.

William Jackson of Aberdeen, Scotland, Plaintiff and Appellant, *vs.* 1. Alfred Brown of Colombo, 2. The Colombo Commercial Company, Limited, of Colombo, Defendants and Respondents.

On this 5th day of May 1892.

To the Hon'ble the Judges of the Supreme Court of the Island of Ceylon.

The petition of appeal of the abovenamed plaintiff appearing by his Proctor Mr. F. Liesching states as follows:—

To our petitioner feeling aggrieved by the judgment of the learned District Judge dated the 2nd day of May 1892 begs leave to appeal therefrom on the grounds

1. That the issue of infringement has alone of all the issues in this action been decided against your petitioner, and it is humbly submitted that the learned Judge's verdict on that issue is contrary to law and against the weight of evidence.

2. It is contrary to law because in determining this issue, and for that purpose enquiring into the nature of the invention alleged to have been infringed, the learned Judge has governed himself not as he should have done by a consideration of the language of the specification in which the invention is described of the circumstances under which this instrument was framed of the kind of machine to which it relates and the class of persons to which it is addressed but by the opinion of skilled witnesses as to the function and terminology of the various parts of a machine, treated rather as a model for the illustration of mechanical principles than as one designed for the manufacture of a useful commodity.

This is indicated by the learned Judge's remark that the triple action roller could work perfectly well without the case or jacket. So it might, perhaps as a piece of mechanism in a laboratory but it would not be an efficient machine in a factory.

3. The real question involved in the issue of infringment is what did your petitioner mean by the word "jacket" in the specification of his invention as illustrated by the accompanying drawings, and if they are examined as made and addressed by an inventor to workmen of competent skill and acquainted with this class of machinery there can be no room it is submitted for doubt that it must mean and could only have meant the case confining the tea leaf with its bow bracket and general bearings as a whole and the best available evidence is all on one side as to the correctness of this information.

To treat the pieces of wood which when fitted together compose the case in which the leaf is confined as an integral part of the machine disconnected from its other constituent parts and to confine the word jacket to that wooden case is to make it insensible for the purposes of the invention described in the specification and contradicts the very language of the specification with its drawings.

4. If the jacket as your petitioner contends comprisse the case, it supports the bearings, bow, bracket, &c. *i. e.*, in fact all the parts above the lower rolling surface except the lid which controls the pressure of the leaf in operation it is self-evident from a comparison of the machines in work that the principle of the "Excelsior" invention "the arrangement" to wit of transmitting motion to the upper rolling surface through the case or jacket surrounding it has been taken over by the "Triple Action" machine of the defendants.

Wherefore the petitioner prays that the said judgment dated the 2nd day of May, 1892, may be set aside and judgment entered for the plaintiff as prayed in the plaint and for such further and other relief in the premises as to your Hon'ble Court shall seem meet.

(Signed) F. LIESCHING,
Proctor for Plaintiff and Appellant.

THE PLANTING DISTRICTS OF SOUTHERN INDIA.

As the first districts we propose to refer to are those in which coffee is cultivated, a brief *rséumé* of the life of the coffee planter throughout the year will be of interest. It is one of the most popular fallacies of human nature to presume that everyone, whose method of work and whose work itself is not identical with his own, must therefore be enjoying an easy and a lazy life. The man across whose brow course perennial streams of sweat refuses to admit that he, who is able to keep cool with the thermometer over 80 and is not ever on the fidget and fret, can honestly earn his bread. So it is argued by him in tea that the planter who is not cursed with a factory rejoices in a life in which beer and skittles preponderate largely. No doubt the coffee planter is spared much anxiety by not having to be on the watch continually to see that his produce is not ruined in the preparation of it, but this anxiety is made up to him in various ways—by the many changes and chances of weather on which his whole crop depends, by the numerous enemies to the berry itself against which he has to guard, and by his having to entrust the preparation of the bean entirely to others, with whom he is often not on the best business terms.

The work of the coffee planter, who has an old estate and is making new clearings, may be generalized as follows in the majority of the planting districts in Southern India. In January he commences his felling in order for the timber and brushwood to be well dried to burn off before the first showers fall towards the end of February or beginning of March. So soon as this work is over, lining and pitting go on apace, for labour is scare through the hot months of March, April and May; and though the planter may reckon on having the best part of three months in which to plant, yet the south-west monsoon is as fickle as the fair sex, and the wise man will prepare so as he can take advantage of every burst of the monsoon as though it were the last. In June comes the monsoon. Then the rule is that there is more work to be done than hands to do it—planting in the new clearings, weeding in the old, to be followed by pruning, digging and manuring; and while the sun is up the planter has but little time to cool his heels in his verandah until September, when work eases off a little, and advantage is taken to enjoy ten days' holiday either in assisting at week festivity or a stolk after bisron and big game, or a visit to the hospitable homestead of some distant friend. Thus will the coffee planter fortify himself against the multitudinous worries and annoyances which are rife while "crop is on." In October he commences his preparation for the great event of the year, and before the middle of November small gangs of women and children will be put on for a "fly-pick." It may be the middle of December before the crop really begins to pour in, and the whirr of the pulper is heard in the land and the watch-fires are lit by the barbecues and the time of the coffee thefts it at hand. These are days of intense anxiety, it is with a deep and sincere sigh of relief that the respect for the last bandy load of parchment is received from

the Coast curers, and the cash for the tails and refuse counted out by the local native merchant. January will be often on the wane when this consummation is arrived at, and then there will be another two or three week's work, clearing up, pruning the old coffee, manuring the fields shaken by overbearing, &c., &c. So the year wears away. In the hot weather there is usually an exodus for six weeks or two months, for a good 'writer' is capable of superintending new clearings up to a certain point, more especially if a stay-at-home friend can be found who will ride over once or twice a week and see everything is going on all right. The Shevaroys in the Salem District and the Pulneys in Madura get but little of the south-west monsoon, the north-east being the one on which they depend, and so the foregoing hardly applies to them.

As regards the climate which the coffee planter of Southern India enjoys, it is varied but good, except that at some seasons and in some districts malarial fever is prevalent. As the elevation of coffee cultivation varies from 2,000 feet to 5,500 feet, the temperature is, of course, different: but Wynaad, where the estates are on an average at just under 3,000 feet may be taken as a fair average. The south-west monsoon usually begins in the first or second week of June. Then the flood-gates of heaven are opened, and the rain beats down in torrents, and the Zephyrs rage and bluster: but it is in July when the heaviest and longest burst takes place. This climate is not nice, for, equally with nature out of doors, your books, your boots and your bread assume a verdure, which is dispiriting. However, crackling wood fires and hot toddy can be indulged in in comfort, and there are many things more unpleasant than of evening to sit in front of the one and with the other beside you while outside the stormy winds do roar and the rain comes down in torrents. Presently there will come a break and a few days of the most glorious weather that ever gladdens this dear old "vale of tears:" days such as that one must have been at the dawn of which "the stars of the morning came together and all the sons of God shouted for joy." August is sometimes beautiful and fine, sometimes dem'd moist and unpleasant, and so September: in fact these months take it in turns to be one or the other. October is a month of lovely mornings and wet afternoons, the north-east monsoon being about to declare itself, wherefore thunderstorms are rife and heavy downpours frequent, in which an inch or more of rain will fall in less than an hour, much to the annoyance of the planter whose land is steep. The mornings in November grow crisp and cold, wisps of snipe are in the swamp, the bell of the sambhur is heard on the mountain side, and life is as full of sport as work allows and very much worth living. December and January are glorious months with a climate that would make the fortune of the district many times over if it could only be transposed to Europe or the States. Fires blaze in the hearth at nights and in the mornings the planter blazes in the swamps, which are frequent and hold many snipe, and while tramping through them an occasional shot at a jungle sheep or spotted deer may be got and no little excitement worked up over *khubber* of bear, panther or tiger in an adjacent *shola*. February is rendered unpleasant by a raging and tearing N.-E. land-wind, which dries up everything, curls up the backs of your *éditions de luxe*, and converts your cheroots into tinder. At nights beacon fires flare on all the hills, a glorious sight to gaze on from afar, but not so pleasant should the fire come tearing down the hill above the stables, the flames leaping and rushing and frolicking through the tall jungle grass and scrub like a herd of wild horses at play. The whole country side becomes black and burnt up, and a heavy mist of smoke lies over the land. Before March comes in thunder is heard remote, and each night the lightnings blaze and flash and quiver along the distant horizon. The mornings are hot and sultry and every afternoon black masses of cloud, big with the rain that means fortune or disaster for the planter, roll heavily across the sky. At length the rain falls in blinding sheets, and from the grounds there goes up that strange fragrance all know so well, like a song of thankfulness from a thirsty land. In a very few days everything is green again, save the fields of coffee which are covered with the sweet white petals of the blossom for which the planter has been waiting so anxiously. April is much the same as March—sultriness followed by heavy thunder-storms, then a few days of refreshing coolness. In May the weather continues broken, and the middle of the day very hot, but the mornings and evenings are deliciously cool and fresh; and so on till the monsoon again breaks. This is the climate of the Wynaad, and it is very similar in other districts. No little rain interspersed amongst days of the most glorious and perfect weather.

The present Government of Madras has at length realized that the planting industry of Southern India which brings into the country a crore or two of rupees per annum, and is a very present help in time of famine and distress to the ryots and labouring classes of Southern India, deserves encouragement, and the planter is beginning to feel that he has but to represent his case to receive consideration at the hands of Lord Wenlock and his advisers. Slowly and by degrees that curious delineation of the brutal planter, is fading from the walls of the Council Chamber where it has figured for so many years, and he is ceasing to be looked on as that strange specimen of obsolete feudal barbarity, who when not wallowing in whiskey and wantonness was dancing a wardance on the spleens and the domestic virtues of his coolies. The weakness of the planting community of Southern India consists in its being under the rule of so many different Governments; for while Wynaad, the Nilgiris and the Shevaroys are under the Madras Government, Coorg is under the Government of India, the Mysore and Travancore planting districts are within the boundaries of these native states, while the Neliampthies belong to Cochin. Here we will draw to a close and reserve our description of the districts themselves for another week.—*Indian Planters' Gazette.*

THE PIONEERS OF NORTH TRAVANCORE.

(*From One of Them.*)

From time to time you have admitted to your columns fugitive communications from the planters, or to speak more correctly, from the pioneers, who have for the last ten years been engaged in opening out the northern portion of the Travancore State to planting enterprise. It will be remembered that the main obstacle in the way of settling the extensive and salubrious range of mountains and valleys which are known by the name of the Kannan Devan Hills lies in the difficulty of access. While the estates were in a state of childhood, not yet having reached the productive stage, the absence of roads did not much affect the formation of estates. Forests have been felled, nurseries formed, plants have been set out and even bungalows built (though at great cost) while all the tools, rice, stores, roofs, and building materials necessary for the above objects have been carried up from the plains on pack cattle, ponies, donkeys and on men's heads. Time has meanwhile been rolling along, and the plant has developed into a bush, the cinchona seedling into a tree. The years have at length rewarded the settlers, and they pride themselves with thousands of pounds of bark, tons of coffee, and chests of tea. But now has come into play the question of cost of carriage, and the delay and expense of pack animals seriously handicap the exporters when competing for markets with produce from other planting Districts where carts take the crop from the planters, then to the railway station or port without break of bulk. However these planters are a self-reliant body. They

always have (in the mind honest Sancho's solation th at there is a remedy for everything but death, so by dint of importuning the Government of Travancore, harassing the Resident and petitioning the Governor in Council, and out of Council the planters have at last the satisfaction of knowing that a cart road has been sanctioned, funds provided by the Travancore Government, and that in a short space of time, carts may come rolling up with rice and tea box fixings and rolling down with wealth "beyond the dreams of avarice." This cart road, which will come out into the Coimbatore plains some 20 miles south of Udamalapeta, which again is 40 miles from the nearest railway station, will immensely improve the prospects of the planters and should lead to a very considerable increase in the number of properties opened out in these hill s.

There is no other place in India or Ceylon where such facilities exist for the acqu sition of planting land. The Directors of the North Travancore Land, Planting and Agricultural Society seem to have profited by all the dinning and dunning regarding easy purchase of land which have been in all the newspapers for ever so many years. I learn that a man on the look out for land can go up to Devacolum, select his block, have his application registered, pay down his money and take up possession within as short a time as suits his convenience. There is no bother about stamped application, or waiting till Collector Sahib has had the land inspected. The Agent has only to see that no one else claims the block, and our eager planter can become master of his acres, and put down his nurseries, and fell his forest and build his preliminary huts—all in the rub of Aladdin's lamp. If he ventures in cinchona—and a wonderfully cheap and profitable venture that same is, notwithstanding low prices—there are estates all round him where he can decide on the sort best suited to his bit of land, and purchase seed or plants as may please him. If he goes for coffee, he can have his pick of thousands of acres of virgin forest all at R15 to R25 an acre. Tea is in the same category. 'Tis extraordinary to see the output of tea at so high an elevation. Five hundred pounds of made tea to the acre off four or five years bunches, and at an elevation of 5,000 feet too! However, until the road is finished, the best way for the new man is to go to Ammanayakanore, on the South India Railway, thence by bullock transit to Bodinaiknore, whence a bridle path leads to the Land Agent's bungalow at Devacolum. There are, as I say, great quantities of forest land at an elevation of 5,000 feet available for tea and coffee, but I must guard your readers from supposing that there is very much forest suited for cinchona above 6,000 feet. No doubt a few thousand acres till remain, but it is being rapidly absorbed by planters, for, in point of fact there is now no place either in India or in Ceylon where such land is to be got. Pleasure and profit attend a settler in these altitudes, where the delicious climate, pure water and healthy life really make life worth living; where a man can rear his estate and rear his family and make unto himself a home to last for his life and for his son's lives; where he can grow cinchona and tea, and make 50 per cent. on his capital; where he can teach his boys to pull the ibex by the beard, and adorn the walls of his bungalow with tusks and horns, and where his girls lose not there roses, nor his wife pine away with fever and longing for the absent faces—for what shall it profit a man if he gain the whole world and lose his own health, and what can a man give in exchange for his health!—*M. Mail*, April 8th.

NAGAMALLY TEA COMPANY, LIMITED. (TRAVANCORE.)

In submitting the report and accounts for the second year of the Company's working, the Directors congratulate the shareholders on the results proving better than were anticipated.

When the last Annual Report was issued there were in all 367 acres under cultivation, of which 120 acres are now yielding tea, and a small field of some 7 acres in coffee and spices; since then about 220 acres of forest have been felled and are now being cl ared for planting with tea, and the intention is to go steadily on extending the area under this cultivation.

The estimate of tea for past year was 60,000 lb. and the quantity despatched from the estate amounted to 62,030 lb.

The coffee crop for 1891 proved a very short one compared with previous year, being only 9 cwt. 3 qrs. 17 lb.

The spices harvested amounted to 649 lb against 137 lb in 1890.

The estimate of tea for 1892 is 80,000 lb and may probably be exceeded, and the time has now arrived for the Company to provide itself with a permanent Factory and with efficient Machinery. Plans and estimates for these are now being prepared and materials collected for an early commencement of the work.

It is hoped, in addition to improved manufacture of the Company's tea, that they will secure an extension of the manufacture of tea for neighbours, which it will be seen from a credit item in the crop account is not unprofitable.

The amount at credit of profit and loss account is ...	£494	12	6
Out of which the Directors propose to pay a Dividend for the year at the rate of 5 per cent. per annum, absorbing	442	2	4
Leaving a balance to be carried forward of ...	£52	10	2

Of the second issue of 1,000 shares, up to date 325 have been allotted, and the balance of 675 shares will be placed as opportunity offers.

The Board desire here to express their satisfaction with the conduct of the Company's affairs by their Local Manager, Mr. F. W. Bennett.

BALANCE SHEET to December 31st 1891.

Dr.	£	s	d	£	s	d
To Capital Authorised—4,000 Shares of £5 each.. 20,000	0	0				
To Capital Issued—1,160 Vendors' Shares £5 each, fully paid.....5,800	0	0				
840 Shares of £5 each, on which £3 10s has been called up.....2,940	0	0				
325 Shares of £5 each, on which £2 has been called up..... 650	0	0				
9,390	0	0				
less Call in arrear (since paid)..... 50	0	0				
				9,340	0	0
To Bills Payable....				1,600	0	0
To Sundry Creditors.....				169	12	5
To Profit and Loss Account—Net Profit at 31 December 1890..... 399	5	4				
less Dividend paid..... .. 322	3	6				
77	1	10				
Nett Profit to 31st December 1891..... 417	10	8				
				494	12	6
				£11,604	4	11

Cr.	£	s	d	£	s	d
By Culdoorty Estate—Amount as per last Account..... .. 7,708	14	6				
Expenditure during year developing New Clearings..... 1,664	14	5				
				9,373	8	1

By Cooly Advance Account..				386	19	1
By Produce Shipments—						
Balance of 1891 Season's Produce realized after 31st December.....				633	17	5
By Sundry Debtors.....				119	0	3
By Cash—In hands of Superintendent of Estate....	87	11	1			
In hands of Agents at Tuticorin.....	304	3	1			
In London at Bankers..	195	9	10			
do. Deposit against securities	500	0	0			
In London in Office....	3	15	3			
				1,090	19	3
				£11,604	4	11

Crop Account, 1st January to 31st Dec. 1891.

	£	s.	d.
To Cost of Cultivation, Preparation and Shipping of Produce harvested ...	1,228	17	10
„ Commission to Travancore Manager ..	20	17	6
„ Balance to Profit and Loss Account ..	765	5	5
	£2,015	0	9
By Net Proceeds of Produce Sold	1,739	17	9
„ Sundry Receipts on Estate— Manufacturing Tea for others, &c. ...	275	3	0
	£2,015	0	9

Profit and Loss Account from 1st January to 31st Dec. 1891.

To General Charges, including London Office Expenses, Directors' Fees Auditors' Fees, Interest, Stationary, Telegrams, &c.	347	14	9
„ Balance carried to Balance Sheet ...	417	10	8
	£765	5	5
By Balance from Crop Account ..	765	5	5
	£765	5	5

FERTILIZERS FOR PEACH TREES.—At one of the New York farmers' institutes, Mr. G. T. Powell, in reply to the question, what is the best fertilizers for peach trees? said: "A fertilizer high in the element of potash is preferable with me; phosphoric acid is also necessary to perfect the seed. I find wood ashes, if they are good, one of the best fertilizers for peaches, as they contain both of these elements of plant food. Do not feed them too much nitrogen, as it induces too large a growth of wood which if continued late in the season, will not ripen."—*Rural Californian.*

GOOD PLANTING.—Meehan's Monthly for February publishes the following: "It is not unusual to hear people say that they cannot understand why trees die under transplanting, considering that they give the planting the very best of care. What is considered the best of care is often very bad care. It is amazing to see the careful planter without experience, occasionally on his knees pressing the earth in around the roots with his fingers, for fear of crushing the fibers. It is impossible to get the earth properly packed around roots in this way. In nurseries, where it is presumable planting is thoroughly understood, a man stands with a rammer while one is putting in the earth, and hammers the earth in as tightly as though he was hammering in a post. This packs the earth in more tightly than can be done by either feet or hands. Some are afraid of crushing the roots with this hammering process; but with the pressure all around, the force is directed towards the roots and not away from them. It is not necessary, however, to go into reasons, as the universal experience of the nursery is in favour of hammering in the earth as represented. This is the essence of good planting, and any other planting is decidedly bad. Trees properly planted need no staking. The fact that a tree needs staking is a proof that it was not properly planted."—*Rural Californian.*

IMPORTANCE OF MOISTURE.—The importance of moisture in fruit culture is strikingly illustrated in the writings of the late Charles Darwin. Respecting the district around Chiloe he says: "The town is situated on the low banks of the stream, and is so completely buried in a wood of apple trees that the streets are merely paths in an apple orchard. I have never seen any country where apple trees appeared to thrive so well as in this damp part of South America. On the borders of the road there were many young trees, evidently self sown. The inhabitants possess a marvellously short method of making an orchard. At the lower part of every branch small brown wrinkled points project. These are already to change into roots, as may be seen where any mud has been splashed against the tree.—*Rural Californian.*

TEA IN WYNAAD.—The *Madras Times* of 10th May says:—

Our South Wynaad correspondent in an interesting and amusing letter which appears in another column tells us of inability to send any news about tea in Wynaad. We are in a position to state that beyond 75 acres which are being opened by a large Company at Cherambadi, there will be no extension of tea cultivation in Wynaad this year. More's the pity! The enormous increasing exports from Ceylon have evidently made capitalists at home 'scary' of this product, and we are afraid it will only be when Wynaad has proved beyond a doubt that it can produce tea of a quality which is able to hold its own with consignments from that island, that money will be forthcoming to any extent for opening out land in tea. Ceylon, from a tea-grower's point of view, can only beat Southern India in two respects: the climate with its regular rainfall, and the assurance of labour all the year round. The latter is the most important of the two. The best jât teas there are undoubtedly behind those grown here, while on most of the estates the plants are of a very poor jât indeed. The soil of Ceylon, as well known, is behind that of Southern India, but this is compensated for by the climate. The quality of Ceylon tea is deteriorating each year, more especially on estates where manure is not used, and we believe that the outturn per acre is also less. Fortunately for Ceylon there is a cohesion among planters, which is unknown here, and next to the United States there is no country that has so thoroughly mastered the art of advertising. Planters in Southern India will have to wait yet awhile before money comes to this country to any extent, and the only thing to be done is to keep their districts well before the notice of the public at home

THE MANUFACTURE OF TEA IN LONDON.—In a recent letter I told you that I had been making tea from leaf plucked from tea plants, grown from imported seed in Mr. Iceton's palm nurseries at Roehampton, Putney. It may not be without interest to some of your readers to know how I am getting on. I have not had much of a flush as yet, and have only had small quantities of leaf to work at a time, the plants flushing very irregularly; and the leaf has not been satisfactory. My last plucking was very small, but it is, I think, a curious instance of what may be done that though the leaf was so wet when plucked in the morning about 10 a.m. I had to toss the water off it, yet I was able to wither it, to roll it, to get it to ferment in some degree, and to fire it, and convert it into passable tea, before 6 p.m. the same day. The liquor proved fair, and after standing some time creamed well. It had a rather greenish and slightly oolong flavor, probably owing to the hasty way in which I had been compelled to make the tea, as I had to leave town next day, and to its not being well fermented. The plants are now in a better flush, and I hope to have a more even flush soon, and more time to turn out a larger quantity and a better sample. As I said, I am curious to know if this is the first attempt which has been made to manufacture tea in this country from English-grown tea leaf. Be this as it may, I fancy no one else ever made tea, from green and wet tea leaf in London before in one working day of eight hours.—*Cor.* in local "Times," May 12th,

THE CROP OF JAVA CINCHONA.

(COMPILED FROM STATISTICS OBTAINED BY A COMMISSION FROM THE SOEKABOEMI AGRICULTURAL ASSOCIATION, JAVA.)

Plantation	Estimated Crop for 1892, if Unit Remains Low			Estimated Crop for 1892, if Unit Advances			Output in 1891		
	Kilos. Bark	Percentage Quinine Sulphate	Kilos. Quinine Sulphate	Kilos Bark	Percentage Quinine Sulphate	Kilos. Quinine Sulphate	Kilos. Bark	Percentage Quinine Sulphate	Kilos. Quinine Sulphate
Pondok Gedeh	15,000	4	600	15,000	4	600	3,827	4	153
Tjitrap	10,000	5	500	10,000	5	500	12,000	4	480
Ardjasari	30,000	3·50	1,050	30,000	3·50	1,050	28,938	3	868·1
Boemikasso	10,000	4	400	35,000	3·40	1,190	5,700	3	171
Djajagiri	25,000	5·50	1,375	25,000	5·50	1,375	28,000	5·50	1,540
Gamboeng	80,000	6	5,200	100,000	6·50	6,500	65,009	6·20	4,030
Goenoeng Kasoer	10,000	4·50	400	10,000	4	400	3,000	3·75	112·5
Indragiri	60,000	4·75	2,850	40,000	4·75	1,900	42,500	4·50	1,912·5
Kertamanah..	150,000	4·40	6,600	150,000	4·50	6,750	150,000	4·40	6,600
Passir Malang	95,000	4·50	4,275	95,000	4·50	4,275	80,000	4·50	3,600
Paal Lima	40,000	4	1,600	40,000	4	1,600	52,332	4	2,093·2
Rantjawalini	40,000	4	1,600	40,000	4	1,600	32,932	4	1,317·2
Soekatinggi	35,000	6	2,100	35,000	6	2,100	26,000	6	1,560
Soekawana	68,000	4·50	3,060	68,000	4·50	3,060	68,000	4·50	3,060
Tjikapoendoeng	28,000	4·50	1,260	28,000	4·50	1,260	28,000	4·50	1,260
Tjilaki	30,000	6	1,800	30,000	6	1,800	30,000	6	1,800
Telaga Patengan	50,000	4·50	2,250	70,000	3·50	2,450	64,000	4·50	2,880
Tjikahoeripan	40,000	3·50	1,400	41,000	3·50	1,435	30,000	3	900
Tjipopohan	11,000	3·63	399·3	7,000	3·42	239·4	26,200	2·74	717·8
Government plantations ..	200,000	5	10,000	200,000	5	10,000	200,000	5	10,000
Djajasana	20,000	4	800	22,500	4	900	15,000	3	450
Girlawas	25,000	4·50	1,125	25,000	4·50	1,125	89,106	4·4	3,920·4
Oentoeng	45,000	4·50	2,025	45,000	4·50	2,025	47,390	4	1,895·6
Tjampaka warna	16,587	4·50	746·4	25,000	4	1,000	16,587	4	663·4
Tjigentoer	20,000	4	800	20,000	4	800	61,000	4·50	2,745
Tjikembar	15,125	5	750	25,000	5	1,250	15,000	5	750
Tjisaroeni	125,000	3	3,750	125,000	3	3,750	15,500	3	465
Djajanegara	25,000	3	750	25,000	3	750	22,500	3	675
Goenoeng Malang	15,000	3	450	15,000	3	450	15,000	3	450
Pandan-Aroem	75,000	4	3,000	75,000	4	3,000	100,000	4	4,400
Pasir Telagawarna.. ..	37,000	4·50	1,665	50,000	4·50	2,250	45,000	4	1,800
Sindang Sari	16,218	6	973	16,218	6	973	16,218	6	973
Slabintanah	20,000	3	600	20,000	3	600	8,000	2·75	220
Tjakraboewana	40,000	4	1,600	45,000	4	1,800	45,000	3	1,350
Bajabang	25,000	5	1,250	25,000	5	1,250	—	—	—
Goenoeng Beser	12,500	4·50	662·5	12,500	4·50	562·5	20,000	4·50	900
Goenoeng Melati	100,000	4·75	4,750	100,000	4·75	4,750	100,000	4·75	4,750
Panjairan	100,000	4·50	4,500	100,000	4·50	4,500	114,517	4·35	4,981·4
Tjigoentoer	20,000	4	800	20,000	4	800	—	—	—
Pondok Bitoeng	30,000	3·80	1,140	30,000	3·80	1,140	45,300	3·80	1721·4
Soekanegara	115,000	4·25	4,887	130,000	4·25	5,525	110,000	4.37	5,681
Tjidadap	40,000	3·50	1,400	75,000	4	3,000	110,000	3·50	3,850
Tjampaka Noord	35,000	4·50	1,575	35,000	4·50	1,575	31,000	4·25	1,402·5
Tjidoerian	125,000	3	3,750	125,000	3	3,750	15,000	3	450
Tjimonteh	40,000	3·50	1,400	40,000	3·50	1,400	75,522	3·50	2,643·2
Tjitiis	85,000	4	3,400	95,000	4	3,800	96,000	4	3,840
Tjiwangi	20,000	5	1,000	20,000	5	1,000	50,000	4	2,000
Tjiseureuh	100,000	3·50	3,500	100,000	3·50	3,500	100,000	3·50	3,500
Tjipantjoe	50,000	4·50	2,250	50,000	4·50	2,250	50,000	4·50	2,250
Argasari	50,000	3·25	1,625	50,000	3·25	1,625	52,000	3	1,560
Daradjah I & II	45,000	4·50	2,025	45,000	4·50	2,025	30,315	4·2	1,273·2
Lodaja	90,000	4	3,600	90,000	4	3,600	103,000	4·2	4,326
Tjikembang	40,000	3·75	1,500	40,000	3·75	1,600	40,000	3·75	1,500
Tanah Goha	20,000	2 75	550	20,000	2·75	550	50,000	2·75	1,375
Tedja	10,000	3·50	350	10,000	3·50	350	28,613	3·50	1,002
Pagilaran	100,000	5·50	5,500	200,000	5·50	11,000	135,000	5	6,750
Kajoe Abang	37,000	4	1,480	37,000	4	1,480	10,200	3·97	404·9
Maatschappij "Bagelen" ..	75,000	5	3,750	75,000	5	3,750	70,000	4·50	3,150
Langenardjo	40,000	5	2,000	40,000	5	2,000	51,000	4	2,040
Tarik	21,500	5·50	1,182·5	21,500	5·50	1,182·5	4,332	3·82	165 4
Petoeng Sewoe	21,500	5·5	1,182·5	21,500	5·5	1,182·5	—	—	—
Soember-Seh	15,000	4	600	22,500	5	1,125	—	—	—
Bendo..	50,000	4·50	2,250	50,000	4·50	2,250	—	—	—
Djoengo	10,000	4	400	10,000	4	400	58,000	4·50	2,610
Fourteen plantations yielding less than 300 kilos. quinine each	73,396	—	2,241·4	87,396	—	2,649·1	120,838	—	3,508·1
Total	3,117,701	—	134,151	3,512,114	—	152,169	3,479,883	—	144,570

FROM THE METROPOLIS

London, April 15.

CEYLON TEA IN AMERICA.

I had the plesure this week of meeting Mr. Elwood May as well as Mr. Grinlinton and of learning a good deal about places and prospects connected with our staple product in the Far west. From what I knew of America, I was able to test with same degree of authority the utterances of Mr. May, and generally I was impressed very favourably with the good sense, the determination and straightforwardness of the head of the Ceylon American Company. What he has accomplished in respect of advertising Ceylon tea in a large proportion of the leading newspapers in the States is quite astonishing, the more so as in all his contracts extending generally for twelve months, no cash has passed, the remuneration being taken in stock of the company. This has been accomplished in the face of Mr. May's frank avowal in each case that the value of such "stock" is still problematical and altogether in the future. Still the evident belief of Mr. May himself and of a large number of influential friends whom he has converted and whose testimonials he holds, to the superiority of Ceylon tea, has told in the newspaper world, and the result is seen in the following extract from the letter of a well-known New York Press Manager (a personal friend of my own) whose words I have been allowed to copy :—

"I want to say, as a parting word, that the contracts for advertising, which you have made, surprise me, both in their amount and the character. You have done, I am sure, what no other man has ever accomplished in securing many of the very best papers in the country, and placing the stock where you will not only receive very valuable space for it, but will secure the good will of papers who have great influence with the public."

It is impossible not to anticipate good fruit from such extensive and continuous advertising as has thus been arranged for. But Mr. May himself is not oversanguine—indeed I was almost going to say, he is despondent. He has full faith in pure Ceylon tea as a good article worth "booming," and he knows how it can be made in demand all over the United States and that he is promoting in the right way; but he considers the campaign as only commencing and he is urgent that unless the "sinews of war" are forthcoming, the company must collapse and the effect of what has already been done, be in a great measure lost. In other words, Mr. Elwood May, though he has done wonders hitherto in advertising, does not see how his business is to be continued and extended without certain continuous expenditure, an he and his American friends, I gather, are not prepared to spend more, unless they are backed up by English friends and Ceylon planters. His mission to England this time seems to be to raise additional capital for the company, or to intimate plainly that otherwise it may have to disappear and the advertising contracts be closed. This is disappointing news, the more especially as we cannot consider the present a favourable time to appeal to English (albeit tea) capitalists for money, or to Ceylon planters just as they are doing their best for Chicago. So I intimated to Mr. May, adding the hope that a profitable trade must surely be already springing up and that he Exhibition should be a great help to the success of the company. Mr. May's answer was that we had but a faint idea of the conservative character of the large distributors of established products in America—how that large tea benefactors in New York would not as yet consent even to hold Ceylon tea, as a thing unknown to their customers, and how only by convincing consumers and creating a demand could a stable foundation be laid for a steady, growing trade in Ceylon tea throughout the States. Even the Chicago Exhibition will not do permanent good, unless plans are promoted in a way which Mr. May is prepared to lay before Mr. Grinlinton. "It is a very easy matter," added Mr. May, "to create a temporary trade—to get obliging small tea dealers throughout the country to take off a large quantity of a new tea, once in a way,—each taking a few chests to oblige a commercial traveller it may be. But as such tea would lie on their shelves without demand, the large trade forced in any one year would merely act as a deterrent to any legitimate business extending afterwards, since dealers would never touch the article again." There is something in this argument, and in the strong liking of Yankees for what they are accustomed to, Japanese and Chinese green teas; but I ventured to point out that surely in the Western and Middle States with so large a proportion of "fresh blood,"—of English, Scotch and Irish accustomed to good tea at home—there should be no difficulty in getting them to try Ceylon tea. Nevertheless, Mr. May insists the process must be a slow one, only to be worked out on the lines he has laid down, and which he—still a comparatively young man occupying a position of influence and reputation in New York—is prepared to follow and develope, provided he is adequately supported. Otherwise, apparently, it is a matter of indifference to him personally, whether his past labours are to bring any return to him or not. I have tried to reflect the outcome of our interview; and I could not help regretting that Mr. May had not made his way some months ago to Ceylon, to meet the planting leaders themselves and to lay before them his ideas as what can, and cannot, be done for Ceylon tea in America.

Meantime he and Mr. Grinlinton have seen a good deal of each other, and though "the Commissioner" and Mr. Stretch, who were present, said little at the conversation referred to, I am aware that Mr. May's views as to the Exhibition and Ceylon tea have been adequately explained; but whether they can be accepted is another thing. Some of us interested in Ceylon rather thought that in nominating Mr. Grinlinton as their representative the Planters' Association were arranging for the "Ceylon-American Company" to take the lead at Chicago; but I can see that there may be points of difference of some importance. Of this, however, we may be certain that the Commissioner will allow nothing to interfere with his doing the very best in his judgment for the promotion of Ceylon teas. We shall know more shortly; for Mr. Grinlinton has asked Mr. Leake to call a meeting of the Tea Committee of the London Association to lay his plans, so far as formed, before them, and possibly Mr Elwood May may have his "say" at the same time. Mr. Grinlinton has already been busy at the Society of Arts, the Colonial Office, &c. His health is improved; but he had evidently had a "shake" and is by no means the man he was when I saw him last in Ceylon, and I ventured to warn him to be specially careful in this treacherous climate against the risk of a relapse from cold of the influenza or its after-effects.—I was glad to learn from him that he does

not see why 80 or 85 million lb. tea should not be shipped this year from Ceylon—he should have said so in the Chamber of Commerce—a quantity which certainly would do as good in the end as all the sooner putting an effectual check on the China trade. However, the actual exports for the first quarter do not point to such large figures, though we may see a steady advance in the remaining quarters.—Mr. May is very strong on the point of keeping up the quality of Ceylon tea if the taste of Americans is to be captured. Here is a complimentary paragraph from a letter to me of a gentleman connected with the Society of Arts:—

"You Ceylon people are putting the Indian tea wallas to shame in respect to Chicago. Your Commissioner, Mr. Grinlinton, was at the Society of Arts the other day. I understand that he is going or has gone to the States as Secretary of the Indian Committee of the Exhibition. I am doing my best to stir up our Indian fellows and I hope we shall not be entirely left out in the cold.'

In another direction, very satisfactory progress is reported: Mr. Whittall, who lately referred to the fact that Ceylon tea was evidently becoming better known in America, tells me that RUSSIAN DEALERS are beginning to give special attention to our teas, and that large purchases have lately been made. The great drawback is the want of big breaks; but this is gradually being overcome, and it will no doubt become an object in the larger factories in our higher districts to prepare and send home large breaks of fine teas with the view of meeting the demand for RUSSIA. To get a hold of the Russian tea market would be almost a greater advantage to the Ceylon tea planters than to capture America, though it is best and wisest to fight for both, and for those of Austria, Germany, &c., as well. But have the Ceylon Tea Fund Committee or the Planters' Association done anything towards urging the Java tea planters to turn their attention to the conversion of their own countrymen in Holland as well as the Belgians and West Germans? Java teas are coming in increasing quantities to Mincing Lane. They ought properly *all* to go to Amsterdam. I must see Mr. Ernest Tye of the Indian Association on this point.

CEYLON TEA COMPANIES.

You have possibly received the report of the "Standard Tea Company of Ceylon" by last mail; but in case not, I send you the copy Mr. Brooke, of Messrs. James Hadden & Co., was good enough to send me:—

THE STANDARD TEA COMPANY OF CEYLON, (LIMITED).

Directors: Alex. Brooke, Esq., 25, Fenchurch Street, London; Peter Moir, Esq., East Grinstead, Sussex; Robt. Kay Shuttleworth, Esq., Wood End, Clitheroe, Lancashire.

Secretary: A. Trafford Brooke.

Agents in Ceylon: Messrs. George Steuart & Co., Colombo.

The Directors submit Statement of Accounts to 31st December, 1891.

The Profit and Loss Account shows a profit on the working of the St. Leonard's Estate (for the ten months from 1st March, from which date it was bought) £1,670 7s 9d.

The results compare favourably with the promises in the Prospectus.

On taking over the Estate there was due to the Vendor, and there has been paid as interest £345 17s 8d.

It is proposed to pay a dividend for the 4½ months of 1891, at the rate of 10 per cent. per annum, free of Income Tax, absorbing £658 13s 11d.

The Eskdale and Liddesdale Estates, bought from Mr. Norman W. Grieve, are taken over as from 1st January, 1892, and promise to be valuable properties.

BALANCE SHEET AT 31ST DECEMBER 1891.

Dr.

To Capital:—				
Authorised 5000 Shares of £10 each ...	£50,000	0	0	
First Issue, 700 Shares of £10 each paid ...	7000	0	0	
1800 Shares of £6 each paid ...	10,800	0	0	
2500 Shares ...	17,800	0	0	
Second Issue, 1000 Shares of £10 each paid ...	10,000	0	0	
250 Shares of £1 each paid ...	250	0	0	
3750 Shares ..	28,050	0	0	
Paid in advance of Call £130 0 0				
Less in arrear of Call 25 0 0	105	0	0	
				8,155 0 0
„ Sundry Creditors				1,880 5 0
„ Sundry Interest on Advances... ...				37 13 9
„ Profit and Loss Account				1,324 10 1
				£31,397 8 10

Cr.

By Estates (cost including extension) ...				£30,490 6 0
„ Cash at Bankers				495 19 5
„ Preliminary Expenses				408 4 10
„ Expenditure on 1892 Crop				2 18 7
NOTE.—The Superintendent of the St. Leonards estate certifies that the small liabilities incurred by him are covered by assets due to, or property on, the estate.				
				£31,397 8 10

PROFIT AND LOSS ACCOUNT, FOR THE CROP YEAR ENDING 31ST DECEMBER 1891.

Dr.

To Interest paid Vendor of St. Leonards estate				345 17 8
„ Balance				1,324 10 1
				£1,670 7 9

Cr.

By Net Profit on Sale of Produce ...				1,620 7 9
„ Bark unsold (estimated at) ...				50 0 0
				£1670 7 9

Another engagement prevented my being at the meeting which, with so satisfactory a report, was naturally a very pleasant one. Mr. C. H. Hadden, whom I had the pleasure of seeing a few days before, looking as hearty as he has done any time these twenty years back, and Mr. Peter Moir were present and could not help interchanging congratulations on their continued good health. Mr. T. S. Grigson of Messrs. Geo. Steuart & Co. was naturally gratified over the success of the company he had promoted. [Mr. Grigson is returning to Colombo early in May with Mrs. Grigson and children.] Mr. Norman Grieve was elected a Director, and a better one there could not be among Ceylon proprietors; and in this connection Mr. Brooke mentioned to me how "Kandaspolla" mark in spite of a falling market had got a higher average for its teas—a fact noteworthy in view of recent adverse criticism on the latest Ceylon Tea Company. This reminded me that the *Echo* City Editor had not dealt fairly with the few notes I left on his desk in correction of his criticism of the "Baring" Company. I referred to the high reputation of the Directors and to the fact that Wangie-oya is a plantation any company might be proud to have; but this part is ignored and only one item accepted and dealt with (!) as follows:—

CEYLON AND ORIENTAL ESTATES COMPANY.

With regard to our criticism of the Ceylon and Orient Estate Company, formed to purchase various tea properties belonging to Messrs. Baring Brothers and Mr. Thring in Ceylon, Mr. Ferguson calls attention to the fact that "the price of tea was abnormally high in March, 1891, and that the comparison made with the question of March, 1892, is therefore hardly a fair one." As we have not the least wish to be unfair in the matter, we are pleased to give prominence to this opinion.

Although we have no doubt as to the correctness of Mr. Ferguson's remark, the fact does not remove the great objection we take to the prospectus on behalf of the public. Why was not the price of tea given? If abnormally high in March, 1891, why could not this fact have been stated? In dealing with the price of tea, we naturally made a comparison between quotations now ruling and those of twelve months ago. The falling off in value is more than abnormal, it is startling.

In his excellent paper on Ceylon, read before the Royal Colonial Institute, Mr. Ferguson detailed how the annual export of tea had risen within 15 years from

1,000 LB. TO 68,000,000 LB,

"while there is the probability of the Colony attaining to an export of 100,000,000 lb. in the course of the next few years." The author of the paper touched very lightly, indeed, upon the decline of the London market. "But on the other hand, the falling prices of recent years for tea generally, and the fear of over-production—of supply out-running a demand profitable to the planter—forbids me to say that there is scope in Ceylon for more tea-planters, unless they be young men with capital." To show what an important part the market price of a product plays in the finances of those who grow it we have only to recall the collapse of cinchona, or Peruvian bark, which at one time was being planted all over semi-abandoned coffee estates. "Over the hill country generally"—we again quote Mr. Ferguson's words—"this culture has had to be given up, since the price of quinine fell (mainly through large crops of bark from Ceylon) from

12s TO 1s AN OUNCE—

and even to 9d an ounce—between the years 1877-79 and 1891." Against the tea enterprise, as a whole, we have not a word to say. No doubt means will always be found, by cheapening of labour and economy of management, to keep a fair margin of profit in all the best districts; but with regard to the company formed for the purchase of Messrs. Baring's estates, we cannot advise our readers to entrust any single one of their financial eggs to so doubtful a basket.

In connection with Tea Companies, I cannot help referring to the sudden death of Mr, DAVID REID, Chairman of the Ceylon Plantations Company, and whose name has been so fully in your columns of late, the contractor for the Nawalapitiya and Mlatale Railways, and the Unionist candidate for Cackmannan and Kinross shires. A career which seemed only to be opening at home, has been thus unexpectedly closed to the great regret of a wide circle of friends. Much sympathy will be felt for Mrs. Reid and family.

I was pleased to see Mr. GEO. HEDGES looking so well on meeting him in the City the other day, and to learn of his hopefulness about the steady development of the Ceylon tea trade with Australasia which he did so much to foster and develope, by his visits to Melbourne, in the early days.

As regards the future and improved preparation of Ceylon tea, I feel sure there is much yet to be heard. Several experiments in this direction have come under my notice of late; in one case the process of fermentation and drying is the subject of close, detailed and scientific observation under the direction of an experienced planter, who, however, does not wish names or operations mentioned further in the meantime. The respective merits of high and low temperature drying will also be further tested. I have seen a report by a member of Messrs. W. J. & H. Thompson's firm, of a most favourable character on samples of Indian teas, dried at a low temperature. But more light and experience generally are required.

As to the MANURING OF TEA and an improved AGRICULTURE generally, you are likely to hear from Mr. John Hughes by this, if not indeed, by last mail; for Mr. Hughes has been good enough to write the following to me worthy of quotation even at the risk of repetition, especially what is said of tea:—

By last Friday's mail I forwarded to your office, Colombo, a copy of Dr. Voelcker's lecture on Thursday, April 7th, at the Indian section of the Society of Arts on the Agricultural Needs of India. I also enclosed some remarks of mine upon one of the points raised in reference to the present practice of burning cow-dung cakes or sun-dried *bratties* as they are called.

I pointed out that the practice was no doubt a waste of valuable manure, but being the result of necessity and not of choice the natives could not be blamed, and that the Government should rather endeavour to provide other fuel such as the supply of forest reserves. But after all that in as much as the whole of the mineral salts such as the potash, lime and phosphates remained in the ashes which under proper sanitary arrangements should be restored to he land; the actual loss was confined to the nirogen compounds, which however being resolved on burning ino gaseous products were either absorbed by the growing plant or crops or were brought down again in the rain and to a great extent retained by the soil for subsequent plant food.

As regards the absorption of nitrogen from the air it is important to remember that in round numbers 80 per cent of the atmosphere really consists of nitrogen in a free form. Further recent scientific research has proved that leguminous plants such as vetch, clover, peas, beans, lupines, &c. have the power in a very special degree of absorbing this nitrogen and yielding large crops of valuable food and also by virtue of increased root extension leaving the soil also richer in plant food for the future crop. What leguminous plants therefore can do in a special degree other plants may be able to do in a smaller degree so that we may find by an bye that nitrogen especially in tropical climates is largely supplied to plants and trees by natural means and does not require to be supplied directly by artificial means as we find necessary in our temperate climes. How comes it that India has for centuries produced crops of corn, rice, gram, &c., without practically any nitrogenous manure being supplied, and yet the soil appears no more exhausted now then at the commence ment?

It would be a most interesting experiment if a Ceylon planter would select a good average tea bush just ready for pruning and pick off all the leaves, weigh them at once and then dry them gradually in the sun like grass is made into hay, then again weigh the dried leaves and forward a sample here for analysis.

We should then know the actual weight of the green leaf per acre and with the weight of the dried leaf could make a calculation of the water lost. I believe we should find the quantity of nitrogen very large and much in excess of the supply of the soil itself.

THE KELANI VALLEY TEA ASSOCIATION, LIMITED.

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the Shareholders at their Sixth Annual Ordinary Meeting, to be held at the Offices of the Company, on the 27th April, 1892, at 2-30 p.m.

The Directors beg herewith to submit to the Shareholders the Report and Accounts of the Company for 1891.

The results of the year have been somewhat affected by the low prices of tea obtained, giving for the Company's produce a less average than for previous

year. Still. the Board consider the Profit and Loss Account a satisfactory one, especially in view of the acreage in full bearing being still so small, the production being over 462 lb. to the acre, the large quantity of tea made somewhat compensating for the low prices obtained.

During the past year the Directors have acquired two blocks of native land, referred to in former reports, amounting to 48-acs., 1-rd. 28-ps., of which 30 acres have been cleared and planted with tea.

The Company's acreage now consists of the following:—

	acres.
Under tea in full bearing	123
1887 Clearing	220
1888 ,, ...	217
1889 ,, ...	10
1890 ,, ...	34
1891 ,, ...	30¾
Acreage under tea ...	634¾
Grass	3
Jungle	306¼
In all	943¾

This acreage includes Dover.

The estimate of tea crop for 1891 was 216,700 lb., and the quantity despatched from estate 263,497 lb., showing an excess over estimate of 46,797 lb.

During the year 30¾ acres have been cleared and planted with tea, and the prospects from this addition are very favourable.

It will be seen that a further substantial sum has been expended on our factory and machinery, and for dam, &c. Some further small additions will be required to the machinery in 1892, but practically, our capital expenditure under this head has ceased for the present.

The whole of the last issue of 397 shares, at £1 premium, has been allotted, and the Directors think it a suitable opportunity to commence a Reserve Fund, and propose to appropriate the premiums on these, and on a former allotment of shares to that purpose. The amount of £954 10s is already invested in Consols in the names of the Chairman and Secretary.

The net profits shown in the Company's Profit and Loss Account, including balance brought forward, are £1,688 6 9

which it is proposed to apportion as follows:—

An interim dividend at 2½ per cent paid in Oct. 1891, absorbed	£249 15 0	
It is now proposed to pay a final dividend of 7½ per, free of		
In come Tax (making 10 per cent for the year) absorbing	755 11 0	
And to place to Reserve Fund, as explained above	654 10 0	
		1,659 16 0
Leaving a balance to carry forward of		£28 10 9

BALANCE SHEET AT 31ST DECEMBER 1891.

Dr.

	£ s. d.	£ s. d.
To Capital Authorised :— 2,000 shares of £10 each	20,000 0 0	
,, Capital Issued :— 253 fully paid Vendors' Shares ...	2,530 0 0	
1,350 Shares £5 paid ...	6,750 0 0	
397 do £2 do ...	794 0 0	
		10,074 0 0
,, Debentures Issued to date :— "A" Series ...	4,250 0 0	
"B" do ...	2,500 0 0	
"C" do ...	1,700 0 0	
		8,450 0 0
,, Bills Payable ..		3,750 0 0
,, Sundry Creditors ...		250 6 7
,, Profit and Loss Account— Balance at 31st December 1890 ...	646 0 3	
Less Dividend at 5 per cent ...	464 0 0	
	182 0 3	
Net Profit for year to 31st December 1891, including £397 received for Premim on Shares £1,506 6 6		
Less Interium Dividend at 2½ per cent 249 15 0		
	1,256 11 6	
		1,438 11 9
		£23,962 18 4

Cr.

By	£ s. d.	£ s. d.
Degalessa Estate :— Balance from last Account ...	12,930 6 6	
Cost of Land Purchased	93 18 1	
Expenditure developing new Clearings ...	370 16 10	
	13,395 1 5	
Less proportion of Exchange Account transferred ...	399 1 5	
		12,996 0 0
,, Dover Estate— Purchase Price ...	2,000 0 0	
Cost of ¾-acre adjoining Land purchased	2 3 2	
		2,002 3 2
,, Buildings and Machinery :— Balance from last Account ...	4,345 6 0	
Amount expended during year ...	1,026 8 8	
	5,371 14 8	
Less proportion of Exchange Account transferred ...	51 18 5	
		5,319 16 3
,, Coast Advances ...		755 19 8
,, Produce Shipments— Balance of 1891 Season's Tea realized after 31st December ..		1,235 12 5
,, Sundry Debtors ...		163 8 4
,, Investments ...		654 10 0
,, Cash—On Deposit ...	500 0 0	
At Bankers ...	334 7 11	
In Office ...	1 0 7	
		835 8 6
		£23,962 18 4

ESTATE ACCOUNT, 1ST JANUARY TO 31ST DECEMBER 1891.

To	£ s. d.
Cost of Cultivation and Manufacture of Tea	£6,084 5 8
,, Balance, gross profit, carried down ...	1,992 3 3
	£8,076 8 11
By Net Proceeds of Tea Sold ...	£7,371 11 11
,, Profit on Rice, supplied to Coolies ...	113 2 6
,, Sundry Receipts in Ceylon, Manufacturing Tea for others, &c. ...	530 0 18
,, Difference in Exchange ...	61 13 0
	£8,076 8 11

PROFIT AND LOSS ACCOUNT TO 31ST DECEMBER 1891.

To	£ s. d.
General Chages including London Office Expenses, Directors' Fees, Auditors Fees, Income Tax, Stationery, &c. ...	361 5 3
,, Interest on Debentures ...	451 14 0
,, Interest Account	66 5 6
,, Telegrams	13 12 0
,, Balance, carrried to Balance Sheet ...	1,506 6 6
	£2,389 3 3
By Balance from Estate Account ...	£1,992 3 3
,, Sundry Receipts, premium on Shares ...	397 0 0
	£2,389 3 3

TIMBER, FUEL AND FOREST PRODUCE IN UVA.

From a notice under the Forest Ordinance which has appeared in the *Gazette* showing the rates of royalty on various enumerated timbers in Uva, we should judge that this Province of low and high altitudes and warm and cool climates must grow altogether or very nearly every forest tree indigenous to or naturalized in Ceylon, low country and high. We have :—

At a special rate	1
First class	4
Second class	31
Third class	32
Fourth class	59
Total ..	127

The wood specially rated is ebony; the four placed in the first class at R1 per cubic foot are: halmillilla, nedum, satinwood, and tamarind. Amongst the 31 in the second class at 50 cents per cubic foot, we find doon and hill-doon, hulanhik, jak and kina, na (iron-wood) and palu, sapu, suriya, suriyamara, wa and walburutu. This last is generally known as wild or jungle satinwood. We are somewhat surprised to find this wood and sapu ranked second class. Of the 32 third class timbers at 30 cents, the most notable are damba, del and waverana. There are also domba and dombakina. Amongst the fourth class tress valued at only 15 cents per cubic foot is the very tree which gave its name to the capital of Uva—badulla. In succession we get bombi, bomboo, bo! "Emberella" must, of course, be a corruption of the word "umbrella," itself connected with umbrageous? In this category there is a wal-kina, but who is responsible for spelling the nelli tree "Nelly"? Ravan-gedilla must convey a reminiscence of the mythical arch-demon of Ceylon, represented as a monster of wickedness, and yet for the slaying of whom a god of the Hindu pantheon was subjected to severe penance! Rikattana and Rukattana look as if some tree-namer has been amusing himself. In this list there is a wal-jambu, one of the *eugenias*, of course, but what its affinity to the cultivated jambu may be we do not know. But we do know that but a percentage of the 127 timbers enumerated in the Uva list are used by the native carpenters, who are, like all orientalists, very conservative. In the rates for sawn timber we notice that no "Upcountry woods" are in the first class, and a note to "Upcountry woods" states: "25 per cent extra charged for milla, jak and kumbuk." Our planting readers will be specially interested in the rates charged for shingles, round timber, fuel-wood, charcoal, bambus and mana grass. We quote as follows :—

SHINGLES.

R15 to R20 per 1,000 delivered at the Haputale Depôt.

ROUND TIMBER.

Description.	In the Forest. Badulla. R c.	Haputale R c.
Jungle sticks, 13 ft. by 18 in. cir., per 100... ...	... 15 0	15 0
Jungle rafters, per 100...	.. 12 50	12 50
Jungle wariohchies, per 1,000	... 5 0	5 0
	Delivered at Depot. Badulla. R c.	**Haputale. R c.**
Jungle sticks, 13 ft. by 18 in. cir., per 100... ...	... 50 0	25 0
Jungle rafters, per 100...	... 30 0	20 0
Jungle wariohchies, per 1,000	... 10 0	7 50

FIREWOOD.

Badulla Depôt.

	R c.
Per cubic yard, 1st Class... ...	2 50
Do 2nd Class... ...	2 0

Haputale Depôt.

	R. c.
Per cubic yard, 1st Class... ...	1 50
Do 2nd Class... ...	1 0

Delivered to parties in the forest if felled and removed by them, from 62 cents to 75 cents, according to distance.

SCHEDULE OF RATES OF MINOR FOREST PRODUCE.

Charcol.

	R c.
Delivered at Badulla Depot, per bushel	0 33
Do Haputale Depot, per bushel	0 30
If burnt by parties in the forest under supervision, royalty per bushel ..	0 10
Bamboos and Canes.	
Royalty on canes per 1,000 6 feet in length	5 0
Do rattans per 1,000	4 0
Do bamboo creepers per 1,000 12 feet long	3 0
Illuk and Mana Grass, &c.	
To estates for a permit to cut and remove for 6 months..	2 50
To public departments and private purchasers other than villagers, per 1,000 bundles, 2 feet in circumference	2 0
To villagers for their *bona fide* use ...	Free
Permits to collect Binkohomba, per cwt.	2 0

Bricks and tiles made from materials obtained from Crown forests, at 50 cents per 1,000. All rights to collect gallnuts, birds' nests, &c., to be sold yearly.

What is "Bin-kohomba"? The "birds' nests," for the right of collecting which payment is demanded, are, of course, the glutinous nests of the cave-haunting swiftlets, and which the Chinese prize highly for soup-making purposes, as they do the sea-slugs found along our coasts.

THE EASTERN PRODUCE AND ESTATES COMPANY, LIMITED.

Report to be presented at the fifth Oridinary general meeting, to be held at Winchester House, Old Broad Street, at 12 o'clock noon on the 28th April 1892.

The directors herewith submit report and balance sheet for the year's working, ending December 31st 1891.

The profit for the year, including £4,572 4s 1d, brought forward from the last account, amounts to £26,608 13s 4d, and, after providing for payment of interest on debentures and dividend on the preference shares, there remains a sum of £15,177 15s 10d to be dealt with in terms of the company's articles of association. As the shareholders are aware, provision is there made for the appropriation of profits, after payment of debenture interest and dividend on preference shares :—first for the creation and maintenance of a reserve fund of £10,000 applicable if required for the payment of said interest and dividends; secondly, for the redemption of debentures to the value of £3,000 each year, and thereafter for the payment of a dividend on the ordinary shares, not to exceed the rate of three per cent per annum, until the debentures shall be reduced below £50,000. Any surplus profits after payment of dividend at that rate to be applied in further redemption of debentures.

Having set aside £3,000 as required for payment of debentures out of profits, it is proposed to declare a dividend at the rate of 1½ per cent per annum, free from Income Tax for the year 1891 on the ordinary share capital. There will then remain a balance of 7,690 15s 4d, to be carried forward to next year's accounts.

It will be noted that debenture debt was reduced by £10,010 drawn and paid off in 1891.

As shown in the schedule annexed there are 9,236 acres of the company's property under tea cultivation of which about 6,700 are over four years old. The yield of tea in 1891 amounted to 2,008,000 lb. the average gross price obtained being approximately 9¾d. per lb. The crop for 1892 is estimated at 2,240,000 lb.

The directors have sold three estates during the past year, viz:—Belgodde, Montefiore and Sinnegode Belle Vue, proceeds of sales being carried to the credit of "estates reserve account, realizations and recoveries."

In accordance with the articles of association, two of the directors, viz:—Mr. Norman W. Grieve and Mr. David Reid, retire from office and, being eligible offer themselves for re-election. The retiring auditor, Messrs. Welton Jones & Co., also offer themselves for re-election.

SCHEDULE OF THE COMPANY'S ESTATES TAT 31S DECEMBER, 1891.

Arapolakande	Koladenia	
Asgeria and Maddawella	Kolapatna and Gongalla	
Bulatwatte do	Kumaradola	
Colonna	Labookellie	
Condegalla	Meddecoombra	
Dandukelawa	Norwood	
Doombagastalawa	Rothschild	
Dromoland	Sogamma	
Hope	Vellai Oya	
Ingurugalla and Berrewella	Vevekellie	
Kirrimettia	Woodslee	

	Acres.	Acres.
Under Tea	8,766	
„ (Tea with some remaining coffee) ...	470	
		9,236
„ Coffee		108
„ Cocoa		624
„ Cinchona. cardamoms and sundries...		358
„ Forest grass and uncultivated land...		6,465
Total...		16,791

NOTES ON PRODUCE AND FINANCE.

THE BUDGET AND PRODUCE.—In his speech on the Budget, Mr. Goschen made the following reference to tea, coffee, and cocoa:—"Tea has been extremely satisfactory. The receipts from tea were £3,434,000, against an estimate of £3,400,000, and against the receipts last year of £3,412,000. I must say that the result is more satisfactory than it appears, because a considerable amount of duty was paid at the beginning of the last financial year, the tea having been held back in expectation of a reduction in duty. That amount can be pretty well calculated, and the real increase on tea is £150,000, representing an increase of 4½ per cent. Of that 2 per cent. will be due to the increase in population and the fact of there being extra days in the year; but the remaining 2½ per cent. is a *bonâ fide* increase in consumption. The Coffee Group produces £331,000, or £2,000 less than the estimates. But where coffee shows a slight decrease cocoa shows a slight increase."

MINCING LANE AND ITS MERCHANTS.—In the *Daily Graphic* of Tuesday there is a sketch of the Indian tea sale room in Mincing Lane during the progress of a sale. Underneath the sketch which is referred to as "A Pulse of the Nation's Prosperity—The Headquarters of the Tea Trade of the London Commercial Sale Room, Mincing Lane," there is a quotation from Mr. Goschen's remarks about the increased consumption of tea in his Budget speech. Under the heading "The Cup That Cheers," our contemporary says:—"On June 1st. 1811, the narrow little throughfare known as Mincing Lane was in a state of considerable excitement, for the Lord Mayor was coming in state to lay the foundation of the London Commercial Sale Rooms, accompanied by the 'band of the Honourable East India Company.' The ceremony was duly performed, and as the official report states, the Lord Mayor, 'having received a bottle of rum as a British colonial production broke the same upon the stone, and afterwards a bottle of wine, the produce of Portugal, the brave and faithful ally of Great Britain, and pronounced the name of the institution to be the 'London Commercial Sale Rooms.' Such exertions necessitated refreshments, and the party forthwith proceeded to an 'elegant cold collation,' where his lordship, in a burst of eloquence, said 'the tyrant of Europe cast unceasingly an envious eye upon this happy island, and longed, but would long in vain, for her ships, her colonies, and her commerce.' Launched under such august auspices it might have been hoped that a grateful Mincing Lane would desert its coffee-houses and other miscellaneous places of business, and crowd the 'subscription room,' the numerous sale rooms, and the reading room. But merchants and brokers of those, as of the present days, were conservative in their habits, and for many years the London Commercial Sale Rooms were called, after their chief promoter, 'Martin's Folly,' and the shares dwindled in price from par to £17 per cent. As trade developed, and new articles were included in the comprehensive lists of Mincing Lane, the advantages of the rooms were, however, gradually recognised, and today there are 1.500 subscribers to the institution, which is so much too small for their requirements that it is to be pulled down, and a more commodious building erected. Like many other great ideas, the Commercial Sale Rooms were started before their time; but time has amply justified the enterprise of Mr. Martin, who, by the way was one of the founders of the firm of Hollams, Son and Coward, the well-known commercial solicitors. Mincing Lane as a thoroughfare is certainly insignificant and uninteresting, but Mincing Lane, in regard to the commercial interests located within its dingy offices, or the vast 'warrens' which front upon it, is one of the most important centres of commercial London. Here are located, for instance, the great sugar merchants and brokers, and a trade of vast extent is transacted in this article alone—not as formerly in sugar mostly of colonial growth, but now principally in beetroot and the crystallised goods heavily subsidised by foreign governments for the benefit of British consumers. Even more important, perhaps, than the sugar is the tea trade, an essentially British, nay, an almost exclusively London industry. This business is divided into the Indian and Ceylon and the China trades, and these have each their separate dealers and sale rooms."

TEA-PLANTING AND PHILANTHROPY.—In the current number of *Scribner* there is an article on the "Social Awakening of London," in which reference is made to the work done in the East-and by P. R. Buchanan. The writer says:—"The University Club has the constant support of Mr. Buchanan, who lives in B thnal Green with his family for the sake of entering into an intimate, helpful relation with working people." Of the teetotum clubs founded by Mr. Buchanan the writer says:—"These unique institutions are the creation of Mr. Buchanan. They combine the features of a coffee-house supplying a variety of good food and non-alcoholic drinks with those of a club having numerous facilities for improvement and recreation. Mr. Buchanan illustrates" says the writer, "the new type of man now coming forward in England, who with intelligence, means, and energy shall devote himself and his possessions to working out plans for widening the circuit of life for the toiling majority of his fellow-countrymen"

CEYLON TEA IN AMERICA.—Mr. S. Elwood May, President of the Ceylon Planters' Tea Company of New York, arrived in London a few days since, and is now staying temporarily at the Hotel Victoria. The Ceylon Planters' Tea Company of New York was established for the purpose of introducing and promoting the sale, in the United States and Canada, of pure Ceylon tea; and Mr. Elwood May's visit to this country has been undertaken chiefly with the object of furthering the operations of the company by consulation in the first place with the members of the Ceylon Association in London.

LAST WEEK TEA MARKET.—Discussing last week's tea market, the *Produce Markets' Review* says:—"Indian tea has been more freely offered, including a fairly good assortment of medium and fine grades. These have been actively dealt in at firm

to advancing prices, the market again closing strong with a tendency to a further upward movement. The pliberal supplies of Ceylon tea now coming forward, which were expected to check the advance in Indian growths, have so far had no effect, and it appears probable, with a further curtailment of good Indian grades, which is almost certain to take place later on, the rise established will be increased. For the common descriptions the demand has slightly improved, but the quantity placed on the market has been amply sufficient to meet the enquiry, and consequently prices have been barely maintained. The deliveries for the past month were unusually large, as will be seen by the figures below, but, owing to larger imports, the surplus stock has not been materially reduced, and is still about 6,000,000 lb. in excess of the preceding year, although only about 3,000,000 lb. larger than in 1890. The demand for Indian tea for other markets is steadily increasing, but the rate of progress is not sufficient to relieve this market of the additional supplies promised in the coming ensuing seasons. It is understood, however, that greater efforts will be made to produce tea that will more effectively meet the requirements of an export demand. There are two important things to be considered, especially for the development of the export demand from America and Canada, namely, the size of the leaf and of the packages. The former should correspond as nearly as possible with the leaf of China Congou, and a good proportion of the tea should be packed in half-chests, containing about sixty pounds. There is little change of any kind in the position of Ceylon teas. A fair quantity has been offered, but the indifference of the dealers to go further into stock has been about balanced by the apparent willingness of brokers to buy over, and consequently there is no quotable charge on values. The quality of the teas has been fairly maintained, as the present standard now goes, but it is seldom, if ever, possible to match the thick juicy teas which were the rule rather than the exception two seasons ago. The imports for the month were only 710,026 lb. in excess of last year's, but the stock still stands at a rather high figure, namely, 16,686,854 lb., as against 11,779,720 lb. on March 31, 1891 The exports from Colombo, according to the latest advices, dated March 7, were 11,226,061 lb., or nearly 1,000,000 lb. in excess of last year."

ANOTHER COFFEE SUBSTITUTE.—According to a German paper the fruit of the wax palm (*Corypha cerifera, L.*) is being used in Brazil as a coffee substitute. The fruit of this tree is of a stony consistency, which, however, disappears during the roasting process to which it is subjected for the purpose of manufacturing it into "coffee." The following figures show the constitution of the Brazilian fruit before and after roasting :—

	Crude fruit. per cent.		Roasted fruit. per cent.
Water ...	9·37	..	3·76
Albuminoids ...	5·82	..	6 14
Fat ...	10 57	...	14 06
Sugar and dextrine	1·67	...	1·25
Starch ...	2·47	...	5·46
Other non-nitrogenous extract substances	23·01	...	27·79
Woody fibre ...	44·31	...	38·45
Ash ...	2·06	...	2 24
Substances soluble in water ...	12 17	...	13·50

—*H. and C. Mail*, April 15.

INDIAN TEA AND THE CHICAGO EXHIBITION.—We learn that the subscriptions to the proposed Tea Fund in support of the above, and other opportunities for pushing Indian tea, are coming in satisfactorily, although somewhat slowly. It is hoped that the response to the circular we published last week will be general, as it is only in that way that the effort can be successful. The Government of India, we believe, are prepared to follow the example of the Ceylon Government, and subsidize the planters' efforts. The appointment of a special commissioner direct from Calcutta, approved of by the Government of India, who would take charge of the arrangements, would be generally welcomed. The sooner this is done the better, as we understand that Mr. Grinlinton, the commissioner deputed by the Ceylon people and their Government, has already reached London *en route* to Chicago.

THE SILVER QUESTION.—It was very unlikely that Sir Frank Adam's views on the silver question, as expressed at the recent meeting of the East India Association, would meet with general approval in India. We notice that the *Bombay Gazette* invites those who believe that the finances and the export and import trade of India may with advantage be left dependent upon "the whims and intrigues of Washington politicians" to take into account the contingency of the United States suspending their purchases of silver, and remarks that the complacency with which Sir Frank Adam declares that the loss due to the decline in exchange is temporary, falls only on individuals, and is actually very small, is worthy rather of the doctrinaire than "practical man of business." The serious fall in the gold price of silver has gone too far to please even those who at one time believed that the low price of silver was a splendid stumulus to trade, although planters have very little fault to find with the position. From Bengal we learn that it is difficult to remember when the exchange question so considerably engrossed attention as it has done of late. Any rapid drop unrelieved by a partial recovery has always tended to disorganise trade in every direction, and this is the more marked now when each disappearing thirty-second means a larger percentage than when we were higher up in the scale. The effect of the fall in silver, and the constant and violent fluctuations in price upon the Eastern banks is shown very clearly in the statement made by the chairman of the Chartered Mercantile Bank of India London, and China, at the meeting on Tuesday. The credit balance is only £18,279, or rather under 2½ per cent. upon the capital. The directors have decided to carry this amount forward to the next half-year—a prudent course. As it is not put to reserve, it is still available for dividend at any future time. The shrinkage in the bank's business is shown by the fact that the cash and bullion amounts to £2,100,000, and securities freely convertible into cash are put at about another million. If, as the chairman said, trade were good, and credit generally established, the bulk of that money would be in circulation and making profit for the bank.

NO CAUSE FOR COMPLAINT.—But it is an ill wind that blows no one any good. Planters, as a rule, have no objection to the low price of silver. Speaking at the annual meeting of the Standard Tea Company of Ceylon, reported in another column, the chairman, Mr. Alex. Brooke, said:—"Exchange is favourable to planters, and seems likely to continue so for awhile—at least, if there be no Government tinkering with silver." Thus, what is a matter of general distress to many members of the Eastern communities is a boon to employers of labour, who pay in silver and realise in sterling on this side.

LAST WEEK'S TEA SALES.—Of last week's tea sales the *Grocer* says:—The only public sales of Indian tea held this week were on Monday last, when, preparatory to the market closing for the Easter holidays, no less than 13,580 packages were offered, which met a reception similar to that accorded these descriptions of teas for many weeks past, that is to say, while the small proportion of what may be called fine qualities with strength were readily taken at firm rates, the remainder, consisting of poorer and commoner sorts found a dragging demand at cheap and here and there at ¼d. to ½d. per lb. lower prices. Calcutta advices, dated March 23rd, inform us that "the tea season is now over, and the market closed." In London the only arrivals this week have been the "Pindari," with 24,900 lb., and the "Coromandel," with 65,340 lb. Nearly 14 000 packages of Ceylon tea have been offered, and the market still retains a quiet tone. There has been little disposition to carry stock over the holidays, which has tended to depress prices. Sales have been on a liberal scale since Christmas, and the trade will be heartily glad of a short interval of rest.—*H. and C. Mail*, April 22nd.

TEA GROWING IN ENGLAND.

"J. R." writes from London to a local contemporary:—

I have lately been selling tea plants raised in this country from imported seed. When I first saw those tea plants, I was much struck with their fine and healthy appearance. They have been so carefully reared by Mr. Secton and gradually hardened at his nurseries at Roehampton that I can quite believe what one man told me—that he had been trying experiments with the single specimen which he has, and had often put in outside his window in town on some of the coldest days last winter and it *would not kill*. It certainly looked very far from being killed, or of having anything the matter with it when he shewed it to me. The tops of three of the plants were cut off last August, and put into a pot and forced, and the result, which was shewn to me in February, was a splendid show of leaf, and a really beautiful lot of blossom. I heard of a tea bush some years old at Kew; so went down there. I was disappointed to find it had been allowed to grow almost wild, the result being a weeping-willow-sort of tree some six or seven feet high, giving an entirely erroneous impression of a tea bush in bearing, there being not a sign of flush on it. The British public naturally conclude, as indeed the man at Kew thought who showed it to me, that tea is made from the ordinary leaf with which the tree is covered. I wrote the directors of the Royal Gardens offering to go down and to prune this tree, and said that, if they would put it into a hotter house, I was certain I could make some tea from it very soon. I had a courteous reply from your old friend, Mr. Morris, the assistant director, but he said they were afraid to risk any experiments with their tea tree, as it was the only one they had.

Having once got the idea of making some tea in this country from English-grown leaf, I went out to Mr. Secton's nurseries at Roehampton again, and made a selection of some of the plants for special treatment. I have not had much of a flush yet, but from young "bangy" leaf and some tips have produced an article which has been reported on not unfavourably by tea experts. It is not easy to manipulate such a very small quantity, and such leaf as I have yet been able to pluck will scarcely roll properly or ferment. My samples passed muster, however, amongst a lot of six or eight, and I hope very soon to produce a sample which I shall not be afraid to put along with anything you are sending home just now, and I am very sure your "tuppenny" will not be in it! I am curious to know if anyone else has ever tried tea-making in this country from tea grown here; perhaps some of your readers can give me information as to this. It would not, of course, pay to grow tea in this country, and it can never be produced here at 2d a pound. My first pound will have cost quite a fabulous sum, and I doubt if it would pay to sell it at even the fancy price put on the pound or two of tips which made such a noise last year; still, the first pound of tea made in this country from leaf grown in England, say in London, would not be without its own value, and would certainly be of interest to many.

As I pointed out in a letter to the *St. James's Gazette* lately, referring to an article on Indian and Ceylon *vs.* China teas which had appeared in that journal, it is a curious fact that, in 1880, when I opened a 100 acre clearing for tea in the Kelani Valley, and advertised for plants, I could not get any at any price, and had to put out seed at stake, while this year I am advertising tea plants for sale in London, and many grocers and tea-dealers have those plants now growing in their shop-windows all over the country. They make a popular and attractive advertisement in the window or on the counter, and there is evidently an increasing demand for them, as I have had applications for dozens, for hundreds, and even for a thousand of them at a time, and for seedlings and seed by the thousand. If this sort of things goes on, I suppose, we shall soon be able to buy Ceylon tea at a penny a pound as good as we pay a penny an ounce for now. Who would not with such prospects, be a tea planter! All the same I would say: make hay while the sun shines, and keep your name up for quality. Do not try to compete in cheapness or in low prices, and give up sending home "tuppenny teas."

STANDARD TEA COMPANY OF CEYLON LIMITED.

The first annual meeting of this company was held at the offices, 25, Fenchurch Street, on April 12. The directors present were:—Mr. Alex. Brooke in the chair, Mr. Peter Moir, and Mr. Robert Kay Shuttleworth. The shareholders present included the following names well known in Ceylon:—Messrs. Thomas S. Grigson, Norman W. Grieve George Johnston, and J. L. Anstruther.

After the usual formalities, the Chairman said that the report was pretty well confined and had reference almost entirely to the working of the one estate—St. Leonard's, the company's first purchase; that the shareholders were aware that, in addition they now owned the Eskdale and Liddesdale estates of some 1,065 acres in the same district Udapusilawa, and within such a distance as to be workable together; but that these were only taken over as from January 1st, 1892; and the report and accounts dealt with the company's existence to December 31st 1891. The results to that date compared favourably with the promises in the prospectus. The quantities of coffee, cinchona and tea accounted for to the company, in each case well exceeded the estimates of the prospectus. The general result of the crop 1891 had been a net profit of £1,670 7s 9d. The company bought the St. Leonard's estate as from March 1st, 1891. It was one of the conditions of purchase that they had the benefit of the crop from that date; but, as they were not in a condition to pay for the place immediately, they had to pay interest, which, at 5 per cent., amounted to £345 17s 8d. Out of the balance the directors proposed that a dividend should be paid for the four and a-half months of 1891 at the rate of 10 per cent. per annum on the first issue of shares, absorbing £658 13s 11d., and that the balance, after paying some small sum to them, the directors, towards expenses and trouble in forming the company, should be carried forward—say something over £600; for it was early days for the company yet and the bulk of the income for 1891 was from coffee, now a somewhat speculative source of income, even in the most favoured districts. The company's tea is still young, and in these high districts it takes longer to come into maturity than in the low countries. The two new estates, Eskdale and Liddesdale, give great promise for tea, both in quantity and quality. At present the leaf is cured on neighbouring estates; but a good factory is being built on St. Leonard's, designed when completed to manufacture as much leaf as is likely to be required. Exchange is favourable for planters at present, and seems likely so to continue, for awhile, at all events, if there be no Government tinkering with silver. The Americans, by legislating to raise the price, so succeeded for a season as to stimulate production to an excess. The inevitable reaction and fall in price followed, until we now see silver lower than we have ever before seen it, viz.: bar silver, London standard, below 39½d per oz. Had they left the article to find its own level, its price ere now probably would have been almost satisfactory to those whose meddling brought about what they now so much deplore; but the rise in price would have been gradual, and much loss saved to many, including a large, hardworking, deserving body—the planters of Ceylon and India. Let us hope that silver will now be left to natural causes, for the planters have natural troubles enough of their own. For the moment, at all events, exchange or silver (for here they are almost synonymous) is in favour of the company, cheapening outlay on the estates, and reducing the cost of factory and coolie lines.

Coolies (our labourers) have to be considered. Good "lines" on Eskdale were nearly complete by last advices. The directors believe in treating coolies well, and that if there be a pressure for labour those estates situated, as the company's are, in a healthy district, and furnished with comfortable "lines," will be greatly advantaged through having the preference before others among coolies. Prices for fine teas, like those from the company's properties, keep up very well, and are about as high as they were a year ago, though the average price of Ceylon tea has fallen. Coffee on St. Leonard's promises to be again a fair crop. It has been estimated at 3,000 bushels for 1892 by Mr. Edward Grigson, who at that figure much under-estimated it last year. There were excessive rains that must have caused some loss in January and February. On Liddesdale, in January, the total fall was 45¾ inches in 25 days, against an average of about 70 for the year. We have had no crop figures since; but if there was the same margin on the estimate this year as last year, some coffee may be lost and yet leave a fair crop. Tea from Eskdale also promises exceptionally well; and the general prospects for the year current seemed bright and promising.

Questions were asked about the accounts, and remarks made by Messrs. Johnston, Anstruther, Wilson, and others. When these were answered, the report was adopted. A dividend at the rate of 10 per cent per annum was voted for the four and a half months of 1891, and £50 for division among the directors for past work. Mr. Grieve and Mr. Brooke were respectively elected and re-elected directors, Mr. F. G. M. Grove, A. C. A., auditor.

Mr. Grieve, in returning thanks, said that he had the highest opinion of the estates, of their capabilities, and of their prospects, and that he had backed his opinions in the large amount of shares he held. He added that the chairman had remarked on fine teas keeping up in price, though the average price had fallen. He(Mr. Grieve, might add in confirmation that he had, since he entered the room, a memorandum of prices put into his hands showing that his Eskdale teas were selling that week at 1d per lb. advance in each grade over the prices of the corresponding date last year.

A vote of thanks to the chairman concluded the proceedings.—*H. and C. Mail*, April 22nd.

THE INFLUENCE OF FORESTS ON WATER-SUPPLY.

Does cultivation and protection of forests cause an increase in rainfall? The reply of Mr. Henry Gannett, as published in *Science*, does not tend to confirm the generally admitted opinion on this question; whilst the statistics collected by this scientist have the more value, in that they refer to extended tracts in which the conditions of the country and the climate, both before and after changes in cultural treatment, are perfectly well known.

His observations extend over—

I.—An area of prairie lands in the State of Iowa in the north of Missouri, in the South of Minnesota, Illinois, and partly in Indiana. This area, measuring about 163,000 square miles, was formerly entirely covered with grass, but during the last 30 years large portions of it have been afforested.

II.—The State of Ohio, with an area of about 58,000 square miles, formerly entirely covered with forests of which at the present not one-tenth exists.

III.—An area of about 18,400 square miles situated in Massachussetts, Rhode Island, and Connecticut, which was densely wooded before its colonisation by Europeans. After the almost total destruction of these forests, about one-half of the area has, since 1860, been re-afforested.

If the removal of forests produces a decrease, and afforestation an increase, in the rainfall, the result of observations extending over a long series of years should show in the first instance an increase in the rainfall, in the second a decrease, and in the third a decrease up to 1860, and an increase after that date.

But the statistics collected by Mr. Gannett show that in these prairie lands an increase in the area under forest has not only not been followed by an increase in rainfall, but by an appreciable decrease. In the second instance, that of Ohio, a decrease in rainfall has indeed been proved, but this decrease is so insignificant that it cannot be seriously advanced as a conclusive proof of the unfavorable effect of disafforestation. The results of statistics collected in the third instance, that of Massachusetts, also do not tend to confirm in any way the generally accepted theory, for up to 1860 it is shown that there was an evident increase in the rainfall over this area, reaching a maximum of 28 inches annually.

Mr Gannett also investigated the question as whether the cultivation of land denuded of forest growth resulted in influencing the rainfall; but the result of these investigations proved that no increase or decrease had occurred.

In writing generally on the causes of atmospheric phenomena, we have replied to the often put question which forms the title of this article long before Mr. Gannett wrote on the subject. In this periodical some six years ago we said "that forests do not produce rain, but that they play the important part of storing it up."

As far as concerns Algeria, we have arranged the observations registered at various meteorological stations in the provinces of Oran and Constantine, and these observations, extending over a period of 25 years, refer to large areas covered with forest adjacent to others, which are entirely free from forest growth; and whilst the areas are not to be compared with those reported on by Mr. Gannett, yet the results of the observations are very conclusive.

The region where the rainfall observations have most interest for the forester is bounded on the north, between Bulgaria and Lalalle, by the Mediterranean, on the east and west by the valleys of Summam and Sezbouse, and on the south by the high plateaux forming the water-shed between the sea and the desert of Sahara. This tract is in area about 47,000 square miles; and though no regular re-afforestation works are being carried out, yet the closure of large extents of forest and pasture land against the destructive action of the natives may almost be regarded as having a similar effect.

In spite, however, of these protective measures, many thousands of acres have from 1850 to 1875 been burnt over, and it is especially in these burnt areas, when compared with others successfully protected, that the rainfall statistics have the greatest significance.

These statistics show the following results:—

I.—That nearly the same amount of rain fell annually before and after removal of forest growth, and before and after re-afforestation.

II.—That totally different effects are produced by the annual rainfall before and after removal of forest growth, and before and after re afforestation.

During the summer following the removal of forest growth, the spring level begins to fall, and the following year most of the springs dry up.

In consequence of the water-courses cease to be permanent and become intermittent, being transformed, during actual rainfall, into impetuous torrents, which cease to flow during dry weather.

The valley of Oued-Guebli to the north of the province of Constantine furnishes a remarkable instance of this.

This immense valley is divided into two portions by the river of the same name, and the western side includes the densest forests of this region, whilst the eastern is almost entirely denuded.

During eight years of topographical research in these mountains, we have invariably remarked that during the winter, when heavy rain falls persistently, often for weeks at a time, the floods in the water courses from the Western or wooded side rise slowly, and rarely overflow the banks, and even after tropical rain storms, which are frequent, the water remains clear.

On the eastern or denuded side, however, this is not the case. Scarcely has the rain commenced when each small ravine becomes a torrent, which rolls

down gravel, boulders, and rocks, and overwhelms the neighbouring fields: whilst the muddy water passes rapidly on, arrested by no vegetation, conferring no benefit on the country it traverses,—to leave behind, on the cessation of rain, nothing but dry and rocky ravines.

There is, however, no need to expatiate on the disastrous action of rain in mountains and unwooded countries, it being too well-known.

At the same time, well-informed people have frequently an exaggerated idea of the value of mountain forests, attributing to them other virtues than those which they possess. The virtues they do possess are the power of storing up the rainfall, and thereby regulating the flow of water-courses and springs, and they are entitled to respect.

Our rainfall observations are extremely interesting in reference to forests which have been destroyed by fire: in such forests the annual rainfall remaining unchanged the springs dry up and the water-courses become dry ravines.

We need not be content with contemporaneous evidence; we can also bring valuable witness from the past to the truth of our assertions. About 10 miles to the west of the road from Constantine to Batna there is a horse-shoe shaped mountain range, with its convex towards the east. This range is named Djebel Anouda by the natives of the country. The inner slopes of this horseshoe were formerly thickly wooded, a fact proved by the presence of stumps of oak trees. These stumps, deeply charred and rooted in soil thoroughly baked by the fire which destroyed the trees themselves have hitherto resisted the decomposing effects of time. An enumeration of the stumps shows a former growth of about 60 large trees per acre, and in the centre of this magnificent forest there are the remains, in hewn stone, of a gigantic tank, and issuing therefrom a broad aqueduct, traceable in its ruins for several miles. Today the soil of Djebel Anouda is one of the most arid in Algeria; in former days a strong spring existed, its water-supply stored and protected by a sturdy forest growth.

In concluding this short paper, we would like to add that, though the extent of the areas under our notice cannot compare with those observed by Mr. Gannett, on the other hand our rainfall stations are much closer to each other than those under Mr. Gannett's registration. Of 44 such stations erected by the Government of Algeria, the four which encloses the tract of Oued-Guebli have been most useful to us. It is this tract of country that the observations above recorded refer to, and these observations lead us to the conclusion that "the salutary influence of forests in storing atmospheric humidity is irrefutable; but to enable them to store this humidity, the atmosphere must first contain it.—L. PARQUET in *Revue des Eaux Forêts.*

DUNG *V.* ARTIFICIAL MANURE.

High-fed manure is more nutritious to the soil than the produce of plain-feeding, but it is questionable whether its extra richness could not be supplied more economically in the form of commercial fertilisers. This is where and how the merits of home-made and artificial manures have come so closely into competition, and what has in many instances led to an extensive substitution of the one for the other. It has to some extent been found that the three main elements—nitrogen, potash, and phosphoric acid—extracted by crops, recond. at recent market value, be returned to the soil more profitably in the shape of special than general manures. That may be, from such a cause as we have just referred to, but is not the advantage of applying artificial fertilisers, instead of well-rotted dung, more apparent than real?

We repeat that rather more than three times as much nitrogen as phosphoric acid is removed from the soil by crops. Farmyard dung returns these elements in similar proportions, but, of course, it would be a mistake to suppose that dung supplies nitrogen to any crop at the rate of 12 lb. per ton, or anything approaching that quantity. Its duration as a manure extends over four or five crops, but the close resemblance which its chemical composition bears to that of ordinary crops as regards manurial ingredients points it out as a peculiarly suitable manure for the pupose of maintaining the fertility of regularly cropped soil, while it furnishes much of the material necessary for the promotion of nitrification.

In duration, farmyard manure is excelled only by lime and borax, and this we regard is a very decided point in our favour. We accept the theory that fertility is due to organic residue of previous generations of plants mixed with certain mineral substances of which phosphoric acid and potash are the principal. Organic residue of previous generations of plants is simply another name for farmyard dung. The excrement of cattle, horses, and sheep is nothing more nor less than the indirect residue of plants grown on the farm; and if it is properly managed during the period of fermentation, farmyard manure germinates what for want of a better term, may be called the very essence of fertility.—*Farmer and Stock-Breeder.*

MR. L. WRAY reports on "gutta rambong" that it is the rubber from the *Ficus Elasticus.* It is a large, many stemmed-tree, like the banian tree. It is extensively cultivated in Assam. It may be grown from seeds or cuttings. The plants are planted on maunds 3 or 4 feet high, in 40 feet wide cleared lines, through the jungle: the lines being 100 feet apart (the jungle being left standing between them), and the trees placed 25 feet apart along the lines. Beyond once or twice a year clearing the undergrowth round the young trees nothing more requires to be done till the trees are old enough to tap. I do not know how long it is before they begin to yield rubber. There are a few trees near Ipoh, which I think ought to be preserved, as from them seed could be obtained. There are also a few trees in Upper Perak and the Plus. The rubber fetches about $100 per pikul. From information which has been communicated to the Superintendent of Lower Perak, it appears that both in Langkat and Deli, Sumatra, the natives are successfully opening rambong plantations. The price of young plants is said to be $1 for a seedling one foot high, and $2 if two feet or more in height.—*Singapore Free Press.*

MALTESE BLOOD ORANGE.—H. E. Van Deman, pomologist of the department of agriculture at Washington, expresses the following opinion of this orange in the Horticultural Art Journal: "This is one of this choicest and most highly flavored of all the varieties of the orange. It is true that the flavor is not so mild and sweet as some, but in delicate aroma and sprightliness it is scarcely excelled or equalled by any. In size, it is about medium, and in shape it is slightly oval. The peel is not thin as that of some varieties, but the core is unusually small and seeds are quite rare. The name 'Blood' is attached because of the unusual characteristic red color of the pulp. This, however, varies greatly in different climates; as for instance, in California it is much more inclined to show the red than Florida and the Gulf coast where, in fact, it sometimes occurs that well developed specimens have no red color at all, or but the slightest trace. The skin is also thicker in California, and the flavor is more acid than the same variety grown east of the Mississippi river. In the Mediterranean regions, the flesh is almost as red as that of the beet, the skin is quite thick and the flavor tart. As its name indicates, this orange is a native, so far back as history goes, of the Island of Malta, in the Mediterranean sea. It has been known there for many centuries, but not before the Christian era, as the Roman writers make no mention of this or any other variety of the orange at that time."—*Rural Californian.*

NOTES FROM OUR LONDON LETTER.

LONDON, April 22.

THE CEYLON TEA PLANTATIONS COMPANY,

we hear that its report has this week been circulated among its shareholders, but no details have yet been allowed to transpire as to the amount of the dividend it recommends. All that has reached me as yet with respect to it is that it contains a suggestion that the Company's chief manager in Ceylon, Mr. G. A. Talbot, who is now in England on leave, shall, during the continuance of that leave, act as as director of the undertaking in place of Mr. Henry Tod. Mr. Reid's death is of course too recent to have enabled arrangements for filling up his place on the same board of directors to have been discussed. Just as my writing had thus far proceeded it became possible for me to learn some of the leading particulars of the report just referred to. It states that the net amount at credit of profit and loss account, including balance brought forward at 31st December 1890, and after providing for general expenses, directors' fees, income tax, &c., was £31,439 3s. 9d. The interim dividend of 7 per cent on the ordinary shares paid 27th October 1891 absorbed £10,254 6s. 0d. It is now proposed to pay a final dividend of 8 per cent on the ordinary shares (making 15 per cent in all, free of income tax) which will absorb a further sum of £11,727 4s. 0d. A dividend on the 7 per cent preference shares was paid on the 30th June 1891, requiring £1 018 3s. 11d. and another similar one paid on the 31st December 1891 took £1,732 13s 2d The directors propose to add to the reserve fund out of last year's profits £5,493 8s 0d and to carry forward to next year the balance remaining of those amounting to £1,213 8s 2d. The gross average price realized for the company's teas sold in London during last year was 9¼d per lb. this being 1¾d per lb. less than was obtained during the year previous. The report states, however, that the cost of production was one farthing per lb. less than in 1890, so reducing the net difference to 1½d per lb. This is, however, heavy enough to show how seriously the selling price of tea has been reduced upon the London market, for we believe few groups of estates in Ceylon have sent home teas of more level or better quality than that marked by the Ceylon Plantations Company. Certainly it is a feather in the cap of this large undertaking that in spite of the reduction in price obtained it has yet been able to maintain so satisfactory a dividend as 15 per cent during the past year. All the shareholders are greatly to be congratulated on this result, one which the publication of cannot, but influence opinion as to the remunerativeness of your leading industry. We also strongly feel that, taking that view alone, it must be most satisfactory to the general public in Ceylon that there is now no chance of the Company's continued success being endangered by the undertaking of any enterprize outside of the colony, such as it was proposed to enter in the Straits Settlements. There may as well be added to the particulars above given of this report that the tea received was plucked from 5,090 acres, and that the average yield per acre over this area was 414 lb. per acre. It announces also that all the Company's properties are in excellent condition, and that the factory accommodation and machinery, which were scarcely equal to the requirements of the past year, are now being increased to meet the largely-expanded business of the Company. It is regrettable to observe that this report is signed by the Chairman, the late Mr. David Reid. Enclosed with it was a circular intimating the death of that gentleman at his residence, Thomanean, Kinross-shire, on the 13th inst. I have been obliged to deal with this report in a somewhat unconnected fashion, no copy of it having reached me, and having had to obtain my information respecting it from several different sources, time not having permitted of my amalgamating their intelligence into a more connected form.

GOVERNMENT QUININE.

Under this heading the *Rangoon Times* publishes some interesting remarks anent the Government of India declining to sell sulphate of its own manufacture to anyone beside Government officers. It assumes, among other reasons, that this may be due to Government not wishing to interfere with private trade, in which assumption it is undoubtedly right. Our contemporary proceeds:—"Private vendors of quinine sell it at very high rates, far beyond the reach of very many, and often their article is of inferior quality and greatly adulterated. In the East, where quinine in most places is an absolute necessity to guard against the insidious attacks of the deadly fevers peculiar to the topics, everyone should be able to get it, and in as pure a state as possible, and no one can for a moment maintain that the Government is competing with private enterprise if it offers an article in the interests of the health and the lives of its subjects, of a purer quality than the article obtainable in the market, and at a rate far below that charged by private vendors. In fact, such a proceeding on the part of Government will have the effect of making private vendors more careful of what they offer the public, and will really give a stimulus to private trade." We concur in the suggestion conveyed in this remark, and would add that there is no reason apparent why Government should not supply local traders with its own manufacture and thus give an impetus to an important industry both in Northern and Southern India.

Dealing with this subject so far as it affects Burma, the *Rangoon Times* continues: "In Burma, which is preeminently a feverish province, it would be a boon to many engaged in private enterprise in the country to be able to purchase quinine from Government. There are many Europeans, and thousands of Burmans and others, working in the forests for private individuals and firms; large numbers are also employed in exploiting minerals and oil, and many are engaged by private contractors on railway construction and road-making for the Government. The majority of these undertakings is in the most sickly parts of the province, and much inconvenience, and loss is often experienced from the Europeans and the labourers engaged in them falling sick and having to go away from ill health. At the high rate at which private vendors sell their quinine, it would be ruinous to supply everyone who required it with the article and in many cases even it is procurable only in very small quantities. If those engaged in private enterprise were allowed to purchase the Government quinine at the rates at which it is sold to Government officers, a great deal of the sickness which prevails among those engaged on works of public utility and private enterprise in Burma would be avoided, and the province itself would be greatly benefited. It is possible that private individuals can obtain Government quinine by getting it through Government officers, if they are able to show just and sufficient cause why they should be supplied, but such a course is undesirable, on account of the circumlocution which has to be observed, and for several other reasons. We assure the Government of India, that it will be conferring a boon on the people who are intrusted to its care, by making the sale of Government quinine free to everyone, official and non-official alike, at the rates at which it is now sold to Government officers." These arguments are forcible, and will, we trust, receive attention from the Government of India, whose present arrangements for supplying quinine might

easily be improved. We believe we are correct when we state that in Madras planters and private individuals are at liberty to purchase quinine in certain quantities from the Neddiwattum Factory.—*Madras Times*, May 4th.

QUININE AND JAVA CINCHONA.

We publish on page 922 full statistics of the estimated crop of Java cinchona for 1892. The figures have been collected by the Soekaboemi Agricultural Association, that energetic organisation of Java planters to whose efforts on behalf of the cinchona industry we have often had occasion to refer. This is the fourth year of publication of the Association's estimates, which have fairly stood the test of accuracy, although the actual output has always been rather in excess of the forecast. On this occasion, we are told, special pains have been taken to render the figures as correct as possible, and the Association's efforts have been more generally seconded by individual planters than in any previous season. The statistics show that of the 115 plantations known to exist in the island two have been abandoned since last year, while on three others all the trees have been uprooted. These three plantations only produced an aggregate of 1 0,000 lb, of bark, or less than 3 per cent of the total production—a fact which disposes of the assertion that there has been a general uprooting of trees in consequence of the low prices which have ruled. Moreover, nearly all the uprooted cinchona averaged only 3 to 3½ per cent of quinine sulphate, a yield admittedly too low to hold out any prospect of successful competition in the future. On the other hand, twenty-six plantations have either not yet come into bearing at all or only yield insignificant quantities, while six others, though still in existence and ready to ship bark under more favourable circumstances, did not harvest any last season. These figures indicate that there is plenty of reserve stock in the island to fall back upon when the market improves. Another important feature of the return is that the quinine value of the bark on almost all the large estates is increasing. The manufacturing bark from Java, which averaged about 3½ cent not long ago, will next season represent an average value of nearly 5 per cent in sulphate of quinine, and that proportion is likely to be still further increased later on. The main interest of the Soekaboemi returns, however, lies in the fact that, for the first time in the history of the Java cinchona industry, they presage a falling-off, positive as well as relative, in the shipments from the island. If the unit remains where it is now, the compilers expect the quinine output of the island to be fully 10 per cent. less than last season, and even if the unit should improve to 1½d or 1¾d per lb., it is likely to fall below that of 1891 by 1 per cent. or thereabouts. Private advices which have reached us simultaneously with the returns state that the actual shipments will almost certainly fall below the minimum mentioned in the returns, unless, indeed, in the unlikely event of a considerable improvement in prices. What the planters aim in the first place, however, is not so much a considerable advance in the unit value as an assured steadiness in the market, and they will, therefore, endeavour to regulate their shipments in such a manner that the quantities to be offered at the Amsterdam auctions shall be as nearly equal as possible, "experience having proved that the Amsterdam market is an unusually sensitive one, and easily affected by irregularity in the supply."

The position of the Java planters today resembles that of their Ceylon colleagues in 1886 in this respect—that the excessive feeding of the European bark-market is beginning to produce the inevitable reaction—but the situation is different from that in Ceylon six years ago, first, inasmuch as there is in Java a heavy supply of rich bark to fall back upon; secondly, because the Java growers have taken to heart the lesson that the indiscriminate production of low-grade, quickly-growing barks does not pay; and, finally, because they have not, as the Ceylon growers had at the time, looming before them the spectre of a new and rapidly growing source of production the advent of which they are bound to forestall at all hazards. There is no important source of supply behind the Java planters. They have taken the lead of the market, and can keep it if they like. That is a fact about which there cannot be two opinions.

The threatened falling-off in the production of Java cinchona-bark would, no doubt, under ordinary circumstances make itself felt in the quinine market. But that market has been unhinged to such a degree by speculative sales, that the effect of the laws which usually govern the fluctuations of manufactured products may be retarded for a considerable time. There is certainly no indication yet of any upward movement in quinine, though the signs which would warrant such a tendency are slowly accumulating at the horizon.—*Chemist and Druggist*, April 23rd.

THE CINCHONA ADMINISTRATION REPORT.

The Government of India, in acknowledging receipt of the Annual Report of the Government Cinchona Plantations on the Nilgiris for the year 1890-91, remarked that the quantity of bark in stock at the close of the year amounted to 510,695 lb., which the Director of Plantations (Mr. Lawson) hoped to utilise for the manufacture of quinine during the next few years. The Government of India trusted that these anticipations might be realised, and added:—"It has not been altogether satisfactory that manufacture has failed to keep pace with the increased demand, and the Government of India is glad to observe that the Madras Government is calling for a special Report regarding the alleged inadequacy of the machinery received from England." It also pointed out that one reason for the difficulty experienced in the sale of the quinine powders was probably the high price charged for them namely, 3 pies each, or at the rate of R21 per lb., giving a profit of 50 per cent on the cost of production. It was unable to believe that reluctance existed anywhere in India to take quinine. There was a well-founded repugnance, no doubt, to the cinchona febrifuge on account of its nauseating properties, but no such objection was found to the use of quinine with the effects and potency of which the people were generally familiar. With a view, therefore, to render the retail distribution of quinine successful, the Government of India thought the price should be considerably reduced.

Mr. Lawson, in commenting on the Supreme Government's letter, said that the large amount of bark, in stock consisted cheifly of red bark, which, when compared with crown bark, is poor in quinine; so that to obtain a large amount of quinine it would be necessary to use a much larger quantity than would be the case if it were crown bark. In other words, the amount of bark in stock would not go so far as the number of pounds given in the Report might lead Government to suppose. Of the crown bark remaining, there was ground up a sufficient quantity to last till the end of July next, and of unground bark enough to last till the end of this year. During the next monsoon it is proposed to take a large harvest of crown and crown hybrid bark from the Dodabetta and Naduvatam estates; but although 150,000 lb. have been put down in the Budget Estimate as the probable outturn, Mr. Lawson will be guided by what is found necessary for the factory, and then after that, by what he thinks desirable to take from the trees. With reference to the remark that the manufacture had failed to keep pace with the increased demand through inadequate machinery, Mr. Lawson said this was not quite the case, as after supplying all requirements there remained at the close of the year 1 572 lb. in stock, all of which, and more, had been since intended for by the various Indian Medical Departments, besides 1,200 lb. of febrifuge. Up to the 31st December, 1891, indents were received which amounted to R77,000 or R1,000

over the estimated year's expenditure ; and after these indents had all been complied with, there would be still left in stock on the 31st December, 1891, 1,150 lb. of finished quinine and about 100 lb. of unpowdered febrifuge. The machinery at present erected was, he said, adequate to turn out the quinine and febrifuge likely to be indented for ; but the machinery in duplicate. Mr. Dawson hoped the Government of India was right in thinking that the native population had no reluctance to taking the quinine ; and that the small sale of the powders hitherto was due solely to their high price, which he agreed might be reduced to 2 pies each.

The Surgeon-General with the Government of Madras, to whom the correspondence was forwarded for remarks, said he did not see that any appreciable saving would be effected by sending quinine and jalap in bulk as proposed by the Government of India. On the other hand, it would throw additional work on the subordinates at Municipal hospitals, who had already as much work as they could attend to. Moreover, uniformity in appearance, &c., could only be obtained by adhering to the present system. He did not approve of the suggestion to wrap the powders in old papers, which would increase the possibilities of one powder being mistaken for the other, "moreover, the outer covering of a drug even among more civilised people, has a decided effect on its sale. A recognised feature of the success of proprietary drugs is the neat and attractive way they are made up." To prevent any mistake the wrappers might have printed on them in Tamil "Purgative powder," and "Fever powder," respectively and the outer wrapper enclosing both powders might contain simple directions, such as "the purgative to be taken first and when it has acted, the fever powder." Surgeon General de Fabeck's own opinion regarding the sale of these drugs was that it would be in direct ratio to the interest taken in the sale and distribution by Revenue officials. The price of the 5-grain quinine powder has accordingly been fixed by the Madras Government at 2 pies and that of the 100 powder packet at R1, the jalap being issued free of charge as hitherto. This arrangement will give the seller a commission of 8 pies in the rupee or about 4 per cent. as at present. The Madras Government is of opinion that it would be better to continue the existing method of distribution, and it has ordered that the names of the drugs and directions for their use are to be printed on the wrappers in the vernacular of the district to which the packets are sent for distribution.—*M. Mail*, May 5th.

SOURCES OF FERTILITY.

Among the substances produced in the course of the fermentation of dung, organic acids are formed similar, to those found in what is anciently known as humus. These organic acids have a strong affinity for ammonia which they retain firmly in combination. But for this fact, there would doubtless be a much greater loss of ammonia from the manure heap during fermentation than there is, though there is actually more waste every day than should be, by allowing the manurial fluid—the very essence of dung—to drain away from the mass.

It is too often forgotten that farmyard dung has something more to command it than its completeness as a manure. Farmers are very apt to look on one side of its usefulness only. Its mechanical virtues are not sufficiently appreciated. It is well known that manuring is not all that the soil requires ; its physical condition must be looked after. While dung replenishes the soil with chemical constituents, it also adds bulk and porosity, and thus accelerates drainage. It has, therefore, much to do with the temperature of land. Besides assisting in the removal of superfluous moisture, it renders the soil more absorptive, enabling it to make better use of the heat of the sun than it would otherwise do. This is an extremely important matter.

The temperature of the soil is affected by other causes than the sun's rays. Decaying vegetable matter is a source of heat, as evidenced by the high temperature germinated by the process of fermentation of dung. Farmyard manure thus supplies heat to the soil from two different sources, while it helps it to retain much valuable manurial ingredients, which, in a colder or more purely mineral soil, would be washed away. It also opens up dense, stiff soils to the influences of the air, and gives freer course to the roots of plants It is not to be commended for application alone, but in conjunctiono with phosphatic manures we believe that farm-yard dung is indispensable in maintaining the necessary temperature and fertility of the soil.—*Farmer and Stock-Breeder*, April 4th.

CINCHONA-SAMPLING IN AMSTERDAM.

We gave particulars some time ago of a meeting held under the auspices of the Cinchona Warehousing Association in Amsterdam at which it was decided to adopt a new plan of drawing samples of bark. We now understand that the necessary machinery for grinding the bark has been put down, and that the samples for the auction of May 5th, next will be treated upon the new system.—*Chemist and Druggist.*

AGRICULTURAL PRODUCTS OF THE PHILIPPINES.

The United States Consul at Manilla says that the principal products of the Philippines are hemp, coffee, rice, tobacco, corn, and fruits. The cultivation of hemp is a very simple operation, and as it yields a large revenue it is not surprising that it is a popular occupation among the people. This staple is the product of a species of planting which grows wild on the Pacific slopes of the volcanic elevations of the Philippine islands, particularly the southern ones. Under cultivation the tree attains a height of 15 or 20 feet, with a trunk from 8 to 12 inches in diameter. In its green state it is crisp and juicy, and can be readily cut down with an ordinary carving knife. The preparation of the hemp for market is very simple. When the tree has properly matured, it is cut down and divided into long strips, which are shredded under a large knife kept in the proper position by a rude lever. This separates the juice and spongy matter from the fibre, and the latter is spread out in the sun to dry, after which it is packed in bales of about 240 lb. for shipment. There are a large number of plantations owned by natives, as well as by Spaniards and mestizos, where the trees are set out in regular rows, and well cared for. The cultivation of the coffee tree has been followed to some extent for the past thirty years, but interest in this branch of cultivation has been renewed during the past four or five years, and it is expected that its export will increase annually. There is no way of ascertaining the area of land occupied by coffee trees nor the amount of coffee annually produced, as the trees are scattered in various parts of the archipelago. The largest plantations are in the province of Batangas, in the island of Luzon, but many of the natives have a few trees in their front yards, under the shade of the plantations, that may yield four or five bushels of coffee berries. The increase in production has been marked within the past few years. In 1887, a little over 5,387 tons were exported; in 1888, about 7,501 tons. Although rice is the native's principal article of food, there is not enough of it produced in the archipelago for local consumption, and more than 70,000 tons are imported annually. The tobacco industry in the Philippines employs a large amount of capital and a vast number of hands. The best tobacco comes from the provinces of Cogayan and Isabella on the island of Luzon, the average annual yield from these being from 60,000 tons to 100,000. Tobacco is also grown in the provinces of North and South Ilocos, Abra, Lepanto, Nueva Exija, and Union, all on the island of Luzon, and on the islands of Cebu, and Panay. The tobacco produced in the former provinces is called *Igorrotes*, while that from Cebu and Panay is designated *Visayas*. In cultivat-

ing, the earth is well ploughed and harrowed and the seed sown in September. About six weeks later the young plants are transplanted about two feet apart, and the field is kept free from weeds, and otherwise carefully attended to until February, when the plants are almost ripe. The crop is gathered in March and April. It is then made up into "hands" of one hundred leaves each, the leaves of each hand being fastened together at the stem ends with strips of bamboo fibre. These hands are then hung up in rows upon bamboo poles under long sheds, which are open on all sides, and when they are almost dry they are piled up on the ground and allowed to ferment. The leaves are then dried again and packed into bales for shipment to Manilla, where they are repacked and pressed into bales for export, or sent to the factories to be converted into cigars and cigarettes. It is not sold by weight at the plantation but by the *fardo*, which contains forty hands. All the tobacco manufactured in the Philippines is made into cigars and cigarettes. The tobacco is classified at the plantation into first, second, third, fourth, fifth, and sixth grades, according to the size and quality of the leaves. In Manilla there are twelve large tobacco factories, one of which, La Flor de Isabela, the factory of the Compania General, manufactures seventy-five brands of cigars, ten brands of cheroots, six grades of cut tobacco, and eight brands of cigarettes. These twelve factories give employment to about 11,000 persons. Besides these there are numerous small factories owned by natives and Chinese. Corn holds a very unimportant place among the agricultural products of the Philippines, although it is cultivated to some extent. All the corn produced is that known as maize or Indian corn. The method of cultivation is similar to that followed in more advanced countries, but the implements used are of a very primitive character. As a rule the land is ploughed with a sharpened stick drawn by a buffalo, after which a heavy wooden frame, about four feet square with long wooden teeth on the under side, is drawn over the ground to break the lumps. The corn is then hoed by hand, and all that is necessary thereafter is to keep the weeds down. No manure nor fertiliser of any kind is used. No attention is given to fruit culture, and mangoes, bananas, apples, guavas and numerous other native fruits grow without cultivation, and are gathered by the natives in the hills and even within the limits of the cities and towns, who bring them to Manilla and sell them in the streets and markets. Consul Webb says that no attempt has ever been made to export any of these fruits except a few mangoes, which are sent every year to Hong-Kong and other neighbouring ports, although it is quite probable that under a proper system of cultivation, grafting, &c., some remarkably good fruit might be developed that could be preserved or canned, and sold at a great profit in Europe and the United States.—*Journal of the Society of Arts.*

CALIFORNIAN FRUIT PRODUCTION.

A correspondent, writing to the *Economiste Français* says that at the present time California is one of the principal fruit-producing centres of the world. It is more particularly in the southern part of the State that this industry is the most developed, and Sacramento is the centre of it. It produces all kinds of fruits—pears, peaches, figs, grapes, &c. The pear which is one of the choicest and most easily transportable of fruits, was the first to attract the attention of the grower, and was cultivated on a very considerable scale. The pear tree in California bears at the end of three years, but it is only in full bearing at the end of six or seven. An acre of ground, well planted and carefully attended to, should yield at the expiration of this period about 35,000 lb. weight of fruit, worth £200. Grapes are of three descriptions—those for the table, for wine making, and for drying. Each description has its own special centre of production. Grapes for drying are grown in the valley of San Joaquin, those for wine making, furthur to the north, and the table fruit is cultivated in the neighbourhood of Stockton and Sacramento. Southern California is distinguished by very various climates, which admit of all descriptions of fruit culture. The choicest kind of table grapes are those known as Tokay. A San Francisco paper—the *California*—states that over an area of fifteen acres planted with Tokay grapes, the vines being fourteen years old and well tended, the gross yield was valued at nearly £4,000. Deduction being made of the expense of cultivation, irrigation, transport, and commissions, the net product is estimated at £1,738, that is at the rate of £124 per acre. This, however, is stated to be an exceptional case. After grapes come the figs. These latter are cultivated in very large quantities in California, and there are many different descriptions. An attempt has been made to acclimatise the true Smyrna fig, but it has not hitherto been a success, although fruits have been grown very nearly resembling it but inferior in perfume. The choicest variety and the one most easily obtained is the fig called the "white Adriatic." At Ventura, where it is most successfully cultivated, one grower alone has planted a very large extent of ground, and estimates, judging from past results, that in ten years' time his annual yield will amount to about 1,250 cart loads of fruit, which at the rate of one cent. a pound will produce an amount of £50,000. The fruit growers of California having a supply of fruits greater than is necessary for home consumption, are naturally desirous of finding outlets for their supplies, and for some years they have been endeavouring to establish markets on the Atlantic coasts. In the fruit season an exhibition of choice fruits is sent over the principal lines of the Union in a specially constructed wagon, which is called "California on wheels." The cost of this travelling exhibition is borne by the Board of Trade of the State of California and the Southern Pacific Company. At the same time the Board of Trade supports, not without considerable expense, at San Francisco, a permanent exhibition of fresh fruits. The Eastern States, the large cities such as New York, Boston, Philadelphia, and more in the west Chicago, and in the South St. Louis, equally receive regular supplies of fruits. Railways have been constructed to unite the principal producing centres of California with the great transcontinental lines, and to carry the fruits rapidly from one end of the country to the oth r. But no matter how abundant the yield may be, and the cheapness of transport, fresh fruits are still a luxury, and their sale cannot exhaust the production of California, so for some years now attention has been paid to developing the sale of preserved fruits. At first, these were prepared on the evaporation system, and the fruit was then packed in boxes. This industry has had an enormous development, and the manufacturers of tin boxes in California are considered among the most skilful and the richest in the world. Since 1885 the yield of fruit has been so abundant that the special apparatus for artificial evaporation have been insufficient, and recourse has therefore been had to natural evaporation by solar heat, but the latter system has not given, everywhere, satisfactory results. In the greater part, however, of California, the air is extremely dry, and the desiccation of fruits under the influence of the sun is, says the *Economiste*, absolutely perfect.—*Journal of the Society of Arts.*

THE PEPPERMINT INDUSTRY OF ST. JOSEPH COUNTY, MICHIGAN.*

Next to Wayne country, New York, St Joseph country in Michigan is the largest peppermint producing locality in the United States. As early as 1846 farmers began to cultivate the plant in this locality and the industry has continued to grow ever since. Most every farmer thereabout now raises some peppermint, but usually in connection with other crops, while a few devote their whole time to its cultivation. By far the principal grower is Mr. Henry

* From the *Pharmaceutical Era*, April 1.

Hall, of Three Rivers, and "Halls Big Marsh of Florence" is the largest piece of land in America devoted to raising peppermint. The farm is eight miles southeast of Three Rivers, and contains some 900 acres, of which 400 acres are put into mint each year and alternated with clover to keep up the strength of the soil. Mr. Hall has four large distilleries with total capacity of some five hundred pounds of oil daily. The largest still house is situated in the centre of a 600 acre field; it contains four stills, and is surrounded with mint fields as far as the eye can see.

The cultivation of the plant is accompanied with more than ordinary care and the success of the crop depends largely upon the attention it receives, as well as the season. The ground is ploughed in August, September, or October, then thoroughly harrowed, and the following spring it must be harrowed again, then marked and planted. Old roots from "first" crop are removed from the ground in spring, and planted in rows three feet apart; a man carries the roots in a sack on his back, throws them into the rows, and they are then "kicked in."

Two or three crops are gathered from each planting, the first and second crops are the best, and twenty pounds of oil to the acre is a good yield; the third crop is very apt to be "weedy" and the yield only about ten pounds to the acre

From the time the mint appears above the ground until it is gathered, it should be constantly cultivated and hoed to keep it free from weeds, which are the bane of the peppermint grower's existence The plants mature from the middle of August to the first of September, soon as the blossom is out; the "second" crop mint comes first, then the "first" crop, and lastly the "third." It is cut with a mower and by hand with a scythe, and if weedy the weeids must be stored out by hand. The plant stools out and spreads, but "first" crop is in quite distinct rows; the second year it grows from the runners which fill in the rows making it a more solid mass, and in the "third crop" this is still more apparent.

After cuttiug, the mint is allowed to partly dry or "cure," and is then raked into cots like hay and drawn to the still house, where it is immediately distilled.

The process of distillation is not complicated but interesting. The still is a large wooden tub with tight hinged top, a steam supply connection at the bottom and outlet to the condenser at the top of one side. The condenser used by Mr. Hall is a very effective and unique piece of apparatus, the worm instead of being in a coil is in longitudinal sections about 14 feet long, which lap under each other, the top about 6 inches in diameter and tapering to some 2 inches at the bottom or outlet, and is made of tin. The cooler consists of a tin trough about 8 inches in diameter with perforated bottom, the length of the condenser, over which it sets, and through the perforations a constant stream of water is kept flowing over the tin condensers.

The mint is drawn to the still house in waggons, pitched into the still, the packer "packs the tub," the top is fastened down and the steam turned on for about an hour or until exhausted; this is told by pulling out a plug in the top of the still. Across the inside bottom of the still is a frame with chain connections that run to the top; by means of a heavy crane, which is connected to these chains, the exhausted mint or "charge" is lifted out of the still and carried away on a waggon. The "mint straw," as it is called, is dried in the sun and used as fodder for sheep and cattle.

The quality of the oil produced depends entirely on the mint used, and the freedom from admixtures of "weeds" or other foreign substances.

Careless and lazy farmers raise poor mints as well as poor wheat, and whether it be "first," "second," or "third" crop mint, thorough cultivation is an important consideration in producing good oil of peppermint. Everything that comes from a still is by no means pure oil, and experience is a most important factor in judging of its quality.

Enough has been written about tests for oil of peppermint to fill a large volume, but one of experience in the business will judge of the quality of a can of oil almost as soon as he places his nose to the opening. It may be necessary to examine it for water or castor oil and alcohol and possible other adulterants, or to see that none of the menthol has been removed, but the natural *flavour* of pure oil of peppermint is what the man of experience first seeks.—*Pharmaceutical Journal.*

ANOTHER SUBSTITUTE FOR JUTE.

Wonderful are the uses of the cotton plant! Formerly it was grown for the cotton alone, and the seed was looked upon as a nuisance, to be got rid of in the cheapest way possible, not even being thought worthy of use as a manure, and both it and the hulls were regarded as dangerous food for stock. Now the value of the seed is almost as great as the cotton itself. As an oil producer, a food for stock, and a fertilizer, it is in constant and growing demand, and it has even been suggested that it would pay to develop seed-growth at the expense of the cotton, making that merely a secondary product. Up to this time the stalks have retained their old-time valueless character, but this also appears now to be nearing its end, for it is proposed to utilize the fibre contained in them for making bagging The difficulty in the way has hitherto been the absence of a machine to break them and draw out the fibre. This appears now to be overcome, and another source of profit opened to the cotton-planter, as we learn from the following paragraph, taken from the *Progressive Farmer*:—

"The following from Augusta will be read with interest by all our readers:

"William E. Jackson, a well-known lawyer of this city, has solved the Jute-bagging problem that has agitated cotton circles for so long. Jackson has perfected mechanical appliances for making bagging from cotton stalks, and he has just returned from New York with a roll of bagging.

"Expert cotton men say that it is in every respect equal to jute bagging. He will buy the bare stalks from the farms, and can afford to pay about $2 a ton laid down. An annual stalk yield will bale three years' cotton crop. The machinery comprises heavy corrugated rollers, with vasts of running water, carding machines, and bagging looms. It is estimated that in making bagging from cotton stalks two million dollars annually will be put into the pockets of farmers for what is now cleared from the fields at an expense.

"Augusta will be headquarters for the company's mill and officers, the demand for the products of which will extend from Virginia to Texas. Jackson had the roll of bagging which is exhibited woven by the jute-bagging looms of J. C. Todd, at Paterson, N. J., and he says that experts pronounce it equal to its jute rival. Cotton-stalk bagging is less inflammable, and is only a shade darker than jute. Cotton circles here are jubilant."—*Southern Planter.*

SUGAR IN INDIA.

Papers respecting the sugar production of India have been received from the Secretary of State for India, from which the following particulars have been extracted:—

On the 8th May, 1889, Messrs. J. Travers and Sons, Limited, wrote to the Under Secretary of State for India—

"The average production of India is given as a ton of sugar per acre, and the produce (with the exception of the three modern mills in Madras) is of the most wretched character.

"In the West Indies (which are also backward) sugar growers obtain two tons of sugar per acre, or double the Indian average, and, with modern machinery, properly crystallised sugar can be made direct from the cane juice at a cost on the spot (that is, without carriage) of 8s. to 10s. per cwt.

"It is no doubt the competition of such direct cane sugar from Mauritius which is leading to the closing of refineries in Bengal, if, as we imagine,

those refineries work, not from the sugarcane, but from coarse native sugar.

"In all the statistics sent us, Mauritius and similar sugars are described as refined, but this is altogether misleading. There are no refineries in Mauritius, where sugar is remelted, and the produce of the island is simply raw sugar properly made by modern processes.

"It is such sugar that India ought to make, and the Empire, with sufficiently improved cultivation and machinery, might readily supply the world with sugar. Refining is a secondary process, likely to altogether die out, by slow degrees, as cane and beet manufacture becomes more prefect. The disappearance of refining in Bengal, though hard upon individuals, is really a sign that there is progress elsewhere, and progress which no country is better adapted than Bengal to share in.

"That modern sugar can be well made in India is shown by Messrs. Minchin at Aska, Madras, and it is simply absurd that India should have first to export the labour to Mauritius, and then to re-import sugar from that distant island, which could be as well made, and certainly more cheaply, at home. India is generally regarded as the home of the sugarcane, and with its teeming population, its climate, and (in some districts) its plentiful water and coal supply, it should be a large exporter of fine sugar instead of an importer.

"The manufacture of modern (or, as it is called vacuum pan) sugar, to be profitable, must be on a large scale, because it involves costly machinery and chemical and mechanical supervision impossible for ryots, who probably do not extract one-third of the sugar that might be extracted from their crops, and make that third in a shape that looks more like manure than sugar, and which appears to fetch in many parts of India as little as 6s. per cwt. on the spot, whereas Mauritius sugar in India must net double that to pay the grower.

"Vacuum pan sugar making is, probably, only possible on a large scale in India through the central factory system, where the raw canes are bought by the mill from the growers. A system simliar to this already prevails in indigo and silk mills in Bengal.

"We do not knew whether the Government of India would be able to start a few model factories in suitable districts, or whether they must confine their attempts to develop sugar manufacture to the collection of information and figures like those in the returns forwarded to us. In auy case, the efforts of the Government in this direction for some years past cannot fail to be of great value."

This letter was sent by the Secretary of State to the Government of India, and in reply to the points there raised, a series of letters were obtained from authorities of India. The Director of the Department of Land Records and Agricuiture, North-West Provinces and Oudh, wrote:—

"The suggestions made by Messrs. Travers and Sons is that the Government of India might start a few model factories for the preparation of sugar by modern processes in suitable districts. This appears to be the only point of practical import nce in the memorandum. In my opinion the Government would be ill-advised were it to act on the suggestion. I base my opinion on the general ground that private enterprise in India is now sufficiently alter and well organised to undertake the business of sugar-refining on a large scale, and with ample capital if there were a reasonable prospect of success. That sugar-refining companies working on scientific principles, such as the Rosa Company and the Aska Factory, show no signs of multiplying in India is to my mind a clear proof that, under existing commercial conditions, the prospects of successful trade are small. Nor is the explanation why prospects are not encouraging far to seek. European sugar refineries in India have two markets, and two only, open to them. They can manufacture for export to Europe, in which case they have to contend with the bounty-aided sugars of the Continent, and are no more able than the Mauritius factors to make a reasonable profit on their capital in such a market. Or they can manufacture for local consumption in India, endeavouring to supplant sugars refined by native or crude Europan processes, and sugars imported from the Mauritius. Here they are met with the great difficulty that the mass of the native population regards with dogged suspicion all machine-made sugar, holding it to be impure and contaminated with bones and blood. The market is thus a very small one, and the prices ruling in it are by no means improved by the quantities of similar sugar thrown in despair upon it by Mauritius planters. Assuming that the cost of producing a given amount of crystallised sugar by modern processes is about the same in India and in the Mauritius (and from such information as I have at hand, I do not think a sugar refinery in India could manufacture cheaper than the Mauritius planter), what are probabilities of commercial success? They are bounded, it seems to me, by the actual success attained by the Mauritius planters, and as we are constantly told that sugar in Mauritius does not pay, scientific sugar-refining in India is not a hopeful industry. The Rosa Factory in these provinces depends more on its rum than on its sugar, and I believe this is the case with the few other similar concerns existing in other provinces.

"The memorandum refers in contemptuous terms to the quality of the common sugars consumed by the Indian public. But they have an almost unlimited and active market, which is at present closed to machine-made sugar; and even if superstitious prejudices could be overcome, there would still remain the question of national taste. The compost known as *gur* has a peculiar flavour which is absent from machine-made sugars, and the tastes of a most conservative people will require to be changed before the local markets of India really open to the European sugar manufacturer.

"I admit all that the memorandum says as to the smallness of the yield of sugar per acre in India, as to the inferiority of the processes employed to extract the juice and make it into sugar, and as to the low quality of the so-called 'refined sugars' of India. But it is conceivable that these rude processes and this small outturn may yieid a profit, while scientific processes and high cultivation result in a loss. Not only does the Mauritius system require a large initial capital expenditure, and a large annual outlav, but it also requires a highly paid supervising and controlling agency. I do not defend the imperfections of the Indian system, but I think it is economically explicable.

"There would be some difficulty in introducing the Mauritius system bodily into India, since a prominent feature of that system is that planting and manufacturing are concentrated in the same hands. But as the memorandum points out, a sugar refinery might easily work in an Indian sugar-growing district on the line familiar to indigo planters. It would buy cane at the proper season from cultivators of the neighbourhood, and would restrict its interest in the actual production of the crop advances to growers. A large sugar refinery, I may point out, would have to face two problems which are not easy to solve. The first is the question of carriage. Cane soon dries when cut, and cannot be carried long distances. A sugar refinery has thus to depend for its raw material an a small area devoted almost exclusively to the production of sugar, and this is opposed to the habits and traditions of the Indian agriculturst. The second difficulty is that the machinery of the factory would stand idle for a great part of the year, and occupation would not be forthcoming for the hands, unless a subsidiary business, such as the manufacture of rum, is added to that of sugar refining. The market for rum in India is not large, and is probably sufficiently supplied by existing concerns."

Mr. M. Finucane, Director, Depatment of Land Records and Agriculture, Bengal, wrote:—

"As regards the question of improvements in manufacture suggested by Messrs. Travers and Sons, I would remark that it seems not unreasonable to suppose that such improvement is possible and it is not improbable that the establishment of model

factories in suitable districts, whether by Government or by private individuals, encouraged or subsidised by Government, would yield beneficial results. Messrs. Mylne and Thomson, in their letter dated 28th February 1880, to the address of the Collector of Shahabad, reported that they had for years been trying whether cane could be profitably purchased and worked off at a central factory, and the conclusion to which they came was, that the price demanded for cane by the growers, which price the growers realised by making it into *goor*, was so high, that the experiment was not deemed to be profitable and was discontinued. Messrs. Mylne and Thomson added that the Rosa Sugar Works at Shahjehanpore had not found it advisable to make arrangements for crushing cane and making refined sugar from the juice direct, and the inference would seem to be that central factories, such as are suggested by Messrs. Travers and Sons, will not pay. The reason given for this is, that the factory could not work at a profit, if it paid as high prices for the cane as the cultivators realise by making it into *goor*. But this is only stating the fact in another shape, and is no explanation of the problem—why is it that with cheap labour, cheap raw material, refined sugar cannot be manufactured in India at a lower price than that for which it can be imported from the Mauritius or England? A similar question may be asked as regards other products, for example iron—why is it that with cheap labor and cheap iron ore at Ranigunge, it is found profitable to import manufactured iron articles from England? I am not at present in a position to furnish an answer."

The letter from the Government of India to the Secretary of State, covering the correspondence is dated "Calcutta, 24th December, 1889," and is as follows:—

"The improvement of sugar production and manufacture in this country has been the subject of attention both of the authoritios and of capitalists since the beginning of the century, and various attempts have been made to establish factories, none of which appear to have been attended with any permanent success unless supplemented by the sale of rum and liquors. Suger refining alone has not proved sufficiently profitable to maintain a factory. If this had been the case, there appears to be no reason why the industry should not have been largely taken up by private capitalists.

"Some of the main difficulties against which the industry has to contend are believed to be these:—

"(*a*) The cultivation of sugarcane is limited by the supply not only of water for irrigation, but also of manure.

"(*b*) As cultivation in India is confined to small farms or holdings, each cultivator who is able to grow the crop at all can only find manure enough for a small area, generally less than half an acre, of sugarcane. The plots of sugarcane are therefore greatly scattered, even in a canal-irrigated tract.

"(*c*) A central factory has accordingly to bring in its supplies of cane in small quantities over varying distances, in many cases the distance being great.

"(*d*) The carriage of canes over a long distance, even in a climate like that of the Mauritius, is detrimental to the juice for purposes of sugar making. It is much more so in India, where the canes ripen at the season when the atmosphere is driest and suffer, therefore, the maximum of injury.

"(*e*) The Mauritius system of growing large canes at intervals is not adopted to the greater part of India where, in order to prevent the ingress of dry air into the fields, small canes have to be grown in close contact.

"(*f*) The amount of cane which can be grown, limited as it is by the supply or water and manure, barely suffices for the wants of the Indian population. It seems to be at present as profitable to produce coarse sugar for their use, as highly refined sugar for export. There is, therefore, no sufficient inducement to capital to embark on the more difficult and expensive system.

"A further obstacle to sugar refining in India exists in the high differential rate which the conditions of our excise system require to be placed upon spirits made on the European method, as compared with that levied on spirits manufactured by the indigenous process. The sugar refiner in India is thus placed at a disadvantage in respect to the utilisation of his molasses in the form of spirits.

"In view of the circumstances above noted, we are unable to advocate any attempt being made at the cost of the State to establish model factories. We are inclined to attach much confidence to the views and conclusions formed by Messrs. Thomson and Mylne, who have paid, for many years, practical attention to the subject of sugar cultivation and manufacture by ryots, and were the first to introduce the portable sugar-mills which have now spread over India. They advocate the gradual improvement of the ryots' method of manufacture rather than the introduction of more expensive and centralising systems. Tho Provincial Departments of Agriculture have of recent years, directed attention to this question, and may usefully be desired to continue to do so.

"We are also willing to advocate the establishment of agricultural experiments in those comparatively limited tracts of the country (such as Eastern Bengal, where there is a moist climate and a more or less abundant supply of manure) in which the Mauritius methods of cultivation have *prima facie* prospects of success, and we are prepared to advise our Local Governments and Administrations to give every reasonable support to sugar factories and refineries which may be established by private enterprise."

Messrs. Travers's reply to the correspondence is dated 21st February, 1890:—

"We observe that while all the officials who have reported fully confirm our information as to the great, and indeed excessive, waste in Indian sugar manufacture, yet that they are able in some degree to explain the causes of the existing state of things, while the opinion is general that it would not be wise for the Government to establish experimental central sugar factories.

"It would be presumptuous on our part to offer any comments on a question so fully taken up by the local authorities on the initiative of the Secretary of State.

"It only remains for us, in concluding the correspondence, to acknowledge the very great courtesy with which our necessarily imperfectly informed remarks have been received, and the promptitude with which action has been taken owing to the recognition by the India-office and the local authorities of the great importance of sugar manufacture to India, and the possibility of a great development in it.—We are, &c.,

"Pro. J. Travers and Son, Limited.
"(Signed) J. W. Rogers.

"P.S.—We may mention that 'German granulated,' a small white dry crystal sugar made direct from the beetroot, is now being shipped from Hamburg to India; so that the royts will not have Mauritius only to compete with at home. We belive this sugar costs about 16s. per cwt. laid down in Bombay, and that the bounty on its export does not exceed 6d. to 9d. per cwt."—*Journal of the Society of Arts.*

LIME AS A PREVENTIVE OF MILDEW AMONGST CUCUMBERS AND MELONS AND FOR POTATO DISEASE.

In cases of mildew among cucumbers and melons and disease among potatoes, lime is an invaluable article. If applied wherever the disease has manifested itself, it will prove an effectual remedy, but if any part of the plants affected is not touched with the lime, the disease will not be effectually stopped. The best way to apply it to cucumber vines affected by mildew is to sprinkle the powdered lime under as well as over the leaves by means of a small sieve. This should be done early in the morning when the leaves are damp from the night's dew. Plants that have been nearly dried up by the dis-

ease, will frequently take on a new growth in a few weeks with a steady application of lime.

Applied in the same way to potato stalks that have been dried and eaten up by disease, the lime has similar good results. When the disease has eaten so far down into the heart of the stems that the roots of the potatoes are affected, the application of powdered lime will not have much effect. Unless the disease has, however made such rapid headway, it will pay to give the whole field a treatment with lime. The greatest care should be taken to sprinkle them carefully, sifting the lime on all parts of the leaves and stems that are affected in the slightest degree. Very many potato fields could be saved from partial or complete destruction in this way.—*Southern Planter.*

NOTES ON ESSENTIAL OILS.*

Sandal-wood Oil.—At the Government auctions of sandal-wood held at Mysore in November and December last the following quantities were brought forward:—

	Tons.
From the Shimoga district	770
From the Kador district	200
From the Hassan district	300
From the Mysore (Seringapatam and Hunsur) district	1,000
From the Bangalore district	150

while the auctions in previous years show the following quantities:

Year	1883	1884	1885	1886	1887	1888
Tons	2,600	2,775	2,650	2 025	2,450	2,500

The assortment usually consists of 15 per cent. of root, 20 per cent. of best-quality logs and the remainder of second quality logs and chips. Unexpectedly high prices were paid for all qualities, for whereas the values had been, superior 46s 6d., roots 44s. 9d., ordinary 40s., c.i.f, the whole of the quantity brought forward sold rapidly at 54s. 6d. for superior, 52s. 9d. for roots, and 46s, 6d. for ordinary, an increase of 20 per cent. It is believed that for a long time to come the article will be maintained at high prices, as the government of Mysore has again taken energetic steps to obtain the full benefit of this monopoly. In future only so much good is to be cut down as required for the consumption, and it seems to be the object of the Government gradually to increase the price of the wood, and then to keep it at a definite point. Of the whole of the wood, which is sold, about two-thirds is used in India, partly for carving, and partly as an incense in religious ceremonies, and only about one-third is consumed in Europe. If, in spite of this advance in the price of the raw material, the cheap oil from East Indian wood is frequently offered, cause may be found in the use of Macassar sandal-wood oil, which very nearly approaches the Indian oil in quality, although for perfumery purposes the Indian oil deserves decidedly the preference.—*Oil, Paint and Drug Reporter.*

NOTES ON POPULAR SCIENCE.

By Dr. J. E. Taylor, F.L.S., F.G.S., &c.,
Editor of "Science Gossip."

The artificial manufacture of rubies is still going on, and a trade demand for them has arisen for use as pivots in watches. They are stated to be not inferior to the natural stones in hardness. The two French chemists who have been long experimenting on the subject have been able to produce much larger stones than formerly by a modification and improvement of their original method. As much as six pounds of rubies can be produced at each operation. These experiments show that the colours both of natural rubies and sapphires are due to chromium in different states of oxidation.

Indigo can now be artificially produced by two different methods, worked out independently by two or three different experimenters, all German chemists. One is produced with phenylglycocine and the other from anilidoacetic acid.

Dr. Alfred Carpenter, of Croydon, the well-known sanitarian authority, in an address recently delivered before the Association of Sanitary Inspectors at Liverpool, estimates the loss to England from the non utilisation of sewage, during the last 800 years, at 16,000 millions sterling. He declared that if our present wasted sewage could be put upon the land, meat and milk would be produced over that yielded now, and five times the amount of labour would be employed thereon. He contended there should be from 5,000 to 6,000 tons of sewage placed on every 35 acres of land, from which 40 to 50 tons of produce per acre would be obtained. Moreover, he argued that, if properly treated the land would be freed from excess of nitrogenous matter, and there would be a completer purification of the water supply. He did not say, however, how the latter could be effected. I imagine you would find it difficult in Australia to put 50 tons of sewage on every 35 acres of cultivated land. Even in our densely-populated country we cannot do so. Consequently our British bill for artificial manures is a little over five millions a year.

The official report issued by the U. S. A. Department of Agriculture at Washington shows a falling off in the wheat cultivation of America during the last decade. In the year 1880 the total production was 498,549,868 bushels; in 1890 it was reduced to 399,262,000 bushels, nearly one-fifth less. Maize yielded in 1880 1,717,434,543 bushels; in 1890 only 1,489,970,000 bushels, although this is a characteristic American crop. On the other hand, the yield of oats had gone up, perhaps owing to the large increase in the number of horses employed. In 1880 417,858,380 bushels of oats were produced; in 1890 the yield had increased to 523,621,000 bushels.

From some important experiments by Professor Henry, the principal of the Wisconsin Agricultural Station, as to the relative fattening properties of barley meal and maize meal, it appears that it required 36lb. more barley meal than maize meal to produce 1,000lb. of meat. The experiments were on ten hogs, 14 months old, extending over a period of eight weeks. Both feeds were soaked with water, and it was found it required about three pounds weight of water properly to soak one pound of barley meal, and only two pounds of water to soak the same quantity of maize meal. The hogs fed on barley meal consumed 30lb. of water daily with their food, while the hogs on maize meal only required 22lb. Even with this large amount of water in the feed, the barley fed hogs drank two pounds a day extra, from a separate trough, whilst the maize meal fed hogs only required three-quarters of a pound extra daily.—*Australasian.*

THE PROJECTED JAVA QUININE-FACTORY.

We mentioned recently that the Java planters intended to send a chemist well acquainted with the cinchona industry to British India to report upon the quinine-works existing there, with a view to the establishment of a factory in Java. The mission, however, is not likely to take place, as the necessary funds have not been forthcoming. A correspondent of the *Indische Mercuur* states that two years ago he inspected the works at Nadivatam and Munnpoo, in India, but found the process used there quite unsuitable for the proper manufacture of quinine, although since then Messrs. Lawson & Hooper have improved the process in several particulars. He happened to meet in India one of the largest European quinine manufacturers, who had also visited the two factories, and spoke of the process followed there with contempt, saying that, if the freight were not too heavy, he should be glad to buy the already extracted barks from these factories, because the alkaloids are very imperfectly taken out.—*Chemist and Druggist.* [We doubt the *bona fides* of this critic, considering the cheapness of the bark in its original state.—Ed. *T. A.*]

* From Messrs. Schimmel & Co.'s report.

Correspondence.

To the Editor.

THE PUSHING OF CEYLON TEA.

Nuwara Eliya, April 24th.

SIR,—Why do we neglect the opportunity placed at our doors of advertising our tea at a nominal cost, and with more far-reaching results than perhaps any other scheme; and why do we permit rubbish not fit to be called tea to be sold as such to the passengers in our harbour and the visitors to our shores, thus seriously injuring the name of Ceylon? Perhaps we neglect it because it is so easy of attainment in the same way that few of us residents have climbed Adam's Peak, although we have lived close to it for years, while thousands come from all parts of the world to ascend it. But, whatever the reasons may be, should not the Planters' Association (more especially in view of recent revelations) take the matter in hand at once?

I would suggest the following as a very simple scheme, which would be an immense advertisement for Ceylon and lead to a lot of future orders from abroad, reaching every country and nation on the globe, and at the same time choking off all the inferior rubbish at present sold in the harbour, which is ruining the name of Ceylon tea. Perhaps you, Mr. Editor, could add a foot-note stating the number of passengers last year and their destination, which would better enable us to estimate the possible results.

(1st.) I would have the Planters' Association arrange with all steamer agents to give them (the Planters' Association) the exclusive right to sell tea on board ship in Colombo harbour. This is necessary, and the Planters' Association should in return promise to sell the tea as an advertisement at cost price (including packing and selling charges).

(2nd.) At every port nearest to Ceylon on the principal routes to it a stock of pamphlets should be held by an agent. These pamphlets should contain a concise history of Ceylon, some interesting information about Ceylon tea, and an advertisement of the Planters' Association announcing that tea at cost price would be sent on board that ship as an advertisement when she reached Colombo harbour. The agents of all steamers visiting Singapore, King George's Sound, Calcutta, Aden, etc., would be glad to have these pamphlets distributed on board ship to their passengers, and the passengers would be equally glad to read them, as a description of the country they were coming to, with the result of a sale of tea in a great many cases.

(3rd.) To make the scheme a complete success, the Tea Kiosk should be taken over and worked together with it by the Planters' Association. Some R15,000 have already been spent on the Kiosk, and there is very little to be seen for the money; but I believe good returns could be got from it in connection with this scheme. I would propose to do away with the high-sounding title of "The Kiosk," which half the passengers don't understand, and in large-letters on a signboard put something like "Ceylon Planters' Tea Room;" "Tea sold by cup and packet at cost price," etc., and show its position on a map of Colombo in the pamphlet.

(4th.) The tea sold should be a blend—or blends—and made by a committee of local experts, and should be *uniform in quality always*; those gentlemen would, I have no doubt, give their services free.

(5th.) A considerable stock should be held to execute further orders from abroad that would be sure to follow from private individuals and tradesmen who found the tea suitable to their requirements. This feature of selling further supplies is objectionable, inasmuch as it is introducing an element of trading into what is really an advertisement, but better do a little trading than leave a loophole for the failure of the scheme.

In conclusion two instances that have recently come under my notice go to prove the desirability of carrying out some scheme such as I suggest.

A.—I saw a cart load of 10 lb. boxes neatly got up by a European firm (who did not know their destination I may say) in charge of the owner—a native—on the way to the wharf for sale on board-ship. I got one and opened it, and it contained the most ghastly rubbish I ever saw, not worth 8 cents a lb. The *price was R8 or R10 per box*, I forget which! Is anything calculated to damn Ceylon tea more than this?!!

B.—A friend of mine who sells part of his tea through one of the Fort shops, Cargill's I think, has had orders for the last three years from an Australian grocer, who got his first lb. in the Colombo shops, increasing yearly till this year (1892) he has an order for 30,000 lb. of pekoe at highly profitable rates.

One can easily imagine the disgust of the passengers when they are swindled IN CEYLON over our staple product; and I consider it the duty of the Chairman of the Planters' Association to be up and doing in this matter before further damage is done to the planters when the remedy is of such easy application.—Yours, &c., L. D.

[We are unable at the moment to say what was the number of European passengers in 1891. Our correspondent fixes no limit to the quantity of tea which is to be sold at cost price, and does not take into account the interference with private enterprize.—ED. *T. A.*]

ON THE BURNING OF CATTLE MANURE AS FUEL.

Analytical Laboratory, 79, Mark Lane,
London E. C., April, 8th, 1892.

GENTLEMEN,—I have much pleasure in sending you a copy of Dr. Voelcker's long expected lecture on the Agricultural Needs of India which was given last night at the Society of Arts and a which the late Sir James Caird was to have taken the chair. As you will notice and indeed as might reasonably be expected Dr. Voelcker was not able to suggest any new improvements but only an extension of those already largely in force. A judicious construction of canals, and of well sinking under careful supervision and consideration of the local agents of the Government, also the increased establishment of forest reserves with a view of improving the climate and also of furnishing wood as fuel. Speaking of the subject of manure being used as fuel in certain districts Dr. Voelcker strongly condemned the practice, though he was unable to point out how under existing circumstances and in the absence of wood suitable for fuel, the present custom could be materially altered or imposed It is in fact a matter of necessity and not of choice, and until new forest reserves are established the poor natives are likely to continue to burn the cow-dung cakes or bratties for many years to come.

Indeed as pointed out by myself in a note published in the *Journal of the Society of Arts* for March 21st, 1890, this practice of burning bratties is after all not so wasteful as might at first sight be supposed;

According to my new analyses of sun-dried cow-dung cakes every ton of these bratties contained in round numbers the following quantities of the important plant food constituents.

Lime	..	43 lb.
Nitrogen ..	..	33 „
Potash	..	14 „
Phosphuric acid ..	..	12 „
		102 „

When such a manure is burned as fuel the nitrogen which originally in the manure existed as organic matter becomes converted into gaseous products which are either directly absorbed by the growing plants or crops in the neighbourhood or are carried down by the rain into the soil and retained for subsequent use as plant food.

The loss, therefore, of nitrogen by the use of cattle manure for fuel purposes is by no means as complete as is generally supposed to be the case.

While the *whole* of the mineral salts including the valuable lime potash and phosphoric acid are retained in the ashes which under proper sanitary arrangements ought to be carted out on to the land together with the usual house refuse and vegetable rubbish always associated with domestic dwellings. It should be remembered that about 80 per cent of the atmosphere consists of free nitrogen, and that according to the most recent scientific research leguminous plants such as clover, peas, beans, &c., have the property of absorbing nitrogen from the air and so yield large crops of valuable food, as well as by virtue of increased root developement increasing the nitrogen in the soil, so that not only a good crop has been obtained but the soil is actually enriched and better able to produce other crops of a different character. In a smaller degree, most crops may be expected to absorb nitrogen from the air, so that in tropical climates it may be found that nitrogen is of all the important plant foods the one which can be most easily obtained by natural means, and if so its artificial supply in the form of manure may be dispensed with the least loss.

Certainly the custom so general in India of burning the stubbles after harvest and so destroying the straw left on the fields would tend to confirm the view that nitrogen in the form of organic matter is not so much required by the soil of the country as might have been supposed, bearing in mind too the well-known mechanical advantages of farmyard manure; also its moisture holding properties which in a hot country would strike most observers as of special value.

Again the fact that some 40 to 50 thousand tons of bones and bonemeal are being now annually exported to Europe, still further proves that there cannot be any great demand of really first-class fertilizers in India. Indeed a country which has produced year by year crops of corn, rice and gram for centuries without suffering any appreciable loss of fertility in the soil can probably afford to go on for centuries in the same manner. At the same time there should be judicious improvements of existing customs and practices, as it would be most unreasonable to maintain that no improvements were necessary in order to provide for the vast and rapidly increasing population.

In the past periodical famines prevented any undue increase of population, but with the extension of railways and improved transit, the starving people can be readily reached with supplies of rice, so that aided by thoughtful and energetic administration famines will not prove the terrible scourge they did in former times when thousands died in certain parts of that vast continent, while in other parts there was an abundant plenty.

In the discussion which followed the reading of the paper Professor Wallace supported the present practice of burning cattle manure chiefly on the ground of the necessity of the case, pointing out that until wood or coal was provided by the authorities the poor natives were not to blame. For myself I am always inclined to believe that local customs are usually the result of sound and long established experience, and in the foregoing remarks I have ventured to put forth my views in support of the present custom by way of explanation rather than of any new principle or theory.

JOHN HUGHES.

[There is this qualification. The practice of burning cow manure as fuel is defensible because there is no wood. But why is there no wood? Because the people keep the all-devouring animals, goats. These beasts are amongst the most formidable enemies of forestry in India.—ED. *T. A.*]

THE MADRAS AGRI-HORTICULTURAL SOCIETY:—The *Madras Mail* of 14th May says:—

The Committee of the Agri-Horticultural Society of Madras recently brought to the notice of the Madras Government that for a period of 35 years, or from 1854 to 1889, seeds to the value of R4,000 annually were, by order of Government, purchased from the Society by regiments serving in this Presidency, but that since 1889, in accordance with an order of Government all indents have been made on the Government Botanical Gardens at Ootacamund. The result of this has been a serious loss to the Society, which was established in 1835 for the promotion of agriculture and the encouragement of improvements in agriculture generally. The Society claims to be the only body in the Presidency which the Government can consult and seek assistance from in introducing new plants or improving those indigenous to the country. Such advice was, it is urged, often asked and always cordially given. The Society has also for many years supplied seeds to and prizes for the products of soldiers' gardens, and aided the Government in the introduction of Mauritius sugar-cane, which now grows in all the sugar-growing Districts in this Presidency; and it established a nursery for raising and distributing species of timber trees, foreign or peculiar to other parts of India. During the American War the Society tested every procurable species of cotton, and furnished much valuable information to Government as to the commercial value of the fibre of each and its suitability for the climate of Southern India. The Society has also been of great service in the teaching of botany in the Government Medical College, the Presidency College and the Agricultural College at Saidapet. Specimens of plants are supplied gratuitously for the Lecture Rooms of the Professors, and the pupils regularly visit the Society's Gardens to receive practical lectures on the plants growing there. The Society was the first body in India to institute a scientific inquiry into the natural history of coffee borer and to seek to obtain some remedy for its terrible ravages which have caused such loss to the planter. Further Dr. Bidie, the then Honorary Secretary of the Society, was selected by the Madras Government to carry out the enquiry into the ravages committed by the insect and suggest a remedy therefor. His report was published by the Madras Government and Dr. Bidie was thanked for the manner in which he had conducted the enquiry. Considering, therefore, the great and valuable services rendered by the Society to the Presidency generally, and the fact that without the Government subsidy, according to the Committee, the Society cannot exist, the Committee requested the Madras Government to order that the privilege of providing seeds for soldiers' gardens should be again restored to the Society. We hear now that Government has declined to sanction any alteration in the existing procedure under which seeds for soldiers' gardens are now supplied, as the present arrangement was sanctioned by the Government of India after mature consideration, and in view to assimilate the practice with that obtaining in Bengal and Bombay.

FROM THE METROPOLIS.

22nd April 1892.

TRADE AND INDUSTRIES OF EAST AFRICA.

Two Consular Reports recently issued contain matter of considerable interest to Ceylon readers—planters and merchants. ZANZIBAR, under new auspices and as a free port, probably may become the great entrepôt of trade for East Africa and this is the end arrived at by Mr. Portal, who reports to Lord Salisbury for 1891, as follows :—

The total declared value of imports from all parts of the world during the whole of last year amounts to 158,79,691 rs., or 1,205,691*l* 10s, whereas the estimate made in November, based on the return of the previous ten months, gave 1,300,000*l* as the probable figures for the whole year. No stronger argument could have been found in support of the contention that if Zanzibar is to maintain its pre-eminence it should, without loss of time, be declared a free port. That principle has now been accepted by Her Majesty's Government, and the formal declaration will be made on February 1.

To turn to the exports from Zanzibar. A complete tabular statement is now enclosed showing the quantities and value of each class of goods exported, and the ports to which they were consigned. The gross value of the exports during the year amounts to 1,384,233*l*, or about 30,000*l* above the average shown by the ten months reviewed on November 17. The relative values of the different classes of goods exported is about the same as it was in November. Nothing need, therefore, be added to the remarks made under this head at that time.

Finally, although these returns and statistics still leave much to be desired as regards both completeness and accuracy, yet it should be borne in mind that this is the first yearly commercial statement that has ever been compiled in Zanzibar. The initiatory difficulties in the way of establishing an orderly system at the custom-house were great: an efficient staff had first to be formed and then trained to their work; exporters and consignees had to be requested and even pressed to make a declaration of the nature and value of their goods—a request which was for many months strongly opposed by several firms; and the dhow trade, hitherto quite unlicensed, unwatched, and unrestricted, had to be brought under at least a partial supervision, though this, I may add, is as yet very far from sufficient.

The subordinate official class and the trading public in this country are undergoing a process of education which was begun only a few months ago; until that education is completed, statistics and returns may be an approximate estimate, but they cannot be a thoroughly correct index of the trade and prosperity of the Sultan's dominions.

The peculiarity of the statistical tables given is that very much the same products (and quantities) are entered as Imports (from Africa) and Exports (from Zanzibar to Europe). It is only necessary to notice some of the chief exports. Of Cloves, the total weight in 1891 is given at 13,238,400 lb. in 94,560 packages of 140 lb. each. London got 16,294 packages, New York 22,041, Hamburg 10,669, Marseilles 8,910 and so on. The total value is put down at $1,134,720. The next biggest export is of "Copra" to a value of $302,065 for 10,572,275 lb. over three fourths of which went to Marseilles. 1 10:h to Bombay and 50 packages or 8,750 b. to Colombo. Next was "Rubber" exported to a value of $224,768, total weight 491,680 lb., nolarly all sent to London. Then we have "Hides," value $185,963; Gum Copal, value $156,600; Tortoise-shells $89,600; Chillies (to London, New York and the European Continent) $58,454; Gum Arabic $12,180; Cowries $9,708; Cocoanuts $2,300; Tobacco $2,340; Rhinoceros Horns $19,104; Shark-fins $5,904; Wax $8,208; Orchella $12,730; besides som. Betel-nuts, Opium, Colombo-wood, Gum-myrrh and Tiger-skins; besides, above all, Ivory Tusks exported last year to a nominal value of $3,584,900.

On the trade of MOZAMBIQUE, the figures are not nearly so detailed. All we are told is that the total exports of seven districts equalled £288,222, against of imports £709,190. But there are interesting remarks in Mr. Churchill's Report, more especially in reference to the Pearl Oyster reefs south of the Zambesi road. I quote as follows :—

The number of deaths registered during the year has been 743, or about 200 to the 1,000 of the whole population. The death are entered in the lists as having resulted from the diseases predominating in most tropical and malarial districts, though the percentage of 200 to the 1,000 is excessive for even unhealthy regions.

The fever prevalent amongst the Europeans here is rarely in itself pernicious, although, with prolonged attacks of fever, the system is so prostrated that some other disease usually sets in and causes death. There are many reasons given for the great unhealthiness of the climate. The principal ones are: bad and insufficient food; houses inadequate to resist the sudden atmospheric changes; the total absence of any social enjoyment or entertainment; and the impossibility, on account of the sandy nature of the soil, of taking any legitimate exercise. One depends mainly upon tinned provisions for food, and tinned food is not invigorating.

The majority of houses are built of corrugated iron and wood, and although such houses can be built cheaply and quickly they are too hot in summer and too cold in winter, and tend to increase unnaturally the climatic pressures one has to bear.

There have been 600 emigrants sent from Portugal to Lourenço Marques this year. A few of these emigrants obtain employment such as has been formerly given to the natives, a large number die, and the remainder are without work or the desire to obtain any; and are consequently a source of expense to the authorities.

The rates of wages in this district are as follows :—

Description		Amount.					
		£	s.	d.	£	s.	d.
Native and emigrant labourers	Per day	0	1	6 to	0	4	0
Native masons	do	0	6	0	0	12	0
Indian do	do	0	12	0	1	8	0
Chinese Carpenters	do	0	15	0	1	10	0
European do	do	1	0	0	1	10	0
Indian painters and colourmen	do	0	10	0	1	5	0
Native servants	Per month	1	0	0	5	0	0
,, cooks	do	2	10	0	10	0	0

There are no industries in this district. The natives in the interior plant small patches of ground around their kraals and produce small quantities of cereals for their own consumption. The natives who live near the towns on the coast, although having ground that would produce heavy crops, find it more profitable to work for Europeans, and buy from them such food as they require. With the high rates of wages obtained they are both able to live better in this way than they could by cultivating the ground, and to have a surplus with which to drink or to buy such luxuries as they may desire.

Among the Europeans such energy as has been expended has been rather in the direction of expeditions to the interior, and in discussing political questions of boundaries, &c., than in paying attention to the nature of the soil, its cultivation, or its possibilities.

There exists on the east coast, south of the Zambesi River, reefs of pearl oysters, of which the most important is situated to the south of Chiloane, in the Bazaruto Archipelago. The greater portion of the reef is within enclosed waters, and, as it has never been regularly worked, the pearls which could be found there must be considerable dimensions. The natives in the locality of the pearl reefs occasionally find black pearls of great beauty, but their value is a

absolutely destroyed in consequence of the method employed in extracting them from the shell. This method consists in placing the oyster in the fire.

A syndicate is being formed in Lisbon at the present time for the development of these fisheries.

In the month of August of this year the first fully granted Mining concession for mining of any description in this district was given to a Portuguese syndicate for the development of diamond mines situated about 37 miles from this city, near the railroad.

Other mining concessions for the development of coal, gold and precious stones have been applied for, but have not yet been granted.

Valuable coal deposits are said to exist in this district in large quantities. As, however, according to law a mining shaft cannot be sunk more than 6 feet before a concession is fully granted to work the mine, the samples of coal produced have been taken from the surface, and the real quality of the coal in the mines themselves has not yet been ascertained.

The same public works which were in hand last year are in hand this year. Those that were in contemplation have not yet been begun. All public works came to a standstill over six months ago, when such funds as were available were used for expeditionary purposes.

The Netherlands Railway Company, which is connecting this port with the trade centres of the Transvaal, is completing its line to within a few miles of Barberton.

A survey is being made with the idea of constructing a railway from Komati Poort, at the frontier of this district, to the Salati River goldfields, and thence to Mashonaland. The proposed route would be three times the distance to Mashonaland that the proposed Beira route would be, but it is held that the advantages obtained in opening up the Salati goldfields on the way would more than equal the disadvantages of the more lengthened route. A large tract of valuable farming and grazing country would also be reached by a Salati River railway and homes could be established for thousands in a country practically, healthly and capable of producing payable crops of all South African produce. The proposed route, however, also runs through a country full of rivers, and is so hilly in places as to be almost impassable. The cost of building a railway in such a country leads one to imagine that it will not be attempted.

A company is about to be formed in this city for running tramcars for passengers and freight from the principal thoroughfares in town to the residential quarters on the hills surrounding the bay. The tramcars are to be propelled by steam. The company is to have the monopoly of all public delivering, and the financial success of the enterprise is in this way partly secured.

During this year a chamber of commerce has been formed by the merchants, with the idea of obtaining certain privileges in trade which do not at present exist. The chamber, however, seems to be a political as well as a commercial association, and it is a question whether any material advantages will be obtained by the department.

It has been decided by the Portuguese Government to open up the country south of the Zambesi River by means of chartered companies. One of these companies, the Portuguese East Africa Company, has a block of territory bounded on the north by the river. On the south the influence will extend to the Limpopo River, and on the east to the ocean, the islands near the shore coming within its jurisdiction. The company is compelled to construct a railway, connecting either the Transvaal Railway or the Matabele country with the Limpopo River at the point where it ceases to be navigable (a distance of about 70 miles from its mouth); or with the port of Inhambane; or with any railway system north of the Sabi River, according to a future agreement to be made between the Government and the company. It is also authorised to grant sub-concessions, with the approval of the Government, for pearl, coral, and amber fishing.

Other companies are to be formed for the development of the remaining territory south of the Zambesi, and it is hoped in this way to open up the country both rapidly and thoroughly by introducing industries which, without doubt, could be followed to advantage in most of the luxuriant valleys that extend along the coast a few miles inland.

CEYLON TEA IN AMERICA.

Further information respecting Mr. ELWOOD MAY'S mission to England on the present occasion does not prove very encouraging in respect of the prospects of the Ceylon-American Tea Company. No one can say in view of all that Mr. May has done in securing attention to Ceylon teas on the part of public men and the press—and specially by large advertising contracts—that he has not worked well, and entirely without fee or reward, for Ceylon tea. He has done so, as he says, because he has believed and still believes in the product as a thoroughly good article which his countrymen do well to consume in place of the inferior, and in many cases adulterated, trashy China and Japan teas. But to change the taste of a people like the Americans so completely won over for many years to a liking for the green "faced" teas is not an easy matter, as Mr. May has found to his cost; and yet he is quite certain that the lines on which he has proceeded are the right ones—that he has been laying a good foundation on which to build; and that if the process can only be persevered in, the building slowly, but surely proceeded with,—success is certain in the end. But meantime, as I have already stated, the "sinews of war" seem wellnigh exhausted. The trade of the Company so far has not been self-supporting—far from it. Messrs. Watson & Farr—to whom the greatest credit is due and the special thanks of every Ceylon tea planters—are out of pocket, if report speak true, to the tune of £3,000 to £4,000 sterling, and naturally, they do not care as men of business, rather than of speculation, to advance further unless simultaneous support can be got from those more immediately interested. So with Mr. May himself, any further effort beyond the Atlantic for this Company depends on co-operation in England or Ceylon or both. Already the rumour is that the store of the Company in New York which Mr. Pinco managed, and for which a heavy rent was paid, may have to be, or has already been, closed; and Mr. May makes no secret that unless his mission is crowned with some degree of success he will as an honourable man have to throw up the advertising contracts and generally to suspend operations—in other words the Company must collapse. This would be an especially unfortunate circumstance on the eve of the Chicago Exposition; and no one seems to recognize that fact more clearly than the Commissioner, Mr. Grinlinton. He has also personally not the least pecuniary interest in the Company, of the Ceylon shareholders. One question may be whether the Company should not be in some way identified with the Ceylon Tea Court in the Exhibition. Probably as regards this point, as well as in respect of the financial requirements, the counsel of Sir Arthur Birch may be sought; and no one has manifested a greater interest in the future expansion of the consumption of Ceylon tea in America, than our former Lieut.-Governor and Colonial Secretary.

Mr. GRINLINTON, who continues very busy, is likely to take his passage by the S. S. "City of New York," the fast boat in which he returned from America in 1890. Leaving Liverpool by it on 4th May he should be at Chicago by the 17th—in good time for the purpose in view. He has been seeing the American Minister, and leading American citizens in London and getting introductions to leaders in the tea import trade in New York, &c.

GERMAN *v.* ENGLISH MANUFACTURING CHEMISTS AND THE OPENING IN INDIA.

My attention has been called by Mr. T. Christy to an article which has appeared in a German Pharmaceutical Journal written in a depreciatory and unfair tone towards English chemists. I send you the translation which has been supplied to me for publication, and apart from the replies and criticism which will no doubt be provoked in India as well as Ceylon, I would only mention the case of Messrs. Kemp & Co. of Bombay, who manufacture a large number of Indian preparations on the spot, and who even supply home wholesale drug houses with prepartions made from the fresh products of India. Altogether Mr. Helling deserves a good rap over the knuckles, and it may be a question whether he has ever been in the East at all. The paper is as follows :—

A CHAT ABOUT INDIA.

By H. Helling, London.

Which appeared in the *Pharmaceutischer Zeitung* of Berlin, 4th Nov. 1892.

(*Translated by a London friend for the "Ceylon Observer."*)

A great deal has been written about India ; and as far back as its history can be followed, new and wonderful things are heard of from time to time.

To a chemist and druggist, India is a land of especial interest, not only because products of the country have been used as medicines since the oldest times, but because the drug export even up to the present day continually offers something new and brings its influence to bear upon the whole commerce of drugs ; take for example the influence exerted by East India cinchona bark. But the country is of far greater interest to the German apothecary, for in British India German influence has recently made itself conspicuous in a considerable manner. A few words therefore with regard to the conditions of commerce and the position especially of the drug commerce, may be not without interest, all the more so, as I have obtained the information (as far as the conditions of commerce are concerned) from authentic sources; and I cannot do otherwise than express my thanks to Messrs. Collingwood and Schlesinger. Mr. Collingwood only lately returned from lengthy travels in India and is well up in the drug trade, whereas Mr. Schlesinger has had an experience of many years in the drug trade, and both occupy themselves with the introduction of rare and new drugs. Starting from the fact that British India has a population of between 200 to 300 millions ; this sufficiently proves of what importance such a country must be to commerce.

Until a few years back its trade lay in the hands of Englishmen and natives. Englishmen imported and exported, whereas the native has exported and found a sale for their produce in India. These conditions have gone through a mighty change of late and it is chiefly German firms that have the import trade to a great extent in their hands, competition driving English goods more and more out of the field.

The reasons for this are plain. The English are used to high profits in India since ages back, and they had hardly any occasion to deviate from this, as the wants of India were completely monopolised by England directly or indirectly, for there is no doubt that since a considerable time many Continental goods were brought to India through English houses. The ever-increasing competition together with the interest for colonial trade, has caused the German houses to take foreign commerce more and more into consideration, and what formerly seldom occurred and was hardly noticed by Englishmen has now become an unalterable fact viz, the successful appearance of German houses of commerce in India. The chief reason for this success of German industry is to be found in cheap prices, which of course outweigh everything else from a native's point of view. To a native the chief condition is cheapness, once more cheapness and again cheapness. Quality does not come into consideration at all, they will buy small quantities of cheap things today and when used up will buy again without considering whether a dearer article might not have lasted longer. Moreover a German adapts himself more to the demand of the public and supplies to the native traders things made according to their wishes. He is not like the English who manufacture their goods as they think best, without attending to any of the wishes of the buyers. This is also especially the case with pharmaceutical and medicinal utensils such as surgical instruments, thermometers, glassware, etc., which are often supplied by Germans at a quarter of the price at which English houses offer them. A large field is open in British India for Germans, all the more so if they can settle down in the country with capital. Chemical industry in India and the manufacture of pharmaceutical preparations do not exist. Everything is imported into the country instead of being produced in the country itself.

The alcohol industry is as good as non-existing. The only thing made by everybody is artificial mineral water, and as this represents about the highest step of chemical industry there, it indicates how very backward manufacturing is in India. There is an opportunity for many a German chemist and druggist or manufacturer to work out new enterprises in the country and draw out the profits. When we consider that the native medical man and apothecary having only the crude products is obliged to take his supplies of all other preparations such as tinctures, extracts, chemicals, etc. from Europe, there remains no doubt that a golden future is beckoning many as hardly anything in the way of galenical preparations is made by the wholesale or European druggists of India themselves. It is a fact that many an Indian drug must travel first to Europe to be made into a tincture and as such be taken back to India again. This "keeping back" of industry is in strong contrast with the rising of other countries, for instance Japan which makes an Iodide of Potassium superior in purity to the English and equal to the best German brands. As regards the buyers of imported goods it is astonishing that for the greater part they consist of native agents who sell their goods in poor looking booths in the bazaars and buy and sell in wholesale or retail quantities. Many of these people are rich and have enormous businesses ; most of the goods are transmitted to their clients direct.

Among the native merchants in Bombay and its neighbourhood the Parsee or emigrant followers of Zoroaster take the first place as far as mercantile efficiency is concerned and are on a par with the Europeans. It is said that three Chinese are necessary to equal one Parsee, and the Chinese are known as thorough merchants. In the bazaars everything is classified according to the different guilds; that is, we find the different branches of business together and the poison shops form a street for themselves. The business with every stranger is to a great extent simplified by the obliging manner in which he is received in the bazaars by the Parsees who with the other merchants for the most part speak English. A few more words about the Parsees with whom the Europeans have chiefly to do; they are merchants on a large scale and have a liking for home life ; contrary to Europeans they acquire landed property, fine country houses of European style, and fine horses.

These are habits which hardly agree with many of their customs, as for instance the giving up of their dead to the vultures for food. In Calcutta and the surrounding districts the chief merchants are the Baboos who are said to be inferior to the Parsees. With regard to the quality of the chemicals introduced in almost all cases the requirements of the British Pharmacopœia are sufficient, although I know of cases where the Indian authorities put even higher requirements for instance that cocaine should stand McLagin's test. An Indian Pharmacopœia is in existence, but chiefly for the sake of Indian drugs used by the native doctors.

Native gentlemen continue to come in large numbers to England to study medicine where they pass the examinations and then of course prescribe quite in the English style. On looking at Dymock's "Vege-

table Materia Medica of Western India" and the "Pharmacographica Indica" now appearing, one notices that a large mass of drugs playing an important part in India medicine have not been examined, even as to their chemical and physiological action and it almost seems as if of late years in England the general interest is turned more to the examinations of synthetic chemical products quite neglecting the vegetable drugs.

This is all the more to be regretted as one can at least get authentic plants from India as the number of botanical gardens and agricultural institutes do everything to find use and demand for the raw products of the country for the benefit of it.

It would be a great pleasure to me if these lines were to excite the German chemical industry and drug commerce, on to further enterprises in India and in the English colonies in general. There is no doubt, but that in these countries a wide future lies open to Germans of this profession.

SOUTH WYNAAD NOTES.

4th May 1892.

During the last month we have had a rainfall measuring 8 inches 55 cents, which for April is somewhat unusual. This was ushered in by sharp cyclonic storms, which drifted off into an excellent imitation of the monsoon—dull grey skies and a continual dropping of soft rain. The storms were sufficiently strong to bring down no end of trees, which blocked our roads in a most inconvenient manner. The worst of it was, that in some cases the heavy rain fell upon the open blossom. This is a sensation which no one but a coffee planter can duly appreciate. To saunter round in the evening and gaze hopefully at the sheets of snowy blossom, to speak, encouragingly to the bees which hum merrily round, intoxicated by the wealth of sweetness spread out for them, to eat your dinner in happy consciousness that the crop would pay for it, to lay your head down peacefully on your pillow rejoicing in the thought that "the blossom is safe, and then," . . . *crash*, down comes the rain—*bang*, down go the charcoal trees upon the finest bushes! The thunder rolls, the lightning flashes, and you lie on your back doggedly staring at the ceiling and saying to yourself, "What a glorious, happy, innocent Arcadian sort of life is that of the free and independent planter!" However, we may hope that it was only here and there that the blossom was thus caught. But here, you see, comes in one of the advantages of Liberian. The flower opens, sets, and falls within a few hours, and storms affect it not. Oh! how I longed for some of the detractors of my favourite product, to take a walk round my estate plot, the morning it was "out." It was simply a magnificent sight and every passing wayfarer paused to admire and exclaim at the glorious show of big waxen blossoms. As for the bees, they became absolutely delirious over it, such a buzzing and fussing, such a turning up of their noses at the Arabica, which looked so insignificant besides its towering brethren. I think the most rabid abuser of Liberian, after a sight of that field, however much he may have come to scoff, would have returned to plant Liberian.

I have not yet met anyone in this neighbourhood who seems especially jubilant on the subject of crop. Of course, we have different ways of expressing ourselves. Our optimists say:—"Everything is splendid, though of course, we cannot expect such a *magnificent* crop as last year, two seasons running!" Our pessimists sigh heavily and murmur *Ichabod*, and point at estates abandoned now, and more to be abandoned; moderate folks like myself steer a happy medium, or to try to, mindful of the stone-throwing procivilities of some other people. I don't think there is any immediate prospect of Wynaad turning out many millionaires in this year of grace, 1892. But possibly if the rupee keeps to its present delightfully depreciated state, we may be able to cover expenses. On several estates the crop has promised very fairly well, whilst on others,—rumour says,—but there, let us talk of "sealing-wax and kings," rather than dwell upon uncheerful subjects.

The long drought has been a splendid check upon leaf disease, but we rather dread the subsequent effect of all these late rains. I hear groanings over borer, but as far as I can gather, this plague is not general, its fancy being apparently for especially situated estates. You know the impenetrable silence of everything before a big storm? How at last you almost strain your ears to catch the rustle of a leaf, or the twitter of a bird? Well that is exactly how it is with your South Wynaad "special" as regards news of "tea." A month or two ago I dreamed of long telling paragraphs for the *Madras Times*. The air was full of rumours, and I had no end of enchanting "strictly confidentials" whispered into my delighted ears. When my neighbours talked of this and that possibility, I chuckled to myself, and thought about certain estates, and what I knew was going to be done with them and so on. I even mentally planned an "interview," with the manager of our "Central Factory," and how I would describe him as such a splendid genial fellow, and all that, and tell you all about the machinery and the penetrating, intoxicating odour of the hot tea and so on. Now, I feel run down to the lowest depths of humiliation, for here is May, and oh! Mr Editor, be merciful for like the rustic lover "I h'aint got nuthin' to say." Absolutely nothing further is heard at present on the tea subject, and certainly nothing practical in the way of planting is likely to occur this year. It is a terrible pity that so much splendid possibilities should be thus ruthlessly wasted. However, to revert to my former *simile*, perhaps it may be only the silence before the storm, and I may yet gladly record jubilee days for poor old Wynaad.

The Woodlands Estate, I note, has passed hands since I last wrote and become the property of a "perfick stranger." The management, however, remains the same.—*Madras Times*, May 10th.

THE INDIAN COTTON CROP OF 1891-92.

The final Memorandum on the Indian cotton crop of 1891-92, which we have just received, shows that throughout the reporting Provinces the season was exceptionally unfavourable to the crop and that both area and outturn have in consequence fallen off largely. The Punjab crop is estimated at 41 per cent. less in area and 36 per cent. less in outturn than in 1890-91, itself an unfavourable year, and is stated to be the lowest crop on record. In the North-Western Provinces and Oudh the deficiency is 23 per cent. in area and 42 per cent. in outturn, and in Madras it is 21 and 30 per cent., respectively. In the remaining Provinces the influence of the adverse season on the area returns is less marked. The falling off in production due to the diminished area is aggravated by the lower yield per acre, which is disclosed in the estimates of outturn, which in Bombay is put at 36, in the Central Provinces at 35, and in Berar at 15 per cent. less than last year's. The general result for the seven reporting Provinces is that the area stands at a little over 11 million acres against 13 million acres in the previous year and an average acreage of over 12 millions. The forecast of production is 1,380,000 bales of 400 lb. each against 2,031,000 in 1890-91, and an average of 2,185,000. Taking the average value of a bale at R100, the money equivalent of the deficiency on the crop of 1891-92, as compared with the normal, is, roughly, 112 millions of rupees, or about 74 per cent of the average annual exports of cotton to foreign countries, and over 33 per cent of its estimated average production.

Sir Edward Buck remarks that the export trade in Indian cotton is not progressive and fluctuates largely; so also does the outturn, the cotton plant being very susceptible to the influence of unfavourable seasons and the attacks of insects. But al-

though complaints of adulteration have been some what loud and frequent of late years, the trade returns afford no evidence of any marked decline in either demand or supply. Indeed, taking into consideration the annually increasing consumption of Indian mills, there is, he says, good reason to conclude that the total production of raw cotton has, on the whole, increased rather than diminished. What has taken place is a diversion of the Indian exports from the markets of the United Kingdom to those of other European countries, among which Italy, Belgium, Germany, Austria, and France are the principal customers. As the year for which trade returns are compiled ends on the 31st March, the full effect of the present unfavourable harvest will not, Sir Edward Buck writes, be apparent till 1892-93, the traffic returns of which may be expected to show a large falling-off. The exports by sea to foreign countries during 1891-92 will also in all probability be much less satisfactory than those of the preceding year, as the harvest of 1890-91 was unfavourable, though not nearly to the same extent as the present one. The total foreign exports registered during the first ten months of 1891-92 (ending 31st January 1892) amounted to 931,280 bales, against 1,207,360 and 1,238,160 in the corresponding periods of 1889-90 and 1890-91.—*Madras Mail.*

TEA IN CHINA.—The reports from China regarding tea continue to be more and more gloomy. The Foochow *Echo* of 23rd April has the following: —

From a native source we learn that four Chinese millionaires (?) of Hinghua have conceived the idea of substituting cotton for tea in several districts, and their agents are now busy sounding the country-people as to whether they will co-operate with them. Our informant states that the scheme is well thought of generally, if only the Government will assist the project (as before) instead of obstructing it of which there seems to be some dread. News of the great falling off in advances to the teamen this season seems to have reached the tea districts apace, since we are already assured that growers, instead of allowing all their first pickings to lie at the mercy of the few who may be in a position to buy it on the spot, intend sending large quantities of it down to the Foochow dealers to sell to the local packers. As it is generally understood that the sooner tea is cured and packed after picking the better, foreign tea buyers will not learn of this new departure with much satisfaction. Nor will the up-country buyers be best pleased if this move is carried out to the extent talked of; they had planned to corner the growers, but, if we may use a sporting expression, the growers are going to hedge. Between the two factions, foreigners may be the gainers in the end as far as price is concerned. Yet another large Chinese Bank has now been started over the bridge, making four new ones since the commencement of the new year. Considering the admitted unsoundness of business all round, we learn of this with some surprise. The capital of this new bank is said to be considerable, and they will have to use it though in what way is not very clear. That they will have applications for loans from disappointed teamen is certain, but they must have more faith in the future of tea if they accept such men as customers, when the older banks, well acquainted with the business, decline to loan money to them. Of course there are several other articles of merchandise dealt in at the port on a very large scale, but the trade is in an unsound state, and as the bankers have been sufferers with the traders themselves, it is astonishing to hear of so many new banks starting,

We also read :—

A correspondent at Hankow, writing to the *N.-C. Daily News* on the 26th ult., says:—'Torrential rains here: bad look out for the tea, as this is just the picking time. Rain at the picking season means "tar" and too old leaf, while if this season's crop should turn out a bad one, it will put the finish on China tea.' According to reports in the native papers, this year's tea crop is going to be both bad and small, a fact which is attributed to the bad weather, and in consequence of this the price of the first leaf has risen already. The *Shenpao's* Wenchow correspondent describes the yield of tea this year, in the Pingyung district, as being very bad. Owing to the unusual cold and incessant rain the tea plants have been much stunted and the crop this season is estimated to be only half of what was produced last year. Tea merchants who have gone into the mountains to purchase tea are paying high prices. For the best quality they are giving 50 dollars per picul and for an inferior kind 30 dollars per pgicul is charged.

COFFEE IN JAMAICA.—Sir Nicholas Laws, it is said, was the first person who planted coffee in Jamaica, but dying three years afterwards he did not see the cultivation make any considerable progress. In 1732 several planters and merchants subscribed £220,103 as a fund for defraying the charges of soliciting an act of Parliament for lowering the inland duty upon the importation of coffee from Jamaica into Great Britain, which at that time was £10 per cwt. That year the duty was reduced from 2s to 18d per pound producing a revenue of £10 000 per annum. In 1752 the export from Jamaica was 500 cwt, in 1755 it was, 4,000 cwt. in 1891 it was over 75,000 cwt. *Madras Times.*

CEYLON EXPORTS AND DISTRIBUTION, 1892

COUNTRIES.	Coffee, Cwt			Cinchona,	Tea.	Cocoa	C'mons.	Cinnamon.		Coconut Oil.		P'bago	
	Plantation	N'tive	Total.	1892 B'anch &Trunk lb.	1892 lb.	cwt.	lb	Bales lb.	Chips lb.	1892 cwt	1891 cwt.	1892 cwt.	
To United Kingdom	12395		12395	1948355	25617217	8616	109505	292183	49736	40444	33151	49862	
,, Austria	4631		4790	..	43856	...	41134	200	1400	8918	7845	..	149114
,, Belgium	...	159	159	349613	200	...	...	22600	19600	2024	906	4742	149279
,, France	16	...	16	...	1911	...	...	73860	112	...	2300	683	16 815
,, Germany	138	...	138	...	...	...	...	149300	96328	16391	5338	9569	161880
,, Holland	298	...	298	...	3946	90	3854	...	...	...	...	3586	
,, Italy	...	...	...	59240	...	...	...	26600	17024	505	1602	...	
,, Russia	...	...	...	...	962	...	...	...	...	...	1001	...	
,, Spain	...	12	12	...	400	...	...	62500	...	...	...	...	
,, Sweden	...	...	...	...	800	...	...	...	...	...	...	...	
,, Turkey	...	...	...	...	...	...	...	...	...	...	...	...	
,, India	...	...	...	...	300216	...	56166	4096	224	30249	43805	204	
,, Australia	312	112	424	...	1493161	23	...	910	4424	674	603	43	
,, America	2887	485	3372	...	65079	466	...	6000	...	62549	34349	80415	
,, Africa	373	311	684	...	5387	...	...	...	...	...	...	...	
,, China	62	...	62	...	52213	...	...	2000	...	3060	1033	...	
,, Singapore	32	...	32	...	3848	333	...	...	...	510	38	...	
,, Mauritius	33	...	33	...	63577	...	...	...	...	...	...	...	
,, Malta	11	...	11	...	2870	...	...	...	...	...	...	...	
	94	8	102	...	...	...	...	...	...	...	...	...	
	...	...	...	...	...	...	...	...	...	...	...	...	
Total Exports from 1st Jan. to 23rd May 1892	20911	1075	21986	2357208	27681243	9528	172659	642149	188848	165324		149114	
Do 1891	32686	2788	35471	2051542	26416109	11388	139986	725618	125099	132094		149279	
Do 1890	472 3	1732	48945	3490574	17499650	8578	165719	638024	141214	6291		16 815	
Do 1889	29340	2936	32276	4108943	12813828	7535	142910	1076543	300021	120910		161880	

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current, London, May 5th, 1892.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY	QUOTATIONS
ALOES, Socotrine	Good and fine dry liver...	£4 a £6
Zanzibar & Hepatic	Common and good ...	40s a £5 10s
BARK, CINCHONA Crown	Renewed	3d a 8d
	Medium to fine Quill ...	4d a 7d
	Spoke shavings	2d a 4d
	Branch	1d a 2d
Red...	Renewed	2d a 7d
	Medium to good Quill...	4d a 6d
	Spoke shavings	2d a 3d
	Branch	1d a 2d
	Twig	1d a 1½d
BEES' WAX, E.I., White	Good to fine	£7 a £8 10s
Yellow ...	,, ,, ...	£6 a £7
Mauritius & Madagascar...	Fair to fine	£5 15s a £6 12s 6d
CARDAMOMS—		
Allepee	Fair to fine clipped ...	1s a 2s 6d
Mangalore	Bold, bright, fair to fine...	1s 6d a 3s 3d
Malabar	Good to fine plump, cliped	2s a 2s 6d
Ceylon, Malabar sort	Fair to good bold bleached	2s 3d a 3s 3d
	,, ,, medium ,,	1s 4d a 2s 2d
	,, ,, small	1s 1s 6d
	Small to bold brown ...	1s a 1s 6d
Alleppee and	Fair to fine bold ...	2s a 3s 8d
Mysore sort	,, ,, medium ...	1s 4d a 2s
	,, ,, small ...	10d a 1s 3d
Long wild Ceylon...	Common to good ...	6d a 2s 2d
CASTOR OIL, 1sts	White	3d a 3½d
2nds	Fair and good pale ...	2⅝d a 2¾d
3rds	Brown and brownish ...	2½ a 2⅝d
CHILLIES, Zanzibar ...	Fair to fine bright ...	50s a 60s
	Ord'y. and middling ...	45s a 50s
CINNAMON, 1sts	Ord'y. to fine pale quill...	6½d a 1s 5d
2nds	,, ,, ,, ,, ...	6d a 1s
3rds	,, ,, ,, ,, ...	5½d a 10d
4ths	,, ,, ,, ,, ...	5d a 9d
Chips	Fair to fine plant ...	2½d a 7d
CLOVES, Zanzibar	Fair to fine bright ...	2¾ a 3⅛d
and Pemba. (	Common dull and mixe	2¼d a 2¾d
,, STEMS	Common to good ...	¾ a ⅞d
COCULUS INDICUS ...	Fair sifted	11s a 14s 6d
COFFEE	Mid. Plantation Ceylon	99s a 102s
,, ...	Low Middling ,, ,,	94s a 98s
COLOMBO ROOT... ...	Good to fine bright sound	25s a 33s
	Ordinary & middling ..	17s a 22s 6d
CROTON SEEDS, sifted...	Fair to fine fresh ...	16s a 20s
CUTCH	Fair to fine dry ...	24s a 34s
DRAGONS BLOOD, Zan.	Ordinary to good drop ...	50s a 90s
GALLS, Bussorah & Turkey	Fair to fine dark blue ...	70s a 80s
	Good white and green ...	60s a 65s
GINGER, Cochin, Cut ...	Good to fine bold ...	80s a 90s
,, ...	Small and medium ...	57s 6d a 70s
Rough...	Fair to fine bold ...	42s a 50s
,, ...	Small and medium ...	35s a 40s
Bengal, Rough	Fair to good	30 a 35s
GUM AMMONIACUM ...	Blocky to fine clean ...	30s a 70s
ANIMI, washed ...	Picked fine pale in sorts,	£11 a £11 10s
	Part yellow & mixed d...	£10 a £10 10s
	Bean & Pea size ditto ...	£5 a £7 10s
	Amber and red bold ...	£8 10s a £9 10s
	Medium & bold sorts ...	£6 10s a £10
scraped...	Good to fine pale frosted	
ARABIC E.I. & Aden ..	sifted	55s a 80s
	Sorts, dull red to fair ...	35s a 5 s
	Good to fine pale selected	40s a 50s
Ghatti ...	Sorts middling to good...	25s a 33s
	Good and fine pale ...	65s a 80s
Amrad cha.	Reddish to pale brown ...	25s a 50s
	Dark to fine pale ...	15s a 50s
Madras ...	Fair to fine pinky block	
ASSAFŒTIDA	and drop	50s a 140s
	Ordinary stony to midling	15s a 45s
KINO	Fair to fine bright ...	70s a 72s 6d
MYRRH, picked	Fair to fine pale ...	£5 a £7
Aden sorts	Middling to good ...	70s a 80s
OLIBANUM, drop...	Fair to fine white ...	35s a 60s
,,	Reddish to middling ...	22s 6d a 32s 6d
pickings...	Middling to good pale ...	12s a 18s
siftings ...	Slightly foul to fine ...	10s a 15s
INDIARUBBER	Red hard clean ball ...	1s 11d a 2s 3d
East African Ports, Zanzi-	White soft ish ditto ...	1s 7d a 1s 11d
bar and Mozambique Coast	Unripe root	10d a 1s 4d
	Liver	1s 4d a 1s 10d
	Sausage, fair to fine on sticks	1s 8½ a 1s 11d
Assam,	Good to fine ...	1s 6d a 2s 2d
	Common foul & middling	9d a 1s 5d
Rangoon	Fair to good clean ...	1s 8d a 1s 10d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	1s 10d a 2s 2d
	Fair to good black ...	1s 5d a 1s 9d
ISINGLASS or FISH MAWS Tongue.	good to fine pale ...	2s a 2s 6d
	dark to fair ...	1s a 1s 10d
Bladder Pipe...	Clean thin to fine bold...	1s 6d a 3s
Purse ...	Dark mixed to fine pale	8d a 1s 4d
Kurrachee Leaf ...	Common to good pale ...	1s 6s a 2s 8d

EAST INDIA *Continued* East Coast Africa, Malabar and Madras Coast, Bengal.	QUALITY.	QUOTATIONS
INDIGO, Bengal ...	Middling to fine violet ..	4s 2d a 5s 2d
	Ordinary to middling ...	3s 4d a 4s
Kurpah	Fair to good reddish violt	3s 2d a 3s 6d
	Ordinary and middling...	2s 4da 3s
Madras (Dry Leaf)	Middling to good ...	2s 8d a 3s
	Low to ordinary ...	1s 10d a 2s 6d
IVORY—Elephants' Teeth-		
65 lb. & upwards ...	Soft sound	£70 a £76 10s
over 30 & under 60 lb.	,, ,,	£55 a £71
40 a 100 lb. ...	Hard ,, ,,	£41 a £58 10d
Scrivelloes	Soft ,, ,,	£30 a £42 10s
,, ...	Hard ,, ,,	£19 10da £26 10d
Billiard Ball Pieces 2¼ a 3¼ in	Sound soft	£83 a £100
Bagatelle Points ...	Sli. def. to fine sound soft	£70 a £80
Cut Points for Balls	Shaky to fine solid sd. sft	£60 a £74 10d
Mixed Points & Tips...	Defective, part hard ...	£40 a £51
Cut Hollows ...	Thin to thick to sound, soft	£32 a £55
Sea Horse Teeth—		
⅜ a 1¼ lb.	Straight crked part close	1s 3d a 4s 1d
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	9s 3d a 10s 6d
	,, II, fair pickings	6s a 7s 3d
	Jubblepore I, good & fine pale	8s 6d a 9s
	,, II, fair re- jections ...	6s a 7s 6
	Vingorlas, good and fine	8s a 9s 6d
Madras, Upper Godavery	Good to fine picked ...	9s 3d a 10s 3d
,, ,, ...	Common to middling ...	7s 3d a 8s
Coast	Fair	8s 3d a 9s
Pickings ...	Burnt and defective ...	5s 9d a 6s 9d
MACE, Bombay ...	Dark to good bold pale...	1s 10d a 3s
	W'd com. dark to fine bold	6d a 1s
NUTMEGS, ,, ...	65's a 81's	2s 9d a 3s 4d
	90's a 125's	2s 1d a 2s 8d
NUX Cochin, Madras	Fair to fine bold fresh	9s a 10s 6d
VOMICA and Bombay	Small ordinary and fair	6s a 8s 6d
OIL, CINNAMON ...	Fair to fine heavy ...	1s a 2s 6d
CITRONELLE ...	Bright & good flavour ..	⅝d a ¾d
LEMONGRASS ..	,, ,, ,, ...	1¼d a 1½d
ORCHELLA Ceylon	Mid. to fine, not wood,	20s a 25s
WEED Zanzibar ...	Picked clean flat leaf ...	10s a 20s
Mozambique	,, wiry	25s a 35s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy...	3d a 3½d
Alleppee & Tellicherry	,, good ,, ...	
Tellicherry, White ...	,, ,, ,, nom	1s a 1s 1d
PLUMBAGO, Lump ...	Fair to fine bright bold	15s a 25s
	Middling to good small...	11s a 14s
Chips ...	Sli'tly foul to fine bright	9s a 12s
Dust ...	Ordinary to fine bright...	4s 6d a 8s
RED WOOD	Fair and fine bold ...	£3 a £3 10s
SAFFLOWER, Bengal	Good to fine pinky nominal	60s a 80s
	Ordinary to fair ...	40s a 55s
	Inferior and pickings ...	20s a 30s
SALTPETRE, Bengal ...	Ordinary to good ...	16s 6d a 17s
SANDAL WOOD, Logs .	Fair to fine flavour ...	£35 a £60
,, Chips..	Inferior to fine ...	£9 a £30
SAPAN WOOD	Lean to good bold ...	£4 a £7
SEEDLAC	Ordinary to fine bright	50s a 80s
SENNA, Tinnevelly ...	Good to fine bold green...	8d a 1s
	Medium to bold green...	5d a 7d
	Small and medium green	2½d a 4d
	Common dark and small	1d a 2d
Bombay ...	Ordinar to good ...	1d a 2d
SHELLS, M.-o'-P. ...	EGYPTIAN—bold clean...	87s 6d a 95s
	medium part stout	97s 6d a £5 10
	oyster and chicken	80s a 95s
large	BOMBAY—good to fine tuic	75s a £5 15s
medium part stout	clean part good color	£5 10s a £6 17s 6d
chicken part stout	,, ,, ,,	£5 2s 6d a £6 12s 6d
oyster part thin	,, ,, ,,	65s a 90s
Mussel ..	bold sorts	45s 6d a 52s 6d
	small and medium sorts	31s a 43s
Lingah Ceylon ...	Thin and good stout sorts	6s a 12s
TAMARINDS	Mid. to fine blacknot stony	10s a 12s
	Stony and inferior ...	6s a 8s
TORTOISESHELL ...	Sorts good mo tle, heavy	22s a 23s
Zanzibar and Bombay	Pickings thin to heavy	9s 6d a 16s
TURMERIC, Bengal ...	Leamish to fine plump finger	17s a 19s
Madras ...	Fine, fair to fine bold brgt	23s a 26s
,, ...	Mixed middling... ...	16s a 23s 6d
,, ...	Bulbs	10s a 12s
Cochin ...	Finger	13s a 14s
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	8s a 18s
Mauritius, 2uds...	Foxy & redd sh 5 to 8 in.	6s a 12s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	4s a 6s
Madagascar, 4ths...	Low, foxy, inferior and pickings... ...	2s a 5s

THE MAGAZINE

OF

THE SCHOOL OF AGRICULTURE,

COLOMBO.

Added as a Supplement monthly to the "TROPICAL AGRICULTURIST."

The following pages include the contents of the *Magazine of the School of Agriculture* for June :—

INSECTICIDES AND FUNGICIDES, AND THE APPARATUS FOR DISTRIBUTING THEM.

MANY insects and fungi, destructive to cereals, from the nature and time of their attack, cannot be directly dealt with, and must be left to their destructive works though there are indirect means of preventing their appearance. In the case of the fungi known as smut (*Ustilago Segetum*) and rust (*Uredo-graminis*), nothing has yet been found of avail after they have appeared, though sulphate of copper, applied to the plants when young, will most probably keep them off.

Wireworms, the grubs of the click beetle, (*Elater lineatus*) can be hindered in their destructive work by dressings of gas-lime, at the rate of 10 cwt. per acre ploughed into the land. Top-dressings put on the crops at an early stage, consisting of soot, from 20 to 40 bushels per acre, or guano, from $1\frac{1}{2}$ to 3 cwt. per acre, or nitrate of soda, 1 to 2 cwt. per acre, have been found valuable, acting as plant stimulants, as well as by keeping the insects off the plants. Salt put on at the rate of from 4 to 6 cwt. per acre is also useful as tending to make the neighbourhood of the plants unpleasant. After all these applications the land should be well rolled.

In some seasons the plant louse (*Aphis granaria*) causes much harm, first by exhausting the juices of cereals, and later by getting into the ear and doing much mischief. When it is seen that these aphides are on the plants in large numbers, it is well to apply a wash of soft soap and quassia, in the proportion of 7 lbs. of soap to an infusion made from 6 or 7 lbs. of quassia chips to 100 gallons of water. This should be sprayed on with an efficient spraying machine before the plants get too high. Again, paraffin solution might be used, made of 3 quarts of paraffin to 100 gallons of water, with 4 or 5 lbs. of soft soap, or paraffin pure and simple distributed at the rate of from 2 to 3 gallons per acre. Aphides multiply with incredible rapidity; early dressings may therefore effectually prevent a bad attack.

For the eel-worm (*Tylenchus devastatrix*) which makes the bases of the stems of cereals swell, and plants unhealthy and unproductive, applications of sulphate of potash, at from 1 to $2\frac{1}{2}$ cwt. per acre, have been found most useful, and a mixture of 2 cwt. superphosphate, and 1 cwt. each of sulphate of potash and sulphate of ammonia per acre have been found of benefit.

Almost similar remedies to those employed against wire-worms may be used for the grubs of the daddy-long legs (*Tipula oleracea*) and its congeners (*Tipula maculosa &c.*) when they infect cereals. All these dressings of manure and preventive substances may be put in by the hand, or with ordinary broadcasting machines, or with the Strawsonizer, whose powers of distribution are generally acknowledged. One great advantage of this distributor is that as little as half a bushel of powdered substance can be put on per acre, and as small a quantity of liquid as a gallon per acre if desired. In many cases of insect and fungoid attacks upon plants, the great object in spraying is to spread the obnoxious substance all over the leaves in the form of a mist or dense fog. A very small quantity suffices to make the plants objectionable to insects and fungi.

For the mustard beetle or black jack (*Phædon betulæ*) the following is serviceable: 5 lbs. soft soap well dissolved in water, extract of 5 lbs. of quassia boiled, 100 gallons water. Paraffin and

soft soap compositions, and quassia and soft soap washes have been tried with advantage to prevent and check the onion fly (*Anthomyia ceparum*), the celery fly (*Tephritis onopordinis*), the carrot fly (*Psila rosæ*), all of which work great destruction in vegetable gardens. These remedies may be put on with garden engines fitted with nozzles like the Rily, the helmet spray, the Climax, and Stott nozzles, or with the "knapsack" machine, of which there are several patterns in use. The best of these seems to be the Eclair which is about 2 feet high, and consists of a copper reservoir, or vessel, holding 26 pints, made to fit on to the operator's back, being fastened there with straps like a knapsack. A rod traverses the lower part of the reservoir inside, being worked by a lever with the operator's hand. This does not move a piston as in ordinary pumps, but acts upon an Indiarubber diaphragm, by whose sucking action the liquid is forced through the delivery tube with great force. With the Vermorrel or Rily nozzle the liquid can be delivered in the finest spray, or almost in single jets, and in any direction. For high trees the delivery hose can be lengthened by being attached to a light wooden or cane pole and directed by a boy. The machine will throw a spray from 20 to 25 feet and a jet 30 feet high. It weighs about 40 lbs. when full and costs 35 shillings. The Eclair is sold in London by Messrs. Clark & Co., Windsor Chambers, 20, Great St., Helens, E. C.

The onion crop—a source of much profit—also suffers greatly from the onion mildew (*Peronospora Schleideniana*). Sulphate of copper solutions will prevent this attack if put on just as the bulbs begin to swell. In preparing, dissolve the sulphate of copper (5 lbs.) in a wooden vessel in 3 gallons of boiling water; in another vessel the lime (2½ lbs. of quicklime) is put with 4 or 5 pints of water, and when slaked 4 gallons of water are added and the whole well stirred. This is then poured into the tub containing the sulphate of copper, being passed through a seive to keep back the particles of lime. The whole is well stirred and water to make up 22 gallons is added.

Another and a weaker preparation is as follows:—The sulphate of copper (3 lbs.) is dissolved in cold water by hanging it in a coarse bag or basket in a tub. In a separate tank the quicklime (1 lb.) is slaked and passed through a sieve and put into the tub with the sulphate of copper, and the whole well-stirred. Water to make up 20 gallons is added. The Tomato is much affected in some seasons by a fungus of the family *Peronosporeæ*, and sulphate of copper preparations have been proved to be efficacious against this. The solutions may be put on with the Eclair machine. Sulphate of copper may be used in the form of a powder for mildews (fungi) of various kinds. A good preparation of this consists of sulphur 50 parts, quicklime 3, sulphate of copper 10, coal dust very finely crushed 37 parts.

Another powder (the Skawinski, obtainable of the manufacturer of that name, at Lesparre, Medoc, France, for about 10 shillings per cwt.) active against fungoid attack, and used for vine mildrew, is composed of 40 lbs. sulphate of copper, 6 lbs. quicklime, 154 lbs. coal dustfinely ground. This may be put on with a soufflet or bellows which is a very useful means of distributing powders on a small scale for insect and fungoid attacks. A handy pail engine for small areas is Snow's patent universal garden engine, which may be fixed in any ordinary pail. The pump is very strong, forcing a powerful jet either in a single stream or in a thick fog. It is most easily worked.

The helmet spray before referred to, envelopes plants in the densest mist; the delivery can be regulated by turning a screw.

OCCASIONAL NOTES.

The stud bull at the School of Agriculture is available for service; charge R2·50 per head; arrangements as to date &c. should be made by letter.

We have received from the Lawes' Chemical Manure Company one bag each of their special manures for cotton, paddy and cereals, and for grass and leguminous crops, with the request that we will experiment with them on our grounds. We have also received from Messrs. Sutton & Sons, the well-known seedsmen of Reading, a box containing samples of the following seed: Lucerne, Common Sainfoin, Kidney Vetch, Hungarian Forage grass, Bromus Schrœderi, Giant Caragua Maize, Sorghum Vulgare, and Sorghum Saccharatum, Permanent pasture grasses and clovers, and strong-growing grasses and clovers for 3 or 4 years lay.

Mr. W. A. de Silva, Assistant Master at the School of Agriculture, left for Bombay on the 12th of May, with a view to studying Veterinary Science at the Bombay Veterinary College. Mr. Silva, who holds a Government Scholarship, expects to be away for 3 years, at the end of which time he will return to the School.

Mr. Mendis, an old boy of this school, who has been in the employ of Mr. Clovis de Silva of Moratuwa, on a coconut property in Kegalle district, has just been transferred to a tea estate belonging to the same proprietor in Alutgama.

Mr. Lye, the Veterinary Surgeon, will commence his course of lectures to the Agricultural Students in July, after the vacation. Since his arrival, Mr. Lye has been enquiring into the epizootic disease commonly known as "Murrain," and for this purpose spent a few days in the Matale district, and has advised a course of medical treatment which, we believe, is being adopted at present in the district named.

Some months ago a writer in the *Ceylon Observer* discussed the question of the protection of birds, and urged that singing birds and those useful to the agriculturist should be protected, while those which damage crops should among others be permitted to be destroyed. In the Indian Museum Notes an attempt has been made to classify Indian birds according to the diets which they affect. Under purely insectivorous birds fall the Cuckoos, Trogons, Rollers, Bee-eaters, Hoopoes, Woodpeckers, Goatsuckers, Swifts, Ground Thrushes, Wagtails, Swallows, Hedge-sparrows, Pipits, Redstarts, Robbins, Chats, Fly-catchers, Shrikes, Minirets, Warblers,

Creepers, Drongos or King Crows, Ioras, Green Bulbuls, Ground Babblers, Solitary Babblers, Babbling Thrushes, Crowtits. The following are the birds of mixed diet, partly insectivorous and partly fruit and grain-eaters: Tits, Sibias, White Eyes, Bulbuls, Nuthatches, Orioles, Starlings, Mynas, Thrushes, Finches, Larks, Sunbirds, Flowerpickers, Pheasants, Partridges, Button Quails, Rails, Cranes, Bastards, Waders. The next list comprises birds which live in or near water, their food consisting of fish, frogs and tadpoles, aquatic larvæ of insects, and small animals such as freshwater Crustaceans, Ouzels, Kingfishers, Cormorants, Pelicans, Herons, Egrets, Ibis, Ducks, Gulls and Terns. The carnivorous birds are Owls, Vultures and Hawks; Omnivorous:—Crows and Storks; Frugivorous:—Hill Mynahs, Weaver birds, Hornbills, Barbets, Parrots, Pigeons, Sandgrouse.

Very few of the purely insectivorous birds are said to be among those destroyed for plumage or food. It has been observed that in Upper India most small birds breed between April and July, and the four months April, May, June, July practically cover the breeding time of nearly all the birds which require protection. The breeding time of course varies in different climes. If the Director of the Museum would draw up a list of Ceylon birds similar to the above, and note the close seasons of birds, say in the various Provinces, it would greatly aid the Agents of these Provinces in putting into effect what is practically a dead law for the protection of birds in Ceylon.

For human beings the minimum air space consistent with health is 400 cubic feet; horses it is said require double the area, but no less than 1,200 cubic feet have been advised. In England the cubic space of cattle byres varies from 350 to 800 cubic feet. In London 600 cubic feet are required. Dr. Russell, the well-known Sanitarian of Glasgow, has lately been enquiring into this matter, as regards cattle, and after collecting a deal of information on the subject, and discovering probably that the regulations concerning the cubic contents of cattle byres had been framed with imperfect knowledge of the subject, in view of amending the regulations referring to Glasgow, recommends :—1. "That the registration, regulation, and control of byres should be placed in the hands of the sanitary authorities. 2. That in all existing byres the cubic space should be raised to 600 cubic feet. That in all new byres it should be 800 cubic feet, and that the regulations generally, as to lighting, ventilation, cleaning, drainage, and water supply, should be carefully revised, so as to give full effect to the mind of the sanitary authority, and thereby enable them to discharge themselves of the responsibility imposed upon them by the Legislature." If some such system for the inspection and regulation of cattle pens in Ceylon be adopted, it will go a great way towards preventing outbreaks of disease and arresting their progress; for, want of proper ventilation is the chief cause of lowered vitality, of colds and most diseases of the air passages, and of other descriptions of sickness.

KITUL PALM.

THE MODE OF EXTRACTING TODDY.

The processes adopted for the extraction of toddy are to begin with tedious, and a man should go through a complete course of training before he undertakes to practice the art.

When the flower is on the verge of bursting, which often happens before maturity, preparations are made by the toddy drawers to tap the palm. Having tied on a bamboo to the tree, he climbs up with a table knife and a chisel, and commences work by removing the sheaths (hannasus). An oblong-shaped cavity is then cut about a span from the axil of the inflorescence, and "a medicine" compounded of various ingredients is deposited in this cavity. Salt, pepper, ginger, white onion, the roots of ratnatul (*Plumbago rosea*) and the bark of the murunga (*Moringa pterygosperma*) are taken in certain quantities and pounded well in a mortar, first applying a sprinkling of leema or caffer lime juice. After depositing the "medicine" a thick coating of ashes is placed over the mouth of the cavity, and a piece of gunny bag is wrapped round it in several folds and tied with a rope. The flower is then washed with the juice of caffer lime. This done, the apex of the inflorescence is sliced with a knife.

The terms *Kanu Mala* and *Akmala* are used for the flower at different stages of its development. On the second day the man similarly cuts the flower once, and on the third day he cuts it twice (morning and evening), and suspends a vessel from the wounded inflorescence.

If the flower is shaded by leaves so as to prevent the tree access of sun, such leaves are cut away. As a preventative against the flower breaking, it is tied to an upper leaf, and in order to keep it motionless, a few stones are suspended.

It is important to observe that there are two kinds of flowers called the Kohu Mala and the Ala Mala respectively.

The same "medicines" are used for both the flowers, but the most striking difference is, that the *Kohu Mala* always require a dry season, but if there is excessive rain, the flower becomes so hard that the sharpest knife would fail to cut it. There is also every probability of this flower rotting. Any prevailing weather generally suits the *Ala Mala*. Of course there are exceptional instances where this flower also rots, but such cases are very rare. Another difference is that the *Kohu Mala* is not liable to be broken easily, while the *Ala Mala* is very easily broken.

The first yield of sweet toddy is generally rejected. To make sweet toddy ferment and become sour, the roots of eramaniya (*Zizyphus jujuba*), and Sevendera (*Andropogon zeylanicus*) are first sliced into fine pieces, put into the vessel and hung from the flower. Similarly to prevent fermentation, the barks of the *Hal tree* (*Vateria acuminata*) and the leaves of Ankenda (*Acronychia laurifolia*) are put into the vessels.

I have observed in the case of an extremely fertile tree an uninterrupted flow of the juice, while in trees of ordinary vigour the flow goes on at intervals. A profit of R300 to R400 could safely be calculated (deducting expenses for

medicine which is generally a trifling item) from the sale of produce and preparations. At least 15 flowers arrive at maturity on each tree.*

If a bottle of sweet toddy is left for a few hours, it becomes sour without any application of leaves or barks of trees. But such toddy is said to be not fit for drinking purposes. It is in order to ensure fermentation that the barks of trees &c. are put. During the Kandyan Government, measures were passed to prosecute sellers as well as drinkers of toddy. From a dozen bottles of sweet toddy which fetch at the rate of 2½ cents each, 8 of sour toddy could be prepared, which fetches 5 cents each.† Toddy is said to be efficacious in cases of sore mouth, biliousness, and cutaneous diseases.

Mr. Lee, in his History of Ceylon, says :— "There is another disease called the Beri-beri, to which Europeans are very subject; it is a sort of cramp so very violent that it prostrates those who are attacked by it, and the diseased part might be cut with a knife without causing any pain. The best remedy is to eat pork and biscuit, to drink palm-wine or toddy, and to smoke; three or four months living in this manner cures the patient entirely; on this account the Captain-General Antonio de Mascarenhes, by the physicians' advice, issued an order for every one to smoke in the camp, and to give a good example, he adopted the practice himself first, and after that time the disease was far less prevalent."

T. B. P. Kehelpannala.

(To be continued.)

NOTES FROM A TRAVELLER'S DIARY.

I have just had a run over a large area of the Province of Uva. By far the most interesting place I visited in the province was the Happy Valley Industrial and Reformatory Schools. I alluded to this Institution in some of my previous notes, but I was then able to say very little. After the return of its founder, the Rev. S. Langdon, from England, the Institution has put on fresh vigour, and the way in which the work is now carried on is all that could be desired, and is sure to elicit popular applause.

The most interesting part of the Institution is the Reformatory School where about 40 juvenile offenders are at present undergoing sentence of detention. Agricultural labour, dairy farming, poultry-keeping, tailoring, &c. are the principal industries. The dairy farm is the best that I have as yet seen in the island. A fine lot of selected poultry is kept, and the eggs are hatched by the artificial mode of incubation. Curiously, the head juvenile offender at the Reformatory (*Marsal* by name) who is about 11 years of age, is a boy who was once charged before the Police Magistrate of Colombo with stealing arrowroot from an experimental plot at the Colombo School of Agriculture. He was, however, let off with a warning, but has subsequently been sent to the Reformatory for stealing some clothes in Colombo. This boy is now the favourite of the place, has forgotten all his thieving propensities, and I am assured that he has thoroughly reformed. He learns dairy farming and gardening, and seemed to be an expert in making butter and cream, and I would not be surprised if he be some day called to the Colombo School of Agriculture as a dairy expert.

A large area of land at the Happy Valley has been put under tea experiments in the cultivation of fruit, paddy, tobacco and various other crops are also being carried on. It would be well if experiments in the cultivation of barley are also started on a somewhat large scale.

I am surprised that the cultivation of ginger does not attract the attention it deserves of the goyiyas of Uva. A large quantity of the ginger consumed in the Province, I think, is brought from the Western Province. During the late epidemic of cholera, in some parts of the Province, a pound of ginger was sold for from R1 to R2. The lowest price of a pound of ginger at Badulla on any day is 12½ cents.

The patanas of Uva may in some respects be compared to some of the owita lands we often meet with in the Western Province, covered with rank grass. Bracken fern is commonly met with on the patanas, the presence of which is supposed to indicate fertility of the soil; the daffodil orchid is also common, and it is easily recognised by the yellow colour of its flowers which appear in the months of February and March, peeping through the grass on their long slender stalks from among the patana grass.

The country around Happy Valley seems to have once been thickly populated, and was probably the site of Portuguese encampments during the struggles they had with the Sinhalese kings. The names of places such as Halatutenne (rice store plain), Haldummulle, (the corner at which rice was distributed) and Bathgangoda (the villages in which the rice was cooked and served) bear out these facts.

CROTON TIGLIUM.

Some time ago a writer in the *Times of Ceylon* called attention to the danger in planting croton-oil trees among tea bushes, as was then the case on many places in the Matale district, since it was feared that while plucking the leaves from the latter, some leaves of the former might accidently fall into the baskets and be manufactured into tea. Natives have a dread of the croton tree, as its poisonous properties are so well known to them, that they fear even to pass under its shadow. Even native medical practitioners, in prescribing the oil obtained from the seed as a purgative, use only a very small quantity, the dose for an adult being about half a grain or only a drop which is rubbed on a betel leaf and given to the patient to be chewed and swallowed. Some Sinhalese cartmen at

* The racemes are attacked by beetles, while the toddy is drunk by bats. Great damage is done in this way to trees.

† In some parts of the Kandyan Districts vinegar is also prepared from toddy.

Wattagama came to grief by eating rice that had been cooked over a fire ignited with croton sticks. But the tea planters of Matale took no need of this warning, till at last people in England began to make enquiries regarding the laxative quality of certain brands of tea sent from Ceylon, by the use of which several persons would seem to have taken ill. Shortly after this almost all the croton trees on tea estates disappeared. Planters who did not go in for tea were more fortunate and allowed their croton trees to remain, and at the present day are making some profit, as since of late there has been a demand for this product. The writer being one of these fortunates might be congratulated for his wisdom, but if the reader wishes for an instance where it was folly to be wise, he need only be told that not long ago he (the writer) had the misfortune to lose a good serviceable horse which died after three days' violent purging, supposed to have been caused by its having eaten some croton leaves from trees growing by the roadside. Sometimes this tree is infected with a kind of caterpillar which drops to the ground in large numbers when the tree is shaken; and fowls have been seen to gorge themselves with the grub. What seems strange is that these birds were never known to have suffered any bad effects afterwards; nor is it known that any people have been inconvenienced by eating the fowls in question. But those who possess poultry ought to prevent them eating the croton oil seed, as they do eat it when they can get at it, and then become stupefied, *pirouette*, and gyrate like a spinning top till they drop dead. This potency of the seed does not however appear to affect the ground-doves, very common birds in the island, which feed on it quite freely. No other animals are known to eat either the leaves or the seed. Where domestic troubles arise among those more intelligent animals, the Tamil coolies employed on estates where croton trees still exist, and Ramasamy gives his wife a beating, the latter not infrequently revenges herself by taking a mouthful of the poisonous seed and causes much consternation among her kith and kin, till the usual remedy of bathing the patient in cold water, to counteract the poison, is resorted to. Sometimes purging and vomitting continue for several hours, but ultimately stop after the bath, leaving the mouth much inflamed by the irritating poison, and the throat quite sore. These effects necessitate the patient being kept on milk, butter and sweets for several days, and thus the husband of the victim has to pay rather dearly for his indiscretion!

ALL PRODUCTS.

NITRIFYING FERMENTS OF THE SOIL.

This forms the subject of an instructive article by Mr. J. M. M. Munro, in the *Royal Agricultural Society's Journal*. In 1877, the experiments of Schloesing and Muntz threw an entirely new light on the matter of nitrification, the existence of which was well known to Boussingault as early as 1856, though the process by which nitrification went on was not then understood. The experiments of 1877 were taken up on the suggestion of Pasteur in 1862, that the oxidation in this case (like that in the conversion of wine into vinegar) might be due to the action of a living ferment and not to simple action of the air. "Fifteen years after this suggestion" says Mr. Munro, "the first experiments confirming it were published, and not until the present year, that is after the lapse of nearly fifteen years more, has the prediction been fully and completely verified by the isolation and separate examination of, at any rate, two of the species of organisms concerned in the process." So slow, in certain cases, is the onward progress of what we are accustomed to regard as the rapid advancing strides of science. A considerable portion of the paper is taken up with the history of what Mr. Munro terms "the hunt after these organisms." Those who worked industriously and followed up the scent were Warrington, Winogradsky, Dr. and Mrs. Frankland, and apparently Mr. Munro himself.

Warrington, summing up the results of his experiments, tells us that all samples of soil taken down to 2 feet in depth provoked nitrification, but that over this depth failures to nitrify increase in number, and at a depth of 6 feet and over, the soil has lost this power. From this and other experiments it would appear to be certain that the first few inches of surface soil contain the ferments in vastly greater proportions than the subsoil. From the soil these ferments get into water, and the power which rivers and wells have of ultimately converting the ammonia of sewage into nitrate of lime (or other base) depends on their presence.

One after another discoveries were made, the last and one of the most important being that of Winogradsky, that the nitrifying ferments have an antagonism to organic matter. Mr. Munro says that the importance of this discovery is very great; it reveals an entirely new property of living things, that of building up from the carbon of mineral carbonates and the nitrogen of ammonia, the complicated albuminoid and other organic constituents of living cells. It appears that about 35 parts of nitrogen in the form of ammonia have to be oxidised to a nitrate for one part of carbon taken in as food by the ferment: and it is the heat evolved by this large oxidation that furnishes the force necessary to effect the decomposition of the carbonate.

Mr. Munro concludes his paper with the following important reflection:—The practical point should not be lost sight of, that nitrates are destroyed much more easily and much faster than they can be formed. A free supply of air above all things favours their preservation, whilst the presence of organic matter in the absence of air is certain under natural conditions to result in their destruction. This destructive work, we are told, is also brought about by microbes, and is a property common to a great number of different species. Some of these are capable of destroying in a few days as much nitrate as is formed in months or years. Fortunately, the activity of these baneful species can always be kept in abeyance by the aëration of the soil brought about by drainage and good tillage.

SUBSTANCES OF MANURIAL VALUE.

It has often been asked how the ammoniacal liquor from gas works, a byproduct in the process of purifying coal gas, may be used for agricultural purposes. Griffiths, in his treatise on manures, says that gas liquor is essentially an impure solution of carbonate and acetate of ammonia. As gas liquor is of various degrees of strength, the amount of water to be added to it before applying to the land varies also. As a rule, ammoniacal liquor should be diluted with 4 or 5 times its bulk of water. For grass land the manure can be applied by means of a water cart. In very dry weather gas liquor burns up grass, but on the first appearance of the rains, the herbage will again spring up with increased luxuriance. Ammoniacal liquor has also proved a valuable fertilizer for cereal crops growing on clayey soils.

Another way suggested by Dr. Griffiths for utilizing gas liquor is to absorb it by means of saw dust, peat or charcoal (and we might add coir dust), and then to add bone dust to the mixture.

Gas liquor is said to keep off flies and slugs, and it also promotes the fermentation of saw dust, peat, and similar vegetable substances. It is thus used for preparing composts. The addition of dilute sulphuric acid to ammoniacal liquor till it shows no alkaline reaction with red litums paper, fixes the ammonia as a sulphate.

In an article on the agricultural value of shoddy or woolen waste, Mr. John Hughes says: "Quite recently, in Ceylon, shoddy (manufactured into a very fine powder by treatment with sulphuric acid) has been tried as a manure for the tea plantations; and for these, bearing in mind its richness in organic nitrogen, it promises to be an excellent fertiliser, if only it be properly applied and of good quality." This is a very important qualification, for shoddy is generally of very variable composition, containing cotton and other substances of little or no value, which, moreover, sometimes deter the action of the manures. When very greasy, shoddy is of little value; if consisting of pure wool, it contains a large proportion of nitrogen, and should dissolve under the action of caustic soda. Shoddy as got from woolen mills contains from 2 to 8 % of nitrogen and is generally very greasy: acted upon by sulphuric acid and dried it falls as a powder. Of leather and shoddy Dr. Aitkin says: "Of no value unless they are dissolved." The latter is used by manure manufacturers as a source of ammonia in dissolved manures, and it is capable of yielding from 5 to 10 % of ammonia, but is said to be unsuitable for direct application. The following points should therefore be considered in comparing the merits of shoddy and farmyard manure:—Whether the shoddy consists of pure wool, containing from 7 to 8 % of ammonia and not more than 20 % of water, whether the ingredients are in a suitable condition, and what would be the value of shoddy sold at £3 per ton after being brought into a state convenient for application, and after allowance is made for freight &c. at the present rate of exchange. It will also have to be considered when the calculation according to Mr. Hughes' method is made, whether the saving of £3 in England by the use of shoddy in place of cattle manure could be effected here under the circumstances just mentioned, and with the fact in view that 1 ton of cattle manure does not cost anything like 7*s.* 6*d.* or its equivalent in Rupees in Ceylon.

The value of dried blood in England is about £8 per ton. The nitrogen is in the form of albumen, and is capable of yielding from 12 to 16 per cent of ammonia. "Dried blood," says Warrington, "is an excellent manure, containing 10 to 13 per cent of nitrogen."

Horn dust or keronikon sells in England for about £7 7*s.* It is capable of yielding from 16 to 18 per cent of ammonia. When in the form of fine dust it decomposes easily and is a good nitrogenous manure even for cereals. When in the form of chips or coarse shavings horn decomposes but slowly.

GENERAL ITEMS.

A simple process for preparing bees-wax is to reduce the comb to the smallest compass, tying the same in a piece of muslin or similar fine material, and placing in a vessel of boiling water, attaching a weight to the bag to keep it some distance below the surface. After boiling for half an hour or so, allow to cool, when the wax will be found as a solid cake on the surface, the impurities being left in the strainer. Or the rough comb may be placed in a vessel of water, and after boiling a short time the whole may be poured through some straining medium placed over another receptacle, where the wax may be left to cool as above. As the wax lightest in colour will be the most valuable, the combs should be sorted before boiling.

Drury mentions the fact that Valisneria Spiralis and Hydrilla Verticillata are used in India in the process of sugar refining. It is said that sugar refined in the ordinary way is rendered still purer and whiter by covering it with the moist leaves of these succulent aquatic plants, the moisture from which drains slowly through the sugar and carries with it the dark-coloured molasses. After several days the leaves are removed and the upper part of the sugar, which has been most purified, is taken away and dried in the sun. Fresh leaves are then added, by which another layer of sugar is whitened in like manner, and the operation is repeated until the whole mass is refined.

Wight, writing in 1839, of Cocoa says:—This is a native of America, and has been introduced into India. Hitherto our attempts at culture have not been very successful, but I saw very thriving trees at Courtallum, and there is one at Palamcottah which annually bears a crop of fruit, and gives promise that it might be increased. I attempted to take grafts from that tree, and also to propagate by slips and gooties, but failed in both attempts. . . . . I presume the most probable tracts of country in India for commencing its cultivation on a considerable scale, would be the high and cool tableland of Mysore, in plantations well sheltered, and

still further kept cool and damp by being made in only partially cleared forests. Wherever such localities are to be found the cocoa may be expected to thrive, and might be introduced with effect and at little charge. On the Malabar Coast, too, where forest lands abound, the humid and insular-like climate would as in the West Indies, where it is very extensively cultivated, counteract the injurious effect of excessive heat and render the chances of success fully equal to those of Mysore. The only drawback to its extended cultivation is the slowness of its growth in the first instance, which, however, is well compensated for by its after duration and productiveness. The fresh virgin soil, the shade, the humid atmosphere of forests recently cleared of their brushwood are all dwelt upon by Humbolt as peculiarly favourable for cocoa plantations, and in such of course they ought to be tried in the first instance until we get the tree acclimatised.

The foundation stone of the Bengal Veterinary Institute was laid last month in a suburb of Calcutta. The *Indian Agriculturist* hopes that this institution will not fall into the same errors as those of the Bombay Veterinary College, of turning a hospital for animals into an infirmary for horses, almost to the exclusion of oxen which are the beasts of burden and of agricultural work in the East. It is also hoped that one of the chief objects of the institute will be to bring Veterinary aid to the cultivator, and that the recommendation of the Cattle Plague Commission of 1871 should be adopted, and "a native agency by which epizootic and other diseases might be properly investigated and treated," formed.

The Chinese and Malays make four kinds of Gambier, viz., Gambier papan, bulat, paku, and dudur. The first two of these are used for chewing, the others for dyeing. Besides these, two uses to which Gambier is put, it is also used for tanning, and is said to give a peculiar gloss to leather not produced by other tanning substances. Next to oak-bark it is the most important tanning material. Again, it is used for strengthening canvas and making it waterproof, as a masticatory, and an astringent in medicine. It has been recommended as a preservative of timber in sea water.

A writer in the Agricultural Journal of Cape Colony says that Euphorbia or *Naboom* milk is a sure cure for warts on horses and cattle. Three applications removed a very large wart from the belly of a mare. The same result followed in the case of two heifers with warts,—one with so large a wart that it was thought the animal would have to be killed: three applications effected a cure. Young trees should be tapped for the milk, which, if left standing for a few days becomes hard. It should then be cut fine mixed with a little turpentine or paraffin, and stirred till it gets to a fluid again, ready to rub on. The writer states that some years ago, he saw in a paper that a lady in the Queenstown district, who had a cancer on her breast, got cured by the same remedy. It is unfortunately not stated which of the Euphorbias is the *Naboom* which is evidently a local name. Most of the plants belonging to this family yield a milk which is more or less corrosive in character. The milk from *E. Antiquorum* (Dalookgass), *E. Tortilis* (Senook gass) and *E. Tirucalli* (Nawahandi) is used as corrosive fluids for blistering and other purposes by the natives of Ceylon.

Sir Charles Elliott, the Lieutenant-Governor of Bengal, in his last report, referring to the food supply of the Provinces recommends the bulb of *Kesoor* (Cyperus bulbosus), the Chilanthi arisi of North Ceylon, as an article of diet in case of famine. He states that it is palatable and nutritious, and that a seer of it could be dug in a day, but the *Indian Agriculturist* remarks the whole stock of *kesoor*, which moreover is by no means common in all localities, will thus be exhausted in a few hours. In North Ceylon Chilanthi arisi is used as an article of diet, especially in seasons of scarcity. The *Indian Agriculturist* suggest that *Motha* (*C. Rotundus*) the Sinhalese Kalandooroo might also be pressed into use in famine times.

According to American experiments, phosphatic manures alone or in combination with nitrogenous fertilisers gave the best results with cotton. Nitrogen and potash separately were of little value, but combined with phosphoric acid doubled the yield.

Mr. Edward Brown in his well-known book on Poultry-keeping, says that the true secret of feeding young chickens is to give a little plain food, and often. Amateurs like to give chickens dainty bits, to be constantly feeding them on rich morsels, with the result that they are often killed by kindness. The plainer the diet they get the better, and anything in the shape of forcing is sure to cause harm. Where death does not result at once, the seeds of disease are sown, and sooner or later these seeds are developed, and trouble is the result. Unless chickens are also fed often, they are very apt to suffer and be stunted through hunger, and also to gorge themselves when the food is placed before them, the latter a state of things very likely to induce disease. They should get a warm feed as soon after daylight as possible, and till a month old should have a meal the last thing at night.

Fish guano, which is manufactured from fish offal brought into a very fine mechanical condition, is said to be the cheapest and best form of guanos. Though the values of ammonia in Peruvian and fish guanos are given in the Highland and Agricultural Societies' scale of charges as 15/ and 10/6 per unit respectively, it is there stated that although such are the commercial values, the agricultural values are probably the same. It would thus appear that fish guano is commercially and agriculturally the cheapest guano, and the fact that superior prices paid for Peruvian and Icaboe guanos are to be referred to the antiquity and reputation of the former. The manure is said to have given excellent results when applied to sugarcane, tea, coffee and tobacco, and is suitable for all kinds of crops.

No. 15.] COLOMBO, JUNE 10, 1891. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 20th May, the undermentioned lots of Tea (48,464 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Vincit	8	1	ch	dust	100	27	
2	Do	9	1	do	fans	110	24	
3	Do	10	1	do	bro tea	100	37	
4	Kuduganga	11	2	do	bro pek	230	55	
5	Do	12	2	do	pekoe	210	42	
6	Do	13	10	do	pek sou	1060	40	
7	Do	14	2	do	bro tea	254	35	
8	Do	15	1	do	bro mix	127	34	
9	Do	16	3	do	congou	300	33	
10	Do	17	1	hf-ch	dust	73	27	
11	M A H	18	5	ch	congou	450	29	
12	Do	19	3	do	red lef	300	23	
13	Ellekande	20	6	hf-ch	bro pek	300	55	
14	Do	21	15	do	pekoe	750	40	
15	Do	22	54	do	pek sou	2160	36	
16	Do	23	5	do	pek fans	275	41	
17	Do	24	33	do	bro mix	650	34	
18	Do	25	13	do	red leaf	585	27	
19	Do	26	4	do	dust	320	28	
20	Hattanwella	27	35	do	bro or pek	1750	43	bid
21	Do	28	41	do	pekoe	2050	36	
22	Do	29	5	do	pek sou	250	30	
23	Do	30	1	do	bro mix	50	20	
24	Do	31	5	do	dust	250	28	
25	Wewesse	32	34	do	bro pek	1700	50	
26	Do	33	55	do	pekoe	2750	42	
27	Do	34	18	do	pek sou	900	39	
28	Do	35	4	ch	dust	320	27	
29	Kitulgalla	36	3	do	bro pek	300	42	bid
30	Do	37	6	do	pekoe	480	36	
31	Do	38	5	do	pek sou	400	34	
32	Ovoca A I	39	13	do	bro pek	1495	50	bid
33	Do	40	39	do	pekoe	3900	41	bid
34	Do	41	36	do	pekoe	3600	41	bid
35	Do	42	29	do	pek sou	2900	38	
36	K G	43	4	do	unas	280	30	
37	G W	44	9	hf-ch	pekoe	450	38	
41	Pallai	48	19	do	pek fans	760	17	
42	Do	49	19	do	do	760	17	
43	H B	50	15	ch	bro tea	1500	32	
44	T	51	2	do				
			1	hf-ch	bro tea	298	out	
45	Hopewell	52	28	do	bro pek	1344	withd'n	
46	Do	53	42	do	pekoe	1680		
47	Do	54	1	do	sou	63	28	bid
48	Do	55	1	do	dust	65	28	
49	Depedene	56	5	do	bro pek	250	45	bid
50	Do	57	16	do	pekoe	800	39	
51	Do	58	31	do	pek sou	1550	36	
52	H D	59	3	do	bro mix	150	26	
53	Do	60	1	do	dust	80	27	
54	Do	61	24	do	bro tea	1200	30	bid
55	Marymount	62	5	do	unas	250	31	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room today, 20th May, the undermentioned lots of Tea (133,624 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Wallahan-duwa	302	10	hf-ch	bro pek No 1	598	50
2	Do	304	3	do	do „ 2	180	43
3	Do	306	9	do	pekoe No. 1	495	40
4	Do	308	6	do	do „ 2	328	40
5	Do	310	8	do	pek sou No. 1	400	36
6	Do	312	3	do	pek sou	150	36
7	S P A	314	9	do	bro pek	540	47
8	Do	316	6	do	pekoe	330	46
9	Do	318	2	do	sou	100	35
10	Do	320	1	do	fans	60	32
11	Do	322	4	do	unas	228	35
12	Do	324	1	do	dust	95	28
13	Do	326	4	do	sou No. 2	200	34
14	Do	328	1	do	bro mix	53	25
15	Do	330	4	do	bro tea	200	29
16	Do	332	4	do	mixed	190	29
17	S P V	334	4	do	bro pek	210	45
18	Do	336	5	do	pekoe	270	39
19	Do	338	3	do	pek sou	150	35
20	Do	340	3	do	sou	150	33
21	Do	342	3	do	mixed	174	39
22	Do	344	2	do	congou	92	29
23	Galdola	346	5	do	unas	267	35
24	Fred's Rube	348	23	do	bro pek	1150	53
25	Do	350	26	ch	pekoe	2600	37
26	Do	352	37	do			
			1	hf-ch	pek sou	3565	30
7	W A	354	6	ch	bro tea	690	36
28	Do	356	4	do	dust	460	27
29	Do	358	1	ch	red leaf	100	25
30	G A	360	5	hf-ch	bro pek	290	40
31	Do	362	12	do	pekoe	540	35
32	Do	364	3	do	pek sou	117	29
33	Radella	366	46	ch	bro pek	4600	44
34	Do	368	12	do	pekoe	1080	41
35	Do	370	15	do	pek sou	1350	38
36	Glenorchy	372	32	hf-ch	bro pek	1920	56
37	Do	374	28	do	pekoe	1680	44
38	Do	376	15	do	pek sou	825	42
39	Meddetenne	378	5	ch	bro pek	550	47
40	Do	380	15	do	pekoe	1500	38
41	Do	382	1	do	dust	290	28
42	O H O	384	17	do	bro pek	1700	41
43	Do	386	11	do	pekoe	1100	36
44	Do	388	6	hf-ch	pek sou	590	33
45	Do	390	1	do	dust	50	23
46	Debatgama	392	2	ch	congou	180	27
47	Do	394	1	do	red leaf	100	24
48	Do	396	1	do	dust	120	26
49	Robhill	398	2	do	sou	164	32
50	Do	400	1	hf-ch	dust	52	29
51	Daphne	402	6	ch	bro pek	600	43
52	Do	404	3	do	pekoe	300	35
53	Do	406	4	do	pek sou	400	33
54	P C H Galle in estate mark	408	5	hf-ch	bro pek	250	36
55	Do	410	2	do	congou	96	25
56	Do	412	2	ch	dust	246	28
57	Katugalla	414	13	do	bro pek	1430	43
58	Do	416	5	do	pekoe	500	35
59	Do	418	2	do	pek sou	220	31
60	Tonacombe Uva	420	38	hf-ch	bro pek	2090	54
61	Do	422	62	do	pekoe	3100	41
62	Do	424	47	do	pek sou	2115	39
63	Do	426	17	do	sou	680	33
64	Do	428	5	do	dust	400	29
65	Pasbage	430	7	ch	pekoe	406	30
66	C S K, in estate mark	432	3	do	dust	450	28
67	Do	434	1	do	congou	100	27
68	Macaldenia	436	2	box	or pek	13	95
69	Do	438	29	ch	bro pek	1740	45
70	Do	440	7	do	pekoe	735	43
71	Do	442	14	do	pek sou	1470	41
72	Do	444	6	do	sou	600	35
73	Do	446	2	hf-ch	dust	148	29
74	Do	448	1	do	pek dust	55	30
75	H & H	450	3	ch	bro tea	300	26
76	Putupaula	452	2	do	dust	200	27
77	Do	454	1	do	red leaf	70	24
78	Deniyaya	456	3	do	bro pek	300	44
79	Do	458	3	do	pekoe	300	37
80	Do	460	4	do	pek sou	400	33
81	Ismaile	462	2	do	dust	240	37
82	Nahaveena	464	40	hf-ch	bro pek	2000	49
83	Do	466	17	do	pekoe	765	37
84	Do	468	37	do	pek sou	1850	36
85	Do	470	3	do	dust	210	28
86	Chesterford	472	20	do	bro pek	1200	45
87	Do	474	22	do	pekoe	1100	38
88	Do	476	18	do	pek sou	900	35
89	Yataderia	478	17	ch	bro pek	1870	47
90	Do	480	39	do	pekoe	3900	38
91	Do	482	45	do	pek sou	4050	35
92	Clyde	484	25	do	bro pek	2650	46
93	Do	486	29	do	pekoe	2755	37
94	Do	488	10	do	pek sou	950	34
95	Traquair	490	4	hf-ch	bro pek	208	37
96	Do	492	5	do	pekoe	250	34
97	Do	494	11	do	pek sou	556	31
98	Do	496	2	do	congou	96	27

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
99	Galkadua	498	6	do	bro pek	300	51	
100	Do	500	12	do	pekoe	600	37	
101	Do	502	11	do	pek sou	550	33	
102	Do	504	1	do	bro mix	61	27	
103	Esperanza	506	12	do	or pek	600	49	
104	Do	508	6	do	bro or pek	336	39	
105	Do	510	40	do	pekoe	1840	38	
106	Do	512	2	do	dust	170	28	
107	Hunugalla	514	6	ch	bro pek	630	44	
108	Do	516	30	do	pekoe	2700	36	
109	Do	518	1	do	dust	155	27	
110	Marguerita	520	26	hf-ch	bro pek	1560	45	
111	Do	522	27	do	pekeo	1350	38	
112	Do	524	63	do	pek sou	3465	33	
113	Do	526	4	do	dust	300	28	
114	Do	528	2	do	bro tea	90	25	
115	St. Martin's	530	6	do	bro pek	270	50	bid
116	Do	532	18	do	pekoe	810	35	bid
117	Do	534	3	do	sou	120	28	bid
118	Do	536	1	do	dust	63	27	
119	Pantiya	538	2	ch	dust	237	26	
123	Polatagama	546	55	do	bro pek	3300	51	
124	Do	548	100	do	pekoe	5000	41	
125	Do	550	80	do	pek sou	4000	38	
127	Caledonia	554	12	do	bro pek	1200	41	
128	Do	556	12	hf-ch	pekoe	1200	34	
129	Do	558	2	ch	bro mix	110	25	
130	E, in estate mark	560	1	ch	bro pek sou	100	27	
131	Do	562	2	hf-ch	dust	110	20	
132	Pansalatenne	564	5	ch	congou	500	29	
133	Do	566	5	hf-ch	dust	375	28	
134	Farnham	568	50	do	bro or pek	2500	50	
135	Do	570	24	ch	pekoe	2160	41	
136	Do	572	19	do	pek sou	1520	36	
137	Do	574	1	do	fan	130	29	
138	Bandarapolla	576	35	hf-ch	bro pek	1750	45	
139	Do	578	27	do	pekoe	1350	37	
140	Do	580	32	do	pek sou	1440	35	
141	St. Catherine	582	7	ch	bro pek	630	44	
142	Do	584	6	do	pekoe	510	38	
143	Do	586	5	do	pek sou	425	36	
144	Do	588	2	do	pek fans	150	28	
145	A N	590	20	do	bro mix	2000	25	bid
146	Melrose D	592	19	hf-ch	bro pek	1064	45	
147	Do	594	14	ch	pekoe	1400	40	
148	Do	596	11	do	pek sou	1140	34	
149	Do	598	3	hf-ch	dust	231	26	
150	Melrose	600	18	do	bro pek	1080	49	
151	Do	602	29	do	pekoe	1595	40	
152	Do	604	12	ch	pek sou	1200	35	

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 27th May, the undermentioned lots of Tea (68,181 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D E C	1	16	hf-ch	red leaf	800	29	
2	Do	3	2	do	fans	100	31	
3	Do	5	2	do	dust	140	28	
4	A S C	5	10	do	pek sou	500	33	
5	Do	7	5	do	fans	250	29	
6	Do	8	5	do	red leaf	250	28	
7	Do	9	1	do	pek dust	60	29	
11	Nugagalla	16	38	do	bro or pek	1900	53	bid
12	Do	18	78	do	pekoe	3900	41	bid
13	Do	20	5	do	pek sou	250	34	bid
14	Do	21	8	do	dust	400	29	
15	Ruanwella	22	22	do	bro pek	1100	47	bid
16	Do	24	15	do	pekoe	750	38	bid
17	Do	26	15	do	pek sou	750	33	bid
18	Do	28	2	do	dust	150	28	
19	Yarrow	29	15	ch	bro pek	960	52	
20	Do	31	18	do	pekoe	1080	43	bid
12	Do	33	12	do	pek sou	672	37	
22	G H K, in estate mark, Ceylon	35	9	do	bro pek	898	44	
23	Do	37	15	do	pekoe	1350	35	bid
24	Do	39	3	hf-ch	bro sou	171	30	
25	K'Deila	40	7	ch				
			1	hf-ch	bro pek	750	47	
						720	38	
26	Do	42	8	ch	pekoe	540	36	
27	Do	44	6	do	pek sou	800	46	
28	Hakrugalla	45	8	do	bro pek	1710	37	bid
29	Do	47	19	do	pekoe	810	34	
30	Do	49	9	do	pek sou	150	28	
31	Do	51	1	do	dust			
32	Nahalma	52	35	hf-ch	bro pek	1925	48	
33	Do	54	46	ch	pekoe	3370	37	
34	Do	56	4	hf-ch	pek sou	220	31	
35	Do	57	2	do	dust	146	28	
36	R, in estate mark	58	32	do	bro pek	1760	46	
37	Do	60	29	do	pekoe	1595	39	
38	Do	62	2	do	bro pek sou	140	29	
39	C	63	8	do	bro pek	440	41	
40	Ossington	65	19	do	bro pek	1045	43	
41	Do	67	14	do	pekoe	700	37	
42	Do	69	16	do	pek sou	800	35	
43	Do	71	2	do	red leaf	100	25	
44	Do	72	2	do	dust	160	27	
45	Agrakande	73	14	ch	congou	1400	31	
46	Do	75	3	do	dust	450	28	bid
47	M D	76	12	do	bro or pek	1200	48	bid
48	Do	78	12	do	bro pek	1200	45	bid
49	Do	80	12	do	pekoe	1080	38	bid
50	Do	82	13	do	pek sou	1105	36	bid
51	H Y	84	23	do	bro pek	2300	44	
52	Do	86	73	do	pekoe	6570	38	
54	E	89	7	do	pek dust	910	27	bid
55	Patharagalla	90	1	hf-ch	or pek	60	49	
56	Do	91	10	do	bro pek	500	50	
57	Do	93	18	do	pekoe	818	38	
58	Do	95	18	do	pek sou	900	35	
59	Do	97	3	do	sou	135	30	
60	Do	98	1	do	bro pek mix	68	33	
61	Do	99	1	do	bro mix	66		
62	P O	101	3	hf-ch	bro pek	167	62	
63	Do	102	2	do	pekoe	103	39	
64	Do	103	11	do	pek sou	569	35	
65	Do	105	2	do	unas	106	35	
66	Do	106	1	do	dust	57	28	
67	Do	107	1	do	congou	47	27	

Mr. E. John put up for Sale at the Chamber of Commerce Sale-room on the 27th May, the undermentioned lots of Tea (54,488 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	B, in estate mark	238	1	hf-ch	congou	60	33	
2	Do	239	1	do	dust	90	28	
3	W P	240	7	ch	sou	563	29	
4	Do	241	15	hf-ch	sou	750	29	
5	Dickapittia	243	24	ch	bro pek	2496	46	
6	Do	245	23	do	pekoe	2070	42	
7	Do	247	18	do	pek sou	1458	38	
8	Do	249	4	do	sou	300	34	
9	Do	250	1	do	dust	96	28	
10	S G	251	3	hf-ch	sou	150	27	
11	Do	252	4	do	sou	200	27	
12	Bittacy	253	22	do	bro pek	1320	50	
13	Do	255	26	do	pekoe	1560	45	
14	D E	257	5	ch	fans	410	28	
15	Brownlow	259	16	do	bro pek	1600	49	
16	Do	261	19	do	pekoe	1805	42	
17	Do	263	11	do	pek sou	935	39	
18	Do	269	1	do	dust	70	28	
19	M R	266	1	do	dust	121	29	
20	Do	267	1	do	fans	110	35	
21	B T	268	28	do	bro mix	2380	30	
22	Orange Field P N R	270	29	do	pekoe	2610	35	
23	D F, in estate mark	272	52	do	bro pek	5460	37	bid
24	Do	274	14	do	pekoe	1260	35	
25	Do	276	30	do	do No. 2	2700	35	
26	Do	278	14	do	pek sou	1260	33	
27	Doranakanda	280	3	hf-ch	pek fans	150	28	
28	Do	281	1	do	dust	70	28	
29	Do	282	5	do	fans	250	28	
30	S K R	283	7	do	bro pek	441	46	
31	Do	285	6	ch	pekoe	612	37	
32	Do	287	3	do	pek sou	294	34	
33	D F, in estate mark	288	20	do	pekoe	1900	36	
34	Do	290	34	do	do No 2	3060	34	
35	Do	11	31	do	pek sou	2790	31	
36	Do	13	15	do	fans	1500	28	
37	Stamford Hill	15	7	ch	bro mix	840	34	
39	Gonakella Factory	17	5	do	bro or pek	500	44	
40	Do	19	8	do	bro pek	797	42	
42	Kandenewera	23	18	do	bro pek	1620	50	
43	Do	25	33	do	pek sou	3630	43	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 27th May, the undermentioned lots of Tea (53,975 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight. lb.	c.	
1	S	63	5	hf-ch	bro pek	250	36	
2	S	64	3	do	pekoe	150	32	
3	S	65	1	ch	pek sou	90	27	
4	Diganakelle	66	9	hf-ch	bro pek	450	52	
5	Do	67	2	do	pekoe	100	43	
6	Do	68	18	do	pek sou	900	41	
7	Do	69	2	do	dust	147	29	
8	Do	70	2	do	fans	100	34	
9	Do	71	1	do	bro mix	43	31	
10	Do	72	9	do	unas	450	39	
11	Yahalatenne	73	18	do	bro pek	1080	45	
12	Do	74	29	ch	pekoe	2465	38	bid
13	Do	75	19	do	pek sou	1710	33	bid
14	Do	76	2	do	bro mix	180	26	
15	Do	77	1	do	dust	145	29	
16	I N G, in estate mark	78	4	do	bro pek	400	70	
17	Do	79	9	do	pekoe	900	40	
18	Do	80	2	do	fans	200	36	
19	Do	81	1	do	dust	100	29	
20	R X	82	2	do	pek dust	280	31	
21	Do	83	2	do	dust	280	29	
22	Do	84	1	do	bro tea	120	34	
23	Do	85	2	do	bro mix	240	34	
24	C T M	86	3	hf-ch	dust	210	28	
25	Do	87	2	ch	bro mix	180	29	
26	D B G	88	3	do	fans	315	35	
27	Do	89	6	do	bro mix	660	34	
28	Do	90	5	hf ch	dust	400	29	
29	D	91	1	do	or pek	55	48	
30	Lyndhurst	98	10	ch	bro pek	1100	47	
37	Do	99	15	do	pekoe	1350	38	bid
38	Do	100	15	do	pek sou	1425	33	bid
39	Allakolla	1	17	hf-ch	bro pek	1105	46	
40	Do	2	26	ch	pekoe	2720	38	bid
41	Do	3	20	do	pek sou	2000	37	
42	Do	4	1	hf-ch	dust	50	28	
43	M	5	17	ch	bro mix	1581	37	
44	M	6	8	hf-ch	pek sou	405	35	
45	Aadneven	7	12	ch	bro pek	1200	42	bid
46	Do	8	29	do	pekoe	2810	36	bid
47	K M O K	9	3	do	bro tea	270	32	
48	Do	10	1	do	red leaf	80	27	
49	St. Andrew's T N C,	11	7	do	or pek	700	66	
50	Do	12	34	box	or pek	680	61	
51	Do	13	13	ch	bro pek	1235	43	bid
52	Do	14	6	do	pek sou	540	41	
53	Roseneath	15	26	hf-ch	bro pek	1820	45	bid
54	Do	16	21	ch	pek sou	2310	36	
55	S B R	17	2	do	bro pek	200	31	
56	Do	18	2	do	dust	280	27	
57	B V N	19	12	do	bro pek	1200	44	bid
62	E	24	13	do	bro mix	585	30	
63	G K	25	4	ch	pek sou	280	32	
64	P	26	7	hf-ch	pek sou	350	32	bid
65	S	27	6	ch	dust	840	27	
66	Diyagama	28	1	do	bro pek	103	47	
67	Do	29	7	do	pekoe	645	37	bid
68	Do	30	5	do	pek sou	462	34	bid
69	Do	31	4	do	unas	377	30	bid
70	Do	32	1	do	dust	112	28	

Messrs. FORBES & WALKER put upfor sale at the Chamber of Commerce Sale-room on the 27th May, the under mentioned lots of Tea (88,501 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight. lb.	c.
1	P T N	608	1	ch	fans	106	31
2	Do	608	1	do	dust	121	28
3	Kottiagalle	610	4	do	dust	620	26
4	Do	612	4	do	red leaf	400	24
5	Do	614	3	do	congou	300	26
6	D C	616	1	do	bro pek	100	41
7	Do	618	1	do	pekoe	100	35
8	Do	620	9	do	pek sou	300	33
9	Do	622	1	do	red leaf	100	28
10	Do	624	1	hf-ch	congou	50	28
11	Do	626	1	do	dust	50	28
12	M F	628	7	ch	pekoe	700	38
13	Do	630	15	do	pek sou	1380	34
14	Do	632	6	do	fans	690	28
15	Shrubs Hill	634	1	hf-ch	bro pek	27	43
16	Do	636	1	do	pekoe	48	36
17	Do	640	5	ch	sou	275	34
18	Do	642	3	do	dust	330	27
19	Do	644	1	do	red leaf	80	26
20	Halpantenne	646	5	do	bro pek	490	45
21	Do	648	5	do	pekoe	450	37
22	Do	650	16	do	pek sou	1440	35
26	F F	658	2	do	bro pek dust	288	28
27	Do	660	1	do	dust	94	27
28	Do	662	1	do	bro mix	114	29
29	Glasgow	664	3	do	bro mix	300	36
30	Do	666	1	do	dust	100	27
31	Hopton	668	4	hf-ch	bro pek	240	50
32	Do	670	3	ch	pekoe	330	39
33	Do	672	2	do	pek sou	220	34
34	Donside	674	1	do	or pek	100	43
35	Do	676	4	do	sou	340	34
36	Do	678	1	hf-ch	dust	70	28
37	Do	680	1	ch	red leaf	85	27
38	Citrus	682	7	hf-ch	bro pek	420	55
39	Do	684	25	do	pekoe	1343	41
40	Do	686	13	do	pek sou	650	36
41	Do	688	3	do	fans	190	28
42	Do	690	1	do	congou	55	25
43	Do	692	1	do	red leaf	55	25
44	California	694	2	hf-ch	bro pek	100	52
45	Do	696	1	do	pekoe No. 1	50	36
46	Do	698	1	do	pekoe No. 2	47	32
47	Berragalla	700	5	ch	dust	750	27
48	Do	702	4	do	bro tea	480	35
49	C R D	704	6	hf-ch	dust	330	28
50	Do	706	4	do	red leaf	240	29
51	Elerapolla	708	8	ch	pek sou	720	34
52	Do	710	1	do	bro tea	90	30
53	Theberton	712	11	do	pek sou	1100	34
54	Do	714	6	do	pek fan	600	28
55	Augusta	716	3	hf-ch	sou	195	30
56	Do	718	2	do	sou	136	37
57	Do	720	3	ch	dust	390	27
58	New Peradeniya	722	6	hf-ch	sou	330	31
59	Do	724	2	ch	dust	300	27
60	D K	726	8	do	bro tea	680	31
61	Farm	730	28	do	pekoe	2520	36
66	Alnoor	740	22	hf-ch	bro pek	1100	44
67	Do	742	20	do	pekoe	1000	38
68	Do	744	8	do	pek sou	400	33
69	Do	746	2	do	dust	160	28
70	Digdolla	748	19	ch	bro pek	1900	46
71	Do	750	34	do	pekoe	3060	38
72	Doonevale	752	19	do	bro pek	1900	46
73	Do	754	30	do	pekoe	2700	37
74	Middleton	756	59	hf-ch	bro pek	3540	52
75	Do	758	16	ch	pekoe	1600	43
76	K S C, in estate mark	760	4	do	bro pek	440	42
77	Do	762	4	do	pekoe	330	35
78	Queensland	764	64	do	flowery pek	3520	51
79	Do	666	36	do	pekoe	3600	40
80	Do	768	8	do	unas	800	38
81	Do	770	6	do	pek fans	450	35
82	Amblakande	772	22	do	bro or pek	2200	46
83	Do	774	77	do	pekoe	6930	36	bid
84	Do	776	10	do	sou	900	33
85	Do	778	4	do	bro mix	480	30
86	Avisawella	780	1	do	unas	105	32
87	Do	782	3	do	dust	450	26
88	H S, in estate mark	784	12	do	dust	1720	20
89	Patiagame	786	1	do	dust	150	26
90	Craighead	788	8	do	sou	680	30
91	Bismark	790	2	do	dust	280	26
92	H, in estate mark	792	1	do	dust	80	27
93	Do	794	1	do	bro mix	100	30
94	Elfindale	796	9	hf-ch	bro pek	450	37
95	Do	798	32	do	pekoe	1400	34
96	Do	800	7	do	red leaf	280	29
97	Do	2	3	do	dust	150	27
98	C F G	4	14	ch	bro pek	1400	50
99	Do	6	9	do	pekoe	810	40
100	Do	8	7	do	pek sou	665	36
101	Do	10	1	hf-ch	dust	65	27
102	Glengariffe	12	3	ch	bro tea	300	34
103	Do	14	2	hf-ch	dust	192	27
104	St. Martin's	16	6	do	bro pek	270	51
105	Do	18	18	do	pekoe	810	38
106	Do	20	3	do	sou	120	32
107	Kirrimettia, L M	22	51	do	pekoe	2550	36
108	Do	24	3	ch	pek fan	375	35b

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 3rd June, the undermentioned lots of Tea (27,884 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	G K W	27	2	ch	red leaf	160	27
2	Do	28	2	hf-ch	dust	160	26
3	Do	29	11	ch	bro tea	990	34
4	Stamford Hill	31	4	do	bro mix	480	33
5	Great Valley	33	14	do	bro pek	1540	47
6	Do	35	17	do	pekoe	1700	40
7	Do	37	10	do	pek sou	950	37
8	Lawrence Factory	39	42	do	sou	4200	32
9	Gouravilla	41	9	do	pek sou	900	29
10	Do	43	5	do	bro mix	500	26
11	Brownlow	45	13	do	bro pek	1300	54
12	Do	47	12	do	pekoe	1080	42 bid
13	Do	49	7	do	pek sou	595	42
14	Do	51	1	do	dust	70	28
15	P T E	52	1	do	dust	125	29
16	Do	53	1	do	fans	109	30
17	B T	54	33	do	bro mix	2610	31
18	G R	56	9	hf-ch	bro pek	395	51
20	Maria	59	1	ch	bro mix	90	32
21	Do	60	4	do	dust	280	28
22	Meddegeddera	61	36	do	bro pek	3600	49
23	Do	63	19	do	pekoe	1710	40
24	Do	65	18	do	pek sou	1422	36
25	Do	67	3	do	sou	186	32
26	Do	68	2	hf-ch	dust	196	28
27	G O	69	6	do	bro mix	300	26
28	A D	70	15	ch	pek sou	1426	37

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 8th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 8th May:—

Ex "Priam"—Gampaha, 1b 106s; 3c 1t 105s; 3c 102s 6d; 1c 101s; 1c 118s.

Ex "Oroya"—Mousa Ella, 1b 110s; 3c 1b 109s; 2c 1b 106; 1c 103s; 1c 128s.

Ex "City of Cambridge"—Killarney, 2c 105s; 1c 1b 103s 6d; 1t 101s; 1t 114s. Gampaha, 1c 103s; 1c 1b 101s 6d; 1t 100s 6d; 1b 106s. Balmoral, 1c 109s; 1c 1t 105s 6d; 1c 102; 1c 115s.

Ex "Oroya"—Kirklees, 2c 103s; 2c 102s; 1c 100s 6d; 1t 108s.

Ex "Orizaba"—Nagalla, 1t 100s.

Ex "Ningchow"—Kew, 1b 117s; 1c 1t 111s; 6c 108s; 1c 105s; 1c 126s. Bambrakelly, 1c 106; 1c 105s; 1c 101s; 1t 121s. Oddington, 1c 1b 106; 1c 103s; 1t 102s; 1t 120s.

Ex "Rewa"—Adam's Peak, 1c 113s; 1c 1b 107s 6d; 1b 101s; 1b 120s. Blackwood, 3c 1b 126s 6d; 1c 1t 101s 6d; 1b 114s 6d. Haldamulle, 1c 1b 111s; 3c 107s 6d; 1c 104s; 1b 114s 6d. Palmerston, 1b 104; 1c 101s; 1b 101s; 1b 107s; 8b 97s.

Ex "Rewa"—Kahagalla, 2c 110; 4c 107s 6d; 2c 1t 104. Indulgashene, 1c 112s; 2c 1b 108s 6d; 1c 104s. Ragalla, 1c 1b 103s; 1c 1b 101s 6d.

Ex "Orizaba"—Ingestre, 1b 111s; 4c 109s; 3c 105 6d; 1c 103s; 1c 1b 125s.

Ex "Jumna"—Nithsdale, 1b 108s; 1c 1t 105s; 1t 102s 6d; 1t 117s.

Ex "Rewa"—Sherwood, 1b 107s; 2c 107s; 1c 102s; 1b 118s. Haputale, 1c 1b 109s; 3c 1b 107s; 1c 1t 103s 6d; 1t 118s.

Ex "Jumna"—Maha Uva, 1c 105s; 2c 103s; 4c 100s 6d; 1c 98s; 1c 109s.

Ex "City of Dundee"—Wiharagalla, 1b 99s; 1b 110s. Moragalla, 12b 100s; 2b 92s 6d; 2b 94s. Udapolla, 17b 99s 6d; 2b 92s 6d.

Ex "Rewa"—Blackwood, 1b 103s 6d. Haldamulle, 1b 103s 6d.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 15th May:—

Ex "City of Dundee"—Theresia, 1b 111s; 2t 107s; 1b 103s; 1b 97s; 1t 2b 90s.

Ex "Clan Matheson"—Denegama, 1c 110s 6d; 1c 1t 104s 6d; 1b 99s; 1c 96s.

Ex "Navigator"—Ouvah, 1c 1b 105s; 3c 1t 102s; 1b 101s; 1t 110s; 1c 96s 6d; 2b 103s 6d; 2c 1b 105s; 5c 1b 102s 6d; 1t 101s; 1t 100s; 1c 1b 96s 6d; 2b 103s.

Ex "Orizaba"—Rajawelle, 1b 95s 6d; 1b 101s; 2b 95s 6d.

Ex "City of Vienna"—Meddecombra, 1c 1t 110s 6d; 3c 107s 6d; 1c 1b 103s; 1b 93s. Newton Dikoya, 2c 1t 107 6d; 1b 101s; 1b 97s; 1b 102s.

Ex "Mombassa"—Mahadowa, 2c 1b 111s 6d; 4c 106s; 1c 104s; 1t 122s.

Ex "Clan Matheson"—Niabedde, 1c 1b 106s 6d; 4c 1t 104s; 1c 102s; 1t 117s. Gonakelle, 1c 1t 110s 6d; 3c 105s 6d; 1b 101s.

Ex "Clan Mackenzie"—Gonakelle, 1c 113s.

Ex "City of Vienna"—Diyanellakelle, 1b 111s; 1c 107s; 1c 1b 105s; 1t 103s.

Ex "Navigator"—Kahanwatte, 2c 1b 110s 6d; 3c 1t 105s 6d; 1c 102s; 1c 1t 122s 6d.

Ex "Clan Matheson"—St. Clair, 1t 101s; 1b 112s. Galloola, 1b 106s; 2t 105s; 1b 100s; 1b 110s 6d. Talawakelle, 1c 1b 109s 6d; 3c 1b 106s 6d; 1b 102s; 1c 121s. Portree, 1t 114s; 2c 1t 111s 6d; 3c 1b 106s 6d; 1b 101s; 1c 127s.

Ex "Navigator"—Berat, 1c 110s; 2c 107s; 1b 101s; 1t 108s.

Ex "Port Denison"—Alluwiharee, 1b 108s.

Ex "Goorkha"—Agra, 1t 1b 106s 6d.

CEYLON COCOA SALES IN LONDON.

(From Wilson, Smithett, & Co's. Circular.)

MINCING LANE, May 8th, 1891.

Ex "Ningchow"—Ingurugalla, 25b 123s; 7b 72s 6d; 1b 31s; 19b 113s 6d; 7b 75s 6d; 1b 31s. Siragalla, 21b 115s 6d; 4b 66s; 1b 31s; 17b 72s; 2b 50s 6d. Dynevor, 20b 123s; 3b 73s 6d; 1b 31s.

Ex "City of Dundee"—Wariagalla, 16b 108s 6d; 4b 55s 6d.

Ex "Falls of Inversnaid"—Goonambil, 4b 110s 6d.

Ex "Ningchow"—Nellaoolla, 22b 113s; 4b 73s; 1b 59s.

Ex "Ping Suey"—Pondappa, 2b 71s; 1p 28s; 6b 70s; 1b 28s.

MINCING LANE, May 15th, 1891.

Ex "Ameer"—Warriapolla, 40b 125s 6d; 13b 126s; 53b 121s; 12b 72s 6d; 3b 50s; 2b 92s 6d.

Ex "Orinoco" RC W, 4b 59s.

Ex "Ameer"—Old Haloya, 19b 119s 6d; 3b 65s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 15th, 1891.

Ex "Ningchow"—Nellaoolla, 5 cases 2s; 5c 2s 2d; 1c 1s 6d; 1c 1s 1d; 3c 1s 11d. (SH K), 3c 1s 9d; 1c 1s 2d; 1c 1s 4d.

Ex "Jumna"—Wariagalla, 1 case 2s 5d; 10c 2s 4d; 2c 1s 8d; 9c 1s 9d; 3c 1s 3d; 5c 1s 2d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 3rd June, the undermentioned lots of Tea (43,106 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
4	W	7	13	do	bro pek	650	51	
5	W	9	29	do	pekoe	1400	36	
13	Y, in estate mark	23	15	ch	pekoe	900	41	
14	Kelani	25	16	hf-ch	bro pek	880	47	
15	Do	27	72	do	pekoe	3240	38	
16	Penrhos	29	34	do	pekoe	2040	43	
17	Do	31	22	do	bro pek	1100	53	bid
18	Do	33	36	do	pek sou	1800	39	
19	Do	35	4	do	fans	240	36	
20	Do	36	50	box	pekoe	1000	40	bid
25	Comillah	44	1	do	bro pek	55	39	
26	Do	45	16	do	pekoe	800	36	
27	Do	47	2	do	pek sou	100	31	
28	H J K	48	17	ch	bro pek	1700	44	
29	Do	50	19	do	pekoe	1710	37	bid
30	Do	52	7	do	dust	910	26	bid
31	A K	53	3	do	dust	450	26	bid
32	W D A	54	7	hf-ch	pekoe	406	32	
33	Do	56	4	ch	pek sou	400	30	
34	Do	57	3	hf-ch	sou	150	30	
35	W S G	58	4	ch	pek dust	540	29	
36	Horagoda	59	8	do	bro pek	800	50	
37	Do	61	31	do	pekoe	2635	38	
38	Do	63	1	do	pek sou	95	32	
39	Do	64	1	hf-ch	bro pek and pek mix	20	withd'n.	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room today, 3rd June, the undermentioned lots of Tea (61,794 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	T, in estate mark	33	19	hf-ch	unas	988	35	
2	Do	34	4	do	bro mix	216	29	
3	Do	35	2	do	congou	100	28	
4	Do	36	5	do	dust	360	28	
10	S T M	42	5	do	pekoe	475	43	
11	A Z, in estate mark	43	3	hf-ch	bro or pek	150	51	
12	W	44	10	ch	bro tea	1032	27	
13	T	45	7	do	bro mix	863	23	
14	Naseby	46	11	hf-ch	bro pek	550	56	
15	Do	47	17	do	pekoe	850	44	
16	Do	48	5	do	bro tea	373	30	bid
17	South-Wana-Rajah	49	17	ch	bro or pek	1700	70	
18	Do	50	62	do	pekoe	6200	44	bid
25	Roseneath	57	19	ch	pekoe	2090	39	
31	Wewesse	63	34	do	bro pek	1700	58	
32	Do	64	51	do	pekoe	2550	42	
33	Do	65	20	do	pek sou	1000	39	
34	Do	66	3	do	dust	240	28	
35	Forest Hill	67	13	ch	bro pek	1430	55	
36	Do	68	14	do	pekoe	1400	40	
37	Do	69	6	do	pek sou	600	37	
38	Do	70	1	do	dust	160	28	
43	G B	75	20	ch	dust	2800	28	
44	Do	76	7	do	bro tea	700	[illegible]	
45	Mouaragalla	77	15	do	bro pek	1470	45	bid
46	Do	78	19	do	pekoe	1710	38	bid
47	Do	79	23	do	pek sou	1840	32	bid
48	Do	80	2	do	dust	280	27	
50	Z Z Z	82	5	do	pek sou	225	31	
51	Do	83	2	do	dust	120	21	
52	Panakande	84	6	do	bro pek	330	46	
53	Do	85	13	do	pekoe	650	34	
54	Do	86	7	do	pek sou	375	32	
55	S A	87	8	do	dust	640	25	
56	Kattukitula	88	1	do	bro pek	45	53	
57	Do	89	2	do	pekoe	80	38	
58	Do	90	3	do	pek sou	150	35	
59	G	91	3	do	pekoe	132	29	
60	Ingeyria	92	4	do	bro pek	220	55	
61	Do	93	8	do	pekoe	400	38	
62	Do	94	6	do	pek sou	300	36	
63	T, in estate mark		1	box	golden tips	5	R17 per lb	bid
64	Aadneven	95	12	ch	bro pek	1200	42	
65	Do	96	29	do	pekoe	2610	35	bid
66	E A T S, Croes in estate mark	97	6	do	bro pek	630	48	bid
67	Do	98	6	do	pekoe	600	40	bid
68	Do	99	4	do	pek sou	400	41	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 3rd June, the undermentioned lots of Tea (90,560 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	Dehiowita	26	1	ch	bro tea	120	29	
2	Do	28	1	do	dust	160	29	
3	G A	30	1	hf-ch				
			1	box	bro pek	85	37	
4	Do	32	10	hf-ch	pek sou	470	30	
5	L G E	34	36	ch	or pek	3600	43	
6	Do	36	20	do	pekoe No. 1	2000	36	
6a	Do	37	10	do	pekoe ,, 1	1000	37	
7	Do	38	4	hf-ch	dust	340	27	
8	Bowlana	40	18	ch	bro pek	1980	48	
9	Do	42	15	do	pekoe	1500	38	
10	Do	44	22	do	pek sou	2090	36	
11	Do	46	4	hf-ch	dust	300	22	
15	G L, in estate mark	54	28	ch	bro pek	3080	42	bid
16	Do	56	17	do	pekoe	1615	38	bid
17	Do	58	6	do	pek sou	540	35	
18	K G	60	19	do	bro pek	1900	44	
19	Do	62	8	do	pekoe	720	37	
20	Do	64	7	do	pek sou	630	35	
21	Yataderia	66	17	do	bro pek	1870	51	
22	Do	68	35	do	pekoe	3500	43	
23	Do	70	43	do	pek sou	3870	39	
24	Do	72	11	do	bro tea	990	30	
25	S T A	74	6	do	pek sou	600	32	
26	Do	76	4	do	dust	492	28	
27	L, in estate mark	78	1	hf-ch	pek sou	34	30	
28	Bandara-polla	80	41	do	bro pek	2050	42	bid
29	Do	82	42	do	pekoe	2100	37	
30	A N	84	20	ch	bro mix	2000	24	
31	Langdale	86	11	do	bro pek	1210	47	
32	Do	88	10	do	pekoe	1000	38	
33	Do	90	11	do	pek sou	1100	36	
34	D A	92	2	do				
			1	hf-ch	pekoe	216	37	
35	Do	94	14	ch	pek sou	1127	34	
36	Do	96	2	hf-ch	fans	150	39	
37	Do	98	1	ch	dust	143	25	
38	Deaculla	100	19	hf-ch	or pek	1140	50	
39	Do	102	27	ch	pekoe	2700	41	
40	Do	104	1	do	congou	100	32	
41	Do	106	3	hf-ch	dust	210	28	
42	B & D	108	3	ch	red leaf	350	25	
43	P	110	1	box	dust	32	29	
44	M C	112	16	ch	bro pek	1760	45	
45	Do	114	22	do	pekoe	2092	35	
46	Do	116	15	do	pek sou	1500	31	
47	Do	118	4	do	red leaf	324	23	
48	Do	120	2	do	congou	178	26	
49	Do	122	1	do	dust	130	26	
50	Do	124	1	do	unas	122	31	
51	Talgaswela	126	3	do	dust	420	28	
52	Do	128	1	do	dust	100	28	
53	Haragalla	130	20	hf-ch	bro pek	1140	53	
54	Do	132	60	do	pekoe	2700	39	
57	Chalmers	138	14	hf-ch	bro pek	980	59	
58	Do	140	29	do	pekoe	1740	47	
59	Do	142	28	do	pek sou	1680	40	
60	Do	144	2	do	pek fan	180	30	
61	Do	146	2	do	bro mix	140	31	
62	Do	148	1	ch	dust	100	27	
63	H S, in estate mark	150	3	do	dust	435	27	
64	Pattiagama	152	2	do	dust	300	27	
65	Do	154	1	do	bro mix	95	14	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
66	Palmerston	156	11	ch	bro pek	605	69
67	Do	158	14	do	pekoe	1400	44
68	Do	160	8	do	pek sou	800	40
69	Bismark	162	1	do	dust	140	28
70	A, in estate mark P	164	4	hf-ch	pekoe	202	36
71	W A	166	4	ch	bro pek	400	43
72	Do	168	12	hf-ch	pekoe	624	33
73	E P	170	8	do	dust	600	26
74	V A	172	7	ch	bro tea	630	32
75	Do	174	1	do	red leaf	80	24
76	Do	176	5	hf-ch	dust	400	27
77	D K	178	4	ch	red leaf	380	26
78	Do	180	1	hf-ch	pek sou	56	35
79	K	182	1	ch	dust	174	25
80	K	184	1	do	congou	160	36
84	Horagas-kelle	192	5	hf-ch	bro pek	300	52
85	Do	194	9	do	pekoe	444	42
86	Do	196	14	do	pek sou	784	37
87	Do	198	2	do	bro mix	160	26
88	Thornfield	200	30	do	bro pek	1800	61
89	Do	202	23	ch	pekoe	2300	44
90	Do	204	13	do	pek sou	1300	38
91	Do	206	2	hf-ch	pek dust	160	31

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 10th June, the undermentioned lots of Tea (45,758 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Cruden Factory	72	13	hf-ch	sou	780	29	
2	Tamaravelly	74	11	do	congou	495	34	
3	Gongalia	75	12	do	bro pek	600	47	
4	Do	77	20	do	pek	1000	39	
5	Do	79	20	do	pek sou	1000	36	
6	Eila	81	18	ch	bro pek	1800	47	bid
7	Do	83	34	do	pekoe	2720	38	
8	Do	85	18	do	pek sou	1440	36	
9	Do	87	52	do	bro pek	5460	42	
10	Orange Field	89	5	do	bro pek	500	44	
11	Do	90	23	do	pekoe	2070	36	
12	Do	102	4	do	souchong	360	25	
13	Do	103	2	do	dust	235	29	
20	Gonavy	116	51	do	bro pek	5100	50	
21	Do	118	11	do	pekoe	990	41	
22	Do	120	8	do	pek sou	720	38	
23	Do	122	2	do	dust	300	30	
28	Kandenewera	131	21	ch	bro pek	1890	61	
29	Do	133	31	do	pek sou	3400	44	
30	E S W	135	10	hf-ch	bro or dek	500	54	
31	Do	136	24	do	pek	1200	43	
32	Do	138	2	ch	pek sou	100	35	
33	Do	139	1	hf-ch	dust	80	32	
34	E A	140	1	ch	bro pek	100	41	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 10th June, the undermentioned lots of Tea (40,193 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Marymount	1	5	hf-ch	unas	250	35	
2	P	2	7	do	pek sou	350	35	
3	A A	3	2	do	pekoe	86	34	
4	Do	4	1	box	unas	18	34	
5	S B R	5	6	ch	dust	840	27	
6	A A	6	2	hf-ch	pekoe	64	25	
7	Do	7	1	do	unas	32	25	
8	Wewesse	8	21	do	bro pek	1050	58	
9	Do	9	31	do	pekoe	1550	47	
10	Do	10	12	do	pek sou	600	40	
11	Do	11	2	do	dust	160	28	
12	Diatalawa	12	3	do	bro pek	180	53	
13	Do	13	5	do	pekoe	250	41	
14	Do	14	15	do	pek sou	740	38	
15	Do	15	2	do	dust	100	29	
16	Do	16	2	do	fannings	160	28	
17	Hiralouvah	17	17	ch	bro pek	1836	48	
18	Do	18	22	do	pekoe	2200	40	
19	Do	19	1	do	fannings	102	33	
20	Do	20	1	do	bro mix	104	30	
21	Do	21	5	hf-ch	dust	343	30	
32	Mousagalla	32	1	do	read leaf	50	22	
33	Eilandhu	33	5	ch	bro pek sou	400	33	
34	Do	34	5	hf-ch	dust	375	28	
35	C	35	21	ch	bro mix	2100	20	bid
36	C	36	24	ch	bro mix	1200	48	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
37	Allakolla	37	32	hf-ch	bro pek	2080	49	
38	Do	38	44	do	pekoe	2640	42	
39	Do	39	30	do	pek sou	1650	37	
40	Do	40	2	do	dust	190	28	
41	Roseneath	41	22	do	bro pek	1540	49	bid
42	Do	42	13	ch	pekoe	1430	41	
43	Do	43	18	do	pekoe sou	1980	38	
44	A T, in estate mark	44	7	do	bro mix	863	23	bid
45	AETS, in estate mark	45	6	do	pekoe	600	43	bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 10th June, the undermentioned lots of Tea (51,285 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Kelani	1	35	hf-ch	bro pek	1925	50	
2	Do	3	69	do	pekoe	3105	42	
3	Do	5	44	do	pek sou	1980	39	
4	N, in estate mark	7	35	do	bro pek	1925	29	bid
10	M L, in estate mark	17	7	do	pekoe	406	35	
11	Do	18	3	ch	pek sou	300	35	
12	Do	19	3	hf-ch	sou	150	33	
13	AKA C, in estate mark	20	50	do	pek sou	2500	39	
14	K	22	3	do	bro pek	195	53	b
15	P O	23	4	do	bro pek	208	58	
16	Do	24	4	do	pekoe	170	42	
7	Do	25	14	do	pek sou	748	39	
18	Do	27	2	do	congou	89	32	
19	Do	28	2	do	unas	86	38	
20	Do	29	1	do	dust	67	25	
21	G H K Ceylon, in estate mark	30	18	do	or pek	900	47	
22	Do	32	24	do	pekoe	1200	36	
23	Do	34	13	ch	pek sou	1170	35	
24	Do	36	10	ch	sou	900	31	
25	Yarrow	38	18	hf-ch	pekoe	1080	43	
26	Relugas	40	8	ch	do	800	36	
27	Comillah	42	3	box	bro or pek	30	74	bid
28	Do	43	5	hf-ch	bro pek	275	44	
29	Do	45	8	do	bro pek	400	37	
30	Do	47	5	do	pek sou	250	35	
31	Do	48	2	do	dust	150	28	
32	A P D	49	76	ch	pekoe	6460	45	
37	H	58	3	ch	pekdust	450	28	
38	Y D	59	13	do	bro or pek	1300	42	bid
39	Do	61	12	do	bro pek	1200	47	bid
40	Do	63	28	do	pekoe	2520	42	
41	Do	65	21	do	pek sou	1785	37	bid
42	Do	68	5	do	dust	750	28	
43	Kotagalla	69	3	do	do	326	29	
44	Nahalma	70	32	hf-ch	bro pek	1760	50	
45	Do	72	39	ch	pekoe	3705	42	
46	Do	74	4	ch	pek sou	400	36	
47	Do	75	3	hf-ch	dust	200	32	
48	A G C	76	7	ch	do	910	28	
49	Do	77	13	hf-ch	do	910	27	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 10th June, the undermentioned lots of Tea (135,800 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.
1	Halpantenne	208	11	ch	pek sou	980	36
2	Do	210	5	do	sou	430	33
3	Do	212	1	do	fans	125	29
4	D C S	214	2	do	pekoe	200	34
5	Do	216	6	do	unas	480	32
6	Do	218	1	do	dust	140	22
7	Clarendon	220	40	hf-ch	bro pek	2240	62
8	Do	222	20	ch	pekoe	2000	52
13	Polatagama	232	61	do	bro pek	3660	56
14	Do	234	79	hf-ch	pekoe	3950	45
15	Do	236	59	do	pek sou	2950	41
16	Abamalla	238	5	do	bro mix	300	33
17	Do	240	7	do	dust	595	29
18	C L D	242	14	do	bro pek	731	52
19	Do	244	13	do	pekoe	676	43
20	Do	246	9	do	pek sou	450	39

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
21	Easdale	248	19	ch	bro pek	1900	51	
22	Do	250	16	do	pekoe	1440	42	
23	Do	252	14	do	pek sou	1260	39	
24	E D K E, in estate mark	254	4	hf-ch	red leaf	200	28	
25	Glenorchy	256	12	do	dust	900	34	
26	K, in estate mark	258	2	ch	red leaf	168	28	
27	Do	260	1	do	bro tea	94	35	
28	Do	262	1	hf-ch	dust	34	29	
29	St. Leonard's	264	1	ch	dust	90	25	
30	Angrowella	266	1	hf-ch	dust	75	34	
31	Talgaswela	268	100	ch	bro pek	10000	34	
86	Bramley	278	2	ch	dust	220	33	
37	B R, in estate mark	280	3	do	red leaf	255	27	
38	Do	282	12	hf-ch	bro mix	685	25	
39	S, in estate mark	284	1	box	bro pek	20	45	
40	Amblakande	286	17	ch	bro or pek	1700	48	
41	Do	288	32	do	pekoe	2880	39	
42	Do	290	4	do	sou	360	36	
43	Do	292	2	do	bro tea	240	33	
44	C, in estate mark	294	32	hf-ch	bro or pek	1600	50	
45	Do	296	14	do	pekoe	1260	42	
46	Do	298	19	do	pek sou	1615	37	
47	Do	300	11	do	sou	935	36	
48	T B, in estate mark	302	16	ch	bro or pek	1600	47	
49	Do	304	15	do	pekoe	1350	40	bid
50	Yataderia	306	14	do	bro pek	1540	55	
51	Do	308	30	do	pekoe	3000	44	
52	Do	310	40	do	pek sou	3600	39	
53	Ingiriya	312	2	do	do	205	35	
54	Do	314	1	do				
			2	hf-ch	dust	310	31	
55	Warwick	316	3	do	bro mix	150	30	
56	Bandarapolla	318	39	do	pek sou	1755	38	
57	Do	320	4	do	sou	180	32	
58	N G	322	63	do	bro mix	2835	24	
59	Mukeloya	324	52	do	bro pek	3120	55	
60	Do	326	44	do	pekoe	2640	44	
61	Do	328	30	do	pek sou	1800	38	
62	Do	330	1	do	dust	80	30	
63	C B	332	5	do	do	400	33	
69	W, in estate mark	344	2	do	bro pek	94	41	
74	N C	354	46	do	bro mix	2070	26	
75	Harangalla	356	43	do	bro pek	2451	47	
76	Do	358	38	do	pekoe	1710	39	
77	N	360	34	ch				
			1	hf-ch	unas	3456	35	
78	N, in estate mark	362	9	do	dust	675	32	
79	G E P	364	16	ch				
			1	hf-ch	pek sou	1533	33	
80	Do	366	5	do	dust	369	27	
81	Do	368	3	ch	red leaf	350	24	
82	E P	370	4	do	bro pek	406	40	
83	Do	372	3	do	dust	277	26	
84	Middleton	374	38	hf-ch	bro pek	2128	57	
85	Do	376	11	ch	pekoe	1045	44	
86	Do	378	21	do	pek sou	1890	40	
87	Ooloowate	380	8	hf-ch	bro pek	440	52	
88	Do	382	8	do	pekoe	400	39	
89	Do	384	10	do	pek sou	460	38	
90	N	386	16	do	sou	800	38	
91	N	388	3	do	bro mix	150	26	
92	N	390	4	do	dust	340	31	
93	Asgiria	392	2	ch	red leaf	200	28	
94	Do	394	7	do	red leaf	700	25	
101	L L	408	1	ch	bro pek	100	46	
108	Theydon Bois	422	25	ch	bro or pek	2500	48	bid
109	Do	424	3	do	pek	270	41	
110	S A	426	6	hf-ch	bro pek	300	49	
111	S B	428	2	do	bro pek	92	54	
112	S C	430	1	do	fannings	54	31	
113	Sea View	432	6	do	pek	286	40	
114	WestHap'tale	434	9	do	pek sou	468	40	
115	Farm	436	23	ch	bro pek	2300	50	
116	Do	438	23	do	pek	1840	43	
117	Do	440	21	do	pek sou	1680	39	
118	Do	442	1	hf-ch	sou	34	30	
119	Do	444	2	ch	dust	300	29	
120	Silver Valley	446	2	hf-ch	bro pek	100	56	
121	Do	448	11	do	pek	528	39	
122	Do	450	2	do	congo	90	27	
123	Do	452	3	boxes	red leaf	66	27	
124	Palmerston	454	11	hf-ch	bro pek	605	65	
125	Do	456	10	ch	pek	1000	49	
126	Do	458	3	do	pek sou	300	41	
127	H	460	1	hf-ch	bro pek	45	60	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room today, 17th June the undermentioned lots of Tea (185,208 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Glendon	462	1	hf-ch	dust	92	10	
2	Do	464	1	ch	bro tea	78	15	
3	R	466	5	do	dust	375	26	
4	R	468	8	do	bro tea	720	25	
5	Ismalle	470	3	do	dust	390	24	
6	Do	472	1	do	bro tea	103	29	
7	Uvakelle	474	8	hf-ch	bro pek	440	60	
8	Do	476	23	do	pekoe	1150	44	
9	Do	478	20	do	pek sou	1000	39	
10	Do	480	5	do	fans	275	30	
11	Do	482	2	do	bro pek dust	120	29	
12	Do	484	3	do	congou	150	31	
13	Midlothian	486	25	do	bro pek	1250	50	
14	Do	488	22	ch	pekoe	1870	41	
15	Do	490	3	hf-ch	congou	150	31	
16	Bowlana	492	12	ch	bro pek	1320	44	bid
17	Do	494	6	do				
			1	hf-ch	pekoe	650	37	bid
18	Do	496	11	ch				
			1	hf-ch	pek sou	1080	4	bid
19	Do	498	5	do	dust	375	26	
20	Do	500	5	do	sou	400	30	
21	Do	502	5	do	red leaf	375	27	
22	W T	504	13	do	bro pek	650	48	
23	Do	506	21	do	pekoe	1050	38	
24	Do	508	1	do	dust	65	27	
25	Do	510	1	do	sou	45	27	
26	Talgaswela	512	50	ch	bro pek	5000	42	bid
27	Do	„	50	do	do	5000	out	
28	Do	514	25	do	pek sou	2250	40	
29	Do	516	6	do	sou	540	36	
30	Delpotonoya	518	6	hf-ch	sou	270	31	
31	Do	520	5	do	dust	325	28	
32	Marguerita	522	22	do	bro pek	1320	37	bid
33	Do	524	21	do	pekoe	1050	36	bid
34	Do	526	49	do	pek sou	2695	36	
35	Do	528	2	do	sou	90	39	
36	Ukuwella	530	20	ch	bro pek	2100	54	
37	Do	532	12	do	pekoe	1200	42	
38	Do	534	17	do	pek sou	1615	37	
39	Do	536	4	do	congou	400	32	
40	Do	538	3	hf-ch	dust	225	27	
41	Pansalatenne	540	5	ch	congou	500	31	
42	Do	542	3	hf-ch	dust	225	28	
43	H O	544	6	ch	fans	660	31	
44	Do	546	5	do	congou	450	30	
45	Do	548	3	do	dust	450	39	
46	Do	550	1	do	bro tea	100	24	
47	L, in estate mark	552	1	hf-ch	pekoe	40	37	
48	Do	554	1	do	pek sou	32	32	
49	Blairgowrie	556	36	do	bro pek	1800	46	
50	Do	558	12	ch	pekoe	1140	41	
51	Do	560	8	do	pek sou	760	36	
52	Do	562	1	hf-ch	bro tea	38	25	
53	Do	564	1	do	dust	82	28	
54	V A	566	6	do	pek dust	450	28	
55	M A	568	16	ch	pekoe	1472	37	
56	K V	570	5	do	congou	450	30	
57	Do	572	2	do	fans	200	29	
58	W, in estate mark	574	1	hf-ch	bro pek	47	46	
59	Do	576	2	do	pekoe	90	42	
60	Freds Ruhe	578	12	do	bro pek	600	56	
61	Do	580	15	ch	pekoe	1495	40	
62	Do	582	12	do	pek sou	1140	34	
63	W A	584	4	do	bro tea	460	31	
64	Do	586	1	do	dust	125	25	
65	Do	588	1	hf-ch	red leaf	58	25	
66	A Z	590	1	do	bro pek	44	46	
67	Do	592	1	do	bro mix	50	35	
68	Shrubs Hill	594	48	ch	bro pek	4800	47	
69	Do	596	50	do	pekoe	4250	39	bid
70	Do	598	52	do	pek sou	4160	35	bid
71	Do	600	10	do	bro tea	942	33	bid
72	Do	602	6	do	dust	780	31	
73	P M E	604	7	do	sou	598	25	bid
74	Do	606	3	do	red leaf	192	30	
75	Do	608	7	box	pek fans	175	28	bid
76	N, in estate mark	610	4	ch	unas	394	34	
77	B & D	612	4	do	red leaf	400	21	
78	Do	614	1	do				
			1	hf-ch	dust	225	26	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
79	Oolooawatte	616	3	do	bro pek	165	43	
80	Do	618	2	do	pekoe	100	36	
81	Do	620	3	do	pek sou	135	33	
82	Do	622	1	do	bro mix	30	30	
83	Do	624	1	do	dust	50	26	
84	Atherfield	626	11	do	sou	570	35	
85	Do	628	1	do	bro mix	50	30	
86	Do	630	5	do	dust	400	27	
87	W G	632	23	ch	bro pek	2300	47	
88	Do	634	54	do	pekoe	5130	42	
89	Do	636	45	do	pek sou	4050	37	
90	Do	638	3	hf-ch	bro pek fans	195	35	
91	Do	640	6	do	pek fans	380	33	
92	Do	642	2	do	pek dust	170	29	
93	Do	644	1	do	red le f	61	25	
94	Wewerse	646	36	do	bro pek	1800	68	
95	Do	648	57	do	pekoe	2850	50	
96	Do	650	25	do	pek sou	1250	43	
97	Do	652	2	do	dust	1t0	26	
98	B E R	654	9	ch	bro pek	810	35	bid
99	Do	656	20	do	pek sou	1800	34	
100	Do	658	3	do	dust	420	28	
101	M P	660	2	do	dust	340	25	
102	Wallahan-duwa	662	18	hf-ch	bro pek	1080	46	
103	Do	664	15	do	pekoe	825	41	
104	Do	666	14	do	pek sou	770	38	
105	S P A	668	6	do	sou	330	35	
106	Do	670	16	do	unas	880	35	
107	Do	672	3	do	bro tea	155	34	
108	Do	674	4	do	fans	240	31	
109	Do	676	2	do	pek dust	156	31	
110	Do	678	1	do	bro mix	77	36	
111	Do	680	6	do	red leaf	240	29	
112	S P V	682	3	do	bro pek	168	49	
113	Do	684	3	do	pekoe	150	40	
114	Do	686	3	do	pek sou	165	36	
115	Do	688	6	do	bro tea	330	35	
116	S E	690	3	do	bro pek	132	43	
117	Do	692	3	do	pekoe	102	36	
118	Do	694	2	do	pek sou	86	36	
119	Castle-reagh	696	24	do	bro or pek	1200	69	
120	K C, in estate mark	698	15	do	bro pek fans	750	35	
121	Do	700	3	do	bro pek dust	210	28	
122	Do	702	4	do	bro pek sou	200	31	bid
123	Sembawat-te	704	28	do	pek fan	1540	32	
124	Yataderia	706	13	ch	bro pek	1430	49	
125	Do	708	31	do	pekoe	3100	40	
126	Do	710	35	do	pek sou	3150	37	
127	Do	712	11	do	bro tea	990	30	
133	Bismark	724	11	ch	bro pek	1100	39	bid
134	Do	726	7	do	pekoe	630	36	
135	Do	728	3	do	pek sou	270	33	
136	Do	730	1	do	dust	140	26	
137	Ravens-wood	732	12	hf-ch	sou	480	36	
138	Do	734	3	do	dust	240	29	
139	Do	736	2	do	fans	120	35	
140	Avisawella	738	3	ch	dust	450	29	
141	Do	740	5	do	sou	450	33	
142	Harring-ton	742	1	hf-ch	dust	80	28	
143	Do	744	1	do	bro mix	80	22	
144	H T	746	9	do	dust	725	25	bid
145	Harangalla	748	18	do	bro pek	1026	42	bid
146	Do	750	25	do	pekoe	1250	38	
147	N C	752	39	do	bro mix	1755	20	bid
148	Melrose D	754	24	do	bro pek	1344	50	bid
149	Do	756	7	ch				
			11	hf-ch	pekoe	1870	43	bid
150	Do	758	5	ch				
			9	hf-ch	pek sou	1450	38	bid
151	Do	760	6	do	dust	480	27	
152	Melrose	762	28	do	bro pek	1680	47	
153	Do	764	36	do	pekoe	1980	40	
154	Do	766	21	ch	pek sou	2100	37	
155	Do	768	1	do	congou	110	29	
156	Farnham	770	23	do	bro pek	2300	53	
157	Do	772	37	do	pekoe	3330	43	
158	Do	774	11	do	pek sou	880	28	
159	Do	776	3	do	fans	390	32	
160	Do	778	1	do	dust	150	26	
161	Pansala-tenne	780	17	do	pek sou	1615	39	
162	Polatagama	782	70	hf-ch	bro pek	4200	46	bid
163	Do	784	85	do	pekoe	4250	41	
164	Do	786	75	do	pek sou	3750	38	
165	Chester-ford	788	20	do	bro pek	1200	40	
166	Do	790	17	do	pekoe	1050	36	
167	Do	792	17	do	pek sou	850	31	
168	Monrovia	794	12	ch	bro pek	1200	47	
169	Do	796	27	do	pekoe	2700	37	
170	Do	798	10	do	pek sou	1000	36	
171	Do	800	2	do	dust	280	27	
172	E K	2	1	do	bro pek	100	38	
173	Do	4	2	do	pekoe	200	38	
174	Do	6	1	do	pek sou	100	35	
175	Christlers Farm	8	20	do	bro pek	2100	73	
176	Do	10	39	do	pekoe	2705	46	
177	Do	12	15	do	pek sou	1275	39	
178	Court Lodge	14	42	hf-ch	bro pek	2352	66	
179	Do	16	24	do	pekoe	1104	57	
180	Do	18	28	do	pek sou	1260	48	
181	Do	20	1	ch	sou	77	40	
182	Do	22	2	do	dust	282	28	
183	S M	24	15	hf-ch	pekoe	750	35	bid
184	Thornfield	26	28	do	bro pek	1680	62	
185	Do	28	23	ch	pekoe	2300	44	
186	Do	30	11	do	pek sou	1100	39	
187	Do	32	2	hf-ch	dust	160	32	
191	T N	40	8	do				
			1	hf-ch	or pek	913	39	
192	Do	42	1	ch	dust	100	28	
193	B T N	44	1	do	sou	90	31	
194	Do	46	1	do	dust	94	27	
195	T N	48	11	do	unas	935	30	
196	Do	50	2	do	red leaf	112	22	
197	Dehigalla	52	2	hf-ch	dust	160	26	
198	Donside	54	6	ch	sou	510	30	
199	Do	56	2	hf-ch	dust	140	28	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 22nd, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 22nd May.

Ex "Mombassa"—Ragalla, 1c 103s; 1c 1b 102s; 1b 105s.

Ex "Teucer"—Gonamotava, 1c 107s 6d; 5c 105s 6d; 1c 103s; 1c 117s. Delmar, 1b 3c 102s; 2t 101s; 1b 109s. Darrawelle, 1b 102s; 1b 101s. Kondesalle, 2b 99s; 1b 107s. Naranghena, 2b 1b 98s 6d; 1b 101. Mount Vernon, 1c 111s; 2c 107s 6d; 1c 1t 104s 6d; 1t 122s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 30th May:—

Ex "Teucer"—Gowerskellie, 2c 1b 110s; 4c 1b 104 1c 103s; 1t 117s; 2c 1b 95s; 4b 1c 90s; 1b 103s.

CEYLON COCOA SALES IN LONDON.

(From Wilson, Smithett & Co's. Circular.)

MINCING LANE, May 30th, 1891.

Ex "Ganges"—DAB, 10 bags 44s 6d.

Ex "Land Carriage"—(C), 6 bags 103s 6d; 8 61s 6d.

Ex "Orient"—Berendewelle, 20 bags 123s 6d; 20 125s; 12 124s 6d; 1 84s; 2 95s; 2 53s; 1 50s.

Ex "Bengal"—Hylton, London, 22 bags 115s; 3 105s; 1 64s; 8 105s; 3 99s.

Ex "Amber"—Hylton L, 30 bags 132s 6d; 1 56s.

Ex "Navigator"—Glenalpin, 12 bags 115s; 3 70s; 1 55s. Elmshurst, 8 bags 116s; 1 packet 50s; 30 bags 116s; 2 45s; 2 32s; 1 87s.

Ex "Orient"—Lesmoir, 4 bags 110s; 1 90s; 1 47s.

Ex "Bengal"—GMC, 8 bags 121s 6d; 2 105s. Anniewatte, 20 bags 124s 6d; 15 124s; 2 69s.

Ex "Orient"—Macoolussa, 24 bags 121s; 24 116s 6d 2 68s 6d; 4 66s; 4 100s; 1 40s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 30th, 1891.

Ex "Polyphemus"—Wariagalla, 4 cases 2s 2d.

Ex "Electrician"—Gallantenne, 2 cases 2s; 2 1s 9d; 2 1s 11d.

Ex "Manora"—Gallantenne, 2 cases 3s 11d; 1 1s 9d; 4 3s 7d; 2 1s 9d.

Ex "Falls of Inversnaid"—Gallawatte, 10 cases 1s 10d.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 17.] COLOMBO, JULY 6, 1891. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 17th June, the undermentioned lots of Tea (71,573 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lbl	c.	
1	Mohedin	1	2	hf-ch	bro pek	80	52	
2	Do	2	3	do	pekoe	126	38	
3	Do	3	3	do	pek sou	126	38	
4	Do	4	1	do	bro pek fans	50	29	
5	Do	5	1	do	red leaf	40	30	
6	K P W	6	11	do	or pek	550	48	
7	Do	8	14	do	bro pek	770	35	
8	Do	10	35	do	pekoe	1575	40	
9	Do	12	33	do	pek sou	1485	37	
10	Do	14	2	do	dust	140	28	
11	K	15	5	do	congou	250	32	
12	K	16	10	do	dust	700	28	
13	Gampolawatte	17	9	do	pekoe	495	40	
14	Harrow	19	9	do	bro pek	540	45	bid
15	Do	21	14	do	pekoe	770	43	
16	Do	23	17	ch	pek sou	1700	37	
17	Do	25	2	hf-ch	bro mix	140	27	
26	Nahalma	38	70	do	bro pek	3850	44	bid
27	Do	40	97	ch	pekoe	8730	40	bid
28	Do	42	9	do	pek sou	855	35	
29	Do	44	2	hf-ch	dust	150	28	
30	Agra Oya	45	22	ch	bro pek	2200	43	bid
31	Do	47	13	do	pekoe	1300	37	bid
32	Do	49	18	do	pek sou	1800	35	
33	Do	51	4	do	dust	400	28	
34	Do	52	1	do	bro mix	100	23	
36	P G A	54	10	do				
			1	hf-ch	bro pek sou	747	21	
37	Do	56	6	do	dust	540	25	
38	Agars Land	57	40	do	bro pek	2000	59	
39	Do	59	27	do	pekoe	1350	48	
40	Do	61	26	do	pek sou	1170	42	
41	Do	63	33	do	sou No 2	1485	38	
42	Engurrakande	65	13	ch	bro or pek	1300	44	bid
43	Do	67	9	do	bro pek	990	41	bid
44	Do	69	72	hf-ch	pekoe	3240	41	
45	Do	71	31	ch	pekoe	2635	37	bid
46	Do	73	9	do	pek sou	810	37	
47	Do	75	1	do	pek sou	95	33	
48	Do	76	4	hf-ch	sou	240	30	
49	A G C	77	4	do	dust	280	27	
50	T G, in estate mark,	78	1	do	unas	50	33	
56	Dikmukalana	87	9	do	pekoe No 1	405	39	
57	Do	89	9	do	do No 2	405	36	
58	Do	91	1	do	fans	45	30	
59	Do	92	1	do	dust	50	29	
60	Shannon	93	56	do	bro pek	3080		
61	Do	95	25	ch	pekoe	2250		
62	Do	97	29	do	pek sou	2610		withd'n
63	Do	99	3	do	dust	228		
64	Do	100	3	hf-ch	bro tea	135		
68	G S	106	3	do	pek dust	420	24	bid

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 17th June, the undermentioned lots of Tea (52,395 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
3	B T	142	40	ch	bro mix	3200	33	
4	Great Valley	144	41	ch	bro pek	4510	44	bid
5	Do	146	34	do	pekoe	34 0	38	bid
6	Do	148	44	do	pek sou	4180	36	
7	Do	150	16	hf-ch	pk dust	1200	23	
8	Do	152	1	ch	sou	100	30	
9	K N	153	37	do	pek sou	4070	38	
10	Brownlow	155	13	do	bro pek	1300	57	
11	Do	157	13	do	pekoe	1170	46	
12	Do	159	9	do	pek sou	765	39	
13	Do	161	1	do	dust	80	29	
14	L	162	27	ch	fans	3500	30	bid
15	L	164	17	do	congou	1530	35	
16	Ottery	166	12	do	bro pek	1200	53	
17	Do	168	13	do	pekoe	1170	41	
18	Do	170	7	do	bro mix	784	36	
19	Stamford Hill	172	12	do	bro pek	1200	53	
20	Do	174	13	do	pekoe	1170	41	
21	Do	176	7	do	bro mix	784	36	
22	Eltofts	178	1	do	pekoe	90	43	
23	Do	179	3	do	pek sou	300	39	
24	Kandaloya	180	1	hf-ch	dust	50	29	
25	Agra Ouvah	181	102	box	bro or pek	10.0	36	bid
26	Do	183	48	hf-ch	or pek	2160	30	bid
27	Do	185	44	do	pekoe	1980	31	bid
28	Do	187	32	do	pek sou	1440	31	bid
29	Peradenia	189	3	ch	dust	480	26	
30	Fernlands	190	1	box	bro pek	19	50	bid
31	Do	191	3	ch	unas	300	36	bid
32	Do	192	1	box	bro tea	32	29	
33	Sutton	193	2	ch	sou	206	37	
34	Do	194	1	do	fans	85	27	
38	Ivies	201	12	do	bro pek	1200	50	
39	Do	203	21	do	pekoe	1890	40	
40	Do	205	14	do	pek sou	1260	40	
41	Do	207	2	hf-ch	bro tea	140	out	
42	Do	208	2	do	dust	150	28	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 17th June the undermentioned lots of Tea (38,266 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.	
2	R X	47	1	do	bro mix	120	31	
3	Do	48	2	do	bro tea	240	32	bid
4	Do	49	3	do	pek dust	420	28	bid
5	Do	50	1	do	dust	140	29	
6	C	51	2	do	dust	290	29	
7	C	52	1	do	red leaf	70	25	
8	D B G	53	3	do	fans	330	32	
9	Do	54	3	do	bro mix	330	32	
10	Do	55	2	hf-ch	dust	160	28	
11	C T M	56	3	ch	bro mix	270	26	
12	Do	57	3	hf-ch	dust	210	26	
13	E C	58	3	do	dust	252	28	
14	Do	59	1	do	congou	54	33	
15	Yelebende	60	15	ch	bro pek	1575	47	bid
16	Do	61	21	do	pekoe	1995	42	
17	Do	62	20	do	pek sou	1800	38	
22	Forest Hill	67	10	do	bro pek	1100	52	
23	Do	68	12	do	pekoe	1200	42	
24	Do	69	5	do	pek sou	500	39	
25	Do	70	1	do	congou	100	32	
26	Do	71	1	do	dust	130	29	
27	M G A	72	24	do	bro pek	2520	42	bid
28	St. Andrew's	73	24	hf-ch	or pek	1560	60	
29	Do	74	24	do	bro pek	1440	53	
30	Do	75	42	do	pekoe	2310	48	
31	W A H	76	9	ch	bro pek	900	38	bid
32	Do	77	7	do	pekoe	665	38	
33	South-Wana-Rajah	78	13	do	bro or pek	1300	65	
34	Do	79	40	do	pekoe	4000	42	bid
35	Wereagalla	80	1	do	red leaf	85	18	
36	Do	81	2	hf-ch	dust	150	29	
37	M C	82	2	ch	pek sou	212	36	
38	Do	83	4	hf ch	congou	204	28	
39	Panakande	84	4	do	dust	300	20	
40	Killin	85	17	ch	bro pek	1700	41	bid
41	Do	86	15	do	bro pek	1500	41	bid
42	Do	87	14	do	pekoe	1330	40	
43	Do	88	6	do	pek sou	540	37	
44	Do	89	7	do	bro tea	700	30	
45	G L	90	6	do	congou	510	30	
46	Vincit	91	1	hf-ch	dust	70	26	
47	Do	92	1	ch	fans	110	24	bid
48	G W	93	6	do	bro mix	570	24	bid
49	P	94	1	do	dust	75	28	
50	B	95	13	hf-ch	pek sou	780	29	
51	N M	96	6	do	dust	474	24	

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room, on the 24th June, the undermentioned lots of Tea (102,088 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
	G H K in estate mark	1	14	ch	pek sou	1240	30	bid
2	Do	3	2	do	bro sou	195	24	bid
3	Do	4	6	do	sou	495	26	bid
4	Do	6	3	hf-ch	unas	171	24	bid
5	Do	7	1	do	red leaf	42	21	
6	Do	8	1	ch	pek dust	140	23	
7	Yarrow	9	20	do	bro pek	1280	51	
8	Do	11	31	do	pekoe	1860	35	bid
9	Do	13	9	do	pek sou	504	33	
10	G H O	15	4	box	dust	120	24	
11	Nahalma	16	32	hf-ch	bro pek	1600	40	bid
12	Do	18	29	ch	pekoe	2610	32	bid
13	Do	20	3	do	pek sou	270	26	bid
14	Do	21	1	hf-ch	dust	75	25	
15	Comillah	22	4	do	bro pek	250	40	
16	Do	23	8	do	pekoe	360	33	
17	Do	25	7	do	pek sou	350	31	
18	Do	27	1	do	dust	60	25	
19	Nahalma	28	36	do	bro pek	1980	47	
20	Do	30	46	ch	pekoe	4370	34	bid
21	Do	32	5	do	pek sou	450	27	
22	Do	33	1	hf-ch	dust	75	25	
23	Ravenscraig	34	7	do				
			55	box	sou	345	24	bid
24	Do	36	3	hf-ch	dust	246	25	
29	Woodend	45	22	ch	bro pek	2200	40	bid
30	Do	47	32	do	pekoe	3400	35	bid
31	Do	49	12	do	pek sou	1020	30	bid
37	A G C	59	10	hf-ch	dust	700	24	
38	X X X	60	36	ch	unas	2880	18	
39	Hakrugalla	62	11	do	bro pek	1100	49	
40	Do	64	10	do	pekoe	900	32	bid
41	Do	66	10	do	pek sou	900	31	bid
48	G S	79	3	ch	dust	420	22	
49	I W	80	10	do	sou	1000	28	bid
50	Do	82	30	hf-ch	dust	2420	23	bid
51	Do	83	1	ch	red leaf	81	22	
52	P B	84	13	do	dust	1950	24	
53	A O	85	22	do	bro pek	2200	42	bid
54	Dalugise	87	9	do	bro pek	990	42	bid
55	Glanrhos	89	15	do	bro pek	1500	42	
56	Do	91	22	do	pekoe	1980	36	
57	Do	93	21	do	pek sou	1680	32	
58	Do	95	3	do	congou	240	27	
59	Do	96	1	do	dust	130	26	
60	Do	97	3	do	sou	240	30	

Mr. E. John put up for sale at the Chamber of Commerce Sale-room on the 24th June, the undermentioned lots of Tea (82,539 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Doranakanda	209	9	hf-ch	unas	450	25	bid
2	Do	210	5	do	sou	250	25	
3	Do	211	7	do	pek fans	350	27	
4	Do	212	6	do	fans	300	26	
5	Do	213	3	do	dust	210	25	
6	Do	214	2	do	red leaf	100	18	
7	Acrawatte	215	10	ch	bro pek	1050	50	
8	Do	217	10	do	pekoe	950	39	
9	Do	219	16	do	pek sou	1440	36	bid
10	D E	221	5	ch	bro mix	425	29	
11	Do	222	5	do	fans	415	30	bid
12	Kandenewera	223	14	do	bro pek	1260	60	
13	Do	225	22	do	pekoe	2120	45	
14	Do	227	17	do	pek sou	1870	38	
15	Logan	229	25	hf-ch	bro pek	1250	40	
16	Do	231	28	do	pekoe	1260	37	
17	Do	233	58	do	pek sou	2610	35	
18	Do	235	17	do	sou	765	30	
19	Do	237	7	do	bro mix	315	25	
20	Do	238	11	do	dust	660	25	
21	Labugama	239	20	do	bro pek	800	50	
22	Do	241	36	do	pekoe	1440	39	
23	Do	243	5	do	pek fan	225	28	
24	Do	244	1	do	pek dust	75	25	
25	Do	245	1	do	congou	40	28	
26	Do	246	1	do	red leaf	50	18	
27	Tangapoo Tottam	247	16	do	bro pek No. 2	1600	35	bid
28	Do	249	19	ch	pek sou	1805	34	bid
29	Do	251	3	do	sou & congou	285	25	bid
30	T P	252	42	hf-ch	bro pek	2310	52	
31	Do	254	64	do	pekoe	2880	40	
32	Do	256	1	do	dust	64	26	
33	K	257	3	do	unas	249	35	
34	K	258	1	do	unas	75	34	
35	K	259	4	do	unas	320	33	
36	Great Valley	260	41	ch	bro pek	3895	40	bid
37	Do	262	22	do	pekoe	1870	36	
38	Do	264	27	do	pek sou	2160	33	
39	Do	266	7	do	congou	525	25	
40	Do	267	8	hf-ch	dust	600	18	
41	G K W	268	5	ch	bro tea	150	27	
42	Do	269	1	do	red leaf	80	18	
43	Do	270	11	hf-ch	dust	880	20	bid
44	Eila	271	25	ch	bro pek	2500	42	bid
45	Do	273	45	do				
			1	hf-ch	pekoe	3650	36	
46	Do	275	23	ch	pek sou	1840	32	bid
47	Do	277	2	do	dust	250	24	
4	Galkandawatte	278	25	do	bro pek	2500	32	bid
49	Do	280	35	do	pekoe	3150	34	bid
50	Do	282	17	do	pek sou	1530	28	bid
51	Madooltenne	284	24	do	bro pek	2640	38	bid
52	Do	286	18	do	pekoe	1800	34	bid
53	Do	288	23	do	pek sou	2300	30	
54	Do	290	1	do	dust	140	14	
55	B T	10	50	do	bro mix	4000	28	
56	Blackburn	12	14	do	pekoe	1400	36	bid
57	Do	14	15	do	pekoe	1500	39	
58	Do	16	17	do	pekoe	1700	36	bid
59	Do	18	4	do	pek sou	400	30	
60	Do	19	2	do	dust	280	25	
61	P G K	20	4	do	bro pek	536	30	bid
62	Do	22	3	do	pekoe	300	33	bid
63	Do	23	13	do	sou	766	26	bid
64	Do	25	3	do	dust	413	22	
65	Brownlow	26	13	do	bro pek	1300	60	
66	Do	28	12	do	pekoe	1080	48	
67	Do	30	10	do	pek sou	850	39	
68	Do	32	1	hf-ch	dust	55	25	
76	D E	43	6	ch	fans	480	29	

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 24th June the undermentioned lots of Tea (81,592 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Y	97	1	ch	pekoe	85	33
2	Yahalatenne	98	8	hf-ch	bro pek	480	44
3	Do	99	14	ch	pekoe	1190	38
4	Do	100	12	do	pek sou	1080	32
5	Do	1	1	do	dust	140	24
6	T. in estate mark	2	32	hf-ch	unas	1600	50
9	Lyndhurst	5	6	ch	bro pek	660	50
10	Do	6	14	do	pekoe	1260	39
11	Do	7	7	do	pek sou	665	34
12	Do	8	5	do	dust	600	25
13	Do	9	5	do	red leaf	450	18
14	Blairavon	10	4	do	dust	480	25
15	Do	11	5	do	bro tea	450	24
16	I N G, in estate mark	12	10	do	bro pek	1000	66
17	Do	13	8	do	pekoe	800	44
18	Do	14	3	do	dust	300	24
19	Do	15	2	do	congou	200	27
20	Do	16	1	do	fans	100	28
21	D B G	17	11	hf-ch	fans	605	28
22	Do	18	5	do	dust	400	24
23	Do	19	5	ch	bro mix	500	28
24	D H	20	1	do	congou	76	28
25	Vincit	21	1	do	fans	110	22
26	Wewelmadde	22	3	do	bro pek	303	35
27	Do	23	2	do	pekoe	180	32
28	Do	24	4	do	dust	368	23
29	Do	25	2	hf-ch	red leaf	146	24
30	Kitulgalla	26	4	ch	bro pek	400	41
31	Do	27	9	do	pekoe	720	36
32	Do	28	6	do	pek sou	480	29
33	D	29	7	do	bro mix	700	20
34	D	30	16	do	dust	2400	25
35	Aadneven	31	7	do	bro pek	700	35	bid
36	Do	32	10	do	pekoe	900	34	
37	Do	33	4	do	pek sou	360	32	
38	K M O K	34	2	do	bro tea	180	29	
39	Do	35	4	do	dust	320	24	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
40	A R	36	11	hf-ch	dust	682	27	
41	Do	37	2	ch	red lef	180	24	
42	Monaragalla	38	14	hf-ch	bro pek	658	43	bid
43	Do	39	18	do	pekoe	792	36	bid
44	Do	40	28	do	pek sou	1120	28	bid
45	Do	41	2	do	dust	140	25	
46	Depedene	42	32	do	bro pek	1600	47	
47	Do	43	55	do	pekoe	2750	40	
48	Do	44	50	do	pek sou	2500	36	
49	H D	45	95	do	bro sou	4750	31	
50	Do	46	6	do	bro mix	300	27	
51	Do	47	2	do	dust	160	24	
52	A—T	48	7	ch	bro mix	863	22	
53	E A T S, in estate mark	49	3	do	bro pek	315	49	
54	Do	50	3	do	pekoe	300	40	
55	Do	51	2	do	pek sou	200	35	
64	W W F	60	13	hf-ch	pek sou	650	30	
65	Gwala	61	10	ch	bro pek	1000	out	
66	Do	62	11	do	pekoe	1100	30	
67	Do	63	19	do	pek sou	1900	25	
68	M K	64	25	do	bro pek	2800	42	
69	Do	65	15	do	pekoe	1500	36	
70	Do	66	15	do	pek sou	1500	33	
71	Do	67	5	do	bro tea	500	30	
72	M K	68	20	do	bro pek	2240	42	
73	Do	69	23	do	pekoe	2300	36	
74	Do	70	2	do	dust	280	25	
75	H G A	71	14	do	bro pek	1400	47	
76	Do	72	13	do	pekoe	1300	35	bid
77	Do	73	15	do	pek sou	1500	34	
78	Do	74	4	do	dust	300	16	
79	Goonambil	75	29	hf-ch	bro pek	1740	52	
80	Do	76	34	do	pekoe	1870	43	
81	Do	77	38	do	pek sou	2090	40	
82	Udagama	78	6	ch	bro pek	600	43	
83	Do	79	12	do	pekoe	1080	35	
84	Do	80	2	do	pek sou	200	30	
85	Do	81	2	do	sou	200	24	
86	South-Wana-Rajah	82	40	do	pekoe	4000	40	bid
87		83	3	hf-ch	bro pek		52	bid
88		84	4	do	pekeo		35	bid
89		85	21	do	pek sou		31	bid
90		86	2	do	pek dust		26	

Messrs. Forbes & Walker put upfor sale at the Chamber of Commerce Sale-room on the 24th June, the under mentioned lots of Tea (137,503 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	N P	58	26	ch	sou	1950	31	
2	Do	60	10	do	red leaf	800	29	
3	Leaston	62	1	do	bro tea	100	22	
4	Do	64	8	hf-ch	dust	640	25	
5	Bonaccord	66	5	do	dust	375	25	
6	Do	68	3	do	fans	180	29	
7	L G E	70	39	ch	or pek	3900	41	
8	Do	72	21	do	pekoe No. 1	2100	34	
9	Do	74	5	hf-ch	dust	425	24	
10	Bandara polla	76	60	do	bro pek	3000	40	bid
11	Do	78	53	do	pekoe	2650	37	
12	Do	80	27	do	pek sou	1215	35	
13	Dehiowita	82	16	ch	bro pek	1680	44	bid
14	Do	84	37	do	pekoe	3700	37	bid
15	Do	86	16	do	pek sou	1520	32	bid
16	Do	88	1	do	bro tea	120	27	
17	Beeherton	90	55	hf-ch	bro pek	2750	50	
18	Do	92	47	ch	pekoe	4700	38	
19	Do	94	8	hf-ch	congou	400	30	
20	Do	96	5	do	dust	350	24	
21	Yoxford	98	44	ch	bro pek	2640	62	
22	Do	100	46	do	pekoe	4370	45	
23	Do	102	12	do	pek sou	1200	40	
24	V O	104	12	do	bro tea	1320	18	
25	Do	106	2	do	dust	276	26	
26	Norwood	108	13	do	pekoe	1285	52	
27	N	110	1	do	bro mix	92	17	
28	Yataderia	112	16	do	bro pek	1760	47	
29	Do	114	28	do	pekoe	2800	37	bid
30	Do	116	30	do	pek sou	2700	35	
31	Langdale	118	15	do	bro pek	1650	35	bid
32	Do	120	14	do	pekoe	1400	32	bid
33	Do	122	11	do	pek sou	1045	29	bid
34	Columbia	124	26	hf-ch	bro pek	1560	63	bid
35	Do	126	21	do	pekoe	1050	52	
36	Do	128	3	do	pek sou	120	43	
37	Do	130	1	do	bro tea	50	28	
38	Do	132	1	do	pek dust	75	26	
39	Alnoor	134	27	do	bro pek	1350	43	
40	Do	136	23	do	pekoe	1150	38	
41	Do	138	13	do	pek sou	650	35	
42	Do	140	2	do	unas	84	29	
43	Do	142	1	do	dust	80	25	
44	J S F	144	2	do	bro or pek	102	37	bid
45	Do	146	2	do	pekoe	90	34	bid
46	Do	148	1	do	pek sou	43	33	
47	Do	150	1	do	bro tea	65	28	
48	Do	152	1	do	dust	73	24	
49	C T A in estate mark	154	28	ch	pek sou	2794	26	bid
50	M A T in estate mark	156	28	hf-ch	bro tea	2794	26	bid
51	Alton	158	2	boxes	bro pek	40	45	
52	Do	160	12	ch	bro tea	1080	33	
53	A	162	2	hf-ch	pekoe	100	38	
54	A	164	4	do	bro tea	180	23	
55	Theberton	166	26	ch	bro pek	2600	withd'n.	
56	Do	168	12	do	pekoe	1200	withd'n.	
57	Do	170	14	do	pek sou	1400	30	bid
58	Do	172	6	do	fans	600	26	
59	Do	174	3	do	pek dust	300	22	
60	Do	176	5	do	red leaf	500	18	
61	Do	178	1	do	congou	100	20	
62	Rambodde	180	10	do	bro pek	1100	55	
63	Do	182	8	do	pekoe	800	43	
64	Do	184	10	do	pek sou	1000	38	bid
65	Do	186	1	do	congou	100	31	
66	Do	188	2	hf-ch	dust	150	25	
67	Ederapola	190	4	ch	pek sou	360	34	
68	K, in estate mark	192	7	do	sou	630	33	
69	D	194	4	do	red leaf	400	19	
70	B	196	6	hf-ch	dust	425	23	
71	U	198	1	do	sou	43	27	
72	K	200	1	box	fans	10	27	
73	B F B	202	1	do	dust	20	25	
74	Do	204	1	hf-ch	unas	54	34	
75	D A	206	7	ch	sou	598	21	
76	Do	208	7	boxes	pek fans	175	30	
77	Amblakande	210	10	ch	bro or pek	1000	43	
78	Do	212	16	do	pekoe	1440	37	
79	Do	214	2	do	sou	180	30	
80	Kahagalla	216	12	do	bro pek	1320	37	bid
81	Do	218	13	do	pekoe	1209	34	bid
82	Queensland	220	45	do	flowery pek	4500	51	
83	Do	222	36	do	pekoe	3600	40	
84	Do	224	5	do	pek fans	650	29	
85	Do	226	2	do	unas	200	35	
86	Thedon Bois	228	20	hf-ch	pekoe	2400	36	bid
87	Do	230	6	do	sou	390		out
88	T B, in estate mark	232	15	ch	pekoe	1350	37	
89	W T	234	10	hf-ch	bro pek	600	46	
90	Do	236	14	do	pekoe	700	34	
91	Do	238	7	ch	pek sou	630	27	
92	Do	240	9	do	bro pek sou	940	18	bid
101	Hunugalla	258	6	ch	bro pek	660	45	
102	Do	260	10	do	pekoe	1050	36	
103	Do	262	11	do	pekoe	1100	33	
104	Do	264	1	do	dust	145	24	
105	Do	266	1	do	sou	116	25	
106	S B E	268	6	hf-ch	bro pek	325	43	
107	Do	270	1	do	pekoe	50	31	
108	Do	272	2	do	bro mix	88	23	
109	Do	274	1	do	dust	60	25	
110	Mukeloya	276	15	do	bro pek	900	50	
111	Do	278	10	do	pekoe	600	41	
112	Do	280	15	do	pek sou	900	38	
113	W, in estate mark	282	2	do	bro pek	92	48	
114	Lankapura W	284	15	ch	bro pek	1500	53	
115	Do	286	33	do	pekoe	3135	41	
116	Do	288	16	do	pek sou	1440	39	
117	Lankapura W	290	27	do	bro pek	2700	50	
118	Do	292	57	do	pekoe	5415	40	
119	Do	294	59	do	pek sou	5310	37	
120	W G	296	2	hf-ch	pek fans	110	29	
121	Do	298	3	do	pek dust	195	28	
122	Do	300	1	ch				
			1	hf-ch	red leaf	136	2	

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 1st July, the undermentioned lots of Tea (61,618 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.
7	P O	9	3	hf-ch	bro pek	143	
8	Do	10	3	do	pekoe	156	4
9	Do	11	15	do	pek sou	813	39
10	Do	13	1	do	congou	42	23
11	Do	14	1	do	dust	74	24
12	Torrington	15	42	do	bro or pek	4620	40 bid
13	Do	17	46	ch	bro pek	5060	out
14	Do	19	89	do	pekoe	8900	out
15	Do	21	38	do	pek sou	3800	28 bid
16	Do	23	22	hf-ch	dust	1760	24
17	Nahalma	25	29	do	bro pek	1595	46
18	Do	27	37	ch	pekoe	3700	36 bid
19	Do	29	6	do	pek sou	600	29
20	Do	31	1	hf-ch	dust	75	24
21	Star, in estate mark	32	12	ch	bro mix	1320	22 bid
22	Woodend	34	22	do	bro pek	2200	41 bid
23	Do	36	32	do	pekoe	3040	32 bid
24	Do	38	12	do	pek sou	1020	29 bid
25	Engurakande	40	32	hf-ch	bro pek	1600	41 bid
26	Do	42	46	ch	pekoe	4370	out
27	Do	44	30	do	do No. 2	2700	out
28	A G C	46	10	do	pekoe	900	33
29	Do	48	10	do	pek sou	900	30 bid
30	Penrhos	50	50	box	pekoe	1000	44
31	N, in estate mark	52	70	hf-ch	bro pek	3850	40 bid
32	Dikmukalana	54	9	do	bro pek	450	38
33	Do	56	11	do	pekoe No. 1	495	35
34	Do	58	10	do	do „ 2	450	34
35	Do	60	16	do	sou	720	26
36	Do	62	1	do	fans	50	23
37	Do	63	1	do	dust	50	24
39	Bogahagodawatte	64	5	do	bro pek	355	52
40	Do	65	4	do	pekoe	223	39
41	Do	66	5	do	pek sou	239	34
42	Do	67	12	do	bro mix	735	26
43	Do	68	4	do	fans	260	23
44	Do	69	2	do	dust	150	24

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, June 5th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 5th June :—

Ex "Keemun"—Sheen, 1c 112s; 2c 106s; 1b 101s; 1b 114s. Oranley, 1b 107s; 4c 1b 105s; 2c 103s; 1c 1t 117s 6d; 1b 106s; 2t 103s 6d; 1b 116s.

Ex "Rewa"—Gonagalla, 1c 112s; 3c 109s; 1b 103s.

Ex "Keemun"—Del Rey, 1t 106s; 2c 105s; 1b 103s; 2b 113s 6d.

Ex "Capella"—Alnwick, 6c 1b 01s 6d; 2c 1b 103s 1c 104s.

Ex 'Keemun"—Roehampton,s 2c 105 6d; 5c 102s 6d 1b 101s; 1c 123s.

Ex "Capella"—Udahena, 1b 106s; 2c 1b 103s; 1b 108s.

Ex "Oceana"—Ury, 2c 106s 6d; 2c 101s.

Ex "Capella"—Ambawella" 1b 101s· Galella, 1b 1c 106s.

Ex "City of Oxford"—RWA, 1b 2c 107s; 5c 102s; 1t 105s; 4c 1b 102s.

Ex "Oceana"—St. Leonards, 1b 2c 1t 102s; 4c 1b 102s 6d; 1b 104s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 12th June :—

Ex "Keemun"—CS&Co., large size, 30b 83s; 8b 80s 6d.

Ex "Golconda"—Badullawatte, 2c 1b 108s; 6c 1b 104s; 1c 103s; 1t 1c 115s.

Ex "Keemun"—(G) 4c 1t 110s; 1c 1t 104s; 1b 100s; 1c 127s.

Ex "Oceana"—OKO, 1c 103s.

Ex "City of Calcutta"—Ouvah, 2c 1t 104s; 11c 1b 100s 6d; 1b 99s; 1t 110s; 1t 105s.

Ex "City of Oxford"—Ouvah, 3c 1b 105s; 5c 101s; 7c 100s 6d; 1b 99s; 1t 111s.

Ex "Plassey"—Broughton, 1c 106s; 4c 104s; 1c 103s; 1t 116s. Gonamotava, 2c 109s; 8c 104s; 1c 1t 103s 6d; 1c 1b 128s.

Ex "Golconda"—Kagalla, 1b 103s; 2c 102s; 2c 103s 6d. Kahagalla, 1c 1t 108s 6d; 6c 105s 6d; 2c 103s 6d; 1t 1b 122s 6d. Leangawella, 1c 1b 106s 6d; 6c 103s 6d; 2c 1b 103s; 1t 121s. Tulloes, 1c 104s; 4c 101s; 2c 1b 98s 6d; 1t 111s. Hanipha, 1t 104s; 1c 1b 101s 6d; 1b 95s; 1b 108s. Needwood, 1t 107s; 2c 105s; 1t 100s; 1b 116s; 11b 90s; 3b 89s 6d.

Ex "Oratava"—Kelburne, 3c 107s; 5c 102s 6d; 1c 1b 101s; 1c 91s; 1b 1t 111s; 2b 95s.

Ex "Hampshire"—Mausagalla 1b 105s; 3c 107s; 5c 101s 6d; 1c 1b 111s; 1c 89s; 3b 95s; 1b 98s.

Ex "City of Oxford"—Belgravia, 1b 103s; 1c 99s; 1b 103s.

CEYLON COCOA SALES IN LONDON.

(From Wilson, Smithett & Co.'s Circular.)

Mincing Lane, June 5th, 1891.

Ex "Keemun"—Palli, 20 bags 127s; 4 89s; 2 90s; 1 56s. Amba, 2 bags 88s 6d; 3 90s. Yattawatte, 95 bags 120s 6d; 9 82s 6d; 4 91s 6d; 2 80s 6d.

Ex "Ohyebassa"—Maragalla, 5 bags 60s; 1 30s.

Ex "Bengal"—Gangwarily, 1 bag 37s.

Ex "Teucer"—Kondesalle, 10 bags 124s; 17 120s; 6 78s; 3 42s. Mahaberia, 7 bags 117s; 3 41s.

Mincing Lane, June 12th.

Ex "Keemun"—Rockhill, 16b 121s 6d; 1b 69s; 2b 50s 6d; 2b 84s. Maousava, 13b 118s 6d; 4b 50s 6d; 1b 69s; 7b 121s 6d; 3b 84s.

Ex "Various Ships"—Beredewelle, 3b 46s. Udapolla, 1b 46s. Palli, 20b 8s; 1b 72s. Amba, 2b 8s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, June 12th, 1891.

Ex "Keemun"—GH K, 1c 2s 6d; 1c 2s 8d; 2c 2s 6d 4c 1s 11d: 1c 1s 9d; 1c 1s 6d; 1c 1s 11d.

Ex "Ping Suey"—Lamagastenre, 2c 1s 7d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 1st July, the undermentioned lots of Tea (65,952 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	St. Clair	44	4	ch	pek sou	400	27	bid
2	Do	45	9	do	unas	900	24	bid
3	B, in estate mark	47	2	hf-ch	congou	100	25	
4	Do	48	3	do	dust	240	23	
5	Do	49	1	do	red leaf	50	21	
6	Ayr	50	2	do	bro pek No. 1	110	30	bid
7	Do	51	20	do	bro pek	1000	53	
8	Do	53	34	do	pekoe	1360	40	
9	Do	55	29	ch	pek sou	1160	37	
10	Do	57	5	hf-ch	congou	200	26	
11	Do	58	5	do	fans	225	30	
12	Do	59	1	do	dust	71	24	
13	Acrawatie	60	16	ch	pek sou	1440	35	bid
14	Bittacy	62	35	hf-ch	bro pek	1830	37	bid
15	Do	64	37	do	pekoe	1850	37	
16	P G K	66	4	ch	bro pek	520	out	
17	Do	67	3	do	pekoe	294	30	
18	Dunbar	68	16	do	bro pek	1600	70	
19	Do	70	27	do	pekoe	2430	48	
20	Do	72	8	do	sou	720	36	
21	Do	74	3	do	dust	450	23	
22	Great Valley	75	25	do	bro pek	2375	38	bid
23	Do	77	12	do	pekoe	1020	36	
24	Do	79	13	do	pek sou	1040	34	
25	Do	81	3	hf-ch	dust	240	20	
26	Do	82	9	ch	red leaf	900	20	
27	Tintsin	83	9	do				
			1	hf-ch	bro pek	940	70	
28	Do	85	17	ch				
			1	hf-ch	pekoe	1575	48	
29	Do	87	10	ch	pek sou	900	37	
30	Do	89	1	hf-ch	dust	80	24	
31	Beaumont	90	12	ch	bro pek	1200	37	bid
32	Do	101	15	do	pekoe	1500	28	bid
33	Dorana-kande	103	9	hf-ch	unas	450	27	
34	Stamford Hill	104	12	ch	bro pek	1200	56	
35	Do	106	14	do	pekoe	1260	46	
36	Do	108	5	do	bro mix	560	33	
37	Ottery	109	6	do	bro mix	672	31	bid
38	Faithlie	110	1	do	bro mix	80	21	
39	Do	111	1	do	sou	85	24	
40	Do	112	7	hf-ch	dust	525	24	
41	G R T H	113	4	ch	pekoe	380	35	
43	Cluden Fac-tory	116	16	ch	unas	1600	34	
44	Do	118	9	do	pek sou	900	25	
45	Fernlands	120	3	do	unas	300	33	bid
46	Bollagalla	121	18	hf-ch	bro pekoe	1080	28	bid
47	Do	123	21	ch	pekoe	1785	30	bid
48	Do	125	27	do	pek sou	2430	25	bid
49	Agra Ouvah M	127	35	hf-ch	bro or pek	1750	33	
50	Agra Ouvah	129	40	do	bro pek	1800	43	
51	Do	131	20	do	pekoe	900	35	
52	Agra Ouvah M	133	4	ch	bro or pek	440	45	
53	Do	134	4	do	bro pek	440	43	
54	Do	135	8	do	pekoe	800	33	
55	Do	137	3	do	pek sou	300	32	
56	Do	138	2	hf-ch	dust	160	26	
57	D F, in estate mark	139	30	ch	bro pek	3150	33	bid
58	Do	141	23	do	pekoe	2070	31	bid
59	Do	143	61	do	do No 2	5490	26	bid
60	Do	145	29	do	pek sou	2610	28	bid
61	Do	147	29	do	fans	3045	22	bid
62	Do	149	3	do	dust	450	24	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 1st July, the undermentioned lots of Tea (45,027 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	M A H	87	3	ch	read leaf	300	20	
2	Do	88	7	do	congou	630	25	
3	Do	89	1	do	dust	130	22	
4	O A, in estate mark	90	10	hf-ch	unas	550	36	
5	Do	91	8	do	bro mix	440	28	bid
6	Do	92	1	do	pek dust	78	25	
7	Do	93	1	do	dust	78	23	
8	T, in esate mark	94	32	do	unas	1600	34	
9	Do	95	5	do	mixed	240	22	
10	Do	96	3	do	dust	204	24	
17	N B	3	18	ch	unas	1800	34	
18	Do	4	27	do	bro mix	2700	21	bid
19	K, in estate mark	5	15	do	pekoe	1350	32	bid
20	Diyagama	6	1	do	bro pek	70	55	
21	Do	7	6	do	pekoe	510	37	
22	Do	8	6	do	pek sou	520	31	bid
23	Do	9	4	do	mixed	370	24	
24	Do	10	2	do	dust	140	24	
25	Rosencath	11	22	hf-ch	bro pek	1540	41	bid
26	Do	12	12	ch	pekoe	1320	38	
27	Do	13	16	do	pek sou	1760	35	
28	Allakolla	14	16	hf-ch	bro pek	1040	41	bid
29	Do	15	17	ch	pekoe	1785	36	bid
30	Do	16	13	do	pekoe sou	1300	33	bid
31	Do	17	1	hf-ch	dust	70	23	
32	Mount Pleasant	18	7	do	bro pek	350	39	bid
33	Do	19	5	do	pekoe	235	35	bid
34	Do	20	3	do	pek sou	141	30	bid
35	Do	21	2	do	congou	88	29	
36	Do	22	2	do	fans	103	27	
37	Do	23	6	do	sou	276	30	
38	W A	24	10	ch	bro mix	1011	20	
39	R A	25	6	do	bro pek	600	37	
40	W L	27	10	do	bro mix	1016	23	
41	Orion	28	2	box	bro pek	40	45	
42	Do	29	8	do	pekoe	160	35	bid
47	D M	34	5	do	bro pek	500	38	
48	Woodthorpe	37	10	hf-ch	bro pek	500	44	bid
49	Do	38	16	do	pekoe	800	36	
50	Do	39	3	do	pek sou	150	30	
51	Do	40	1	do	dust	60	24	
52	F L	41	4	ch	pek sou	360	30	
53	P	43	1	do	dust	75	24	
54	Chertsey	44	4	do	bro pek	400	37	bid
55	Do	45	11	do	pekoe	880	36	
56	Do	46	9	do	pek sou	720	32	
57	P	47	5	do	dust	750	11	bid
58	Z Z Z	48	8	do	pek sou	720	38	
59	Do	49	3	hf-ch	pek sou No. 2	132	29	
60	Do	50	2	do	dust	120	10	
61	T	51	7	ch	bro pek	700	out	
62	R B	52	10	do	bro pek	1000	33	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 1st July, the undermentioned lots of Tea (169,492 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	Kosgahahe-na	302	1	hf-ch	pekoe	50	35
2	Do	304	2	ch	pek sou	190	30
3	Do	306	1	hf-ch	congou	42	14
4	Do	308	1	do			
			11	ch	unas	1205	8

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
6	W F G, in estate mark	312	9	ch	bro pek	900	29	bid
7	Do	314	9	do	pekoe	720	27	bid
8	Langdale	316	20	do	bro pek	2000	42	
9	Do	318	17	do	pekoe	1360	36	
10	Do	320	18	do	pek sou	1440	32	
11	Do	332	1	do	dust	80	24	
12	Do	324	1	do	red leaf	75	19	
13	Radella	326	30	do	bro pek	3000	40	
14	Do	328	28	do	pekoe	2240	36	
15	Do	330	35	do	pek sou	2800	35	
16	A	332	16	hf-ch	bro pek	896	37	bid
17	A	334	20	do	pekoe	1000	35	bid
18	Court Lodge	336	23	do	bro pek	1288	90	
19	Do	338	17	do	pekoe	782	71	
20	Do	340	21	do	pek sou	945	59	
21	C L	342	9	ch	sou	940	24	
22	Avisawella	344	32	box	bro or pek	512	64	
23	Do	346	26	ch	bro pek	2600	47	
24	Do	348	25	do	pekoe	2250	36	
25	Do	350	50	do	pek sou	4500	34	
26	Do	352	3	do	sou	270	25	
27	Do	354	3	do	unas	300	31	
28	Do	356	4	do	dust	600	23	
29	Ambalakande	358	8	do	bro or pek	800	49	
30	Do	360	14	do	pekoe	1260	37	
31	Do	362	2	do	sou	180	27	
		363	1	do	bro mix	120	22	
32	St. Heliers	364	18	do	bro or pek	1800	44	
33	Do	366	24	do	pekoe	2160	37	
34	Do	368	20	do	pek sou	1800	33	
35	Esperanza	370	6	hf-ch	bro or pek	336	37	
36	Do	372	19	do	or pek	950	55	
37	Do	374	58	do	pekoe	2668	44	
38	Do	376	2	do	dust	180	24	
39	Wewessa	378	33	do	bro pek	1650	72	
40	Do	380	59	do	pekoe	2950	51	
41	Do	382	20	do	pek sou	1000	41	
42	Do	384	5	do	dust	400	23	
43	Talgaswela	386	30	ch	bro pek	3000	43	
44	Do	388	8	do	pek sou	680	36	
45	Do	390	2	do	sou	170	32	
46	Do	392	3	do	dust	420	25	
47	H	394	8	hf-ch	or pek	400	35	
48	H	396	5	do	bro pek	250	30	
49	H	398	6	do	pekoe	350	34	
50	H	400	16	do	pek sou	800	30	
51	H	402	1	do	red leaf	44	19	
52	H	404	1	do	congou	45	19	
53	H	406	1	do	dust	60	24	
57	Deniyaya	414	3	do	bro pek	300	51	
58	Do	416	2	do	pekoe	200	35	
59	Do	418	5	do	pek sou	500	30	
60	Halpantenne	420	5	do	bro pek	500	44	
61	Do	422	5	do	pekoe	500	38	
62	Do	424	13	do	pek sou	1165	34	
63	Do	426	5	do	sou	425	25	
64	Do	428	2	do	unas	150	26	
65	Yataderia	430	11	do	bro pek	1210	48	
66	Do	432	30	do	pekoe	3000	37	
67	Do	434	29	do	pek sou	2610	33	
68	Clyde	436	12	do	bro pek	1200	38	bid
69	Do	438	15	do	pekoe	1425	34	bid
70	Do	440	11	do	pek sou	1045	32	bid
71	M C	442	12	do	bro pek	1200	out	
72	Do	444	11	do	pekoe	1001	23	
73	Do	446	2	do	unas	146	15	
74	Doonevale	448	13	do	bro pek	1300	36	bid
75	Do	450	8	do	pekoe	720	32	bid
76	Do	452	1	do	fans	114	24	
77	Beausijour	454	16	do	bro pek	1600	35	bid
78	Do	456	16	do	pekoe	1440	32	bid
79	Balgownie	458	15	do	bro pek	1500	42	
80	Do	460	23	do	pekoe	1840	37	
81	Do	462	12	do	pek sou	960	29	
82	Do	464	1	do	dust	133	23	
83	Sembawatte	466	44	ch	bro pek	3300	out	
83a	Do	466	40	hf-ch	do	3000	out	
84	Do	468	50	box	do	1500	36	bid
85	Do	470	50	hf-ch	pekoe	1250	39	
86	Do	472	13	do	do	520	35	
87	Do	474	66	do	do	3960	35	
88	Do	476	50	do	pek sou	2250	33	
89	Pantiya	478	10	ch	bro pek	950	55	
90	Do	480	11	do	do No. 2	990	45	
91	Do	482	20	do	pekoe	1700	35	
92	Do	484	10	do	pek sou	850	34	
93	Do	486	2	do	fans	180	25	
94	Do	488	1	do	dust	120	23	
95	K G	490	12	ch	bro pek	1200	39	
96	Do	492	3	do	pekoe	270	32	
97	Do	494	3	do	pek sou	270	31	
98	Do	426	1	do	congou	90	21	
99	Harangalla	498	16	hf-ch	bro pek	1120	47	
100	Do	500	22	do	pekoe	1100	39	
101	Do	502	4	do	do	240	35	
102	M K	504	2	ch	red leaf	180	20	
103	Chesterford	506	38	hf-ch	bro pek	2280	41	
104	Do	508	46	do	pekoe	2300	36	
105	Do	510	26	do	pek sou	1300	28	
106	Polatagama	512	70	do	bro pek	4200	44	
107	Do	514	95	do	pekoe	4750	38	
108	Do	516	87	do	pek sou	4350	37	
109	Abamalla	518	4	do	bro mix	240	22	
110	Do	520	4	do	dust	340	24	
111	Bandarapolla	522	24	do	bro pek	1200	48	
112	Do	524	46	do	pekoe	2300	37	bid
113	Do	526	57	do	pek sou	2565	34	
114	P A	528	24	ch	pek sou	2093	33	
115	Do	530	16	hf-ch	pek fan	1036	25	
116	Mausakanda	532	8	ch	bro pek	880	71	
117	Do	534	10	do	pekoe	1000	55	
118	Do	536	4	do	pek sou	400	40	
119	Do	538	1	do	dust	130	24	
120	Ederapolla	540	26	hf-ch	bro pek	1300	36	bid
121	Do	542	18	ch	pekoe	1620	33	bid
122	Do	544	8	do	pek sou	720	31	
123	C R D	546	13	hf-ch	dust	780	26	
124	Do	548	8	ch	red leaf	480	23	
125	Kelaneiya	550	1	do	red leaf	85	20	
126	Atherfield	552	1	do	pekoe	90	41	
127	Silver Valley	554	1	hf-ch	bro pek	50	51	
128	Do	556	4	do	pekoe	192	33	
129	Do	558	1	do	dust	50	25	
130	Do	560	1	do	congou	48	21	
131	K	562	1	do	pekoe	32	42	
132	Debatgama	564	2	ch	congou	180	22	
133	Do	566	1	do	fans	110	22	
134	D A	568	7	hf-ch	sou	350	26	
135	Do	570	4	do	fans	200	24	
136	Do	572	2	do	dust	140	23	
137	Bandarapolla	574	60	do	bro pek	3000	46	
138	A, in estate mark	576	13	ch	pek sou	1170	31	
139	S	578	2	hf-ch	bro or pek	102	38	
140	S	580	2	do	pekoe	90	34	
141	D, in estate mark	582	20	ch	pekoe	1800	31	bid
142	F, in estate mark	584	56	do	pek sou	5588	29	
143	K R	586	14	do	bro pek	1400	32	bid
144	Glengariffe	588	3	do	bro tea	300	32	
145	Do	590	1	do	bro pek sou	100	20	
146	Do	592	1	do	dust	100	22	
147	Farnham	594	36	hf-ch	bro pek	1800	53	
148	Do	596	40	do	pekoe	1800	44	
149	Do	598	27	ch	pek sou	2160	35	
150	Do	600	10	hf-ch	fans	600	27	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 8th July the undermentioned lots of Tea (59,067 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	A S C	1	5	hf-ch	fans	250	27
2	Do	2	3	do	dust	153	24
3	Do	3	14	do	red leaf	700	24
4	D E C	5	9	do	red leaf	450	24
5	Gampolawatte	7	10	do	bro pek	500	44
6	Do	9	12	ch	pekoe	1080	38
7	Kelani	11	16	hf-ch	bro pek	880	45
8	Do	13	48	do	pekoe	2160	37
9	Do	15	19	do	pek sou	855	32
10	Horana	17	4	do	bro pek	220	51	bid
11	Do	18	4	do	pekoe	205	40	
12	Do	19	7	do	pek sou	350	34	
13	Glanrhos	21	4	ch	bro pek	400	46	bid
14	Do	22	6	do	pekoe	540	38	
15	Do	24	12	do	pek sou	1080	35	
16	Do	26	2	do	congou	160	27	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
17	Kelani	27	23	hf-ch	bro pek	1265	46 bid
18	Do	29	52	do	pekoe	2340	38 bid
19	Do	31	92	do	pek sou	1530	35
20	Penrhos	33	65	box	bro or pek	1300	61 bid
21	Do	35	24	hf-ch	bro pek	1440	58
22	Do	37	35	do	pekoe	1925	46
23	Do	39	66	do	pek sou	3300	41
24	Do	41	3	do	congou	150	30
25	Do	42	25	box	fans	520	39
26	Do	44	7	hf-ch	dust	490	27
27	W O	45	2	ch	bro tea	200	23
28	Do	46	5	hf-ch	pek dust	400	23
29	Happugalla	47	30	ch	bro pek	3300	44
30	Do	49	22	do	pekoe	3520	36 bid
31	Do	51	25	do	pek sou	2500	31
38	Nahalma	63	32	hf-ch	bro pek	1760	45
39	Do	65	33	ch	pekoe	3135	36
40	Do	67	4	do	pek sou	400	29
41	Do	68	1	hf-ch	dust	75	25
42	P G A	69	6	ch	bro pek sou	425	18 bid
43	Do	71	1	do	dust	90	20
44	Y D, in estate mark	72	12	do	bro pek	1320	40 bid
45	Do	74	14	do	pekoe	1540	36 bid
46	Do	76	13	do	pek sou	1300	31
47	S C R	78	55	box	sou (each 5 lb nett)	275	30 bid
48	Do	80	8	hf-ch	sou	360	30
49	Do	82	1	do	dust	72	24
50	Ossington	83	33	do	bro pek	1815	31 bid
51	Do	85	30	do	pekoe	1500	34
52	Do	87	22	do	pek sou	1100	31
53	Do	89	4	do	dust	300	23
54	Do	90	3	do	dust leaf	135	24
55	G H K, in estate mark, Ceylon	91	14	ch	pek sou	1240	30
56	Bing Oya	93	2	do	red leaf	120	withd'n.
57	W M		22	do	bro pek	2200	44

Mr. E. JOHN put up for sale at the Chamof Commerce Sale-room today, 8th July, the undermentioned lots of Tea (52,333 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.
1	Panapitiya	150	4	hf-ch	bro pek	204	36
2	Do	151	8	do	pekoe	408	36
3	Do	153	6	do	pek sou	306	30
4	Do	253	2	do	red leaf	96	16
5	Lawrence	156	55		sou	2750	20
6	P G K	158	11	do	sou	695	28
7	Do	160	5	do	dust	309	22
8	Maddegedera	161	40	ch	bro pek	4000	50
9	Do	163	22	do	pekoe	1760	43
10	Do	165	15	do	pek sou	1050	40
11	Do	167	1	do	sou	84	25
12	Do	168	2	do	dust	230	22
13	B T	169	43	do	bro mix	3440	21
14	Etta	171	12	do	bro pek	1200	34 bid
15	Do	173	24	do	pekoe	1920	
16	Do	175	10	do	pek sou	800	withd'n
17	Do	177	1	do	pek dust	110	
18	Great Valley	178	22	do	bro pek	2090	53
19	Do	180	12	do	pekoe	1020	40
20	Do	182	14	do	pek sou	1120	36
21	E D	184	1	do	pekoe	71	40
22	Do	185	1	do	pek sou	66	30
23	W K	186	7	hf-ch	red leaf	406	15
24	Mocha	187	77	do	bro pek	4235	64
25	Do	189	65	do	pekoe	6500	51
26	Do	191	35	do	pek sou	3150	45
27	M R	193	1	do	dust	129	22
28	Do	194	1	do			
			1	hf-ch	fans	159	23
29	Orange Field P N R	195	5	ch	bro pek	500	37
30	Do	197	20	do	pekoe	1800	29
31	Do	199	9	do	sou	765	17
32	Do	201	1	do	dust	125	23
33	Gouravilla	202	6	do	pek sou	600	30
34	Do	204	18	do	unas	1800	21
35	Do	206	5	do	sou	500	19
36	Tamaravelly	208	9	hf-ch	congou	405	17
37	Do	210	8	do	do No. 2	400	15
38	Do	212	21	do	dust	1470	23
39	Logan	213	31	do	pekoe	1395	39
40	Do	215	63	do	pek sou	2835	37
41	Do	217	13	do	sou	585	32
42	Do	219	4	do	bro mix	180	23
43	Do	220	11	do	dust	660	26

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room today, 8th July, the undermentioned lots of Tea (66,641 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	Kuruwitty	53	3	hf-ch	bro pek	159	57
2	Do	54	2	do	pekoe	90	43
3	Do	55	9	do	pek sou	432	37
4	Do	56	6	do	unas	318	33
5	Do	57	1	do	congou	47	27
6	Do	58	1	ch	dust	68	25
7	Do	59	2	do	red leaf	104	22
8	S	60	1	do	pek sou	105	37
9	I P	61	27	do	unas	2160	20 bid
10	D G	62	4	hf-ch	bro pek fans	220	27
11	Do	63	11	do	fans	605	28
12	Do	64	6	do	dust	360	23
13	Do	65	4	do	bro mix	200	27
14	G B	66	9	ch	bro tea	900	22
15	Do	67	13	do	dust	1690	21
16	Ellakande	68	12	hf-ch	bro pek	660	59
17	Do	69	18	do	pekoe	900	41
18	Do	70	43	do	pek sou	1720	34
19	Do	71	14	do	red leaf	560	21
20	Do	72	3	ch	dust	240	23
21	South-Wanarajah	73	18	do	bro or pek	1800	73
22	Do	74	37	do	pekoe	3700	45
23	X Y Z	75	4	do	fans	600	24
24	Do	76	78	hf-ch	fans	5850	26
25	Do	77	1	ch	dust	160	22
26	Do	78	12	hf-ch	dust	960	22
27	Do	79	5	ch	ongou	550	27
32	Forest Hill	84	10	do	bro pek	1100	65
33	Do	85	8	do	pekoe	800	46
34	Do	86	4	do	pek sou	400	38
35	Do	87	1	do	dust	130	22
36	Do	88	1	do	red leaf	84	20
37	R	89	28	do	bro mix	1850	20
38	R	90	6	do	dust	840	20
39	Mount Pleasant	92	7	hf-ch	bro pek	350	37 bid
40	W W F	93	4	do	pek sou	200	25
41	G A	94	18	do	pek sou	900	28 bid
42	Malgolla	95	1	do	or pek	40	66
43	Do	96	70	do	bro pek	3850	45
44	Do	97	60	do	pekoe	2700	38
45	Do	98	75	do	pek sou	3375	36
46	T	99	7	ch	bro pek	700	40
49	Allakolla	2	17	ch	pekoe	1785	36 bid
50	Do	3	13	do	pek sou	1300	31 bid
57	W X	10	20	ch	bro mix	2027	24
58	A R	11	4	do	pekoe	384	42
62	L L	15	24	ch	pek sou	2093	30 bid
63	Do	16	9	do	sou	910	24 bid
64	S, in estate mark	17	5	do	dust	750	10

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room today, 8th July, the undermentioned lots of Tea (142,523 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.
1	C H	602	13	ch	red leaf	1170	15
2	A M B	604	12	hf-ch	bro tea	504	17
3	New Peradeniya	606	16	ch	sou	1280	28
4	Do	608	21	do	red leaf	1610	25
5	Do	610	11	do	dust	1610	23
6	New Peradeniya	612	2	ch	dust	300	21
7	H E P, in estate mark	614	56	hf-ch	bro pek	3360	50 bid
8	Do	616	48	do	pekoe	2880	40 bid
9	Do	618	36	do	pek sou	2160	36
10	Do	620	1	do	dust	80	25
11	Kolaoya	622	24	do	or pek	1230	40 bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
12	Navahena	624	56	do	bro pek	2800	54	
13	Do	626	23	do	pekoe	1035	45	
14	Do	628	48	do	pek sou	2400	38	
15	Do	630	4	do	dust	340	29	
16	Clarendon	632	26	do	bro pek	1456	63	
17	Do	634	20	ch	pekoe	2000	46	
18	C, in estate mark	636	23	hf-ch	bro or pek	1200	48	
19	Do	638	46	ch	pekoe	3600	40	
20	Do	640	30	hf-ch	pek sou	1950	34	
21	Do	642	19	do	sou	1255	30	
22	Bowlana	644	12	ch	bro pek	1320	40	
23	Do	646	6	do				
			1	hf-ch	pekoe	650	31	
24	Do	648	1	ch				
			1	hf-ch	pek sou	1080	29	
25	Langdale	650	15	ch	bro pek	1650	36	
26	Do	652	14	do	pekoe	1400	31	
27	Do	654	11	do	pek sou	1045	28	
28	T, in estate mark	656	170	hf-ch	pek sou	8520	25	bid
29	H O	658	2	ch	bro pek	220	27	
30	Do	660	2	do	fans	200	26	
31	Do	662	3	do	congou	270	25	
32	Do	664	2	do	dust	300	22	
33	Do	666	2	do	bro tea	200	21	
34	Ingeriya	668	2	do	pek sou	200	29	
35	Do	670	1	do				
			1	hf-ch	dust	225	24	
36	Yataderia	672	10	ch	bro pek	1100	47	
37	Do	674	31	do	pekoe	3100	38	
38	Do	676	31	do	pek sou	2790	35	
39	Do	678	7	do	bro tea	665	26	
40	Patiagama	680	29	do	bro pek	3190	43	
41	Do	682	37	do	pekoe	3700	35	
42	Palmerston	684	13	hf-ch	bro pek	715	71	
43	Do	686	5	ch				
			18	hf-ch	pekoe	1400	52	
44	Do	688	4	ch	pek sou	400	40	
45	Amblakande	690	7	do	bro or pek	700	50	
46	Do	692	13	do	pekoe	1170	37	
47	Do	694	2	do	sou	180	28	
48	Bismark	696	11	do	bro pek	1100	38	
49	H S, in estate mark	698	8	do	dust	1040	25	
50	B G, in estate mark	700	13	hf-ch	pek sou	720	28	
51	Galkadua	702	10	ch	bro pek	900	40	bid
52	Do	704	15	do	pekoe	1350	30	bid
53	Do	706	12	do	pek sou	1080	30	bid
54	Horagaskelle	708	9	hf-ch	bro pek	832	47	
55	Do	710	8	do	pekoe	416	38	
56	Do	712	15	do	pek sou	840	32	
57	Do	714	2	do	bro mix	144	23	
58	B	716	44	ch	bro mix	4400	22	bid
59	Monrovia	718	1	box	or pek	10	75	
60	Do	720	10	hf-ch	bro pek	520	51	
61	Do	722	13	ch				
			1	hf-ch	pekoe	1250	38	
62	Do	724	6	ch	pek sou	609	31	
63	Do	726	2	do				
			1	hf-ch	bro mix	250	28	
64	Do	728	2	do	dust	145	24	
65	E K	730	2	ch	pekoe	195	30	
66	P	732	21	hf-ch	pekoe	913	29	bid
67	Theydon Bois	734	4	ch	bro or pek	336	50	
68	Do	736	24	do	pekoe	1680	38	
69	Do	738	20	hf-ch	pek sou	1295	34	
70	Do	740	10	do	sou	650	31	
71	C, in estate mark	742	8	do	or pek	400	50	
72	Do	744	1	do	pekoe	46	37	
73	Court Lodge	746	20	do	bro pek	1120	89	
74	Do	748	15	do	pekoe	690	73	
75	Do	750	22	do	pek sou	1012	59	
76	Do	752	3	ch	sou	249	49	
77	Do	754	2	do	dust	300	26	
78	G	756	23	do	bro pek sou	2017	26	
79	Thornfield	758	22	hf-ch	bro pek	1320	70	
80	Do	760	16	ch	pekoe	1600	47	
81	Do	762	8	do	pek sou	800	36	
82	Do	764	2	hf-ch	pek dust	160	26	
83	Do	766	3	do	bro mix	159	28	
84	H	768	1	do	bro pek	45	32	
85	H	770	3	do	pekoe	139	30	
86	Calcrateone	772	13	ch	congou No. 1	1235	14	
87	Do	774	12	do	congou „ 2	1140	12	
88	B E R	776	9	ch	or pek	810	32	bid
89	Do	778	21	do	pek sou	1890	28	
90	Do	780	3	do	dust	420	22	
91	L B K	782	1	do	bro pek	117	28	
92	Bramley	784	2	hf-ch	dust	220	23	
93	C L D	786	9	do	bro pek	468	39	bid
94	Do	788	6	do	pekoe	312	34	bid
95	Do	790	2	do	pek sou	100	28	
96	Do	792	2	do	dust	116	23	
97	D	794	8	do	pek sou	400	26	
98	E	796	12	ch	pekoe	1080	26	bid
99	B A	798	8	do	pekoe	720	26	bid
100	C R D	800	6	hf-ch	red leaf	330	25	bid
101	Do	2	4	do	dust	240	24	
102	Theberton	4	26	ch	bro pek	2600	34	
103	Do	6	12	do	pekoe	1200	28	
104	A D	8	21	hf-ch	bro tea	965	18	
105	Glengariffe	10	5	ch	bro tea	480	33	
106	Do	12	2	hf-ch	dust	200	22	
107	Sembawatte	14	44	ch	bro pek	3300	39	
108	Do	„	40	do	do	3000	39	
109	Traquair	16	5	hf-ch	bro pek	260	36	
110	Do	18	6	do	pekoe	312	29	
111	Do	20	14	do	pek sou	721	27	
112	Theberton	22	14	ch	pek sou	1400	29	
113	Do	24	6	do	fans	600		
114	Do	26	3	do	pek dust	300		withd'n.
115	Do	28	5	do	red leaf	500		
116	Do	30	1	do	congou	100		
117	D K D	32	26	do	bro pek	2860	53	
118	Do	34	25	do	pekoe	2375	42	
119	D K D	36	22	do	bro pek	2120	54	
120	Do	38	30	do	pekoe	2850	43	
121	Do	40	17	do	pek sou	1445	38	
122	Do	42	9	do	pek fans	1080	34	
123	Do	44	7	do	dust	560	24	
124	F F	46	4	do	bro pek dust	624	29	
125	Traquair	48	1	hf-ch	sou	50	22	
126	Do	50	3	do	unas	134	24	
127	Do	52	4	do	congou	288	25	
128	Putupaula	54	2	ch	dust	240	23	
129	Do	56	2	do	red leaf	140	18	
130	Mousakanda	58	1	do	congou	100	27	
131	B & D	60	5	do	red leaf	555	17	
132	Do	62	2	do	dust	260	22	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, June 19th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 19th June:—

Ex "Hampshire"—Kumaradola, 7b 90s; 6b 84s 6d; 1b 50s.

Ex "Orient"—Gampaha, 1c 1b 97s.

Ex "Clan Macarthur"—Dammeria, 1b 92s; 1b 89s. Battawatte, 1b 99s; 1c 1b 92s 6d; 1b 92s; 1b 90s; 1b 98s. Macusa Ella, 1b 105s; 1t 104s 6d; 1b 99s; 1b 102s. Gleneagles, 1b 100s; 2c 103s; 1c 97s; 1b 93s; 1c 108s. Gampaha, 2c 1t 97s; 1t 1b 98s, 1t 103s.

Ex "Oopack"—Delmar, 1b 98s. Kondaselle, 3b 86s 6d; 1b 97s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, June 19th, 1891.

Ex "Chingwo"—Bulatwatte, 9 bags 120s 6d; 4 bags 80s 6d.

Ex "Hampshire"—Kepitigalla, 12 bags 116s.

Ex "City of Oxford"—Ross, 20 bags 118s 6d; 2 67s.

Ex "Hampshire"—MR, 180 bags 65s; 20 90s; 16 89s 6d.

Ex "Karamania"—GHK, 4 bags 55s; 4 87s.

Ex "India"—Medagodde, 26 bags 120s; 5 114s 6d; 4 80s; 2 65s.

Ex "Hampshire"—Delgalla, 30 bags 120s; 9 65s.

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COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 15th July, the undermentioned lots of Tea (79,249 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Dehiowita	1	15	ch	bro pek	1575	42	bid
2	Do	3	23	do	pekoe	2300	37	bid
3	Do	5	10	do	pek sou	950	38	bid
4	Do	7	1	do	bro tea	120	20	
5	Do	8	1	do	dust	160	21	
6	Mohedin	9	1	hf-ch	bro pek	50	53	
7	Do	10	3	do	pekoe	120	41	
8	Do	11	5	do	pek sou	200	30	
9	Do	13	1	do	congou	44	26	
10	Do	14	1	do	bro pek fans	50	22	
11	Do	15	3	do	red leaf	138	16	
12	K P W	16	21	do	bro dek	1050	44	
13	Do	18	22	do	pekoe	880	36	bid
14	Do	20	38	do	pek son	1520	35	bid
15	Do	22	18	do	sou	720	30	
16	Do	24	1	do	red leaf	45	20	
17	Do	25	1	do	dust	70	22	bid
18	G H	26	10	ch				
			1	hf-ch	bro mix	1050	21	
19	A	28	7	do	bro mix	420	16	bid
24	Ettapolla	36	22	do	bro pek	1210	46	
25	Do	38	34	do	pekoe	1870	37	
26	A G C	40	9	do	dust	630	21	
27	Nabalma	41	33	do	bro pek	1815	40	bid
28	Do	43	36	do	pekoe	3600	37	
29	Do	45	9	ch	pek sou	513	31	bid
30	Do	47	1	hf-ch	dust	75	25	
31	Agra Oya	48	16	ch	bro pek	1600	42	
32	Do	50	11	do	pekeo	1100	35	
33	Do	52	12	do	pek sou	1200	30	bid
34	Do	54	1	do	bro mix	80	15	
35	Do	55	2	do	dust	200	25	
36	Torrington	56	30	hf-ch	bro or pek	3300	41	bid
37	Do	58	34	ch	bro pek	3740	38	
38	Do	60	66	do	pekoe	6600	35	
39	Do	62	38	do	pek sou	3420	30	bid
30	Do	64	11	hf-ch	dust	880	25	
41	X Y Z	66	1	do	red leaf	66	14	
42	Woodend	67	1	ch	dust	130	21	
43	Do	68	1	hf-ch	congou	75	16	bid
44	N H	69	70	do	bro pek	3850	40	bid
45	Patulpana	71	9	do	bro pek	465	44	
46	Do	73	11	do	pek sou	550	31	
47	Do	75	1	do	conkou	49	25	
48	Do	76	1	do	dust	81	22	
49	G H K, in estate mark Ceylon	77	11	do	or pek	503	44	
50	Do	79	20	do	pekoe	800	31	bid
51	Do	81	6	ch	pek sou	500	38	
52	Do	82	5	do	sou	400	26	
53	Do	83	6	do	sou	495	26	
54	Do	84	2	do	bro sou	195	21	
55	Do	85	3	hf-ch	unas	171	17	bid
56	K, in estate mark	86	30	ch	bro pek	3150	37	bid
57	Do	88	23	do	pekoe	2070	41	
58	Do	90	61	do	do No. 2	5490	31	bid
59	Do	92	29	do	pek sou	2610	29	bid
60	Do	94	29	do	fans	3010	25	
61	M F	96	7	hf-ch	pekoe	490	41	
62	Do	98	8	do	unas	480	24	
63	Do	100	11	do	bro mix	770	31	
64	Do	102	1	ch	dust	100	22	
65	Agrakande	103	12	do	pek dust	1190	25	
66	Do	104	2	do	dust	300	22	bid
67	Do	105	1	do	pek con	100	26	
68	D M	106	9	do	bro pek	990	38	bid
69	Do	108	17	do	pekoe	1865	37	bid
70	A G C	110	8	do	bro tea	640	12	
71	B U S	111	2	do	sou	200	15	
72	Knutsford	112	3	hf-ch	bro or pek	183	60	
73	Do	113	3	do	bro pek	139	52	
74	Do	114	14	do	pekoe	745	37	bid
75	Do	116	4	do	unas	214	30	bid
76	Do	117	1	do	fans	79	25	
77	Do	118	1	do	congou	49	20	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 15th July, the undermentioned lots of Tea (55,652 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Anchor, in estate mark	221	11	hf-ch	dust	825	21	
2	Do	222	7	do	bro tea	665	24	
3	Do	224	14	do	bro mix	1400	28	
4	K N	226	2	do	bro mix	182	29	
5	W H	227	23	do	fans	2160	22	
6	Troup	229	32	hf-ch	bro mix	1760	55	
7	Do	231	32	ch	pekoe	3040	44	
8	Do	233	1	hf-ch	red leaf	45	17	
9	Dunbar	234	20	ch	bro pek	2000	55	
10	Do	236	24	do	pekoe	2160	44	
11	P	238	3	do	dust	420	22	
12	Eldon Hall	239	49	do	bro pek	4410	60	
13	Do	241	41	do	pekoe	3075	45	
14	Do	243	19	do	pek sou	1425	39	
15	Do	245	3	do	dust	420	23	
16	Do	246	3	do	bro tea	321	21	
17	Kandenewera	247	12	ch	bro pek	1080	59	
18	Do	249	23	do	pekoe	2530	43	
19	Do	251	15	do	pek sou	1650	37	
20	Do	253	2	do	unas	190	31	
21	A W G	254	30	do	bro sou	2400	12	bid
22	G K W	256	4	do	bro tea	360	26	
23	Do	257	5	do	dust	400	21	
24	K	258	1	do	pek sou	88	31	
25	Galandawatte	259	20	do	bro pek	2000	51	
26	Do	261	19	do	pekoe	1710	36	
27	Do	263	8	do	pek sou	720	31	
28	Stamford Hill	265	13	do	bro pek	1300	52	bid
29	Do	267	13	do	pekoe	1170	41	bid
30	Do	269	6	do	bro mix	672	23	bid
31	Ottery	271	9	do	bro mix	1008	25	bid
32	Gonavy	273	46	do	bro pek	4600	50	
33	Do	275	4	do	pekoe	360	45	
34	Do	277	7	do	pek sou	630	39	
35	Do	279	1	do	dust	150	21	
36	P F E	280	2	do	dust	197	22	
37	Do	281	1	do	fans	102	25	bid
38	Do	282	1	do	red leaf	82	16	
39	W P	283	1	do	unas	80	24	
40	Do	284	4	do	sou A	320	16	
41	Do	285	3	do	sou B	240	16	
42	L	286	2	do	congou	180	25	
43	L	287	7	do	fans	980	25	
44	L	289	6	do	f. dust	985	18	
45	L	290	2	do	red leaf	190	15	
46	B	10	7	hf-ch	bro mix	420	15	
47	Ivies	12	14	ch	bro pek	1400	32	bid
48	Do	14	19	do	pekoe	1520	35	
49	Do	16	9	do	pek sou	720	25	
50	Do	18	1	hf-ch	dust	72	20	
51	Comar	19	9	ch	bro mix	855	18	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 15th July, the undermentioned lots of Tea (77,729 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	B F	18	4	ch	bro mix	416	24
2	Do	19	4	do	dust	500	22
3	I P	20	21	do	bro tea	1722	21
4	C T M	21	4	do	bro mix	328	22
5	Do	22	2	hf-ch	dust	134	21
6	R X	23	6	ch	bro mi	620	27
7	Do	24	2	do	bro tea x	240	24
8	Do	25	3	do	pek dust	420	24
9	Do	26	1	do	dust	140	21
10	Do	27	1	do	unas	88	33
11	I N G, in estate mark	28	8	do	bro pek	781	70
12	Do	29	8	do	pekoe	777	58
13	Do	30	1	do	congou	60	24
14	Do	31	3	do	dust	278	21
15	Do	32	1	do	red leaf	100	20

Lot No.	Mark	Box No.	Pkgs.	Description	Weight lb.	c.	
15	C	33	1 ch	unas	63	26	
17	C	34	1 do	dust	120	21	
18	C	35	1 box	red leaf	10	10	
22	Lyndhurst	39	12 ch	bro pek	1320	42	
23	Do	40	20 do	pekoe	1800	36	
24	Do	41	27 do	pek sou	2565	29	
25	Do	42	7 do	dust	840	23	
26	Do	43	5 do	red leaf	450	18	
27	St. Andrews	44	28 hf-ch	or pek	1568	70	
28	Do	45	44 box	do	880	60	
29	Do	46	31 hf-ch	bro pek	1798	48	
30	Do	47	59 do	pekoe	3186	45	
31	Do	48	30 box	do	600	45	
32	Do	49	8 ch	pek sou	640	36	
33	Do	50	4 do	dust	600	23	
34	T N C	51	1 do	unas	100	31	
35	Do	52	2 hf-ch	red leaf	108	15	
36	Orion	53	2 box	bro pek	40	46	
37	Do	54	6 hf-ch	bro tea	360	27	
38	Vincit	55	1 ch	pekoe No 1	100	23	
39	Do	56	1 hf-ch	dust	70	21	
40	Pine Hill	57	4 do	red leaf	200	18	
43	Stockholm	60	28 hf-ch	bro pek	1400	59	
44	Do	61	22 ch	pek sou	1980	41	
45	Do	62	2 do	fans	210	26	
46	Naseby	63	7 hf-ch	bro pek	350	56	
48	Do	65	14 do	pekoe	700	53	
49	Do	66	3 do	do	135	25	
55	C, in estate mark	72	13 ch	bro pek	1430	38	
56	Hopewell	73	48 hf-ch	bro pek	1920	50	
57	Do	74	49 do	pekoe	1715	36	
58	Do	75	1 do	dust	58	19	
59	Depedene	76	23 do	bro pek	1150	46	
60	Do	77	41 do	pekoe	2050	38	
61	Do	78	65 do	pek sou	3250	34	
62	H D	79	77 do	bro sou	3850	29	
63	Do	80	24 do	bro mix	1200	22	
64	Do	81	10 do	dust	800	23	
65	E B	82	12 ch	bro pek	1320	38	
66	Hiralouvah	83	24 do	pekoe	2400	41	
67	Do	84	1 do	fans	115	30	
68	Do	85	2 do	bro mix	204	19	
69	Do	86	4 hf-ch	dust	288	25	
70	G A	87	18 do	pek sou	900	26	bid
71	Allakolla	88	17 do	bro pek	1105	45	
72	Do	89	32 ch	pekoe	3360	38	
73	Do	90	21 do	pek sou	2100	35	
74	Do	91	1 hf-ch	dust	80	21	
75	W	92	20 ch	bro mix	2027	16	bid
76	Ellakande	93	17 hf-ch	bro mix	935	24	
77	A, in estate mark	94	12 ch	bro pek	1320	40	bid
78	Ingeriya	95	7 hf-ch	bro pek	385	53	
79	Do	96	15 do	pekoe	750	38	
80	Do	97	8 do	pek sou	400	32	
81	Do	98	1 do	bro tea	58	23	
82	Do	99	1 do	pek dust	70	21	
83	M	100	15 do	pekoe	750	out	
84	G A	1	12 ch	bro pek	1200	47	
85	C	2	7 hf-ch	bro mix	420	16	
86	Pittawella	3	18 hf ch	bro pek	1044	43	bid
87	Do	4	20 do	pekoe	1100	36	bid
88	Do	5	8 do	pek sou	464	out	
89	Hatdowa	6	12 ch	bro pek	1160	50	
90	Do	7	2 do	pekoe	200	36	
91	Do	8	11 do	pek sou	880	31	
92	Do	9	27 do	bro tea	2700	29	
93	Do	10	4 do	red leaf	390	22	
94	Do	11	1 do	bro mix	90	21	
95	Do	12	1 do	dust	135	22	
96	Charlie Hill	13	2 hf-ch	bro pek	100	49	
97	Do	14	2 do	pekoe	100	37	
98	Do	15	4 do	pek sou	200	34	
99	Do	16	8 do	sou	330	31	bid
100	Do	17	1 do	fans	47	24	
101	Do	118	1 do	red leaf	50	13	
102	G W	120	2 ch	bro mix	200	15	bid
103	N G	122	1 do				
			1 hf-ch	sou	143	22	
104	Do	124	3 ch				
			1 hf-ch	pek sou	357	30	

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 15th July, the under mentioned lots of Tea (189,217 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description	Weight. lb.	c.
1	Kattiagalla	64	8 ch	red leaf	717	15
2	Kattiagalla	66	2 ch	congou	200	15
3	Do	68	2 do			
			1 hf-ch	dust	347	22
4	C P H, in estate mark, Galle	70	1 do	bro pek	50	0
5	Do	72	2 dd	pekoe	100	35
6	Do	74	4 do	pek sou	200	31
7	Do	76	9 do	congou	414	25	bid
8	H, Galle	78	4 box	bro pek	60	53	bid
9	Do	80	6 do	pekoe	90	42	bid
10	Ampitiya	82	9 hf-ch	pekoe	450	31	bid
11	Do	84	4 ch	pek sou	360	30	
12	Do	86	2 do	red leaf	175	18	bid
13	C S K, in estate mark	88	2 do	dust	300	23	
14	Do	90	1 do	congou	100	28	
15	O O O O	92	1 do	bro pek sou	103	18	
16	Do	94	2 do	pek dust	190	23	
17	Gikiyana-kande	96	3 do	sou	255	26	
18	L, in estate mark	98	1 hf-ch	pekoe	38	33	
19	Do	100	1 do	pek sou	34	29	
20	Freds Ruhe	102	8 do	bro pek	400	52	
21	Do	104	10 ch	pekoe	1000	34	
22	Do	106	9 do			31	
			1 hf-ch	pek sou	950		
23	W A	108	1 do	bro pek	50	36	
24	Do	110	1 ch	pek sou	90	30	
25	Do	112	3 do				
			1 hf-ch	bro tea	391	23	
26	Do	114	1 do	dust	72	22	
27	Do	116	1 do	red leaf	48	15	
28	Telisagalla	118	1 do	congou	55	12	bid
29	Do	120	1 do	red leaf	60	14	
35	Midlothian	132	20 do	bro pek	1000	53	
36	Do	134	13 ch	pekoe	1300	42	
37	Do	136	2 hf-ch	congou	100	27	
38	Do	138	3 do	red leaf	150	13	
39	Do	140	1 do	dust	125	22	
40	Shrubs Hill	142	88 do	bro pek	4400	52	
41	Do	144	61 do	pekoe	3050	39	
42	Do	146	24 ch	pek sou	2400	35	
43	Do	148	9 do	bro tea	900	26	
44	Do	150	3 do	dust	435	24	
45	Farm	152	13 do	bro pek	1300	55	
46	Do	154	20 do	pekoe	1500	40	
47	Do	156	19 do	pek sou	1520	37	
48	Do	158	2 do	sou	160	26	
49	Do	160	1 do	dust	150	15	
50	Do	162	2 do	red leaf	151	15	
51	Chalmers	164	15 do	bro pek	1050	56	
52	Do	166	23 hf-ch	pekoe	1380	52	
53	Do	168	14 do	pek sou	840	39	
54	Do	170	2 do	bro mix	110	27	
55	Do	172	2 ch	dust	200	23	
56	Do	174	3 hf-ch	congou	180	27	
57	St. Martin's	176	3 do	sou	120	26	
58	Do	178	2 do	dust	138	21	
59	Do	180	2 do	red leaf	86	17	
60	Wewesse	182	31 do	bro pek	1550	67	
61	Do	184	59 do	pekoe	2950	49	
62	Do	186	27 do	pek sou	1350	38	
63	Do	188	3 do	dust	240	22	
64	Harrangalla	190	22 do	bro pek	1540	44	
65	Do	192	24 do	pekoe	1440	36	
66	N	194	6 ch	dust	450	23	
67	Deniyaya	196	4 do	bro pek	440	50	
68	Do	198	4 do	pekoe	400	40	
69	Do	200	9 do	pek sou	900	29	
75	St. Catherine	212	9 ch	bro pek	810	43	
76	Do	214	8 do	pekoe	680	35	
77	Do	216	9 do	pek sou	720	33	
78	Do	218	2 do	pek fans	140	22	
79	Do	220	2 do	red leaf	190	18	
80	H	222	20 hf-ch	pekoe	920	27	bid
81	Easdale	224	27 ch	bro pek	2700		
82	Do	226	27 do	pekoe	2160	withd'n	
83	Do	228	32 do	peg sou	2560		
84	Do	230	1 do	red leaf	90	14	
85	Do	232	1 do	dust	135	24	
86	P T N	234	1 do	fans	101	26	
87	Do	236	1 do				
			1 hf-ch	dust	198	23	
88	K	238	7 do	dust	560	20	
93	Frotoft	248	7 hf-ch	congou	350	40	
94	Do	250	4 do	bro pek dust	320	24	
95	Do	252	2 do	dust	160	22	
96	St. Leonard's	254	1 ch	bro mix	100	22	
97	Do	256	1 hf-ch	dust	75	22	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight. lb.	c.
98	P D M, in tate mark	258	4 ch	pek sou	380	40
99	Do	260	3 do	unas	285	39
100	Do	262	1 hf-ch	congou	57	26
101	Do	264	1 do	red leaf	43	23
102	Do	266	2 do	dust	193	22
103	Pansalatenne	268	3 ch	congou	300	25
104	Do	270	3 hf-ch	dust	225	23
105	Ederapolla	272	5 ch	bro tea	500	27
106	Do	274	4 do	fans	360	27
107	K, in estate mark	276	ch 11 hf-ch	red leaf	111	14
108	Atherfield	278	16 do	sou	800	32
109	Do	280	2 do	bro mix	100	20
110	Do	282	6 do	dust	480	21
111	M A	284	21 ch	sou	1478	12 bid
112	Do	286	3 do	fans	403	out
113	Yataderia	288	17 do	bro pek	1870	50
114	Do	290	34 do	pekoe	3400	37
115	Do	292	37 do	pek sou	3330	34
116	Abbotsleigh	294	1 do	dust	145	21
117	Do	296	3 do	congou	285	25
117a	Do	297	1 do 1 hf-ch	do	140	14
118	C, in estate mark	298	8 ch	bro tea	800	25
119	L, in estate mark	300	4 do	bro tea	400	14
120	Doombatalawa	302	3 do	bro tea	378	23
121	Dromoland	304	6 hf-ch	red leaf	176	14
122	Alnoor	306	24 do	bro pek	1200	40
123	Do	308	17 do	pekoe	850	37
124	Do	310	14 do	pek sou	700	35
125	Do	312	1 do	dust	80	22
126	K G	314	9 ch	bro pek	900	42
127	Do	316	4 do	pekoe	360	35
128	Do	318	3 do	pek sou	270	30
129	Do	320	1 do	dust	120	22
130	Do	322	1 do	congou	90	22
131	Campion	324	2 do	bro mix	170	20
132	Doonevale	326	13 do	bro pek	1300	39
133	Do	328	8 do	pekoe	720	35
134	Beausijour	330	16 do	bro pek	1600	39
135	Do	332	16 do	pekoe	1440	34
136	Ismalle	334	2 do	dust	244	20
137	Do	336	1 do	bro tea	98	20
138	G	338	1 do	bro pek	132	35
139	G	340	1 do	pek sou	105	23
140	G	342	1 do	dust	91	20
141	G	344	1 do	bro tea	83	22
147	Bandarapolla	356	31 hf-ch	bro pek	1550	55
148	Do	358	36 do	pekoe	1800	41
149	Do	360	69 do	pek sou	3105	37
150	Do	362	8 do	sou	360	22
151	Do	364	14 do	dust	980	22
152	D	366	7 do	bro mix	420	15
153	A P	368	5 ch	bro pek	500	38 bid
154	Do	370	7 do	pekoe	630	30 bid
155	Do	372	2 do	pek sou	160	withd'n.
156	Do	374	1 do	dust	130	21
157	L G E	376	12 do	or pek	1200	
158	Do	378	7 do	pekoe No. 1	700	withd'n
159	Do	380	3 hf-ch	dust	255	
160	Langdale	382	24 do	bro pek	1344	44
161	Do	384	21 ch	pekoe	2100	35
162	Do	386	2 do	pek sou	172	28
163	Do	388	1 do	pek dust	97	21
164	California	390	1 hf-ch	bro pek	52	49
165	Do	392	1 do	pekoe	50	35
166	Do	394	4 do	pek sou	200	31
167	Wainhanduwa	396	21 do	bro pek	1256 1045	49
168	Do	398	19 do	pekoe	1045	39
169	Do	400	24 do	pek sou	1315	36
170	S P A	402	10 do	sou	550	31
171	Do	404	6 do	do No 2	300	29
172	Do	406	2 do	bro tea	100	20
173	Do	408	6 do	unas	330	24
174	Do	410	4 do	bro mix	210	18
175	Do	412	2 do	fans	92	19
176	Do	414	1 do	dust	74	21
177	Do	416	5 do	red leaf	250	17
178	Galdola	418	4 do	bro pek	200	40
179	Do	420	2 do	pekoe	110	31
180	Do	422	3 do	pek sou	140	28
181	C L D	424	9 do	bro pek	468	40
182	Do	426	6 do	pekoe	312	35 bid
183	D	428	8 do	pek sou	400	out
184	Thornfield	430	16 hf-ch	bro pek	960	70 bid
185	Do	432	13 ch	pekoe	1300	48
186	Do	434	6 do	pek sou	600	40
187	Do	436	1 do	dust	80	23
188	B, in estate mark	438	17 do	bro pek	1870	40 bid
189	St. Helen's	440	3 do	bro mix	285	16
190	Do	442	3 do	pek dust	270	22
191	K—C, in estate mark	444	8 hf-ch	bro pek fans	400	27
192	Do	446	2 do	bro pek sou	100	out
193	Do	448	1 do	bro pek dust	70	20
194	K	450	1 ch 1 hf-ch	pek sou	166	25
195	K	452	1 do	dust	50	15
196	Lankapura	454	13 ch	or pek	1300	54
197	Do	456	25 do	pekoe	2375	44
198	Do	458	15 do	pek sou	1350	38
199	W G	460	3 hf-ch	pek fans	180	24
200	G, in estate mark	462	10 ch	bro pek	1000	39 bid
201	St. Heliers	464	15 do	bro or pek	1500	55
202	Do	466	19 do	pekoe	1710	41
203	Do	468	12 do	pek sou	1080	35
204	Do	470	6 do	bro mix	600	22
205	Do	472	11 hf-ch	dust	754	22
206	E, in estate mark	474	15 ch	bro pek	1650	38
207	Patiagame	476	7 do	bro pek	770	40
208	Do	478	35 do	pekoe	3500	36
209	Do	480	3 do	do No. 1	300	36
210	Do	482	2 do	pek sou	200	26
211	Do	484	3 do	dust	450	20
212	A R	486	4 do	bro pek	440	37 bid
213	Bismark	488	43 hf-ch	bro pek	2570	47
214	Do	490	20 ch	pekoe	1800	40
215	Do	492	10 do	pek sou	900	37
216	Do	494	2 do	dust	290	21
217	X, in estate mark	496	2 do	bro pek	220	42
218	H S, in estate mark	498	11 ch	bro or pek	935	48
219	Do	500	16 do	pekoe	1120	39
220	Do	502	21 do	pek sou	1370	30
221	Do	504	12 do	sou	780	26
222	Do	506	3 do	dust	320	18
223	Harrington	508	18 do	or pek	1800	55
224	Do	510	10 hf-ch	bro pek	550	58
225	Do	512	12 ch	pek sou	1140	38
226	Do	514	1 do	sou	80	23
227	Do	516	1 do	bro mix	130	12
228	Do	518	1 hf-ch	dust	80	20
229	H S, in estate mark	520	16 ch	bro or pek	1360	55
230	Do	522	29 do	pekoe	2030	43
231	Do	524	19 do	pek sou	1235	37
232	Do	526	9 do	sou	585	29
233	Do	528	1 do	dust	120	21
234	Melrose, D	530	1 hf-ch	congou	56	25
235	Do	532	1 do	red leaf	50	15
236	Middleton	534	2 ch	congou	210	25
237	Dunkeld	536	37 ch	bro pek	4070	61
238	Do	538	36 do	pekoe	3420	46
239	Do	540	14 do	pek sou	1190	40
240	Do	542	8 do	pek fans	960	34
241	Do	544	5 hf-ch	dust	400	21
242	Polatagama	546	85 do	bro pek	5100	38 bid
243	Do	548	114 do	pekoe	5700	37
244	Do	550	57 do	pek sou	2850	35
245	Abamalla	552	1 do	bro mix	50	18
246	Do	554	3 do	dust	225	18
247	U R	556	2 ch	red leaf	140	12 bid
248	H, in estate mark	558	5 hf-ch	pek sou	250	22
249	Do	560	2 do	red leaf	100	14
250	O K E	562	2 do	pek sou	80	29
251	N	564	2 do	sou	100	20
252	N F	566	3 ch	red leaf	270	14

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 22nd July the undermentioned lots of Tea (41,728 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
1	Nugagalla	1	52 hf-ch	bro or pek	2600	48 bid
2	Do	3	111 do	pekoe	5550	38 bid
3	Do	5	7 do	pek sou	346	32 bid
4	Do	7	7 do	dust	560	23 bid

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
8	Harrow	14	5 hf-ch	bro pek	300	51	bid
9	Do	16	11 do	pekoe	605	45	
10	Do	18	17 ch	pek sou	1700	39	
11	Do	20	2 hf-ch	bro mix	140	23	
12	Horagoda	21	6 ch	bro pek	600	41	bid
13	Do	23	17 do	pekoe	1530	34	bid
14	Do	25	3 ch	pek sou	270	28	bid
15	Do	26	1 do	pek fans	100	21	
16	Do	27	1 do	red leaf	97	13	
17	Hakrugalla	28	12 do	bro pek	1200	40	bid
18	Do	30	10 do	pekoe	900	34	
19	Do	32	10 do	pek sou	900	28	bid
20	X X X	34	2 do	pekoe	200	30	
21	Do	35	2 hf-ch	dust	120	19	
22	Do	36	5 do	dust	350	18	
23	X Y Z	37	10 ch	bro mix	1200	18	bid
24	G A	38	30 do	pekoe	2700	30	bid
			30 do	pekoe	2700		
25	Do	40	29 do	pek sou	2610	22	bid
26	W	42	9 hf-ch	pek sou	513	25	bid
27	W	43	1 do	congou	75	16	
28	W	44	2 ch	congou	200	15	bid
29	K	45	1 hf-ch	congou	49	20	
30	G, in estate mark	46	10 ch				
			1 hf-ch	bro mix	1050	15	bid
31	Nahalma	47	33 do	bro pek	1850	50	bid
32	Do	49	46 do	pekoe	4600	40	
33	Do	51	8 do	pek sou	800	32	
34	Do	53	1 do	dust	75	22	
35	V	54	7 do	bro mix	420	15	
36	G H K, in estate mark, Ceylon	55	1 do	bro sou	74	16	
37	Do	56	2 do	red leaf	102	13	
38	Do	57	1 do	pek dust	62	21	
39	A Z	58	10 ch				
			1 hf-ch	unas	945	17	
40	Do	59	4 ch	unas	300	16	

Mr. E. JOHN put up for sale at the Chamof Commerce Sale-room today, 22nd July, the undermentioned lots of Tea (,39090 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	Doronakande	21	2 hf-ch	pek fans	100	24	
2	Do	22	1 do	fans	50	24	
3	Do	23	1 do	dust	70	21	
4	Ugieside	24	4 ch	bro mix	360	18	
5	U	25	5 do	bro tea	450	out	
6	U	26	6 hf-ch	dust	420	20	
7	Sutton	27	1 ch	sou	64	35	
8	Do	28	1 do	fans	63	22	
9	Little Valley	29	2 do	red leaf	160	14	
10	Do	30	1 do	dust	80	21	
11	D E	31	3 do	bro mix	237	24	
2	Do	32	9 do	fans	738	29	
	Brownlow	33	18 do	bro pek	1980	55	bid
14	Do	35	18 do	pekoe	1890	50	
15	Do	37	13 do	pek sou	1300	41	
16	Do	39	1 do	dust	80	23	
17	B T	40	30 do	bro mix	2700	18	
18	G	42	6 hf-ch	bra tea	300	17	
19	Templestowe	43	61 do	or pek	2745	56	
20	Do	45	26 ch	pekoe	2080	38	
21	Do	47	26 do	pek sou	2340	29	bid
22	Do	49	9 hf-ch	bro mix	459	24	
23	Do	50	16 do	dust	1206	21	
24	T	51	1 ch	fans	90	16	bid
25	Beaumont	52	8 do	bro pek	800	40	bid
26	Do	54	8 do	pekoe	800	33	bid
27	Do	56	3 do	dust	525	21	
28	Medumpitiya	57	7 hf-ch	or pek	420	57	
29	Do	59	15 do	pekoe	900	50	
30	Do	61	2 do	bro or pek	120	57	
31	Do	62	6 do	pekoe	360	52	
32	Do	64	1 do	unas	60	36	
33	Labugama	65	6 do	bro pek	240	48	
34	Do	67	11 do	pekoe	440	36	
35	Do	69	2 do	pek fans	90	27	
36	Do	70	2 do	congou	80	27	
37	S G	71	2 ch	sou	172	14	
38	Ythanside	72	6 do	red leaf	480	13	
39	F	73	22 do	bro pek	2090	out	
40	Dickapitiya	75	44 do	bro pek	4400	38	bid
41	Do	77	25 do	pekoe	2500	32	bid
42	Do	79	6 do	pek sou	540	30	
43	Do	81	4 do	sou	360	32	
44	A F	82	27 do	bro mix	2160	12	bid
45	Gonakelle Factory	84	8 ch	bro or pek	800	48	
46	Do	86	8 do	bro pek	800	37	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, June 26th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 26th June:—

Ex "Chingwo"—Coslanda, 1c 110s; 3c 1b 107s; 4c 100s 6d; 1b 98s; 1c 121s.

Ex "Manora"—Tulloes, 1b 100s; 1c 1t 98s; 1c 99s. Meeriabedde, 2c 103s; 5c 105s 6d; 1c 1b 101s 6d; 1t 121s. Haldemulle, 1t 109s; 3c 1t 107s 6d; 1c 1b 102s 6d; 1b 119s; 3b 100s.

Ex "Chingwo"—Beauvais, 1c 103s; 2c 1t 102s; 1b 95s; 1b 109s.

Ex "Golconda"—Ragalla, 1b 102s.

Ex "Manora"—Ragalla, 1b 111s; 3c 102s 6d; 2c 103s; 1b 107s. Idulgashena, 1t 107s 6d; 3c 1b 103s; 1c 1b 100s; 1b 121s. Kahagalla, 1b 106s; 1c 1t 104s; 1t 100s; 1b 108s.

Ex "India"—Mahauva, 3c 100s 6d; 5c 97; 1c 95s.

Ex "Chingwo"—Rappahannock, 1c 101s; 4c 1b 99s; 1c 99s; 1b 100s; 1t 89s; 1b 96s.

MINCING LANE, July 3rd, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to3rd July:—

Ex "Chingwo"—Melton, 1b 103s; 1c 101s; 1b 99s 1b 103s.

Ex "Oopack"—Delmar, 1c 98s; 1b 102s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, June 26th, 1891.

Ex "Ganges"—DAB, 10 bags 40s 6d.

Ex "Chingwo"—Aloowihare, 6 bags 118s.

Ex "City of Dundee"—Wariapola, 4 bags 59s 6d.

Ex "Hampshire"—Suduganga, 80 bags 123s; 8 75s 6d; 3 54s 6d; 3 66s 6d. LGT, 3 bags 46s 6d.

Ex "Chingwo"—Udapolla, 41 bags 123s; 1 76s; 2 77s; 3 60s; 2 91s. Glenalpin, 9 bags 106s; 2 76s. Elmshurst, 8 bags 119s 6d; 1 packet 43s. Pondappa, 7 bags 114s 6d; 3 75s; 1 50s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, June 26th, 1891.

Ex "Oopack"—Nugagalla, 12 cases 1s 6d; 17 1s 7d; 2 1s 8d. GH OKO, 7 cases 1s 10d; 2 1s 5d; 2 1s 6d. Mysore, 7 cases 1s 7d; 3 2s; 2 2s 1d. (K), 2 cases 2s; 2 1s 11d. Rangalla (MK), 4 cases 1s 1d; 2 2s 5d.

Ex "Chingwo"—Peru, 3 cases 2s 2d; 6 1s 11d; 1 1s 4d. Nugagalla, 2 cases 2s.

Ex "Titan"—Vicarton, 5 cases 2s 11d; 2 1s 11d; 1 1s 6d. Galaha, 1 case 4s; 2 2s 6d; 2 1s 8d; 2 1s 9d. Kitoolmopla, 1 case 4s 1d; 2 2s 8d; 2 1s 9d; 1 1s 8d.

Ex "Karamania"—Gavatenne, 10 cases 2s 8d; 2 2s; 3 1s 9d; 2 1s 4d; 1 2s 6d; 2 1s 11d; 1 1s 6d.

Ex "Orotava"—Deanstone, 3 cases 2s; 5 2s; 2 1s 7d. Kirklees, 3 cases 2s; 8 2s 1d; 4 1s 4d; 1 1s 9d; 1 1s 10d. Gampaha, 3 cases 2s 1d; 1 1s 9d; 21 1s 4d; 1 1s 11d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Mr. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 22nd July, the undermentioned lots of Tea (1,270 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Elston	34	16	ch	dust	1120	20 bid
2	Do	36	3	hf-ch	congou	150	17 bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 22nd July, the undermentioned lots of Tea (63,386 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	Mousagalla	125	4	hf-ch	sou	200	23
2	Do	127	2	do	read leaf	110	14
3	Do	129	1	do	dust	75	21
4	A X	131	2	do	pekoe	100	out
5	Erismere	133	1	ch	sou	100	33
6	Do	135	2	do	dust	300	23
7	A R	137	7	ch	sou	665	28
8	Do	139	1	do	red leaf	90	16
9	Do	141	1	do	bro mix	71	17
10	Do	143	3	hf-ch	dust	186	22
11	Mentrose	145	12	ch	bro pek	1320	40 bid
12	Do	147	12	do	pek sou	1200	31 bid
13	Do	149	9	do	bro sou	855	15 bid
14	Do	151	6	hf-ch	dust	408	21 bid
15	G A	153	3	do	red leaf	138	14
20	A 2, in esate mark	163	2	ch	pek fans	300	25
21	Do	165	2	hf-ch	bro pek dust	160	23
22	Do	167	5	do	dust	346	23
23	Kitulgalla	169	6	ch	bro pek	600	40
24	Do	171	9	do	pekoe	720	34
25	Do	173	3	do	pek sou	240	30
26	G—R	175	1	hf-ch	bro pek	57	70
27	A E	177	4	ch	sou	400	41
28	Do	179	3	do	bro tea	300	19
29	Do	181	4	do	unas	400	32
30	Do	183	1	hf-ch	unas	50	32
31	Do	185	11	do	dust	817	20
32	N B	187	30	ch	bro mix	3000	20 bid
33	Do	189	12	do	unas	1200	29 bid
34	Roseneath	191	26	hf-ch	bro pek	1820	45
35	Do	193	16	ch	pekoe	1760	38
36	Do	195	15	do	pek sou	1560	35
37	H G A	197	13	do	bro pek	1300	42
38	Do	199	12	do	pekoe	1200	32 bid
39	Do	1	14	do	pek sou	1400	30
40	Do	2	3	do	dust	225	22
41	M K	3	21	do	pek sou	2100	29 bid
42	Do	4	4	do	bro tea	448	28
43	Do	5	2	do	dust	280	20
44	M K	6	21	do	bro pek	2352	40
45	Do	7	21	do	pekoe	2100	35
46	Do	8	4	do	pek sou	400	28
47	Do	9	1	do	dust	144	21
48	Ovoca A I	10	17	do	bro mix	2040	27
49	Do	11	16	do	dust	1200	25
50	Do	12	3	do	bro tea	333	22
51	B G	13	7	do	bro mix	700	16 bid
52	Chertsey	14	1	hf-ch	bro pek	50	45
53	Do	15	4	ch	bro pek	400	36 bid
54	Do	16	2	hf-ch	pek sou	100	27 bid
55	Do	17	4	do	pek fans	220	28
56	Do	18	2	do	bro mix	100	25
57	M G S	19	21	do	dust	1470	21 bid
58	Do	20	9	ch	sou	765	17 bid
59	T R N	21	66	do	pekoe	6600	31 bid
60	G	22	4	hf-ch	pekoe No. 1	213	39
61	K	23	7	ch	bro sou	663	12 bid
65	D A	27	8	do	pek sou	400	26 bid
66	G in estate mark	28	2	do	bro or pek	106	77
67	K C	29	2	do	pek sou	100	26 bid
68	G W A	30	12	do	dust	960	20
69	Do	31	10	ch			
			1	hf-ch	bro pek sou	47	out
70	Chetnole	32	2	do	dust	[illegible]	[illegible]
71	Do	33	2	do	broken	[illegible]	18
72	Do	34	1	ch	bro mix	[illegible]	34
73	Y B	35	2	do	bro mix	209	12 bid
74	Do	36	1	do	sou	132	25
75	E C	37	3	hf-ch	dust	257	23
76	Do	38	1	do	congou	40	21
77	D B G	39	3	do	dust	240	22
78	Do	40	6	do	fans	360	34
79	Do	41	7	ch	bro mix	700	23
80	Do	42	1	do	bro tea	100	18
81	Do	43	5	do	pek sou	475	31
82	Do	44	1	hf-ch	do	56	31
83	M G A	45	24	ch	bro pek	2520	40 bid
84	T, in estate mark	46	12	hf-ch	unas	600	27
85	D	47	12	do	mixed	552	25
86	Do	48	2	do	congou	80	25
87	Do	49	3	do	dust	222	21
88	P	50	18	ch	pek fans	1350	out
89	E	51	5	do	fans	500	withd'n
90	Wereagalla	52	5	hf-ch	dust	375	21
91	M A H	53	8	ch	red leaf	800	13
92	Do	54	3	do	congou	270	23
93	Do	55	1	do	fans	130	21
94	Salawe	56	1	box	golden tips A	4	R12 00
95	Do	57	1	do	do B	4	13·00 bid
96	Do	58	1	do	bro pek	4	out
97	Do	59	1	do	do	18	out
98	C C	60	15	hf-ch	pekoe	750	out

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 22nd July, the undermentioned lots of Tea (120,416 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	Fetteresso	568	2	ch	unas	190	41
2	Do	570	2	do	red leaf	200	17
3	L B K	572	18	do	red leaf	1800	18
4	Gikiyana-kande	574	3	do	bro pek sou	300	30
5	C	576	9	hf-ch	pekoe	450	27
6	C	578	2	ch	red leaf	175	16
7	G	580	19	do	sou	1330	17 bid
8	Glengariffe	582	5	do			
			1	hf-ch	bro tea	558	32
9	o	584	4	ch	bro pek sou	336	15
10	Do	586	3	hf-ch	dust	276	20
11	Weddigodde	588	28	do	bro mix	1400	30
12	D C	590	8	ch	bro pek	800	28
13	Do	592	9	do	pekoe	900	32
14	Do	594	15	do	pek sou	1500	27
15	Do	596	2	do	congou	200	22
16	Do	598	1	do	red leaf	100	15
20	Portmore	606	21	ch	bro pek	2205	63
21	Do	608	16	do	pekoe	1440	50
22	Do	610	1	do	sou	106	40
23	Do	612	1	do	fans	106	24
24	Blairgowrie	614	22	hf-ch	bro pek	1100	54
25	Do	616	9	ch	pekoe	855	42
26	Do	618	6	do	pek sou	570	32 bid
27	Do	620	1	hf-ch	bro tea	51	17
28	Do	622	1	do	dust	78	20
29	B	624	2	ch	sou	148	17
30	Kirrimettia, L M	626	27	hf-ch	bro pek No. 1	1350	52
31	Do	628	10	do	do No. 2	500	50
32	Do	630	33	do	pekoe	1645	34
33	Do	632	17	do	pek sou	845	29
34	Do	634	3	do	pek fans	230	23
35	T C O M	636	1	do	bro pek	110	38
36	Do	638	1	do	pekoe	110	36
37	Do	640	1	do	pek sou	110	32
38	Do	642	1	hf-ch	red leaf	54	15
39	Do	644	2	ch	dust	303	23
40	Scotia	646	41	hf-ch	pekoe	2074	44 bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
41	Chrystler's Farm	648	16	ch	bro pek	1600	62	bid
42	Do	650	30	do	pekoe	2880	42	bid
43	Do	652	15	do	pek sou	1270	39	
44	Do	654	5	do	sou	425	29	bid
45	Do	656	5	hf ch	dust	350	24	
46	Do	658	1	do	bro mix	95	22	
47	Mahatenne	660	11	do	bro or pek	660	61	
48	Do	662	13	do	pekoe	780	51	
49	A	664	4	do	bro or pek	240	62	
50	A	666	3	do	pekoe	180	51	
51	Glenorchy	668	50	do	bro pek	3000	63	
52	Do	670	45	do	pekoe	2475	42	bid
53	Do	672	21	do	pek sou	1155	38	
54	Beausijour	674	20	ch	bro pek	2000	40	
55	Do	676	11	do	pekoe	995	33	
56	Do	678	5	do	fans	550	23	
57	Clyde	680	16	do	bro pek	1696	42	bid
58	Do	682	20	do	pekoe	1900	32	bid
59	Do	684	11	do	pek sou	1045	26	bid
60	Balgownie	686	22	do	bro pek	2200	37	
61	Do	688	30	do	pekoe	2400	33	
62	Do	690	11	do	pek sou	880	29	
63	Do	692	1	do	dust	150	20	
64	Yataderia	694	5	do	bro pek	550	47	
65	Do	696	11	do	pekoe	1100	35	bid
66	Do	698	19	do	pek sou	1710	32	bid
67	Do	700	2	do	bro tea	190	20	
68	L G E	702	12	do	or pek	1200	37	bid
69	Do	704	7	do	pekoe No. 1	700	30	bid
70	Do	706	3	hf-ch	dust	255	18	
71	Harden-huish	708	7	do	dust	560	18	
72	Esperanza	710	3	do	bro or pek	168	35	bid
73	Do	712	12	do	or pek	600	60	
74	Do	714	48	do	pekoe	2208	41	
75	Do	716	1	do	congou	45	25	
76	Do	718	1	do	dust	56	20	
77	Talgaswela	720	30	ch	bro pek	3000	51	
78	Do	722	14	do	pek sou	1190	40	
79	Marguerita	724	27	hf-ch	bro pek	1620	48	
80	Do	726	28	do	pekoe	1400	37	
81	Do	728	66	do	pek sou	3630	32	
82	K	730	4	do	bro pek	206	38	
83	N	732	5	ch	unas	515	34	
84	N	734	1	do	bro mix	115	26	
85	P	736	12	do	dust	1500	19	
86	Wavendon	738	1	hf-ch	dust	75	23	
87	Angroo-wella	740	2	do				
			1	box	dust	165	25	
88	Palamcotta	742	1	ch	red leaf	75	15	
89	Do	744	2	hf-ch	dust	172	22	
90	Ancoombra	746	3	ch	red leaf	270	15	
91	Do	748	4	do	dust	620	23	
92	C R D	750	2	hf-ch	dust	165	23	
93	Do	752	3	do	red leaf	130	18	
94	A F	754	9	ch	bro mix	810	14	
95	K	756	6	hf-ch	pekoe	297	44	
96	Palmerston	758	9	do	bro pek	495	61	bid
97	Do	760	11	ch	pekoe	1100	48	bid
98	Do	762	3	do	pek sou	300	37	bid
99	Amblakande	764	7	do	bro pek	700	48	bid
100	Do	766	13	do	pekoe	1170	36	
101	Do	768	1	do	sou	90	28	
102	Do	770	1	do	bro tea	120	23	
103	Avisawella	772	54	box	bro or pek	864	54	bid
104	Do	774	22	ch	bro pek	2200	45	bid
105	Do	776	21	do	pekoe	1890	38	
106	Do	778	52	do	pek sou	4680	34	bid
107	Do	780	5	do	unas	500	23	bid
108	Do	782	3	do	dust	450	22	
109	Do	784	3	do	sou	270	29	
110	Farnham	786	32	hf-ch	bro or pek	1440	61	
111	Do	788	5	box	or pek	100	70	
112	Do	790	47	hf-ch	pekoe	2115	44	
113	Do	792	55	do	pek sou	2475	41	
114	Do	794	2	do	fans	120	27	
115	Do	796	3	do	unas	135	35	
116	Do	798	4	do	dust	260	20	
118	North Cove	2	2	hf-ch	bro mix	110	23	
119	Do	4	1	ch	red leaf	92	16	
120	E A	6	5	do	bro pek	500	37	bid
123	B A	12	5	do	bro pek	500	37	bid
124	A G	14	1	hf-ch	sou	34	22	
125	Badella	16	1	ch	sou	80	23	
126	Leamoir	18	1	do	unas	86	21	
227	Do	20	1	do	sou	80	28	
128	Do	22	5	do	red leaf	395	15	
129	G L	24	12	do	bro pek	1320	41	bid
130	A G	26	30	do	red leaf	2400	16	
131	Do	28	6	do	do	450	16	
132	M	30	5	do	bro pek	550	38	bid
133	B A	32	5	do	bro pek	500	out	
134	Do	34	7	do	pekoe	630	28	bid
135	K	36	4	do	bro pek	440	30	
136	Augusta	38	2	do	dust	300	16	
137	Do	40	3	do				
			1	hf-ch	sou	320	30	
138	Do	42	2	ch	red leaf	152	14	
139	C L D	44	6	hf-ch	pekoe	312	33	bid
140	Telisagalla	48	1	do	congou	55	16	
141	D O	50	2	ch	pek sou	152	30	
142	Ancoom-bra	52	3	do	sou	300	30	
143	Bandara-polla	54	26	hf-ch	bro pek	1300	56	
144	Do	56	38	do	pekoe	1900	44	
145	Do	58	40	do	pek sou	1800	37	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room, on the 29th July, the undermentioned lots of Tea (36,934 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	A S in estate mark	1	3	ch	bro mix	300	22	
2	Do	2	10	hf-ch	dust	700	22	
3	Do	3	1	do	pek fans	70	24	
4	Do	4	1	do	fans	50	20	
5	Kelani	5	36	do	bro pek	1980	43	
6	Do	7	82	do	pekoe	3690	36	
7	Do	9	72	do				
			3	ch	pek sou	3590	30	
8	K, in estate mark	10	29	do	pek sou	2610	25	bid
9	Knutsford	11	2	hf-ch	bro or pek	99	58	bid
10	Do	12	2	do	bro pek	98	47	
11	Do	13	7	do	pekoe	381	35	
12	Do	15	1	do	unas	57	31	
13	Do	16	1	do	fans	37	20	
19	Gampola-watte	22	3	ch	bro pek	300	46	
20	Do	23	8	do	pekoe	720	32	bid
29	S C R	38	2	do	sou	90	12	bid
30	Horagoda	39	6	ch	bro pek	600	45	
31	Do	41	17	do	pekoe	1530	30	bid
32	Do	43	3	do	pek sou	270	26	bid
33	Do	44	1	do	red leaf	97	12	
34	H G A	45	12	do	bro pek	1200	42	
35	Do	47	10	do	pek sou	900	38	bid
36	Star, in estate mark	49	10	do	sou	1200	15	bid
37	K P W	50	22	hf-ch	pekoe	880	37	
38	G H K, in estate mark, Ceylon	52	20	do	pekoe	800	28	bid
39	Hopton	54	10	ch	bro pek	1100	44	
40	Do	56	8	do	pekoe	800	38	
41	Do	58	10	do	pek sou	1000	30	
42	Do	60	1	do	dust	85	22	
43	W O	61	2	do	bro tea	210	14	
44	Do	62	2	hf-ch	pek dust	160	23	
45		63	3	ch	bro tea	368	20	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 29th July, the undermentioned lots of Tea (28,795 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.	
1	Dickoya	88	2	ch	pek dust	336	22	
2	Do	89	1	do	bro mix	100	17	
3	Laxapana	90	4	do	red leaf	360	13	
4	Do	101	5	hf-ch	do	300	13	
5	A	102	1	ch	sou	90	19	
6	B	103	1	do	sou	85	27	
7	C	104	1	do	sou	85	26	
8	D	105	1	do	congou	105	27	
9	L	106	21	hf-ch	bro pek	1260	out	
10	L	108	12	do	pekoe	660	32	
11	L	110	5	ch	pek sou	500	28	
12	Eila	112	14	do	bro pek	1400	38	bid
13	Do	114	12	do	do	1200	39	bid
14	Do	116	24	do	pekoe	1920	38	
15	Do	118	24	do	do	1920	35	
16	Do	120	18	do	pek sou	1440	30	bid
17	Do	122	2	do	pk dust	252	29	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
18	Madegedera	123	7 do	bro pek	658	47
19	Do	125	4 do	pekoe	328	42
20	Do	127	1 do	sou	57	30
21	Do	128	1 hf-ch	dust	34	21
22	Gouravilla	129	5 ch	pek sou	500	30
23	Do	131	3 hf-ch	sou	150	24
24	Do	132	6 ch	unas	600	30
25	Bollagalla	134	9 hf-ch	bro pek	540	38
26	Do	136	21 ch	pekoe	1785	36
27	Do	138	12 do	pek sou	1080	30
28	Do	140	4 do	bro tea	420	out
29	Do	141	2 do	dust	280	20
30	Acrawatte	142	4 do	bro pek	420	57
31	Do	144	5 do	pekoe	475	46
32	Do	146	16 do	pek sou	1440	34
33	Wattegodde	148	1 do	bro pek	80	51
34	Do	149	1 hf-ch	pek sou	40	30
35	Do	150	1 ch	dust	100	22
36	Lawrence	151	56 hf-ch	sou	2800	14
37	Tientsin	153	13 ch	bro pek	1300	69
38	Do	155	18 do	pekoe	1620	49
39	Do	157	12 do	pek sou	1080	43
40	Do	159	1 hf-ch	sou	30	17
41	Do	160	2 do	dust	160	23

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room today, 29th July, the undermentioned lots of Tea (29,635 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	Kitoolpatna	61	1 ch	bro mix	130	22	
2	Do	62	1 hf-ch	pek dust	70	21	
3	W R T, in estate mark	63	4 ch	bro mix	400	24	
4	Do	64	1 hf-ch	fans	60	23	
5	Do	65	13 do	dust	910	21	
6	Katukitula	66	1 do	bro pek	55	45	
7	Do	67	3 do	pekoe	130	40	
8	Do	68	5 do	pek sou	225	32	
9	M T A	69	10 ch	bro pek	1000	41	bid
10	Do	70	6 hf-ch	pekoe	311	33	bid
11	Do	71	2 do	pek sou	100	30	
12	Yahalatenne	72	14 do	bro pek	840	42	
13	Do	73	14 ch	pekoe	1190	34	
14	Do	74	16 do	pek sou	1440	27	
15	Do	75	1 hf-ch	bro mix	58	15	
16	Do	76	1 do	dust	52	20	
17	D G	77	5 do	bro pek fans	275	21	bid
18	Do	78	8 do	fans	440	22	
19	Do	79	9 do	dust	540	21	
20	Do	80	12 do	bro mix	600	17	
21	R X	81	1 ch	bro mix	120	25	
22	Do	82	1 do	bro tea	120	28	
23	Do	83	1 do	pek dust	140	23	
24	Do	84	1 do	dust	150	22	
25	V D S K	85	4 do	bro pek	436	44	
26	Do	86	5 do	pekoe	455	38	
27	Do	87	3 do	pek sou	302	29	
28	Do	88	1 hf-ch	dust	53	24	
29	L A	89	7 ch	bro sou	662	13	bid
30	South Wanarajah	90	21 do	bro pek	2100	71	bid
31	Do	91	31 do	pekoe	3100	44	
32	Hiralouvah	92	16 do	bro pek	1728	41	bid
33	Do	93	14 do	pek sou	1400	33	
34	Do	94	1 do	fans	112	24	
35	Do	95	3 hf-ch	dust	222	24	
39	W V, in estate mark	99	6 ch	unas	600	28	bid
40	Do	100	1 hf-ch	dust	50	23	
41	Roseneath	1	2 ch	red leaf	220	14	
42	Do	2	1 hf-ch	dust	90	20	
43	Diyagama	3	1 ch	bro pek	70	47	
44	Do	4	4 do	pekoe	375	34	
45	Do	5	5 do	pek sou	485	29	bid
46	Do	6	2 do	mixed	195	24	
47	Do	7	1 hf-ch	dust	78	21	
50	Braemore (Travancore)	10	23 do	bro pek	1150	41	bid
51	Do	11	37 do	pekoe	1850	36	bid
52	Do	12	12 do	sou	600	26	bid
53	Do	13	2 do	bro mix	100	16	bid
54	Do	14	3 do	mixed	150	26	bid
55	Do	15	3 do	dust	210	20	
56	Invercauld (Travancore)	16	10 do	bro mix	500	21	bid
57	E	17	5 ch	fans	500	24	bid

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room today, 29th July, the undermentioned lots of Tea (169,208 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight. lb.	c.	
1	B S	60	1 hf-ch	red leaf	50	14	
2	D	60	1 ch	bro mix	80	14	
3	M C K	64	1 do	red leaf	100	18	
4	V	66	17 hf-ch	bro mix	1020	15	
5	V	68	5 ch	do	450	10	
6	V	70	3 do	dust	420	21	
7	Citrus	72	6 hf-ch				
			1 box	bro pek	330	50	
8	DO	74	18 hf-ch	pekoe	990	34	bid
9	Do	76	7 do	pek sou	350	30	bid
10	Do	78	3 do	bro mix	165	27	bid
11	Do	80	2 do	fans	125	22	
12	Do	82	1 do	congou	50	24	
14	O	86	1 do	bro mix	87	15	
15	Uvakelle	88	24 hf-ch	bro pek	1320	64	
16	Do	90	47 do	pekoe	2350	46	
17	Do	92	6 do	sou	300	30	
18	Do	94	3 do	dust	240	22	
19	Harangalla	96	13 do	bro pek	910	42	
20	Do	98	28 do	pekoe	1680	29	bid
21	Macaldeniya	100	1 box	or pek	6	90	
22	Do	102	52 hf-ch	bro pek	3120	60	
23	Do	104	22 do				
			3 ch	pekoe	1525	56	
24	D	106	25 do	pek sou	2579	42	
25	Do	108	6 do				
			1 hf-ch	sou	660	32	
26	Do	110	7 do	dust	510	24	
27	Do	112	1 do	fans	60	28	
28	Do	114	1 do	red leaf	50	14	
29	Cottaganga	116	2 do	bro mix	180	14	
30	Hauteville	118	5 do	red leaf	550	14	
31	K V	120	1 do	congou	90	15	
32	B	122	23 do	bro pek	2300	37	bid
33	B	124	5 do	pek sou	450	30	bid
34	B	126	4 do	sou	360	24	bid
35	B	128	1 hf-ch	dust	75	20	
36	Clarendon	130	20 do	bro pek	1120	54	bid
37	Do	132	34 do	pekoe	1700	41	bid
38	Do	134	23 do	pek sou	1150	31	bid
39	Patiagama	136	13 ch	bro pek	1430	45	
40	Do	138	48 do	pekoe	4800	35	
41	Do	140	1 do	sou	100	26	
42	Do	142	3 do	bro mix	300	10	
43	Do	144	2 do	dust	300	22	
44	Ragalla A	46	53 do	bro pek	5830	61	
45	Do	148	51 do	pekoe	4590	47	bid
46	Do	150	18 do	pek sou	1710	41	
47	Do	152	22 do	dust	1760	23	
48	Do	154	13 do	sou	884	38	
59	Ragalla B	156	31 do	bro pek	3410	59	
50	Do	158	55 do	pekoe	4950	47	
51	Do	160	13 do	pek sou	1235	39	
52	Queensland	162	32 do	flowery pek	3200	57	bid
53	Do	164	26 do	pekoe	2470	36	bid
54	Do	166	3 do	pek fan	390	24	
55	Queensland	168	12 do	flowery pek	1200	62	
56	Do	170	12 do	pekoe	1200	42	
57	W T	172	11 hf-ch	bro pek	550	42	bid
58	Do	174	21 do	pekoe	1050	34	bid
59	Do	176	3 do	dust	65	22	
60	Shrubs Hill	178	24 ch	pek sou	2400	32	bid
61	T G W	180	6 do	bro pek	600	42	
62	Bramley	182	2 hf-ch	dust	210	19	
63	S S	184	6 do	pekoe	330	out	
64	Do	186	2 ch	pek sou	205	out	
65	Do	188	2 do				
			3 hf-ch	red leaf	290	13	
66	Do	190	1 ch	bro tea	100	out	
67	S S S	192	7 do	red leaf	1023	out	
68	Do	194	8 do	congou	845	24	
69	Do	196	2 do	pek sou	160	21	
70	V O	198	5 do	red leaf	550	12	
71	Docmba	200	2 do	bro tea	252	22	
72	Hope	202	2 do	bro mix	252	out	
73	I G	204	4 do	sou	360	28	
74	Almoor	206	23 hf-ch	bro pek	1150	38	
75	Do	208	16 do	pekoe	800	30	
76	Do	210	12 do	pek sou	600	28	
77	Lo	212	1 do	congou	50	18	
78	Do	214	2 do	dust	160	21	
82	P W	222	20 ch	pekoe	1940	29	bid
83	Chesterford	224	19 hf-ch	bro pek	1140	52	
84	Do	226	21 do	pekoe	1050	37	bid
85	Do	228	22 do	pek sou	1205	32	bid

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
86	E H T	230	2 ch	bro pek	220	51	
87	Do	232	2 do	pekoe	200	39	
88	Do	234	1 do	pek sou	100	31	
89	Yataderia	236	11 do	or pek	715	58	
90	Do	238	13 do	bro pek	1430	47	
91	Do	240	32 do	pekoe	3200	35	
92	Do	242	27 do	pek sou	2430	31	
93	C B	244	10 do	bro sou	1000	38	
94	Do	246	2 hf-ch	dust	160	21	
95	Do	248	1 do	red leaf	60	14	
99	Polatagama	250	64 do	bro pek	3840	46	
97	Do	252	98 do	pekoe	4900	43	
98	Do	254	77 do	pek sou	3850	36	
99	Dunkeld	256	38 do	bro pek	2280	58	bid
100	Do	258	27 do	or pek	1350	52	
101	Do	260	20 do	pekoe	900	41	
102	Kenmare	262	50 do	bro pek	2750	54	
103	Do	264	42 do	or pek	2100	51	
104	Do	266	48 do	pek sou	2160	41	
105	Do	268	9 do				
			1 box	bro tea	502	29	
	Do	270	4 hf-ch	dust	340	22	
106	Middleton	272	18 ch	bro pek	1980	57	
107	Do	274	13 do	pekoe	1300	49	
108	Do	276	7 do	pek sou	665	37	
109	Ederapolla	278	14 hf-ch	bro pek	700	38	bid
110	Do	28	8 do	pekoe	720	37	
111	Do	282	7 do	pek sou	630	30	
112	E D P	284	17 ch	sou	1530	27	
113	Do	286	7 do	bro mix	630	18	
114	Opalgalla	288	1 do	congou	100	29	
115	Do	290	2 do	red leaf	210	16	
116	Do	292	10 hf-ch	dust	750	24	
117	Ukuwella	294	12 ch	bro pek	1260	52	
118	Do	296	12 do	pekoe	1200	44	
119	Do	298	12 do	pek sou	1140	40	
120	Do	300	1 do	congou	100	26	
121	Do	302	1 hf-ch	dust	75	22	
122	Do	304	35 box	or pek	700	57	
123	Ancoombra	306	2 ch	sou	200	27	
124	Do	308	1 do	dust	165	21	
125	Do						
126	St. Leonard's	310	1 do	dust	100	19	
127	Angroowella	312	2 hf-ch	dust	144	24	
128	Palamcotta	314	3 do	sou	150	26	
129	Do	316	2 do	dust	170	22	
130	Do	318	1 do	red leaf	47	10	
135	Portmore	328	19 do	bro pek	1995	64	
136	Do	330	15 do	pekoe	1350	53	
137	Do	332	1 hf-ch	pek sou	40	28	
138	Do	334	1 do	fans	50	25	
139	Lankapura M	336	52 do	bro pek	2860	53	bid
	Do	338	54 ch	pekoe	5940	40	bid
140	Do	340	10 do	pek sou	1000	30	bid
141	Do	342	4 hf-ch	fans	300	25	
142	Do	344	7 do	dust	560	20	
143	Yahalakele						
144	H, in estate mark	346	1 ch	bro mix	80	17	
145	Halpatenne	348	5 do	bro pek	465	37	
146	Do	350	4 do	pekoe	385	31	
147	Do	352	9 do	pek sou	815	28	
148	Do	354	3 do	sou	230	25	
149	Do	356	1 do	pek fans	118	23	
150	D C S	358	3 do	pekoe	277	22	bid
151	Do	360	5 do	unas	410	out	
152	Do	362	1 do	dust	130	out	
153	Do	364	1 do	bro mix	92	out	
154	H H	366	6 do	bro mix	540	18	
155	Bon Accord (Travancore)	368	37 hf-ch	bro pek	1850	38	bid
	Do	370	44 do	pekoe	2200	25	bid
156	Do	372	17 do	sou	850	20	bid
157	Do	374	2 do	dust	120	17	bid
158	Do						
159	B A (Travancore)	376	10 do	bro mix	500	out	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 5th Aug., the undermentioned lots of Tea (25,486 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lbl	c.
1	Bogahagodawatte	1	1 hf-ch	bro pek	72	45
	Do	2	1 do	pekoe	60	34
	Do	3	1 do	pek sou	50	24
	Do	4	4 do	bro mix	220	16
	Do	5	1 do	fans	70	20

Lot No.	Mark	Box No.	Pkgs.	Description	Weight. lb.	c.	
6	A K A C, in estate mark	6	10 do	pek sou	500	29	
7	Do	8	4 do	dust	285	21	
8	Do	9	4 do	fans	274	25	
9	Pathragalla	10	6 do	bro pek	300	47	
10	Do	12	12 do	pekoe	540	35	
11	Do	14	29 do	pek sou	1340	30	
12	Do	16	1 do	congou	43	18	
13	Do	17	1 do	dust	64	28	
14	Comillah	18	8 do	bro pek	440	35	
15	Do	20	11 do	pekoe	550	31	
16	Do	22	11 do	pek sou	550	25	
17	A G C	24	5 do	dust	350	24	
18	P G A	25	2 ch	bro pek	110	35	
19	Do	26	30 do	pekoe	3850	20	bid
20	Do	28	1 do	pek sou	95	22	
21	Nahalma	29	14 hf-ch	bro pek	770	58	
22	Do	31	26 ch	pekoe	2600	38	bid
23	Do	33	3 do	pek sou	300	28	bid
24	Do	34	9 hf-ch	sou	513	25	
25	Do	36	2 do	dust	150	21	
26	L, in estate mark	37	10 ch	pek sou	900	18	bid
27	Do	39	5 do	sou	400	15	
28	Nahalma	40	17 hf-ch	bro pek	395	50	
29	Do	42	34 ch	pekoe	3400	35	bid
30	Do	44	17 hf-ch	pek sou	935	27	bid
31	Do	46	1 do	dust	75	22	
36			1 do	pekoe	40	72	bid

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, July 10th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 10th July :—

Ex "Titan"—Gonakelle, 1c 104s; 1t 1b 101s; 1b 98s; 1b 108s.

Ex "Hampshire"—Batgodde, 2c 101s; 1c 1b 98s; 1b 95s.

Ex "Titan"—Niabedde, 2c 107s. Gowerakellie, 4c 1b 104s.

Ex "Sobraon"—Alnwick, 2c 1b 103s 6d; 6c 1b 101s 6d; 1c 1t 97s 6d; 1c 114s.

Ex "Orion"—Gonamotava, 2c 107s; 8c 1b 104s 6d; 1c 1b 100s 6d; 1c 125s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 17th, July :—

Ex "Golconda"—Tulloes, 2c 1b 96s.

Ex "Clan Ranald"—Verelapatna, 2t 106s; 2c 1t 103s 6d; 1b 95s; 1b 109s; 1c 90s 6d; 1b 102s; 1b 87s. DC, 1t 106s; 7c 101s 6d; 4c 1t 98s; 1c 1t 97s; 1c 1b 107s 6d.

Ex "Port Victor"—Maha Uva, 2c 101s 6d; 3c 1b 104s 6d; 4c 101s; 1c 97s; 1c 115s.

Ex "Clan Ranald"—Gowerakellie, 2t 106s 6d; 5c 1b 104s; 2c 98s 6d; 1b 106s; 2t 90s 6d.

Ex "Orion"—OKO, 1c 1b 101s 6d; 1c 98s; 1b 104s; 1b 98s.

Ex "Sobraon"—Ouvah, 2c 105s 6d; 5c 102s; 6c 101s 6d; 1b 94 ; 1t 110s, 1b 104s.

Ex "Orion"—RWA, 1b 2c 106s; 6c 1t 101s; 1b 96s; 1b 109s; 1t 90s; 1b 101s. Bogawantalawa. 1t 97s; 1b 109s; 1b 88s; 1b 104s. Wellekelle. 2c 1t 100s; 1b 109s; 1b 88s. Elmshurst, 1b 98s; 2c 1b 95s 6d; 1b 96s; 1b 97s; 1c 96s.

Ex "Capella"—Galella, 3c 1b 99s 6d.

Ex "Sobraon"—Goodwood, 1t 1c 114s; 7c 105s 6d; 1b 104s; 1b 109s; 1t 93s.

Ex "Orpack"—Pittarat Malle, 5c 100s 6d; 1t 108s; 2t 92s; 1b 100s, 1b 97s 6d.

Ex "Arabia"—Pittarat Malle, 1b 103s; 1c 102s; 6c 1b 100s; 1b 1c 97s; 1c 112s; 2t 92s; 3b 99s; 1b 97s 6d.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 21.] COLOMBO, AUGUST 24, 1891. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 5th Aug., the undermentioned lots of Tea (48,388 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs		Description.	Weight. lb.	c.	
1	Dorona-kande	164	3	hf-ch	pek fan	150	26	
2	Do	165	2	do	fans	100	25	
3	Do	166	4	do	unas	200	23	
4	Do	167	1	do	red leaf	50	16	
5	G W	168	5	do	pek sou	220	34	
6	Do	169	1	do	sou	47	33	
7	Dickoya	170	6	ch	pek sou	600	35	
8	Nahakettia	172	17	do	bro pek	1700	}	
9	Do	174	28	do	pekoe	2800	}	withd'n
10	Do	176	22	do	pek sou	2200	}	
11	Do	178	6	do	bro mix	600	34	
12	Do	180	2	do	dust	300	25	
13	Mocha	181	26	hf-ch	bro pek	1430	75	
14	Do	183	37	ch	pekoe	3700	53	
15	Do	185	22	do	pek sou	1980	42	
16	Beaumont	187	12	do	bro pek	1200	49	
17	Do	189	11	do	pekoe	1100	31	bid
18	Great Valley	191	32	do	bro pek	3040	43	bid
19	Do	193	16	do	pekoe	1380	33	bid
20	Do	195	36	do	pek sou	2880	29	
21	Do	197	4	do	congou	320	26	
22	Do	198	7	do	red leaf	550	15	
23	Do	199	1	do				
			6	hf-ch	dust	540	20	
24	B W	200	8	ch	unas	800	23	
25	Denegama	202	1	hf-ch	sou	50	21	
26	Labugama	203	6	do	bro pek	240	44	
27	Do	204	17	do	pekoe	680	30	
28	Do	206	2	do	pek fans	90	25	
29	Do	207	1	do	pek dust	60	24	
30	Do	208	2	do	congou	80	22	
31	Do	209	1	do	red leaf	50	17	
32	Maria	210	17	ch	bro pek	1870	54	
33	Gonakelle Factory	212	11	do	bro pek	1155	47	bid
34	Do	214	12	do	bro pek	1260	33	bid
35	Kataboola	216	4	do	sou	520	22	
36	Do	217	1	do	bro mix	100	14	
37	Do	218	2	do	bro tea	220	14	
38	Do	219	1	do	pek dust	140	25	
39	A T	220	18	hf-ch	bro pek	900	37	bid
40	Do	222	10	do	pekoe	500	34	
41	Do	224	12	do	pek sou	600	28	
42	Vegan	226	7	ch	bro or pek	665	49	
43	Do	228	18	do	bro pek	1890	52	
44	Do	230	35	do	pekoe	2975	40	
45	Cruden	232	14	hf-ch	bro tea	700	22	
46	W G	233	18	do	bro pek	1008	50	bid
47	M K	235	29	ch	bro pek	3190	31	bid
48	G	237	6	do	bro pek	593	40	bid
49	J, in estate mark	239	17	box	pekoe	85	52	
50	C K	240	3	ch	bro pek	300	41	bid
51	E E	241	5	do	dust	600	18	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 5th Aug., the undermentioned lots of Tea (33,216 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.	
1	G L	18	5	ch	congou	400	22	
2	Do	19	3	do	dust	390	22	
3	Do	20	9	do	bro tea	212	22	
4	I P	21	23	do	bro tea	2300	16	bid
5	Diganakelle	22	18	hf-ch	bro pek	900	50	bid
6	Do	23	8	do	pekoe	400	43	
7	Do	24	37	do	pek sou	1850	37	
8	Do	25	3	do	dust	210	26	
9	Do	26	5	do	fans	300	29	
0	Do	27	2	do	bro mix	100	27	
11	Depedene	28	12	do	bro pek	600	49	
12	Do	29	28	do	pekoe	1400	33	bid
13	Do	30	31	do	pek sou	1550	29	bid
14	H D	31	30	hf-ch	bro sou	1500	25	
15	Do	32	16	do	bro mix	800	15	
16	Do	33	3	do	udst	240	22	
17	Hatdowa	34	5	ch	bro pek	500	45	
18	Do	35	6	do	pekoe	600	33	bid
19	Do	36	3	do	pek sou	300	29	bid
20	Do	37	1	do	red leaf	100	15	
21	Do	38	5	do	bro tea	500	25	
22	M L	39	5	hf-ch	bro pek	600	39	
23	Do	40	6	do	pekoe	300	33	
24	Killin	41	11	ch	bro pek	1100	39	bid
25	Do	42	6	do	pekoe	570	30	bid
26	Do	43	3	do	pek sou	270	29	
27	Do	44	8	do	bro tea	800	16	
28	Do	45	2	do	dust	200	25	
29	Marymo nt	46	4	hf-ch	unas	200	23	bid
30	C L	47	7	do	bro pek	490	39	bid
31	B	48	7	ch	bro sou	662	19	bid
32	Allakolla	49	22	hf-ch	bro pek	1430	42	
33	Do	50	20	ch	pekoe	2100	34	bid
34	Do	51	6	do	pek sou	600	28	bid
35	Do	52	1	hf-ch	dust	95	28	
36	W V, in estate mark	53	6	ch	unas	600	31	bid
37	G W A	54	12	hf-ch	dust	960	20	bid
38	Do	55	10	ch				
			1	hf-ch	bro pek sou	747	18	bid
39	W A H	56	2	ch	bro tea	168	14	
42	A R	59	6	do	bro mix	600	20	
43	Do	60	16	hf-ch	dust	1280	28	
44	D	61	6	do	bro pek	420	44	
45	A C	62	2	do	bro pek	112	45	bid
46	M G S	63	21	do	dust	1470	24	
47	Do	64	9	ch	sou	765	16	bid
48	Orion		1	box	golden tips	5	10·00	bid
48	Ingeria	65	4	hf-ch	bro pek	220	41	bid
49	Do	66	8	do	pekoe	400	32	bid
50	Do	67	4	do	pek sou	200	28	bid

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 5th Aug., the undermentioned lots of Tea (81,621 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
2	D C	380	3	do	bro pek	300	36	
3	Do	382	3	do	pekoe	300	30	
4	Do	384	14	hf-ch	pek sou	700	25	bid
5	Navaheena	386	28	do	bro pek	1400	53	
6	Do	388	9	do	pekoe	405	43	
7	Do	390	13	do	pek sou	650	35	
8	Do	392	1	do	dust	85	25	
9	Do	394	1	do	congou	40	25	
10	Caledonia	396	18	ch	bro pek	1800	34	
11	Do	398	20	do	pekoe	1900	28	
12	Do	400	2	hf-ch	bro tea	110	18	
13	E, in estate mark	402	3	do	bro tea	165	18	
14	Do	404	1	do	dust	80	20	
15	Mousa-heria	406	1	do	congou	55	21	
16	L G E	408	7	ch	pekoe No. 1	700	28	
17	D M R, in estate mark	410	6	do	pek sou	600	29	
18	P C H Galle, in estate mark	412	9	hf-ch	congou	414	20	bid
19	Citrus	414	18	do	pekoe	990	35	
20	Do	416	3	do	bro mix	165	27	
21	W H D	418	6	do	pekoe	330	out	
22	Thornfield	420	15	do	bro pek	900	70	
23	Do	422	15	ch	pekoe	1500	47	
24	Do	424	6	do	pek sou	600	36	
25	Do	426	1	do	dust	80	26	
26	G A N	428	14	do	bro pek	1400	36	bid
27	Do	430	31	do	pekoe	2480	36	
28	Do	432	9	do	pek sou	720	27	
29	W H D	434	2	do	pek sou	205	22	
30	Do	436	1	do	bro tea	100	15	
31	Yataderia	438	10	hf-ch	or pek	650	53	
32	Do	440	9	ch	bro pek	990	45	
33	Do	442	27	do	pekoe	2700	35	
34	Do	444	28	do	pek sou	2520	30	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
40	O O	456	4	ch	bro pek	400	46	
41	Do	458	2	do	pek sou	180	30	
42	Theberton	460	22	do	bro pek	2200	34	bid
43	Do	462	17	do	pekoe	1700	28	
44	Do	464	12	do	pek sou	1200	26	
45	Do	466	7	do	pek fans	700	22	
46	Do	468	3	do	pek dust	300	21	
47	Sembawatte	470	50	do	bro pek	3750	34	
48	Do	472	45	hf-ch	pekoe	2700	32	
49	Do	474	28	do	pek sou	1820	27	
50	Wewesse	476	36	do	bro pek	1800	58	
51	Do	478	63	do	pekoe	3150	50	
52	Do	480	44	do	pek sou	2200	40	
53	Do	482	1	do	sou	50	27	
54	Do	484	4	do	dust	320	24	
55	Silver Valley	486	1	do	bro pek	50	54	
56	Do	488	9	do	pekoe	414	34	
57	Do	490	2	do	dust	100	28	
58	Do	492	1	do	red leaf	50	16	
59	Do	494	1	do	congou	50	16	
60	L, in estate mark	496	1	do	pek sou	86	21	
61	L L, in estate mark	498	1	do	pek sou	30	24	
62	Do	500	1	do	dust	48	24	
63	Horagas-kelle	502	6	do	bro pek	360	45	
64	Do	504	6	do	pekoe	306	35	
65	Do	506	10	do	pek sou	560	29	
66	Do	508	1	do	congou	40	17	
67	Do	510	1	do	bro mix	79	17	
72	Katooloya	520	3	ch	sou	285	24	
73	Do	522	4	do	bro tea	380	12	
74	Bismark	524	18	hf-ch	bro pek	1080	52	
75	Do	526	9	do	pekoe	810	40	
76	Do	528	2	hf-ch	pek sou	180	34	
77	C	530	16	do	bro or pek	800	50	bid
78	C	532	13	ch	pekoe	910	39	
79	C	534	13	hf-ch	pek sou	845	26	bid
80	C	536	7	do	sou	455	24	
81	C	538	1	ch	dust	120	23	
82	H S, in estate mark	540	12	do	bro or pek	1020	48	
83	Do	542	18	do	pekoe	1260	33	bid
84	Do	544	19	do	pek sou	1235	32	
85	Do	546	12	hf-ch	sou	780	25	
86	Do	548	1	ch	dust	120	23	
87	St. Helier's	550	14	do	bro or pek	1400	52	
88	Do	552	16	do	pekoe	1440	36	bid
89	Do	554	10	do	pek sou	900	36	
90	Do	556	2	hf-ch	dust	120	25	
91	B	558	41	ch	bro tea	4100	15	bid
92	Lankapura, W	560	12	do	bro pek	1200	53	
93	Do	562	30	do	pekoe	2850	43	
94	Do	564	21	do	pek sou	1890	35	
95	W G	566	2	hf-ch	pek dust	130	25	
96	Do	568	1	do	pek fans	60	25	
97	Kospelana	570	11	do	unas	550	25	
98	C	572	5	ch	pek sou	435	24	
99	C	574	4	do				
			1	hf-ch	dust	620	21	
100	P	576	1	ch				
			1	hf-ch	pekoe	153	25	
101	T, in estate mark	578	2	do	bro pek	106	39	
102	F	580	2	do	bro pek	98	39	
103	Palmer-ston	582	5	do	bro pek	275	65	
104	Do	584	6	ch	pekoe	600	49	
105	Do	586	3	do	pek sou	300	38	
106	B	588	23	do	bro pek	2300	out	

Messrs. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 12th Aug., the undermentioned lots of Tea (491 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	S	39	1	ch				
			1	hf-ch	or pek	150	40	
2	S	41	1	ch				
			1	hf-ch	congou	140	15	bid
3	S	43	1	ch				
			1	hf-ch	fans	111	17	
4	S	45	1	ch	pek dust	90	21	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 12th Aug. the undermentioned lots of Tea (27,213 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.	
1	Eilandhu	68	5	ch	bro pek sou	400	26	
2	Do	69	3	hf-ch	dust	225	22	
3	T, in estate mark	70	4	do	unas	200	23	
4	Do	71	10	do	mix	540	26	
5	Do	72	3	do	dust	222	23	
6	Do	73	1	do	congou	40	20	
7	Ellakande	74	3	do	bro pek	165	54	
8	Do	75	7	do	pekoe	350	35	
9	Do	76	17	do	pek sou	765	30	
10	Do	77	2	do	bro mix	110	28	
11	Do	78	4	do	red leaf	186	17	
12	Do	79	1	do	dust	80	22	
15	Roseneath	82	26	hf-ch	bro pek	1820	42	
16	Do	83	15	ch	pekoe	1650	34	
17	Do	84	14	do	pek sou	1540	28	bid
18	L X	85	10	do	pek sou	987	19	bid
19	Do	86	2	hf-ch	do	100	20	
10	Aadneven	87	10	ch	bro pek	1000	48	bid
22	Do	88	9	do	pekoe	810	34	bid
23	Do	89	3	do	pek sou	270	28	
24	K M O K	90	3	do	bro tea	270	27	
25	Do	91	3	do	dust	240	20	
26	D P E	92	28	hf-ch	pekoe	1400	38	
27	Forest hill	93	13	ch	bro pek	1430	65	
28	Do	94	14	do	pekoe	1400	44	
29	Do	95	5	do	pek sou	500	33	
30	Do	96	1	do	dust	130	24	
31	Killin	97	12	hf-ch	bro pek	600	40	
32	Do	98	16	ch	pekoe	1520	30	bid
33	Do	99	3	do	pek sou	270	29	bid
34	Do	100	8	do	bro tea	800	14	bid
35	Do	1	2	do	dust pek	150	20	
36	G W	2	3	do	bro mix	300	19	
86	Lyndhurst	3	14	do	bro pek	1330	42	
37	Do	4	22	do	pekoe	1768	30	bid
38	Do	5	26	do	pek sou	2061	27	bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 12th Aug., the undermentioned lots of Tea (38,299 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.	
1	Mohedin	1	2	hf-ch	bro pek	110	54	
2	Do	3	5	do	pekoe	220	35	
3	Do	5	8	do	pek sou	338	30	
4	Do	7	2	do	bro pek fans	110	24	
5	Do	8	3	do	red leaf	126	17	
6	Do	9	2	do	congou	82	16	
7	Do	10	1	do	bro pek dust	72	21	
8	P, in estate mark	11	16	do	pek fan	896	23	
9	Do	13	18	do	dust	1350	21	
10	K, in estate mark	15	4	ch	sou	380	18	
11	A R T	16	5	do	pek sou	425	22	
12	Agraoya	18	16	do	bro pek	1600	39	bid
13	Do	20	8	do	pekoe	800	31	bid
14	Do	22	2	do	dust	194	24	
15	Nahalma	23	18	hf-ch	bro pek	990	48	bid
16	Do	25	29	ch	pekoe	2900	36	bid
17	Do	27	5	do	pek sou	500	28	
18	Do	29	1	hf-ch	dust	75	25	
19	Ravenscraig	30	4	ch	sou	365	26	
20	Do	31	1	hf-ch	dust	88	22	
21	A & F L	32	5	do	pek fans	380	22	
22	Do	34	3	do	sou	165	22	
23	K P W	35	20	do	bro pek	1000	43	
24	Do	37	18	do	pekoe	810	35	
25	Do	39	39	do	pek sou	1755	3	
26	Do	41	25	do	sou	1000	26	
27	Do	43	2	do	dust	140	24	
28	G H K, in estate mark, Ceylon	44	15	do	or pek	745	42	
29	Do	46	10	ch	pekoe	900	27	bid
30	Do	48	7	do	pek sou	595	26	
31	K P W	49	1	hf-ch	bro pek	50	38	
32	Do	50	1	do	pek sou	45	28	
33	Do	51	1	do	bro mix	42	24	
34	Do	52	1	do	dust	31	22	
35	V E	53	4	do	bro pek	180	41	
36	Do	54	5	do	pekoe	200	35	
37	Do	55	5	do	bro sou	200	30	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
38	Torrington	56	23	ch	bro pek	2530	51	
39	Do	58	15	do	pekoe	1500	38	bid
40	Do	60	14	do	pek sou	1400	29	
41	Do	62	4	hf-ch	dust	320	25	
42	Harrow	63	6	hf-ch	bro pek	360	49	bid
43	Do	65	10	do	pekoe	550	42	
44	Do	67	15	ch	pek sou	1500	32	
45	Do	69	1	hf-ch	bro mix	70	24	
46	B B	70	1	do	bro pek	48	26	
47	Do	71	2	do	pek fans	285	23	
48	Willesdon	72	40	do	bro pek	2200	30	
49	Do	74	11	ch				
			1	hf-ch	pekoe	1085	26	
50	Do	76	17	ch				
			1	hf-ch	pek sou	1658	25	
57	K S M, in estate mark	85	10	ch	bro pek	900	41	bid
58	Do	87	19	do	pekoe	1710	34	bid
59	Do	89	3	do	pek sou	270	27	bid
60	B O	90	2	hf-ch	red leaf	110	12	
61	A	91	2	do	dust	300	18	

Mr. E. JOHN put up for sale at the Chamof Commerce Sale-room on the 12th Aug., the undermentioned lots of Tea (70,488 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	A	242	1	ch	pek sou	85	24	
2	A	243	1	do	mixdd	85	18	
3	A	244	1	do	bro tea	95	18	
4	A	245	1	hf-ch	dust	68	25	
5	D F, in estate mark	246	12	ch	bro pek	1260	40	bid
6	Do	248	12	do	pekoe	1140	36	
7	Do	250	28	do	do No. 2	2660	30	bid
8	Do	252	21	do	pek sou	1995	29	
9	Do	254	8	do	fans	840	17	
10	Do	256	1	do	dust	150	20	
11	D F, in estate mark	257	11	do	bro pek	1155	35	
12	Do	259	7	do	pekoe	665	33	
13	Do	261	19	do	do	1805	29	
14	Do	263	8	do	pek sou	720	23	bid
15	Do	265	13	do	fans	1300	16	
16	Kandaneewera	267	23	do	bro pek	2070	62	
17	Do	269	42	do	pekoe	4620	42	bid
18	Do	271	29	do	pek sou	3190	32	bid
19	N	273	3	do	bro mix	360	25	
20	Blackburn	274	12	do	pekoe	1320	34	bid
21	Do	276	20	hf-ch	do	1200	34	bid
22	Do	278	7	ch	pek sou	690	26	
23	Do	280	1	do	dust	150	23	
24	Nahakettia	281	8	do	bro pek	800	42	
25	Do	283	25	do	pekoe	2500	35	bid
26	Do	285	1	do	bra tea	80	14	
27	Do	286	2	do	bro mix	200	22	bid
28	Do	287	7	do	sou	660	21	bid
34	Brownlow	16	14	do	bro pek	1540	66	
35	Do	18	16	do	pekoe	1760	49	
36	Do	20	9	do	pek sou	900	35	bid
37	Do	22	1	do	dust	80	27	
38	B T	23	27	do	bro mix	2430	15	bid
39	Logan	25	35	hf-ch	pekoe	1575	37	
40	Do	27	76	do	pek sou	3420	33	
41	Do	29	9	do	sou	450	27	
42	Do	31	8	do	unas	400	26	
43	Do	32	12	do	dust	720	25	
44	Troup	33	32	do	bro pek	1600	73	
45	Do	35	24	ch	pekoe	2400	48	
46	Dickapittiya	37	47	do				
			1	hf-ch	bro pek	4765	42	
47	Do	39	26	ch	pekoe	2600	34	bid
48	Do	41	24	do	pek sou	2180	30	
49	Do	43	3	do				
			1	hf-ch	sou	320	26	
51	Gonavy	45	46	do	bro pek	4600	50	bid
52	Do	47	8	do	pekoe	720	48	
53	Do	49	14	do	pek sou	1260	42	
54	Do	51	2	do	dust	225	26	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 12th Aug., the under mentioned lots of Tea (134,072 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
1	Tellisagalla	590	1	hf-ch	bro mix	45	19
2	Do	592	1	do	red leaf	80	14
3	Sapu	594	5	ch	red leaf	425	17
4	R	596	2	do	dust	280	21
5	R	598	10	do	bro tea	800	14
6	S	600	10	hf-ch	dust	650	21
7	Hulluganga	602	2	do	pekoe	88	28
8	A Z H	604	1	ch	bro pek	100	41
9	Do	606	1	do	pek sou	78	26
10	Clyde	608	11	do	pek sou	1045	27
11	T	610	12	hf-ch	dust	780	20
12	Kattiagalla	612	4	ch	bro pek	400	40
13	Do	614	7	do	pekoe	700	29
14	Do	616	2	do	pek sou	200	27
15	Do	618	1	do			
			1	hf-ch	red leaf	150	14
16	Do	620	1	ch	dust	112	21
17	S T	622	12	hf-ch	dust	780	20
18	Galkadua	624	10	ch	bro pek	1000	out
19	Do	626	15	do	pekoe	1500	38
20	Do	628	20	do	pek sou	2000	27	bid
21	Do	630	1	do			
			1	hf-ch	bro mix	150	12
22	Harangalla	632	17	do	bro pek	1190	43
23	Do	634	14	do	pekoe	840	34
24	Do	636	20	do	pek sou	1200	28	bid
25	W F G, in estate mark	638	20	ch	pek sou	2000	25	
26	W F, in estate mark	640	32	do	fans	2880	out	
27	K S P C	642	9	do	bro pek	900	46	
28	Do	644	9	do	pekoe	810	34	
29	Do	646	3	do	bro tea	360	18	
30	Do	648	1	do	congou	60	15	
31	Calefornia	650	1	hf-ch	pekoe	50	30	
32	Do	652	3	do	pek sou	150	28	
33	Do	654	2	do	sou	118	26	
34	Do	656	1	do	dust	64	21	
35	Do	658	1	box	bro tea	12	29	
36	A T W	660	1	hf-ch	bro pek	34	40	
37	Do	662	1	do	pekoe	48	25	
38	Do	664	2	do	sou	101	25	
39	Do	666	1	do	dust	70	15	
40	G T W	668	13	do	congou	650	25	
41	Do	670	5	do	bro mix	250	14	
42	Do	672	10	do	bro fans	711	25	
43	Do	674	5	do	dust	434	21	
44	B & D	676	4	ch	red leaf	431	14	
45	Do	678	1	do	dust	123	22	
46	D A	680	4	hf-ch	pek fans	200	24	
47	Theberton	682	6	ch	bro pek	600	33	
49	Pansalatenne	686	8	do	congou	800	26	
50	Do	688	4	hf-ch	dust	300	22	
51	Macaldeniya	690	3	ch	pekoe	315	29	bid
52	Polatagama	692	36	hf-ch	bro pek	2160	45	bid
53	H	694	10	do	pek sou	560	27	bid
54	P G A	696	70	hf-ch	bro pek	4200	44	bid
55	P	698	29	do	pek sou	1340	33	
56	P A	700	16	do	pek fans	1036	25	bid
57	Polatagama	702	70	do	bro pek	3500	46	
58	Do	704	112	do	pekoe	4480	40	
59	Do	706	70	do	pek sou	3400	34	
60	St. Catherine	708	8	ch	bro pek	720	43	
61	Do	710	5	do	pekoe	425	33	
62	Do	712	6	do	pek sou	480	29	
63	Do	714	2	do	pek fans	150	24	
68	B E R	724	5	door	k	450	39	
			4	do		320	out	
69	Do	726	22	do	pek sou	1980	out	
70	Do	728	2	do	dust	280	22	
71	Radella	730	22	do	bro pek	2200	44	
72	Do	732	26	do	pekoe	2080	36	
73	Do	734	26	do	pek sou	2080	30	
74	Do	736	3	do	red leaf	240	14	
75	Portmore	738	12	do	bro pek	1260	65	
76	Do	740	8	do	pekoe	720	52	
77	Do	742	1	hf-ch	pek sou	24	34	
78	Do	744	1	do	fans	46	23	
79	Sbrubs Hill	746	114	do	bro pek	5700	50	
80	Do	748	53	ch	pekoe	5300	36	
81	Do	750	22	do	pek sou	2200	32	
82	Do	752	10	do	bro tea	1000	22	
83	Do	754	4	do	dust	580	25	
84	Langdale	756	19	do	bro pek	1995	43	
85	Do	758	16	do	pekoe	1520	33	
86	Do	760	19	do	pek sou	1710	28	
87	Avoca	762	10	do	bro pek	1050	56	
88	Do	764	10	do	pekoe	950	39	
89	Do	766	9	do	pek sou	855	30	
91	Ouvakellie	770	16	do	bro pek	1760	72	
92	Do	772	17	do	pekoe	1700	55	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
93	Theydon Bois	774	11 do	bro or pek	935	50
94	Do	776	10 hf-ch	sou	650	26
95	Do	778	1 ch	dust	120	19
96	Palmerston	780	5 hf-ch	bro pek	275	65
97	Do	782	7 ch	pekoe	700	56
98	Do	784	3 do	pek sou	300	40
99	Avisawella	786	7 do	unas	700	26
100	Do	788	3 do	dust	450	23
101	Mukeloya	790	29 hf-ch	bro pek	1740	58
102	Do	792	25 do	pekoe	1500	40
103	Do	794	18 do	pek sou	1080	32
104	Y R	796	26 ch			
			1 hf-ch	pekoe	2562	29
105	Do	798	17 do	fans	980	18
106	Bandarapolla	800	41 do	bro pek	2050	47 bid
107	Do	2	30 do	pekoe	1500	38 bid
108	Do	4	50 do	pek sou	2250	32
112	Thornfield	12	16 do	bro pek	960	64 bid
113	Do	14	14 ch	pekoe	1400	41 bid
114	Do	16	5 do	pek sou	500	33 bid
115	Do	18	1 do	dust	80	25
116	Amblakande	20	10 do	bro or pek	1000	48 bid
117	Do	22	18 do	pekoe	1620	35 bid
118	Do	24	4 do	pek sou	360	29
119	P, in estate mark	26	5 hf-ch	bro pek	271	33
120	Do	28	1 do	pekoe	66	28
121	W, in estate mark	30	1 do	bro pek	65	33
122	Do	32	2 do	pekoe	80	28
123	Do	34	1 do	pek son	51	21
124	Do	36	1 do	dust	53	22
125	Pooprassie	38	4 ch	bro mix	360	out
131	Farm	50	12 do	bro pek	1200	57
132	Do	52	19 do	pekoe	1425	39
133	Do	54	18 do	pek sou	1620	37
134	Do	56	2 do	sou	170	28
135	Do	58	1 do	dust	91	23
136	D C S	60	3 do	pekoe	277	out
137	Do	62	5 do	unas	410	16
138	Do	64	1 do	bro mix	92	19
139	Mabatenne	66	5 do	sou	25	16

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 19th Aug., the undermentioned lots of Tea (38,325 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
1	Castle	6	2 hf-ch	bro pek	108	49
2	Do	7	6 do	pekoe	330	37
3	Do	8	3 do	pek sou	150	28
4	Edengrove	9	1 do	or pek	30	48
5	Do	10	1 do	bro pek	52	34
6	Do	11	1 do	pek sou	28	28
7	Kuruvitty	12	33 do	unas	1716	31
8	Do	13	1 ch	dust	82	22
9	L	14	11 do	pek sou	1087	20
10	L A T S, in estate mark	15	3 do	bro pek	300	62
11	Do	16	2 do	pekoe	190	42
12	Do	17	2 do	pek sou	190	35
13	H J S	18	6 hf-ch	bro pek	300	42 bid
14	Do	19	1 box Containing 24 ½ lb. Packets.	bro pek	12	withd'n
15	Do	20	3 ch	pekoe	300	33 bid
16	Do	21	9 do	pek sou	900	30
17	St. Andrew's	22	17 hf-ch	or pek	1105	71
18	Do	23	24 do	bro pek	1440	50
19	Do	24	50 do	pekoe	3200	44 bid
20	Do	25	3 ch	pek sou	270	34
21	N B	26	14 do	unas	1400	33
22	O	27	24 do	bro mix	2400	15 bid
23	N B	28	20 do	bro mix	2000	20
24	Do	29	2 do	green tea	300	out
25	Do	30	1 hf-ch	do	60	out
26	Yahalatenne	31	7 do	bro pek	420	45 bid
27	Do	32	8 ch	pekoe	680	36
28	Do	33	7 do	pek sou	630	30
29	Do	34	2 do	bro mix	88	16
30	Do	35	1 do	dust	112	21
31	C T M	36	4 do	bro mix	360	18
32	Do	37	2 hf-ch	dust	140	22
33	Malgolla	38	3 do	No. 1 or pek	135	60
34	Do	39	18 do	,, 2 do	810	50
35	Do	40	4 do	,, 1 bro pek	220	57
36	Do	41	23 do	,, 2 do	1265	44
37	Do	42	57 do	pekoe	2565	40
38	Do	43	87 do	pek sou	3915	33 bid
39	Do	44	9 do	bro tea	540	30
40	Do	45	3 do	dust	210	22
46	Vincit	51	1 hf-ch	dust	60	19
47	Do	52	2 ch	fans	120	17
48	H G A	53	7 do	bro or pek	665	46
49	Do	54	7 do	pekoe	665	35
50	Do	55	8 do			
			1 hf-ch	pek sou	816	31
51	Do	56	8 ch			
			1 hf-ch	congou	800	21
52	Do	57	6 ch			
			1 hf-ch	bro tea	600	21
53	Do	58	3 do	dust	215	21
54	G A A	59	1 ch	pekoe	105	29
55	Do	60	1 do	pek sou	104	27
56	Do	61	1 do	bro mix	80	24
57	T B	62	6 do	bro pek	600	32 bid
58	K G	63	3 do	bro pek	300	45 bid

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

Mincing Lane, July 31st, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 31st July :—

Ex "Orotava"—Gampaha, 3c 1b 103s 6d; 4c 1b 99s; 1c 1t 98s; 1c 111s; 2c 1t 90s.

Ex "Oruba"—Killarney, 1t 93s 6d; 1b 97s; 1b 75s; 1b 103s 6d; 3c 1t 104s 6d; 2c 1b 100s; 1c 97s 6d; 1c 109 6d; 2t 86s 6d.

Ex "Pallas"—Sarnia, 1c 99s; 4c 2t 97s; 1t 106s.

Ex "Goorkha"—Udahena, 1c 102s; 3c 1b 100s; 1t 83s; 1b 84s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

Mincing Lane, July 10th, 1891.

Ex "Carlton"—Crystal Hill, 1 bag 71s.

Mincing Lane, July 17th, 1891.

Ex "Clan Ranald"—Warriapolla, 23 bags 120s; 2 93s; 1 82s; 52 125s 6d; 6 97s; 1 82s; 9 81s. Kepitigalla, 11 bags 123s; 1 68s; 1 70s.

Ex "Arabia"—Dynevor, 13 bags 122s; 8 68s.

Mincing Lane, July 24th, 1891.

Ex "Myrmidon"—Gonambil, 2c 58s.

Ex "Canton"—GM(C), 1b 61s.

Mincing Lane, July 31st, 1891.

Ex "Goorkha"—Cocoawatta, 24 bags 119s 6d, 12 74s 2 49s.

Ex 'Kaisow"—Yattawatte, 60 bags 123s 6d; 27 78s; 1 65s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

Mincing Lane, July 10th, 1891.

Ex "Traveller"—Vicarton, 4 cases 2s 10d; 2c 1s 8d.

Ex "Port Victor"—Elfindale, 3 cases 1s 10d; 4c 1s 9d; 3c 1s 2d.

Mincing Lane, July 24th, 1891.

Ex "Traveller"—Dryburg, 2 cases 1s 10d; 1 2s; 2 1s 9d; 2 1s 4d; 1 1s 5d.

"CEYLON OBSERVER" PRESS, COLOMBO.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 22.] COLOMBO, SEPTEMBER 8, 1891. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 19th Aug., the undermentioned lots of Tea (25,580 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	G K W	52	2	ch	bro tea	180	25	
2	Do	53	1	hf-ch	dust	80	20	
3	Dunbar	54	19	ch	bro pek	1995	57	
4	Do	56	12	do	pekoe	1140	45	
5	Do	58	5	do	sou	475	30	
6	Do	60	1	do	dust	150	19	
7	Do	61	1	do	bro tea	120	10	
8	Galkande-watte	62	24	do	bro pek	2400	48	bid
9	Do	64	23	do	pekoe	2070	34	
10	Do	66	7	do	pek sou	630	27	
11	Bittacy	68	25	hf-ch	bro pek	1375	50	
12	Do	70	31	do	pekoe	1705	42	
13	Blackburn	72	21	ch	pekoe	2085	34	bid
14	Kande-newera	74	42	do	pekoe	4620	42	
15	B, in estate mark	76	1	hf-ch	congou	55	26	
16	Do	77	2	ch	dust	160	23	
17	Do	78	1	hf-ch	red leaf	55	16	
18	Dickapitti-ya	79	6	ch	pek sou	540	30	
19	Do	81	2	do	red leaf	180	13	
20	P G K	82	14	do	sou	980	29	
21	Do	84	4	do	dust	560	21	
22	Bollagalla	85	8	hf-ch	bro pek	480	43	
23	Do	87	11	ch	pekoe	935	37	
24	Do	89	9	do	pek sou	810	30	
25	Lawrence	102	40	hf-ch	sou	1800	19	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room, on the 19th Aug., the undermentioned lots of Tea (33,223 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	Bogahagoda-watte	1	3	hf-ch	bro pek	195	36	
2	Do	2	2	do	pekoe	116	30	
3	Do	3	5	do	pek sou	350	29	
4	Do	4	12	do	bro mix	780	21	
5	Do	6	2	do	fans	150	21	
6	Do	7	1	do	dust	59	22	
7	Dehiowita	8	15	ch	bro pek	1575	46	
8	Do	10	36	do	pekoe	3600	38	
9	Do	12	13	do	pek sou	1235	30	
10	Do	14	1	do	bro tea	120	21	
11	Penrhos	15	16	hf-ch	bro pek	960	61	bid
12	Do	17	22	do	pekoe	1210	46	bid
13	Do	19	42	do	pek sou	2100	42	
14	Do	21	4	do	fans	240	30	
15	M N	22	8	ch	bro pek	673	40	
16	A, in estate mark	24	10	do	bro pek	900	45	
17	Do	26	10	do	pekoe	900	35	
18	Do	28	12	do	pek sou	1080	29	
19	P, in estate mark	30	5	do	pek sou	425	23	
20	Do	32	16	hf-ch	pek fans	896	25	
21	Do	34	18	do	dust	1350	19	
22	Comillah	36	8	do	bro pek	440	33	bid
23	Do	38	10	do	pekoe	500	32	
24	Do	40	8	do	pek sou	400	28	bid
25	Ossington	42	32	do	bro pek	1760	39	
26	Do	44	24	do	pekoe	1200	33	
27	Do	46	12	do	pek sou	600	30	
28	Do	48	2	do	dust	150	21	
29	Do	49	2	do	red leaf	90	15	
30	Nahalma	50	19	hf-ch	bro pek	1045	55	
31	Do	52	34	ch	pekoe	3400	36	
32	Do	54	3	do	congou	300	25	
34	Knutsford	56	3	do	bro or pek	172	76	
35	Do	57	4	do	bro pek	188	45	
36	Do	58	14	do	pekoe	778	37	
37	Do	60	2	do	pek sou	90	22	
38	Do	61	1	do	fans	71	21	
39	B	62	1	ch				
			1	hf-ch	or pek	150	35	bid
40	B	63	1	ch				
			1	hf-ch	congou	140	18	
41	A O	64	16	ch	bro pek	1600	31	bid
42	Do	66	8	do	pekoe	800	26	bid
43	H	67	6	hf-ch	bro pek	360	withd'n	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 19th Aug. the undermentioned lots of Tea (104,730 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Walahan-duwa	68	16	hf-ch	bro pek	960	53	
2	Do	70	14	do	pekoe	770	36	
3	Do	72	20	do	pek sou	1100	32	
4	S P A	74	5	do	sou	275	26	
5	Do	76	24	do	unas	1320	29	
6	Do	78	4	do	fans	220	30	
7	Do	80	12	do	red leaf	600	17	
8	S P V	82	7	do	unas	385	18	
9	Columbia	84	3	do	pek sou	180	37	
10	Do	86	2	do	dust	160	28	
11	N, in estate mark	88	3	do	dust	225	25	
12	Kirrimettia, L M	90	23	do	bro pek	1150	50	
13	Do	92	16	ch	pekoe	1584	35	
14	Do	94	1	do	pek sou	90	25	
15	Do	96	1	do	pek fans	140	20	
16	Midlans	98	5	hf-ch	sou	250	25	
17	Do	100	3	ch	bro mix	300	22	
18	Do	102	3	do	red leaf	300	15	
19	Atherfield	104	14	hf-ch	sou	700	28	
20	Do	106	3	do	bro mix	150	18	
21	Do	108	6	do	dust	480	23	
22	Ancoombra	110	1	ch	red leaf	90	15	
23	Middleton	112	33	hf-ch	bro pek	1980	67	
24	Do	114	12	ch	pekoe	1200	47	
25	Rambodde	116	10	do	bro pek	1110	62	
26	Do	118	8	do	pekoe	800	44	
27	Do	120	10	do	pek sou	1000	35	
28	Do	122	1	do	congou	100	25	
29	Do	124	2	hf-ch	dust	150	26	
30	Queensland	126	9	ch	flowery pek	900	65	
31	Do	128	8	do	pekoe	760	43	
32	Do	130	3	do	pek fan	390	33	
33	Bismark	132	11	hf-ch	bro pek	660	60	
34	Do	134	6	ch	pekoe	540	43	
35	Do	136	3	do	pek sou	270	34	
36	H S, in estate mark	138	10	do	bro or pek	850	50	
37	Do	140	17	do	pekoe	1190	37	
38	Do	142	18	do	pek sou	1170	30	
39	Do	144	4	do	sou	260	26	
40	Do	146	1	do	dust	120	24	
44	D A	154	4	do	sou	220	26	
45	Do	156	4	do	dust	280	20	
46	Caslereagh	158	24	do	bro or pek	1200	81	
47	Do	160	43	do	pekoe	1720	50	
48	K C	162	9	do	bro pek sou	450	29	
49	Do	164	6	do	bro pek fans	300	29	
50	Do	166	3	do	dust	210	25	
51	Court Lodge	168	42	hf-ch	bro pek	2352	93	
52	Do	170	19	do	pekoe	912	78	
53	Do	172	30	do	pek sou	1410	57	
54	Do	174	2	ch	sou	152	41	
55	Do	176	1	do	dust	158	25	
56	Talgaswela	178	36	do	bro pek	3600	46	
57	Do	180	9	do	pek sou	765	36	
58	Do	182	3	do	sou	255	27	
59	Do	184	2	do	dust	280	23	
61	Bandara-polla	188	18	hf-ch	bro pek	900	47	bid
62	Do	190	30	do	pekoe	1500	38	
63	Do	192	44	do	pek sou	1980	33	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
64	Langdale, R	194	10	ch	bropek	1000	50 bid
65	Do	196	14	do	pekoe	1120	39
66	Do	198	10	do	pek sou	800	31
67	D	200	9	hf-ch	fans	540	18
68	Callander	202	14	do	bro pek	728	51
69	Do	204	8	do	pekoe	416	44
70	Do	206	4	do	pek sou	200	32
71	Do	208	1	do	dust	60	26
72	P	210	8	do	fans	440	16
73	T E	212	16	do	bro pek	960	out
74	Do	214	6	do	sou	300	19 bid
75	Do	216	4	do	sou	480	out
76	Langdale	218	2	do	pek sou	172	23
77	Freds Ruhe	220	11	do	bro pek	550	54
78	Do	222	9	ch	pekoe	900	26
79	Do	224	8	do	pek sou	800	30
80	W A	226	1	do	bro pek	88	40
81	Do	228	1	do			
			1	hf-ch	pekoe	150	31
82	Do	230	1	ch	pek sou	100	28
83	Do	232	3	do	bro tea	330	34
84	Do	234	1	hf-ch	congou	50	24
85	Do	236	1	do	dust	72	22
86	Ouvah Kellie, V	238	6	ch	bro pek	600	70
87	Do	240	5	do	pekoe	475	50
88	K G	242	9	do	bro pek	900	49
89	Do	244	3	do	pekoe	270	34
90	Do	246	2	do	pek sou	180	29
91	Debatgama	248	1	do	congou	90	20
92	Do	250	2	do	fans	220	22
93	Do	252	2	do	red leaf	190	16
94	Do	254	1	do	dust	120	20
95	Doonevale	256	22	do	bro pek	2200	43
96	Do	258	38	do	pekoe	3420	30
97	Alnoor	260	20	hf-ch	bro pek	1000	44
98	Do	262	17	do	pekoe	850	35
99	Do	264	9	do	pek sou	450	32
100	Do	266	1	do	dust	80	22
101	Yataderia	268	11	ch	bro pek	1210	49
102	Do	270	10	do	or pek	650	45
103	Do	272	31	do	pekoe	3100	36
104	Do	274	22	do	pek sou	1980	30
105	Do	276	3	do	bro tea	270	19
107	H	280	4	ch	bro pek	400	out
108	H	282	5	do	pekoe	500	26 bid
109	H	284	9	do	pek sou	900	23 bid
110	H	286	1	do	red leaf	72	13 bid
111	Esperanza	288	11	hf-ch	or pek	550	44 bid
112	Do	290	42	do	pekoe	1932	37
113	Do	292	1	do	congou	44	23
114	Do	294	1	do	dust	56	21
115	Claremont	296	37	do	bro pek	1845	44
116	Do	298	22	do	pekoe	1090	32
117	Do	300	1	do	bro tea	45	16
118	Weweese	302	17	do	bro pek	850	66
119	Do	304	17	do	pekoe	850	50
120	Do	306	16	do	pek sou	800	40
121	Do	308	1	do	dust	80	23
122	Monrovia	310	23	do	bro pek	1150	47
123	Do	312	19	ch			
			6	hf-ch	pekoe	2195	34
124	Do	314	14	ch	pek sou	1400	30
125	Do	316	3	do	bro mix	300	22
126	Do	318	2	do	dust	260	21
127	E K	320	4	hf-ch	bro p k	205	55
128	Do	322	1	ch			
			1	hf-ch	pekoe	150	33
129	Do	324	2	ch			
			1	hf-ch	pek sou	258	28
130	Do	326	1	do	dust	73	20
131	West Haputale	328	4	do	bro mix	208	14
132	F F	330	2	ch	bro mix	218	17
133	Deaculla	332	38	hf-ch	or pek	2280	52
134	Do	334	39	ch	pekoe	3900	38
135	Do	336	2	do	congou	200	23
136	Do	338	3	hf-ch	dust	210	21
137	Deaculla	340	16	do	or pek	960	52
138	Do	342	16	ch	pekoe	1600	41
139	Do	344	2	hf-ch	dust	140	21
140	Ouvah Kellie	346	9	ch	bro pek	900	72
141	Do	348	9	do	pekoe	855	53
142	Ederapolla	350	11	do	sou	990	26
143	Do	352	2	do	bro tea	180	24
144	Oolanakande	354	1	hf-ch	red leaf	50	17
145	D	356	2	box	sou	10	16
146	C H	358	8	ch	red leaf	720	17
147	Do	360	9	hf-ch	dust	720	21

Mr. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 26th Aug., the undermentioned lots of Tea (721 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	B	46	8	ch	pekoe No. 1	721	34 bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 26th Aug., the undermentioned lots of Tea (24,230 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
1	C, in estate mark	1	8	ch	bro pek	800	40
2	Do	3	10	do	pekoe	900	34 bid
3	Do	5	19	do	pek sou	1710	27
4	Do	7	8	do	bro mix	800	18
5	Yarrow	9	19	hf-ch	bro pek	1216	54 bid
6	Do	11	34	do	pekoe	2040	41 bid
7	Do	13	12	do	pek sou	672	34
8	Y	15	14	do	pekoe	700	27 bid
9	L	17	24	ch			
			1	hf-ch	red leaf	1909	15
10	D V	19	27	do	fans	1685	16 bid
12	Nahalma	22	22	hf-ch	bro pek	1210	56
13	Do	24	30	ch	pekoe	3000	43
14	Do	26	4	do	congou	400	29
15	Do	27	1	hf-ch	dust	75	21
16	Hakrugalla	28	17	ch	bro pek	1700	45
17	Do	30	9	do	pek sou	810	30
18	Do	32	12	do	bro tea	1080	23
19	Do	34	2	do	congou	180	17
20	Do	35	2	do	dust	300	22
21	A G C	36	5	hf-ch	pek dust	350	23
22	Comillah	37	8	do	bro pek	440	39
23	Do	39	8	do	pek sou	400	29
24	K, in estate mark	41	7	ch	pekoe	630	31
25	Do	43	4	do	unas	200	25 bid
26	G H K, in estate mark Ceylon	44	7	do	sou	630	22
27	Do	46	3	do	red leaf	213	12 bid
28	Do	47	1	hf-ch	pek dust	50	22

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 26th Aug., the under mentioned lots of Tea (44,365 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Dorona-kande	104	2	hf-ch	congon	100	24
2	Do	105	4	do	pek fans	200	30
3	Do	106	2	do	fans	100	26
4	Do	107	3	do	dust	210	23
5	D F, in estate mark	108	14	ch	bro pek	1470	45
6	Do	110	11	do	pekoe	1045	37
7	Do	112	22	do	do No. 2	2090	33
8	Do	114	12	do	pek sou	1140	31
9	Do	116	11	do	fans	1155	26
10	Do	118	1	do	dust	150	23
11	Tamarvelly	119	45	hf-ch	bro pek	2250	31 bid
12	Do	121	55	do	pekoe	2750	29 bid
13	Do	123	29	do	pek sou	1450	28
14	Do	125	6	do	congou No. 2	300	15
15	Do	126	9	do	dust	625	18
16	Madooltenne	127	12	ch	bro pek	1320	50
17	Do	129	15	do	pekoe	1500	36
18	Do	131	12	do	pek sou	1300	34
19	Eila	133	22	ch	bro pek	2200	45
20	Do	135	28	ch	pekoe	2240	34
21	Do	137	20	do	pek sou	1600	30
22	Do	139	1	do	pek dust	150	22
23	Do	140	2	do	unas	200	31
24	Templestowe	141	66	hf-ch	or pek	3432	54
25	Do	143	31	ch	pekoe	2480	40
26	Do	145	35	do	pek sou	3150	34
27	Do	147	16	hf-ch	bor mix	768	27
28	Do	149	8	do	dust	560	25

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
29	D E	150	8	ch	fans	656	38	
30	P G K	151	5	do	dust	625	26	
31	Do	152	6	do	bro mix	540	31	
32	Agra Ouvah	153	21	hf-ch	bro pek	945	72	
33	Do	155	20	do	pekoe	900	55	
34	Do	157	18	do	pek sou	810	45	
35	A O	159	14	do	pek sou	630	35	
36	Old Madegama, Ceylon	161	2	do	sou	106	30	
37	Do	162	4	do	dust	340	25	
38	Do	168	1	do	dust	65		
39	Do	164	1	do	bro mix	74	29	
43	N W	169	6	do	dust	840	out	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the, 26th Aug., the undermentioned lots of Tea (31,478 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Hiralouvah	64	20	ch	bro pek	2160	56	
2	Do	65	19	do	pekoe	1900	42	
3	Do	66	1	do		220	36	
			2	hf-ch	fans			
4	Do	67	2	ch	bro mix	209	23	
5	Do	68	1	do	red leaf	104	19	
6	Do	69	1	hf-ch	unas	49	33	
7	Do	70	5	do	dust	356	26	
8	M A H	71	3	ch	red leaf	300	17	
9	Do	72	5	do	congou	450	26	
10	Mousagalla	73	5	hf-ch	sou	250	28	
11	Do	74	1	do	red leaf	50	12	
12	Do	75	2	do	dust	120	24	
13	Naseby	76	14	do	bro pek	700	68	
14	Do	77	14	do	pekoe	770	49	
15	Do	78	1	do	bro tea	78	22	
16	Depedene	79	8	do	bro pek	400	53	
17	Do	80	22	do	pekoe	1100	42	
18	Do	81	28	do	pek sou	1400	34	
19	H D	82	47	do	bro sou	2350	27	bid
20	Do	83	13	do	bro mix	650	18	
21	Do	84	2	do	dust	160	24	
22	Stockholm	85	10	do	pek sou	400	41	
23	P	86	1	ch	pek dust	150	22	
24	D H	87	10	hf-ch	dust	800	25	
25	G L	88	4	ch	congou	320	23	
26	Stockholm	89	33	hf-ch	or pek	1650	73	
27	Do	90	25	ch	pek sou	2250	45	
28	Do	91	2	do	fans	280	24	
29	N	92	6	do	dust	450	26	
30	S A	93	4	do	dust	600	25	
31	M	94	14	do	bro pek	700	30	bid
32	M	95	5	hf-ch	pekoe	225	30	
33	M	96	17	do	pek sou	680	out	
36	N B	99	3	do	green tea	300	08	
37	Do	100	1	hf-ch	do	60	13	
38	South Wana-Rajah	1	27	ch	bro pek	2700	62	bid
39	Do	2	46	do	pekoe	2800	42	bid
40	A G M	3	12	do	bro pek	1260	38	bid
41	H J S	4	6	hf-ch	bro pek	300	47	
42	Do	5	3	ch	pekoe	300	31	bid
43	K P	6	1	hf-ch	pek sou	45	12	bid
44	Do	7	1	do	bro mix	42	out	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 26th Aug., the undermentioned lots of Tea (115,648 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
6	H E P, in estate mark	372	36	do	bro pek	2100	64
7	Do	374	62	do	pekoe	3720	46
8	Do	376	38	do	pek sou	2280	34
9	Dunkeld	378	19	ch	bro pek	2185	66
10	Do	380	30	hf-ch	or pek	1650	60
11	Do	382	20	ch	pekoe	1600	45
12	Ragalla	384	53	do	bro pek	5830	68
13	Do	386	47	do	pekoe	4230	51
14	L G E	388	3	hf-ch	dust	255	22
15	Sembawatte	390	17	ch	pek fans	1615	19
16	Kirimettia, L M	392	12	hf-ch	bro pek	600	54
17	Do	394	10	ch			
			3	hf-ch	pekoe	1130	38
18	Do	396	3	do	pek sou	160	30
19	Do	398	2	do	red leaf	104	18
20	Do	400	2	do	pek fans	155	27

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
21	Rex	402	5	ch	bro mix	475	16	
22	F F	404	1	box	bro pek	13	81	
23	Do	406	2	ch	bro pek dust	288	32	
24	Do	408	2	do	dust	282	26	
25	H S	410	9	do	bro pek	765	50	
26	Do	412	14	do	pekoe	980	37	
27	Do	414	28	hf-ch	pek sou	1170	32	
28	Do	416	5	do	sou	325	26	
29	Do	418	1	ch	dust	120	23	
35	Ambla-kande	430	4	do	bro or pek	440	54	
36	Do	432	11	do	pekoe	990	42	
37	Do	434	2	do	sou	180	33	
38	St. Hellier's	436	11	do	bro or pek	1100	59	
39	Do	438	15	do	pekoe	1350	45	
40	Do	440	10	do	pek sou	900	34	
41	Do	442	3	do	bro tea	300	26	
42	Farnham	444	35	hf-ch	bro or pek	1575	65	
43	Do	446	52	do	pekoe	2340	55	
44	Do	448	30	do	pek sou	1350	38	
45	Do	450	4	do	fans	240	33	
46	Do	452	3	do	unas	135	36	
47	Do	454	1	do	dust	65	25	
48	Palamcotta	456	2	hf-ch	dust	170	25	
49	Angr o-wella	458	1	do	dust	80	27	
50	Ancoombra	460	2	do	red leaf	166	26	
			2	do	do	186	20	
52	Mousakande	464	14	do	bro pek	1540	70	
53	Do	466	16	do	pekoe	1600	51	
54	Do	468	7	do	pek sou	700	39	
55	Do	470	1	do	dust	130	26	
56	C R D	472	8	hf-ch	red leaf	440	15	
57	Do	474	5	do	dust	300	26	
58	Cataratenne	476	14	ch	congou	1220	10	
59	Marguerita	478	23	hf-ch	bro pek	1380	41	
60	Do	480	22	do	pekoe	1100	35	
61	Do	482	49	do	pek sou	2695	31	
62	Beauséjour	484	13	ch	bro pek	1300	43	
63	Do	486	18	do	pekoe	1620	31	
64	Warwick	496	10	hf-ch	dust	800	26	
65	Do	498	3	do	congou	150	32	
66	Do	500	4	do	bro mix	205	27	
67	J S	502	4	ch	bro mix	360	12	
68	T, in estate mark	504	5	do	dust	750	23	
69	Do	506	20	do	bro tea	1800	25	
70	Do	508	7	do	congou	630	25	
71	Palmerston	510	5	hf-ch	bro pek	275	72	
72	Do	512	9	ch	pekoe	900	54	
73	Do	514	3	do	pek sou	300	39	
78	Polatagama	524	68	hf-ch	bro pek	3400	54	
79	Do	526	124	do	pekoe	4960	51	
80	Do	528	86	do	pek sou	3870	39	
81	Abamalla	530	5	do	bro mix	225	26	
82	Do	532	11	do	dust	770	23	
83	E G E	534	6	do	sou	300	29	
85	Harangalla	538	13	hf-ch	bro pek	885	50	
86	Do	540	15	do	pekoe	900	38	
87	Do	542	11	do	pek sou	660	35	
88	M	544	3	ch				
			1	hf-ch	bro tea	250	13	
89	M	546	1	do	pek sou	50	18	
90	Clarendon	548	14	do	bro pek	784	65	
91	Do	550	28	do	pekoe	1400	55	
92	Do	552	6	do	pek dust	480	28	
93	Becherton	554	20	ch	bro pek	2000	45	bid
94	Do	556	30	do	pekoe	3000	34	
95	Do	558	1	hf-ch	congou	50	25	
96	Do	560	2	do	dust	140		
97	Bandara-polla	562	28	do	bro pek	1400	55	
98	Do	564	50	do	pekoe	2500	41	
99	Do	566	49	do	pek sou	2205	35	
100	L, in estate mark	568	1	do	pekoe	37	37	
101	Do	570	1	do	pek sou	37	28	
102	Macaldenia	572	1	box	or pek	7	R2·01	
103	Do	574	12	hf-ch	bro pek	720	72	
104	Do	576	3	ch	pekoe	315	56	
105	Do	578	5	do	bro sou	525	50	
106	Do	588	1	do	sou	100	39	
107	Do	582	1	hf-ch	dust	74	26	
108	Do	584	1	do	red leaf	30	27	
109	W, in estate mark	586	1	do	bro pek	50	42	
110	Polataga-ma	588	36	do	bro pek	2160	50	
111	Thornfield	590	15	do	bro pek	900	69	
112	Do	592	15	ch	pekoe	1500	51	
113	Do	594	5	do	pek sou	500	40	
114	Do	596	1	do	sou	80	27	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
115	M	598	1	hf-ch	sou	60	18
116	Queensland	600	11	ch	bro pek	1100	66
117	Do	602	9	do	kpeoe	855	51

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 2nd Sept., the undermentioned lots of Tea (22,751 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs		Description.	Weight. lb.	c.	
1	Gampolawatte	1	5	hf-ch	bro pek	500	49	
2	Do	3	12	ch	pekoe	1080	38	
3	N	5	14	hf-ch	pekoe	700	30	
4	A S C	7	10	ch	pekoe	900	36	
5	D	9	10	do	pekoe	1000	34	
6	N P	11	32	do	red leaf	2720	21	
			5	do	do	400		
			8	do	do	600		
7	Nugagalla	17	9	hf-ch	bro or pek	450	61	bid
8	Do	19	24	do	pekoe	1200	48	
9	Do	21	2	do	pek sou	96	34	
10	Do	22	3	ch	dust	240	27	
11	B P	23	22	hf-ch	pek sou	990	31	bid
12	Nahalma	25	19	do	bro pek	1045	59	
13	Do	27	23	ch	pekoe	2300	43	
14	Do	29	3	do	pek sou	300	32	
15	Do	30	1	hf-ch	dust	150	24	
16	Woodend	31	1	ch	dust	130	23	
17	Agarsland	32	40	hf-ch	bro pek	2000	60	bid
18	Do	34	27	do	pekoe	1350	50	
19	Do	36	19	do	pek sou	855	40	
20	Do	38	12	do	sou No. 2	540	35	
21	Dikmukalana	40	19	do	bro pek	950	57	
22	Do	42	5	do	pekoe	225	40	
23	Do	44	14	do	pekoe No. 1	630	50	
24	Do	46	13	do	do „ 2	585	44	
25	Do	48	6	do	pek sou	270	36	
26	Do	50	11	do	sou	495	29	
27	Do	52	1	do	dust	50	25	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 2nd Sept., the undermentioned lots of Tea (50,997 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	F E D	170	3	ch	pek sou	285	37	
2	Do	171	1	do	congou	62	32	
3	Do	172	1	do	dust	78	21	
4	Nartakande	173	1	do	bro pek	90	26	
5	Do	174	1	do	pekoe	65	28	
6	Do	175	3	do	pek sou	150	22	
7	Do	176	18	do	red leaf	800	15	
8	Do	178	5	do	congou	300	21	
9	Labugama	179	12	hf-ch	bro pek	480	51	
10	Do	181	26	do	pekoe	1040	37	bid
11	Do	183	5	do	pek sou	200	32	
12	Do	184	6	do	pek fan	270	32	
13	Do	185	3	do	congou	120	25	
14	Maddegedera	186	27	ch	bro pek	2700	52	
15	Do	188	17	do	pekoe	1615	49	
16	Do	190	13	do	pek sou	1027	35	
17	Do	192	5	do	sou	340	32	
18	Do	193	1	do	dust	128	22	
19	Orange Field, P N R	194	3	do	bro pek	300	47	
20	Do	195	19	do	pekoe	1710	32	bid
21	Do	197	7	do	bro mix	665	17	
27	H B, in estate mark	205	4	do				
			4	hf-ch	pek sou	608	30	
28	Great Valley	206	20	ch	bro pek	1900	51	
29	Do	208	27	do	pekoe	2295	43	
30	Do	210	29	do	pek sou	2320	35	
31	Do	212	6	hf-ch	dust	420	26	
32	Morton	213	12	ch	bro pek	1200	45	
33	Do	215	20	do	pekoe	1600	38	
34	Do	217	15	do	pek sou	1200	34	
35	Do	219	1	do	pk dust	150	21	
36	Mocha	220	36	hf-ch	bro pek	1980	79	
37	Do	222	27	ch	pekoe	2700	57	
38	Do	224	14	do	pek sou	1260	47	
39	N W	226	6	ch	dust	840	05	
40	Troup	227	24	hf-ch	bro pek	1320	76	
41	Do	229	20	do	pekoe	1800	55	
42	Stanford	231	13	ch	bro pek	1274	59	bid
43	Ivies	233	13	do	bro pek	1300	54	
44	Do	235	22	do	pekoe	1980	38	
45	Do	237	20	do	pek sou	1700	34	
46	Do	239	1	do	bro tea	55	16	
47	Do	240	4	do	dust	320	23	
48	Cruden Factory	241	21	ch	flowery or pek	2100	74	
49	Do	243	28	do	flowery pek	2800	58	
50	Do	245	6	do	pek sou	600	45	
51	Do	247	15	hf-ch	sou	750	21	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, August 7th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 7th August:—

Ex "Electrician"—Ormiston, 1b 110s; 3c 109s 6d; 8c 105s; 1t 101s; 1c 1b 125s 6d; 1c 1b 93s; 2b 106s 6d. Rillamulle, 1c 102s; 4c 101s; 1t 100s; 1b 104s; 1c 91s; 1b 101s; 1b 107s. Arnhall, 2c 106s; 4c 1b 102s; 1b 98s; 1c 121s; 1c 98s; 2b 105s; 1b 85s.

Ex "City of Oxford"—RWA, 2c 1b 104s 6d.

Ex "Medway"—Lundry, 1b 81s.

Ex "Goorkha"—Mahapahagalla, 1c 109s; 7c 106s; 2c 102s; 1c 129s; 4b 89s.

Ex "Manora"—Tulloes, 1b 89s.

Ex "Electrician"—Roehampton, 1b 108s; 2c 107s 6d; 5c 104s 6d; 3c 104s; 1t 101s; 1c 103s 6d.

Ex "Goorkha"—Ouvah, 1t 102s; c 1t 97s 6d.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 14th August:—

Ex "Pallas"—Milnathort" 3c 1b 102s 6d; 1c 99s; 1b 99s; 1b 105s; 1t 88s; 1b 99s.

Ex "Electrician"—Alnwick, 2c 1t 114s; 5c 110s 6d; 2c 1b 110s; 1t 127s; 1c 1b 98s 6d; 2b 109s.

Ex "Glenshiel"—Galloola, 2c 102s 6d; 3c 100s; 1t 97s 6d; 1b 104s; 2c 1t 93s; 1b 80s; 1b 100s; 1b 85s.

Ex "Electrician"—Ross, 2c 92s 6d; 2b 88s.

Ex "Rewa"—Forest Hill, 4c 1b 100s; 1c 1t 99s 6d; b6 104s. Tulloes, 5c 1t 105s 6d; 2c 1b 101s 6d; 1b 107s 6d; 5b 114s. Roeberry, 1c 100s. Stafford, 2c 1b 101s 1b 100s; 1b 103s.

Ex "City of London"—Delmar, 1b 108s 6d; 1c 108s; 5c 1b 105s 6d; 2c 100s 6d.

Ex "Rewa"—Ragalla, 1b 106s; 5c 106s; 2c 105s 6d; 7c 1t 103s; 1t 115s 6d. Ravenswood, 1c 99s.

Ex "Glenshiel"—Ouvah, 2c 1b 106s; 9c 101s 6d; 1c 112s.

Ex "Essen"—Berragalla, 1c 1b 107s; 4c 1t 105s 6d; 1c 101s; 1t 114s; 1b 104s; 1c 1b 103s. Rahanwatte, 1t 1b 1b 88s.

Ex "City of London"—Ambawella, 9c 1t 106s 6d; 1b 99s 6d; 1c 117s; 1b 97s. 1b 105s; 5c 104s.

Ex "Clan Mackenzie"—RWA, 1t 1c 111s 6d; 5c 10s; 1b 109s; 1b 93s; 1b 105s.

Ex "Taekwar"—Pittarat Malle, 1b 107s; 1b 1c 109s; 7c 105s; 2c 1t 103s 6d; 2t 119s 6d; 1c 92s; 3b 104s 6d.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, August 14th, 1891.

Ex "Electrician"—Palli, 88 bags 120s; 25 75s 6d; 2 65s.

Ex "Keemun"—Sundry marks 1 bag 70s.

Ex "Glenshiel"—Yattewatte, 37 bags 66s; 1 60s.

Ex "Clan Munroe"—Alloowihare, 1 bag 69s.

Ex "Glenshiel"—Nartakande, 6 bags 100s 6d; 1 65s.

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COLOMBO SALES OF TEA.

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 2nd Sept., the undermentioned lots of Tea (27,520 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Katherine Vailey	8	3	hf-ch	bro pek	150	45	
2	Do	9	8	do	pekoe	400	35	
3	Do	10	6	do	pek sou	300	30	
4	Do	11	3	do	unas	150	31	
5	Do	12	2	do	dust	120	23	
6	R B W	13	8	ch	bro pek	800	43	
7	Do	14	10	do	pekoe	1000	30	bid
8	Do	15	13	do	pek sou	1300	26	bid
9	Do	16	5	do	red leaf	500	17	
10	Do	17	1	do	dust	100	21	
11	E	18	8	do	bro mix	720	19	
12	E	19	5	do	pek sou	450	26	
13	E	20	3	do	dust	370	24	
14	Diyagama	21	1	do	bro pek	90	55	
15	Do	22	6	do	pekoe	570	37	
16	Do	23	5	do	pek sou	500	31	bid
17	Do	24	1	do	dust	90	23	
18	Do	25	1	hf-ch	mixed	230	30	
19	D B G	26	5	ch	bro mix	500	30	
20	Do	27	1	hf-ch	dust	80	23	
21	Do	28	2	ch	fans	120	31	
22	R X	29	2	do	bro mix	240	26	
		29*a*	3	do	pek fans	360	36	
23	Do	30	5	do	dust	700	29	
24	Do	31	10	box	or pek	150	71	
25	M	32	14	hf-ch	bro pek	700	35	bid
26	M	33	17	do	pek sou	680	25	
27	Allakolla	34	24	do	bro pek	1530	45	
28	Do	35	23	ch	pekoe	2415	33	
29	Do	36	16	do	pek sou	1600	33	
30	Do	37	2	hf-ch	dust	190	24	
31	Monaranagalla	38	3	ch	bro pek	210	53	
32	Do	39	4	do	pekoe	320	37	
33	Do	40	5	do	pek sou	400	31	
34	Do	41	1	do	dust	125	26	
35	M	42	3	do	red leaf	255	17	
36	M	43	1	do	dust	106	16	
37	M	44	1	hf-ch	fans	67	21	
38	Blairavon	45	20	ch	bro pek	2000	52	
39	Do	46	25	do	pekoe	2375	40	
40	Do	47	10	do	pek sou	850	34	
41	Do	48	1	do	bro tea	90	22	
42	Do	49	2	do	dust	210	24	
43	A A	50	11	hf-ch	dust	825	23	
44	E E	51	11	do	dust	817	23	
45	R A	52	3	ch	bro pek	300	47	
46	K L N	53	9	do	pekoe	855	36	bid
47	G, in estate mark	54	6	do	bro pek	600	40	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 2nd Sept., the under mentioned lots of Tea (117,963 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Alton	604	5	hf-ch	pek sou	225	36	
2	A	606	6	do	bro tea	270	21	
3	Caledonia	608	9	ch	bro pek	900	50	
4	Do	610	9	do	pekoe	855	38	
5	Do	612	2	hf-ch	bro tea	110	20	
6	E K	614	1	do	dust	80	24	
7	G T	616	10	do	dust	650	24	
8	K S P C, in estate mark	618	3	ch	bro mix	360	21	
9	Stella	620	8	do	bro tea	740	17	
10	Deniyaya	622	3	do	bro pek	330	55	
11	Do	624	5	do	pekoe	515	37	
12	Do	626	7	do	pek sou	700	31	
13	Do	628	1	hf-ch	fans	65	28	
14	Nahaveena	630	54	do	bro pek	2700	65	
15	Do	632	28	do	pekoe	1300	53	
16	Do	634	54	do	pek sou	2700	45	
17	Do	636	3	do	dust	243	26	
18	Do	638	1	do	congou	57	29	
19	S T	640	6	do	dust	390	26	
20	H E P, in estate mark	642	15	do	bro pek	900	68	
21	Do	644	17	do	pekoe	1020	46	
22	Do	646	6	do	pek sou	360	37	
23	Do	648	3	do	dust	240	29	
24	Scotia	650	41	do	pekoe	2074	41	
25	B	652	22	ch	bro pek	2200	41	bid
26	B	654	4	do	pekoe	360	37	
27	B	656	8	do	pek sou	720	33	
28	B	658	1	hf-ch	dust	75	25	
29	Maha uva	660	14	ch	bro pek	1540	78	
30	Do	662	20	do	pekoe	1800	53	
31	Do	664	8	do	pek sou	760	45	
32	Do	666	2	hf-ch	dust	160	27	
33	S T L	668	8	do	dust	520	23	
34	Columbia	670	20	do	bro pek	1200	67	
35	Do	672	9	do	pekoe	450	52	
36	Do	674	1	do	pek sou	50	35	
37	Do	676	1	do	dust	80	27	
38	Rayalla	678	27	ch	pekoe	2430	53	
39	Do	680	25	do	pek sou	2375	40	
40	Do	682	3	do	unas	285	37	
41	Do	684	10	hf-ch	dust	800	26	
42	Halpantenne	686	2	ch	bro pek	190	49	
43	Do	688	2	do	pekoe	180	35	
44	Do	692	7	hf-ch	pek sou	630	32	
45	Do	690	2	ch	sou	169	24	
46	Do	694	5	do	fans	600	out	
47	California	696	1	hf-ch	bro pek	51	48	
48	Do	698	3	do	pek sou	175	33	
49	Do	700	1	do	sou	70	30	
50	O O O	702	2	ch	sou	251	20	
51	A	704	3	do				
			7	hf-ch	dust	990	20	
52	E G E	706	8	ch	sou	960	22	
53	W, in estate mark	708	2	hf-ch	pekoe	106	36	
54	Do	710	1	do	pek sou	43	32	
55	W, in estate mark	712	1	do	pekoe	60	35	
56	D	714	5	do	dust	300	24	
57	Bismark	716	9	hf-ch	bro pek	540	58	
58	Do	718	6	do	pekoe	540	43	
59	Do	720	2	ch	pek sou	180	36	
60	Patiagama	722	16	do	bro pek	1760	46	
61	Do	724	6	do	bro pek No. 1	660	49	
62	Do	726	42	do	pekoe	4200	34	
63	Do	728	2	do	dust	300	24	
64	C	730	25	hf-ch	bro or pek	1300	53	
65	C	732	21	ch	pekoe	1470	40	
66	C	734	37	do	pek sou	2405	33	
67	C	736	9	do	sou	585	28	
68	C	738	1	do	dust	120	24	
69	Avisawella	740	7	do	unas	700	36	
70	E	742	3	hf-ch	bro pek	180	25	bid
71	O O	744	5	ch	bro pek	450	47	bid
72	Do	746	3	do	pek sou	270	36	
73	Middleton	748	27	hf-ch	bro pek	1620	65	
74	Do	750	22	do	pekoe	1210	53	
75	Do	752	16	do	pek sou	800	41	
76	St. Leonard's	754	2	ch	bro mix	200	31	
77	Melrose, D	756	58	hf-ch	bro pek	2128	51	
78	Do	758	26	ch	pekoe	2860	44	
79	Do	760	19	do	pek sou	2090	33	
80	Do	762	6	hf-ch	dust	480	25	
81	Melrose	764	30	do	bro pek	1800	58	
82	Do	766	23	ch	pekoe	2300	46	
83	Do	768	21	do	pek sou	2100	36	
84	Do	770	5	do	congou	455	20	
85	B	772	5	hf-ch	dust	350	23	
86	Yataderia	774	10	ch	bro pek	1100	52	
87	Do	776	9	do	or pek	585	50	
88	Do	778	25	do	pekoe	2500	40	
89	Do	780	31	do	pek sou	2790	35	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.
90	Beauséjour	782	5	do	bro pek	500	47
91	Do	784	20	do	pekoe	1800	36
92	Do	786	4	do	fans	440	30
93	Do	788	3	do	dust	450	24
94	M C	790	4	do	red leaf	264	17
95	Do	792	2	do	congou	206	22
96	Do	794	3	do	dust	420	24
97	Do	796	3	do	unas	384	37
98	Alton	798	5	hf-ch	pek sou	225	withd'n
99	Do	800	6	do	bro tea	270	withd'n
100	Ampitiya	2	2	ch	bro mix	194	20
101	Do	4	3	do	red leaf	250	20
102	G C S	6	27	do	bro tea	2295	22
103	Theyden Bois	8	9	do	bro or pek	766	55
104	Do	10	15	do	pekoe	1050	40
105	Do	12	13	do	pek sou	845	32
106	Do	14	5	hf-ch	sou	325	29
107	Do	16	1	ch	dust	120	24
108	H S, in estate mark	18	9	do	bro pek	765	51
109	Do	20	16	do	pekoe	1120	38
110	Do	22	12	do	pek sou	780	32
111	Do	24	8	hf-ch	sou	520	28
112	Do	26	2	ch	dust	240	24
113	B R	28	5	do			
			1	hf-ch	red leaf	363	16
114	Bandarapolla	30	18	do	bro pek	900	57
115	Do	32	36	do	pekoe	1800	47
116	Do	34	36	do	pek sou	1620	36
117	Do	36	17	do	sou	765	30
118	Do	38	12	do	dust	840	26
119	Galkadua	40	13	ch	bro pek	1300	46
120	Do	42	14	do	pekoe	1400	37
121	Do	44	13	do	pek sou	1300	32
122	D	46	1	do	bro mix	100	18
123	K O	48	1	do	or pek	85	48
124	Wewesse	50	22	hf-ch	bro pek	1100	6
125	Do	52	31	do	pekoe	1550	51
126	Do	54	31	do	pek sou	1550	43
127	Do	56	2	do	sou	100	32
128	Do	58	2	do	dust	160	26
131	D P O	64	3	do	sou	135	22
132	Do	66	3	do	dust	195	23
133	D A	68	4	ch	dust	560	22
134	A D	70	3	do	dust	410	22
135	Fermoyle	72	23	hf-ch	bro pek	1265	59
136	Do	74	39	do	pekoe	1950	52
137	Do	76	47	do	pek sou	2145	45
138	Do	78	8	do	sou	720	35
139	Do	80	3	do	dust	230	24
140	Do	82	2	do	tek fan	120	35
141	Alnoor	84	17	do	bro pek	850	52
142	Do	86	15	do	pekoe	750	40
143	Do	88	12	do	pek sou	600	26
144	Do	90	1	do	dust	80	24

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 9th Sept., the undermentioned lots of Tea (41,697 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight. lb.	c.	
1	Doronakande	249	4	hf-ch	sou	200	25	
2	Do	250	2	do	unas	100	35	
3	Do	251	1	do	dust	70	22	
4	Nahahettia	252	9	ch	bro pek	900	67	
5	Do	254	22	do	pekoe	2200	40	qtp
6	Do	256	5	do	sou	500	37	
7	Do	258	1	do	unas	100	35	
8	Do	259	2	do	bro mix	200	28	
9	Ford	260	13	do	pek sou	1235	31	
10	Kandeneweia	262	21	do	bro pek	1896	61	bid
11	Do	264	42	do	pekoe	4620	47	
12	Do	266	24	do	pek sou	2640	38	
13	N	268	6	do	bro mix	570	31	
14	Ayr	270	23	hf-ch	bro pek	1150	68	
15	Do	272	35	do	pekoe	1470	44	
16	Do	274	31	do	pek sou	1302	34	
17	Do	276	3	do	congou	168	28	
18	Do	277	7	do	fans	336	32	
19	Do	278	2	do	pk dust	146	26	
20	G A W	279	30	ch	sou	2400	17	
21	Ella	281	16	do	bro pek	1600	48	
22	Do	283	26	do	pekoe	2080	40	
23	Do	285	19	do	pek sou	1520	31	bid
24	L	287	10	do	pek fan	1[illegible]0	30	
25	L	289	8	do	congou	7[illegible]0	33	
26	L	10	1	do	red leaf	[illegible]4	21	
27	L	11	1	do	dust	17[illegible]	13	
28	Faithlie	12	2	do	bro mix	170	21	
29	Do	13	6	hf-ch	dust	450	27	
30	R D	14	12	ch	dust	1680	10	
31	Gonakelle Factory	15	9	do	bro or pek	1035	66	
32	Do	17	13	do	bro pek	1495	46	
33	Dickapitiya	19	25	do	bro pek	2500	51	
34	Do	21	14	do	pekoe	1400	39	
35	Do	23	19	do	pek sou	1900	35	
36	Do	25	4	do	sou	360	29	
37	B M, in estate mark	26	2	do	pek dust	292	19	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 9th Sept., the undermentioned lots of Tea (41,151 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Debagama	1	6	ch	bro pek	630	48	
2	Do	3	14	do	pekoe	1400	35	bid
3	Do	5	5	do	pek sou	475	31	bid
4	Dehiowita	7	13	do	bro pek	1365	48	bid
5	Do	9	27	do	pekoe	2700	35	bid
6	Do	11	12	do	pek sou	1140	30	bid
7	Do	13	1	do	bro tea	120	24	
8	Do	14	1	do	dust	160	23	
9	A K A C, in estate mark	15	34	hf-ch	bro pek	1700	63	bid
10	Do	17	41	do	pekoe	2050	49	
11	Do	19	29	do	pek sou	1450	38	
12	Do	21	19	do	sou	950	32	
13	Do	23	1	do	fans	65	27	
14	Do	24	1	do	dust	84	25	
15	P O	25	6	ch	pekoe	570	40	
16	Do	27	5	do	pek sou	500	31	
17	E P	29	5	hf-ch	bro pek	250	50	
18	Do	31	6	ch				
			1	box	pekoe	629	35	bid
			7	hf-ch	pek sou	546	25	
19	Do	33	11	ch	bro pek	1100	47	bid
20	Agraoya	35	8	do	pekoe	800	34	bid
21	Do	37	7	do	do No. 2	700	31	bid
22	Do	39	1	hf-ch	red leaf	66	12	
23	Do	41	1	do	dust	80	25	
24	Do	42	5	ch	bro pek	500	29	bid
25	C G	43	3	do				
26	Do	45	1	hf-ch	pekoe	350	26	
27	Torrington	46	24	ch	bro pek	2340	52	bid
28	Do	48	21	do	pekoe	2100	44	bid
29	Do	50	14	do	pek sou	1400	33	bid
30	Do	52	5	hf-ch	dust	400	27	
31	B U S in estate mark	53	1	ch	congou	110	25	
32	Knutsford	54	2	hf-ch	bro or pek	104	65	
33	Do	55	3	do	bro pek	156	50	
34	Do	56	15	do	pekoe	798	36	bid
35	Do	58	2	do	pek sou	102	26	
36	Do	59	1	do	fans	75	25	
37	G W	60	12	ch	pekoe	1000	37	bid
38	Nidanwala	62	5	do				
			1	hf-ch	bro pek	500	46	
39	Do	64	6	ch	pekoe	570	34	
40	Do	66	3	do	pek sou	240	29	bid
41	Do	67	5	do				
			1	hf-ch	red leaf	405	15	
42	G H K, in estate mark, Ceylon	68	6	ch	or pek	516	50	
43	Do	70	8	do	pekoe	676	29	bid
44	Do	72	5	do	pek sou	424	26	bid
45	Do	74	5	do	sou	491	22	
46	Do	76	1	hf-ch	dust	36	22	
47	A	78	1	do	mixed	48	18	
48	Shannon	79	6	ch	or pek	630	40	bid
49	Do	81	13	do	pekoe	1274	30	bid
50	Do	83	5	do	pek sou	500	25	bid
51	Do	85	2	do	bro tea	220	21	
61	C, in estate mark	100	1	ch				
			1	hf-ch	pekoe	153	20	bid
62	Do	101	1	box	pek sou	24	20	
63			4	ch	pek sou	360	26	
64			2	do	red leaf	105	20	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 9th Sept., the undermentioned lots of Tea (30,264 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Wewel-madde	55	1	hf-ch	or pek dust	74	25	
2	Do	56	2	do	red leaf	159	19	
3	Do	57	6	do	dust	528	21	
4	A A	58	1	ch	pek sou	103	27	
5	Marymount	59	7	hf-ch	unas	350	31	
6	Do	60	1	do	bro mix	145	20	
7	Bentura	61	2	do	bro pek	100	55	
8	Do	62	2	do	pekoe	100	37	
9	Do	63	30	do	or pek	1500	36	
10	Do	64	20	box	pekoe	200	36	
11	Lyndhurst	65	6	ch	bro pek	660	49	
12	Do	66	12	do	pekoe	1150	33	bid
13	Do	67	11	do	pek sou	1100	27	bid
14	G A	68	24	do	bro pek	2520	50	
15	Roseneath	69	31	hf-ch	bro pek	2015	46	
16	Do	70	21	ch	pekoe	2205	38	
17	Do	71	16	do	pek sou	1680	31	bid
18	A N	72	8	hf-ch	pekoe	400	33	
19	Chertsey	73	6	ch	bro pek	660	36	bid
20	Do	74	9	do	peko	720	33	bid
21	Do	75	3	do	pek sou	240	30	
22	G W A	76	12	hf-ch	dust	960	18	bid
23	Morning-side	77	9	do	bro pek	495	46	
24	Do	78	9	do	pekoe	450	34	
25	Do	79	1	do	sou	50	23	
26	Do	80	3	do	bro tea	150	18	
27	Chertsey	81	4	ch	bro pek	400	38	
28	Do	82	2	hf-ch	pek sou	100	30	
29	Do	83	2	do	bro mix	100	22	
30	N B	84	6	do	pekoe	300	30	bid
31	M G S	85	9	ch	pek sou	900	27	bid
32	Do	86	9	do	sou	765	20	
33	B	87	3	hf-ch	bro pek	150	49	
34	B	88	4	do	pekoe	180	34	
35	B	89	4	do	pek sou	180	28	bid
36	W V	90	27	ch	bro mix	2430	21	
37	P H	91	26	box	bro pek	520	37	bid
38	K S P C, in estate mark	92	9	ch	bro pek	900	46	bid
39	C H	93	3	hf-ch	pek sou	180	30	
40	H	94	3	ch	sou	230	25	bid
41	E	95	5	do	pek fans	500	32	
42	P A	96	4	do	pek fans	615	32	bid
43	B B	97	7	do	dust	810	23	bid
46	T, in estate mark	100	7	do	dust	476	27	
47	Do	1	4	do	pek fans	216	29	
48	Do	2	5	do	unas	250	31	
49	Do	3	2	do	congou	96	22	
50	Do	4	1	do	mixed	54	18	
51	G	5	1	do	bro pek	35	33	
52	G	6	1	do	pekoe	36	30	
53	G	7	1	do	pek sou	31	24	
54	G	8	1	do	bro mix	42	16	
55	H	9	3	ch	pekoe	279	35	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 9th Sept., the undermentioned lots of Tea (134,921 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Eadella	92	2	ch	sou	90	28	
2	Holluganga	94	1	hf-ch	bro pek	37	46	
3	Do	99	1	do	pekoe	55	30	
4	Do	98	1	do	pek sou	41	27	
5	Do	100	1	do	dust	50	14	
6	J T G, M C A in estate mark	102	4	ch				
			1	hf-ch	bro tea	502	13	
7	L A	104	1	do	pekoe	80	35	
8	Do	106	3	do	pek sou	180	28	
9	Do	108	2	do	red leaf	100	20	
10	Horagas-kelle	110	6	do	bro pek	352	49	
11	Do	112	6	do	pekoe	324	36	
12	Do	114	14	do	pek sou	784	31	
13	Chalmers	116	17	do	bro pek	1190	64	
14	Do	118	19	do	pekoe	1140	51	
15	Do	120	13	do	pek sou	780	36	
	Do	122	1	ch	dust	100	25	
	Do	124	2	do	bro mix	120	20	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
18	West Hapu-tale	126	4	hf-ch	pek sou	208	35	
19	Do	128	16	do	pek sou No. 2	832	32	
20	Shrub's Hill	130	71	do	bro pek	3550	57	
21	Do	132	47	ch	pekoe	3995	45	
22	Do	134	20	do	pek sou	2000	32	bid
23	Do	136	6	do	bro tea	600	28	
24	Do	138	6	hf-ch	dust	390	28	
25	Chesterford	140	18	ch	bro pek	1430	68	
26	Do	142	15	do	pekoe	1500	45	
27	Do	144	15	do	pek sou	1540	31	bid
28	Wevagoda	146	6	do	bro pek	660	40	bid
29	Do	148	9	do	pekoe	990	30	bid
30	Do	150	13	do	do No. 2	1300	27	bid
31	Do	152	2	do	dust	300	23	
32	Palmer-ston	154	8	hf-ch	bro pek	440	72	
33	Do	156	10	ch	pekoe	1000	55	
34	Do	158	4	do	pek sou	400	40	
35	Harrington	160	7	do	or pek	700	72	
36	Do	162	9	do	pekoe	450	63	
37	Do	164	12	do	pek sou	960	41	
38	L P G	166	7	do	red leaf	700	18	
39	C F G	168	12	do	bro pek	1200	47	
40	Sembawatte	170	50	hf-ch	bro pek	3750	41	bid
41	Do	172	40	do	pekoe	2400	35	bid
42	Do	174	20	do	pek sou	1300	out	
43	I G	176	4	ch	sou	340	28	
44	Hope	178	5	do	bro mix	630	out	
45	Laukelle	180	3	do	bro tea	300	20	
46	Yataderia	182	11	do	bro pek	1210	51	
47	Do	184	7	do	or pek	455	56	bid
48	Do	186	23	do	pekoe	2300	33	
49	Do	188	22	do	pek sou	1980	32	bid
50	Wavendon	190	1	ch				
			1	hf-ch	dust	152	25	
51	Ancoombra	192	2	ch	dust	340	25	
52	Theberton	194	27	do	bro pek	2700	33	bid
53	Do	196	32	do	pek sou	3200	28	
54	Do	198	3	do	pek dust	300	21	
55	Do	200	4	do	congou	400	21	
56	Do	202	1	do	red leaf	100	15	
57	Polatagama	204	50	hf-ch	bro pek	2500	58	
58	Do	206	99	do	pekoe	4455	50	
59	Do	208	90	do	pek sou	4500	36	bid
60	Portmore	210	33	do	bro pek	3465	74	
61	Do	212	26	ch	pekoe	2340	54	
62	Do	214	2	do	pek sou	172	42	
63	Do	216	2	do	fans	166	28	
66	L H, in estate mark	222	22	do	bro pek sou	2302	18	
72	R B	234	13	ch	pek sou	1300	withd'n.	
73	N	236	3	do	pek sou	270	25	
74	Easdale	238	14	do	bro pek	1400	50	
75	Do	240	21	do	pekoe	1680	41	
76	Do	242	19	do	pek sou	1520	33	
77	A	244	1	do	bro tea	80	10	bid
78	K M	246	4	hf-ch	dust	320	24	
82	B	254	4	hf-ch	dust	300	19	
83	N E	256	2	do	dust	160	25	
84	L B K	258	6	ch	red leaf	600	21	
85	Ambla-kande	260	3	do	bro or pek	330	out	
86	Do	262	10	do	pekoe	900	40	bid
87	Do	264	2	do	sou	180	out	
88	P G, in estate mark	266	18	ch	bro pek	1530	47	bid
89	Do	268	24	do	pekoe	1680	36	
90	Do	270	21	do	pek sou	1365	32	bid
91	Do	272	10	do	sou	650	25	
92	Do	274	2	do	dust	240	26	
93	S	276	1	do	or pek	85	47	
94	S	278	2	do	pekoe	140	35	
95	S	280	1	hf-ch	pek sou	65	23	
96	S	282	1	do	sou	65	23	
97	Castlereagh	284	26	do	bro or pek	1300	71	bid
98	Do	286	59	do	pekoe	2655	59	bid
99	Dunkeld	288	13	ch	bro pek	1300	70	
100	Do	290	16	hf-ch	or pek	720	60	
101	Do	292	15	ch	pekoe	1125	45	
102	L, in estat mark	294	1	hf-ch	pekoe	34	35	
103	Do	296	1	do	pek sou	30	36	
104	D, in estate mark	298	9	ch	bro pek	765	45	
108	Yahalakele	306	25	do	unas	1250	31	
109	Do	308	1	do	red leaf	50	19	
110	Hunugalla	310	10	ch	bro pek	1050	48	
111	Do	312	24	do	pekoe	2900	34	
112	Do	314	1	do	sou	104	20	
113	Do	316	1	do	dust	131	24	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
117	Claremont	324	28	hf-ch	bro pek	1400	39	bid
118	Do	326	20	do	pekoe	995	32	
119	Do	328	2	do	bro tea	56	out	
122	Marguerita	334	7	hf-ch	bro pek	385	36	bid
123	Do	336	7	do	pekoe	315	35	
124	Do	338	17	do	pek sou	850	30	
125	Do	340	7	do	dust	525	25	
126	Do	342	2	do	sou	90	17	
127	Silver Valley	344	2	hf-ch	bro pek	100	52	
128	Do	346	10	do	pekoe	480	34	
129	Do	348	3	do	red leaf	144	22	
130	Do	350	1	do	dust	56	25	
131	Farm	352	9	ch	bro pek	900	60	
132	Do	354	15	do	pekoe	1400	45	
133	Do	356	16	do	pek sou	1511	33	
134	Do	358	2	do	sou	190	26	
135	Do	360	1	do	dust	159	24	
136	Uvakelle	362	31	do	bro pek	1705	72	
137	Do	364	59	do	pekoe	2950	49	
138	Do	366	2	do	congou	100	28	
139	Do	368	6	do	dust	480	26	
140	A M B	370	8	do	bro tea	680	19	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room, on the 16th Sept., the undermentioned lots of Tea (31,658 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Mchideen	1	3	hf-ch	bro pek	165	45	
2	Do	2	6	do	pekoe	264	34	
3	Do	4	9	do	pek sou	360	30	
4	Do	6	2	do	congou	92	22	
5	Do	7	3	do	bro pek fans	150	26	
6	Do	8	6	do	red leaf	240	23	
7	Morland	9	5	ch	or pek	525	40	bid
8	Do	11	8	do	pekoe	784	28	bid
9	Do	13	3	do	pek sou	300	25	
10	B B	14	6	do				
			1	hf-ch	pekoe	629	31	bid
11	H	15	5	ch	pek sou	500	28	bid
12	A	16	34	hf-ch	bro pek	1700	46	bid
13	K	18	5	do	congou	250	29	
14	K	20	9	do	dust	630	25	bid
17	Ossington	26	10	do	bro pek	500	40	
18	Do	28	38	do	pekoe	1900	35	
19	Do	30	7	do	pek sou	350	27	
20	Do	32	2	do	dust	160	22	
21	Do	33	1	ch	red leaf	90	19	
22	Ettapolla	34	13	hf-ch	bro pek	715	51	
23	Do	36	21	do	pekoe	1155	33	
24	Relugas	38	1	ch	dust	152	18	
25	Do	39	1	hf-ch	red leaf	42	15	
26	Nahalma	40	30	do	bro pek	1650	48	bid
27	Do	42	32	ch	pekoe	3200	38	
28	Do	44	5	do	congou	500	29	
29	Do	45	1	hf-ch	dust	75	25	
30	M, in estate mark	46	11	ch	bro pek	1100	42	bid
31	Do	48	8	do	pekoe	800	31	bid
32	Do	50	7	do	pek sou	700	30	bid
33	S C R	52	4	do	sou	360	29	
34	Hakrugalla	53	9	do	bro pek	900	44	bid
35	Do	55	10	do	pekoe	900	33	
36	Do	57	8	do	pek sou	720	29	
37	Harrow	59	16	hf-ch	bro pek	960	43	bid
38	Do	61	9	do	pekoe	495	35	bid
39	Do	63	10	do	pek sou	500	32	
40	Do	65	2	do	bro mix	140	25	
41	Nahalma	66	24	do	bro pek	1320	45	bid
42	Do	68	26	ch	pekoe	2600	36	bid
43	Do	70	4	do	congou	540	29	
44	Do	71	1	hf-ch	dust	75	24	
45	K C, in estate mark	72	6	ch	pekoe	570	33	bid
46	Do	73	3	do	pek sou	240	28	bid
47	C G	74	5	do	bro pek	500	30	bid

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, August 21st, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 21st Aug :—

Ex "Ravenna"—Thotulagalla, 1c 1b 108s; 6c 1b 105 6d; 1c 101s 6d; 1c 122s; 1c 97s; 2b 103s 6d. Keenakelle, 1c 1b 105s 6d; 5c 106s 6d; 7c 1b 110s 6d; 1c 1b 100s 6d; 1c 113s; 2c 1b 92s.

Ex "Golconda"—Ben Lomond, 31b 108s; 20b 103s 6d, 20b 104s, 487b 103s 6d; 79b 101s 6d. Peaberry, 81b 121s; 20b 100s; 1b 89s.

Ex "Orient"—Gampaha, 2c 1b 100s 6d; 1c 110s.

Ex "Clan Macarthur"—Gampaha, 2c 101s.

Ex "Electrician"—Kirklees, 2c 100s; 1c 1t 98s; 1t 95s; 1t 102s 6d; 1c 1t 88s.

Ex "Tara"—Wevekelle, 1t 102s 6d; 1c 100s 6d; 1b 99s; 1b 102s; 2b 88s.

Ex "Gaekwar"—Lunugalla, 4c 1b 107s; 12c 105s; 1b 100; 1c 122s; 1b 118s; 1c 1b 103s 6d; 3b 106s.

Ex "Scindia"—Ouvah, 3c 1b 110 6d; 14c 103s; 1b 100s; 1c 117s; 1b 107s; 2c 1t 94s 6d; 5b 105s; 1b 89s.

Ex "Orizaba"—Kajawelle, 1b 100s; 1b 88s.

Ex "Navigator"—Wiharagalla, 1c 115s; 5c 1b 110s 6d; 7c 1t 106s 6d; 1c 102s; 1c 1t 129s; 2c 97s; 1b 104s; 1b 104s 6d; 1b 105s.

Ex "Oroya"—Amherst, 1b 112s; 3c 1t 109s; 5c 1t 106s 6d; 3c 103s 6d; 1c 122s; 1c 1b 108s; 1t 91s; 2b 105s; 1b 88s; 1b 79s.

Ex "Glenshiel"—Gowerakellie, 6c 1b 104s; 1c 1t 100 6d; 1t 116s; 1c 1b 96s; 1b 103s; 1b 101s.

Ex "Scindia"—Maha Uva, 5c 1t 107s; 7c 1b 105s; 10c 1b 102s; 1c 1t 100s; 2c 1b 121s; 1c 1t 93s 6d.

Ex "Oroya"—(DO) 1b 107s; 3c 1b 107s 6d; 3c 1t 107s 6d; 2c 102s; 1c 121s; 1c 93s. Craig, 1b 107s 6d; 4c 1b 108s; 3c 1b 106s; 1c 101s; 1c 117s; 1c 93s; 2b 1c 1t 96s 6d; 1b 105s; 1t 88s.

Ex "Navigator"—Alnwick, 2c 115s; 14c 1t 1b 108s 6d; 5c 104s 6d; 1c 1b 105s 6d; 2t 127s; 2c 1b 100s 6d; 4b 110s; 1b 105s 6d; 1b 95s. Brookside, 1b 3c 1t 106s; 3c 1t 103s; 1t 117s; 1t 97s 6d; 2b 103s 6d; 11b 90s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 28th August :—

Ex "Nubia"—Dunsinane, 1c 107s; 1c 1b 104s 6d; 1b 101s.

Ex "Polyphemus"—Lunugalla, 1t 107s; 5c 106s; 1b 100s; 1t 122s.

Ex "Mombassa"—Rochampton, 1b 110s; 3c 107s 6d; 10c 106s; 1c 1b 101s 6d; 2c 128s. Rugalla, 1b 106s 6d; 5c 105 6d; 5c 105s; 3c 1b 104s 6d; 1b 119s; 1b 106s 6d; 5c 1t 107s; 5c 105 6d; 3c 1b 105s; 1t 119s.

Ex "Nubia"—Ouvah, 4c 2b 107s 6d; 5c 103s 6d; 14c 103s; 1b 100s; 1t 124s; 1b 110s; 1c 124s; 3c 1t 96s; 9b 91s.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MINCING LANE, August 21st, 1891.

Ex "Tara"—Glenury, 28b 123s.

Ex "Victory"—Glenury, 28b 85s.

Ex "Scindia"—Mahaberia, 49b 123s 6d; 7b 114s; 24b. 123s; 3b 92s; 9b 60s; 1b 52s.

Ex "Victory"—Mahaberia, 18b 123s 6d; 14b 123s 6d; 5b 58s 6d.

Ex "Oopack"—Kondesale, 2b 112s; 1b 66s.

Ex "Glenshiel"—Dea Ela, 2b 80s; 1b 43s.

MINCING LANE, August 28, 1891.

Ex "Essen"—Rajawelle, 4b 82s 6d; 1b 70s; 2b 69s.

Ex "Gaekwar"—Victoria, 1b 91s; 2b 60s.

Ex "Scindia"—Victoria, 32b 120s; 2b 47s; 3b 60s; 1p 91s. Elmshurst, 10b 120s; 1b 51s.

Ex "Electrician"—Palli, 2b 91s.

Ex "Pallas"—Arduthie, 1b 62s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, August 21st, 1891.

Ex "Essen"—Tonacombe, 387 lb. 3s 5d per lb. 146 lb 2s 3d per lb.

Ex "Traveller"—156 lb. 3s 4d per lb.

Ex "Thames"—Tiny, 29 bales at 1d per lb.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 24.] COLOMBO, SEPTEMBER 28, 1891. {PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 16th Sept., the undermentioned lots of Tea (89,279 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	G K W	27	2	ch	bro tea	180	30	
2	Do	28	2	do	dust	160	20	
3	Do	29	1	do	red leaf	80	20	
4	Great Valley	30	13	do	bro pek	1430	56	
5	Do	32	12	do	pekoe	1200	47	
6	Do	34	14	do	pek sou	1330	32	
7	Galkandewatte	36	16	do	bro pek	1600	52	
8	Do	38	15	do	pekoe	1350	43	bid
9	Do	40	4	do	pek sou	360	31	
10	Templestowe	41	32	hf-ch	or pek	1664	54	bid
11	Do	43	18	ch	pekoe	1440	38	bid
12	Do	45	15	ch	pek sou	1350	32	
13	W, in estate mark	47	6	do	bro pek	630	44	
14	Do	49	6	do	pekoe	570	37	
15	Do	51	21	do	do No. 2	1995	32	
16	Do	53	9	do	pek sou	855	27	
17	Do	55	4	do	fans	420	22	
18	Do	56	1	do	dust	140	24	
19	Tangapoo Totum	57	4	do	bro pek	520	43	
20	Do	59	9	do	pekoe	1080	34	
21	Do	61	16	do	pek sou	1680	31	
22	Do	63	7	do	congou	700	22	
23	Do	65	1	do	dust	145	24	
24	Brownlow	66	15	do	bro pek	1650	63	bid
25	Do	68	18	do	pekoe	1800	48	
26	Do	70	13	do	pek sou	1170	41	
27	Do	72	1	hf-ch	dust	80	25	
28	B T	73	36	ch	bro mix	3240	19	
29	A W G	75	61	do	sou	4880	16	
30	D C	77	1	do	red leaf	100	19	
31	Do	78	3	do	pekoe	300	33	
32	L X	79	2	hf-ch	bro pek	100	22	
33	G L	80	4	ch	congou	320	25	
34	C R D	81	3	hf-ch	red leaf	165	19	
35	T	82	12	do	mix tea	552	22	
36	E	83	3	do	congou	150	20	
37	Laleham	84	14	ch	bro pek	1400	46	bid
38	Gonavy	86	37	do	bro pek	3700	57	bid
39	Do	88	11	do	pekoe	990	45	
40	Do	90	10	do	pek sou	900	37	
41	Do	102	1	do	dust	150	23	
42	W D, in estate mark	103	39	do	bro pek sou	3715	19	bid
43	G A	105	4	hf-ch	dust	268	21	
44	R D	106	14	ch	dust	1940	15	
45	L T	107	4	hf-ch	dust	268	22	
46	Dickoya	108	9	ch	bro pek	1080	72	bid
47	Do	110	6	do	or pek	540	69	bid
48	Do	112	39	do	pekoe	3900	43	bid
49	Do	114	8	do	pek sou	800	43	bid
52	D K O	120	5	do	dust	750	25	
53	Do	122	5	do	bro mix	412	17	
54	Lawrence	123	25	hf-ch	sou	1500	20	
55	Agra Ouvah	125	21	do	bro pek	945	82	
56	Do	127	21	do	pekoe	945	63	
57	Do	129	20	do	pek sou	900	47	
58	A O	131	10	do	pekoe	450	36	
59	Beaumont	133	14	ch	bro pek	1407	47	bid
60	Do	135	14	do	pekoe	1260	40	
61	Do	137	9	do	pek sou	898	31	
62	Do	139	1	hf-ch	dust	105	25	
63	Vogan	140	24	ch	or pek	2160	54	
64	Do	141	25	do	bro pek	2500	56	
65	Do	144	33	do	pekoe	2640	43	
66	Albion	146	29	do	bro pek	3045	63	bid
67	Do	148	22	do	pekoe	2090	45	bid
68	Do	150	28	do	pek sou	2660	38	bid
69	Do	152	6	do	dust	480	25	
70	Do	153	3	do	red leaf	270	21	
71	Maria	154	18	ch	bro pek	1980	60	bid
72	Do	156	14	do	pekoe	1400	48	
73	Do	157	14	do	pek sou	1400	45	
74	Oruden Factory	159	12	do	flowery or pek	1200	78	
75	Do	161	13	do	do pekoe	1300	54	
76	Do	163	3	do	do pek sou	300	38	
77	Do	164	9	hf-ch	sou	450	37	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the, 16th Sept., the undermentioned lots of Tea (53,373 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	C A, in estate mark	10	8	hf-ch	unas	400	35	
2	Do	11	9	do	bro mix	495	28	
3	Ellakande	12	3	do	bro pek	150	54	
4	Do	13	5	do	pekoe	250	38	
5	Do	14	11	do	pek sou	550	30	
6	Do	15	15	do	unas	750	34	
7	Do	16	3	do	bro mix	165	26	
8	Do	17	7	do	red leaf	315	25	
9	Do	18	9	do	do	405	25	
10	Do	19	3	do	dust	240	23	
11	Kuruwitte	20	10	do	bro pek	540	51	
12	Do	21	4	do	pekoe	200	37	
13	Do	22	26	do	pek sou	1248	32	
14	Do	23	10	do	sou	460	28	
15	Do	24	6	do	bro tea	300	29	
16	Do	25	2	do	congou	97	20	
17	Do	26	2	do	dust	157	26	
18	Depedene	27	10	do	bro pek	500	61	
19	Do	28	23	do	pekoe	1150	42	
20	Do	29	22	do	pek sou	1100	34	
21	Do	30	2	do	pek dust	140	32	
22	H D	31	32	do	bro sou	1600	29	
23	Do	32	9	do	bro mix	450	23	
24	Do	33	2	do	dust	160	23	
25	St. Andrews	34	20	do	or pek	1320	68	bid
26	Do	35	43	box	or pek	860	64	bid
27	Do	36	15	hf-ch	bro pek	975	45	bid
28	Do	37	50	do	pekoe	3200	43	bid
29	Blairavon	38	20	ch	bro pek	2000	46	bid
30	Do	39	28	do	pekoe	2660	37	bid
31	Do	40	28	do	pek sou	2380	32	bid
32	Hatdowa	41	7	do	bro pek	700	49	
33	Do	42	4	do	pekoe	400	37	
34	Do	43	8	do	pek sou	720	30	
35	Do	44	1	do	red leaf	100	23	
36	Do	45	1	do	bro mix	135	23	
37	Do	46	1	do	unas	125	22	
38	Do	47	3	do	bro tea	300	24	
39	Aadneven	48	5	do	bro pek	500	51	
40	Do	49	4	do	pekoe	360	37	bid
41	K M O K	50	1	do	dust	80	23	
42	Killin	51	14	do	bro pek	1400	43	
43	Do	52	10	do	pekoe	950	34	
44	Do	53	10	do	pek sou	900	30	
45	Do	54	9	do	bro tea	960	22	
46	Vincit	55	2	hf-ch	dust	120	21	
47	Do	56	1	do	fans	70	20	
48	W A H	57	14	ch	pekoe	1400	35	
49	Kattukitula	58	1	hf-ch	bro pek	55	39	
50	Do	59	2	do	pekoe	100	34	
51	Do	60	4	do	pek sou	200	29	
52	Lyndhurst	61	12	ch	pekoe	1150	35	
53	Do	62	11	do	pek sou	1100	26	
54	M	63	14	hf-ch	bro pek	700	30	bid
55	N	64	24	ch	bro mix	2000	21	
56	N	65	3	do	bro tea	324	23	
57	B L	66	12	do	bro pek	1320	37	bid
58	T N	67	8	do				
			1	hf-ch	or pek	913	35	bid
59	M G S	68	9	ch	pek sou	900	27	
60	B B	69	7	do	dust	840	23	bid
61	B	70	4	hf-ch	pek sou	180	28	
62	G W A	71	12	do	dust	960	20	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
66	Chertsey	75	6	ch	bro pek	600	27	
67	Do	76	9	do	pekoe	720	23	
68	C	77	11	do	bro mix	1084	20	
69	N B	78	13	do	bro mix	1300	22	
70	Do	79	5	do	unas	500	31	bid
71	Monaragalla	80	3	do	bro pek	300	47	
72	Do	81	2	do	pekoe	170	38	
73	Do	82	5	do	pek sou	425	32	
74	Do	83	3	do	sou	255	28	
75	Kuruwitte	84	4	hf-ch	unas	200	31	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 16th Sept., the undermentioned lots of Tea (137,509 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Telisagalla	372	1	hf-ch	bro mix	60	20	
2	Do	374	2	ch	dust	200	24	
3	Ismalle	376	1	do	bro tea	90	18	
4	Do	378	5	do	dust	630	21	
5	Bon Accord	380	4	hf-ch	dust	300	23	
6	Do	382	1	do	congou	50	20	
7	Citrus	384	6	do	bro pek	340	52	
8	Do	386	21	do	pekoe	1130	37	
9	Do	388	7	do	pek sou	343	32	
10	Do	390	9	do	bro mix	486	28	
11	Do	392	2	do	fans	150	25	
12	Balagoda	394	3	do	pekoe	165	33	
13	C, in estate mark	396	9	ch	bro pek	900	48	
14	Do	398	9	do	pekoe	810	36	
15	Do	400	16	do	pek sou	1440	31	
16	Do	402	6	do	bro mix	609	21	
17	Harangalla	404	10	hf-ch	bro pek	650	48	
18	Do	406	16	do	pekoe	960	37	
19	Do	408	9	do	pek sou	540	31	
20	Strathellie	410	18	ch	pek sou	1620	31	
21	Langdale	412	13	ch	bro pek	1365	50	bid
22	Do	414	12	do	pekoe	1200	39	
23	Do	416	16	do	pek sou	1520	32	
24	Avoca	418	6	do	bro pek	600	52	
25	Do	420	6	do	pekoe	600	39	
26	Do	422	8	do	pek sou	760	31	
27	Do	424	1	do	bro tea	80	22	
28	W T	426	12	hf-ch	bro pek	600	44	
29	Do	428	19	do	pekoe	950	34	
30	Tulloes	430	6	ch	bro pek	660	35	
31	Do	432	9	do	pekoe	810	30	
32	Do	434	4	do	pek sou	380	25	
33	Do	436	1	do	dust	80	18	
34	St. Catherine	438	5	do	bro pek	450	41	
35	Do	440	6	do	pekoe	510	35	
36	Do	242	6	do	pek sou	480	30	
37	Do	444	2	hf-ch	pek fans	130	25	
38	Do	446	1	ch	red leaf	75	18	
39	R G S, in estate mark	448	31	hf-ch	bro or pek	1740	41	
40	B A M	450	10	do	dust	854	21	
41	R B G	452	8	do	fans	616	15	
42	Pallagalla	454	12	ch	bro pek	1200	44	
42	Do	456	15	do	pekoe	1200	out	
44	Do	458	29	do	pek sou	2600	28	
45	Mousakelle	460	12	do	bro pek	1380	64	
46	Do	462	17	do	pekoe	1700	84	
47	Kirrimettia, L M	464	18	hf-ch	bro pek	895	53	
48	Do	466	13	ch				
			1	hf-ch	pekoe	1388	34	
49	Do	468	1	ch	pek sou	105	26	
50	Do	470	1	do	pek fan	155	25	
51	Do	472	1	hf-ch	red leaf	52	19	
52	C S K Ceylon, in estate mark	474	2	ch	dust	300	26	
	Do	476	1	do	congou	100	27	
54	J W F	478	1	hf-ch	pek sou	65	21	
55	Calefornia	480	2	ch	pek sou	140	30	
56	Do	482	1	hf-ch	do No. 2	50	30	
57	Do	484	2	ch	sou	140	29	
58	Kospelana	486	1	hf-ch	bro pek	50	43	
59	Do	488	2	do	pekoe	90	33	
60	Do	490	11	do	pek sou	550	30	
61	Do	492	1	do	dust	60	25	
62	Kelaneiya	494	19	ch	bro pek	1615	68	
63	Do	496	18	do	pekoe	1800	51	
64	Do	498	1	do	dust	115	22	
65	Do	500	1	do	congou	105	31	
66	Rambodde	502	7	do	bro pek	770	63	
67	Do	504	7	do	pekoe	700	52	
68	Do	506	7	do	pek sou	700	35	bid
69	Do	508	1	do	congou	100	28	
70	Do	510	1	hf-ch	dust	75	21	
71	B & D	512	2	ch	dust	240	23	
72	Do	514	2	do	red leaf	233	17	
73	Angroowella	516	9	hf-ch	dust	156	25	
74	Atherfield	518	9	do	sou	450	27	
75	Do	520	2	do	bro mix	100	26	
76	Do	522	3	do	dust	240	22	
77	B	524	25	ch	bro tea	2500	20	
78	B	526	30	do	do	3000	24	
79	Lankapura, M	528	76	hf-ch	bro pek	4180	61	
80	Do	530	58	ch	pekoe	6380	46	
81	Do	532	17	do	pek sou	1700	32	
82	Do	534	3	hf-ch	fans	225	35	bid
83	Do	536	3	do	dust	240	24	
84	Lankapura, W	538	12	ch	bro pek	1200	59	
85	Do	540	32	do	pekoe	3040	41	bid
86	Do	542	23	do	pek sou	2070	37	bid
87	Mukeloya	544	19	hf-ch	bro pek	1140	56	
88	Do	546	23	do	pekoe	1380	40	
89	Do	548	11	do	pek sou	660	30	
90	St. Martin's	550	2	do	sou	80	29	
91	Do	552	1	do	dust	76	24	
92	Do	554	1	do	red leaf	45	18	
98	Ingeriya	566	3	ch	pek sou	305	30	
99	Do	568	2	do	dust	290	24	
100	St. Helier's	570	9	do	bro pek	900	55	
101	Do	572	12	do	pekoe	1080	38	
102	Do	574	6	do	pek sou	540	32	
103	Ancoombra	584	40	do	bro pek	4524	50	bid
104	Do	586	16	do	pekoe	1850	45	
106	C L D	590	4	ch	pek sou	360	28	
107	N B G	592	1	do	sou	104	out	
108	Do	594	3	do				
			1	hf-ch	fans	470	23	
109	Do	596	1	ch	bro tea	95	19	
110	Do	598	3	do	green tea	300	out	
117	N, in estate mark	612	3	do	dust	225	29	
118	Monrovia	614	14	do	bro pek	715	45	
119	Do	616	15	do	pekoe	1500	34	
120	Do	618	5	ch				
			2	hf-ch	pek sou	625	27	
121	Do	620	2	do	dust	160	25	
122	Meddetenne	622	14	ch	bro pek	1418	45	
123	Do	624	8	do				
			1	hf-ch	pekoe	864	34	
124	Do	626	4	ch	dust	725	22	
125	Chesterford	628	14	do	pek sou	1540	30	
131	D D in estate mark	640	12	ch	bro pek	1200	40	bid
132	Theberton	642	3	do	bro or pek	300	26	
133	Do	644	12	do	bro pek	1200	30	
134	Do	646	8	do	pekoe	800	31	
135	Do	648	5	do	pek sou	500	27	
136	Do	650	2	do	pek dust	200	21	
137	Do	652	2	do	congou	200	21	
138	Glenorchy	654	20	hf-ch	bro pek	1100	64	
139	Do	656	33	do	pekoe	1650	48	
140	Do	658	2	do	pek sou	100	34	
141	Do	660	7	do	dust	525	25	
142	G O	662	2	do	bro pek	110	50	
143	Do	664	4	do	pek sou	200	33	
144	Do	666	1	do	unas	55	31	
145	Ukuwella	668	20	ch	bro pek	2100	49	bid
146	Do	670	8	do	pekoe	800	38	bid
147	Do	672	16	do	pek sou	1520	32	
148	Do	674	8	do	congou	800	27	
149	Do	676	4	hf-ch	dust	300	25	
150	Bandarapolla	678	19	do	bro pek	950	53	bid
151	Do	680	40	do	pekoe	2000	44	
152	Do	682	27	do	pek sou	1215	34	
153	Thornfield	684	18	do	bro pek	1080	63	bid
154	Do	686	20	ch	pekoe	2000	50	
155	Do	688	8	do	pek sou	800	32	bid
156	Do	600	2	hf-ch	dust	160	25	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
157	Thornfield, M E	692	16	do	bro pek	960	60	bid
158	Do	694	12	ch	pekoe	1200	46	
159	Wewesse	696	16	hf-ch	bro pek	800	54	bid
160	Do	698	14	do	pekoe	700	39	bid
161	Do	700	18	do	pek sou	900	41	bid
162	Talgas-wela	702	40	ch	bro pek	4000	37	
163	Do	704	14	do	pek sou	1190	32	
164	Do	706	1	do	dust	140	24	
165	B E R	708	17	ch	pek sou	1530	23	
166	Do	710	2	do	dust	280	22	
167	P G	712	16	hf-ch	bro pek	896	38	
168	Do	714	8	ch	pekoe	736	34	
169	E	716	3	do	pek sou	270	21	
170	M	718	4	hf-ch	dust	320	18	
171	A	720	1	ch	bro tea	80	18	
172	D	722	4	hf-ch	dust	300	16	
173	Midlothian	724	18	do	bro pek	900	55	
174	Do	726	12	ch	pekoe	1200	39	bid
175	Do	728	2	hf-ch	congou	90	28	

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 23rd Sept., the undermentioned lots of Tea (39,569 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
4	Bogahagoda-watte	4	2	do	bro pek	160	44	
5	Do	5	8	do	pekoe	210	32	
6	Do	6	8	do	pek sou	560	24	
7	Do	8	14	do	bro mix	910	20	
8	Do	10	1	do	fans	80	25	
9	Hopton	11	7	ch	bro pek	770	46	bid
10	Do	13	7	do	pekoe	770	40	
11	Do	15	7	do	pek sou	770	32	
12	Do	17	1	do	dust	90	24	
13	K. 'Della	18	16	hf-ch	bro pek	800	44	bid
14	Do	20	10	ch	pekoe	950	35	
15	Do	22	15	hf-ch	pek sou	750	29	bid
16	Nugagalla	24	11	do	bro pek	550	56	bid
17	Do	26	29	do	pekoe	1450	48	
18	Nahalma	28	27	do	bro pek	1485	52	
19	Do	30	32	ch	pekoe	3200	35	bid
20	Do	32	2	do	pek sou	190	26	bid
21	Do	33	5	do	congou	500	26	
22	Do	34	1	hf-ch	dust	75	24	
23	Woodend	35	1	ch	dust	130	23	
24	Comillah	36	9	hf-ch	bro pek	495	40	
25	Do	38	11	do	pekoe	550	32	
26	Do	40	8	do	pek sou	400	24	bid
27	Do	42	1	ch	dust	80	23	
28	P B	43	5	do	dust	750	20	
29	Pambagama	44	52	hf-ch	bro pek	3120	32	bid
30	Do	46	71	ch	pekoe	6745	33	
31	Do	48	26	do	pek sou	2470	25	
32	X X X	50	4	do	bro tea	400	12	bid
33	Do	51	11	hf-ch	pek dust	770	20	bid
34	A G C	52	5	do	dust	350	23	
35	Harrow	53	16	do	bro pek	960	39	bid
36	Do	55	9	do	pekoe	495	32	bid
37	Mohedin	57	1	do	bro pek	50	47	
38	Do	58	3	do	pekoe	132	32	
39	Do	59	4	do	pek sou	160	27	
40	Do	60	1	do	bro pek fans	50	23	
41	Do	61	1	do	congou	40	16	
42	Do	62	1	do	red leaf	40	16	
43	Do	63	1	do	pek dust	62	23	
44	Shannon	64	13	ch	pekoe	1275	withd'n	
45	G H K, Ceylon, in estate mark	66	8	do	pekoe	676	25	bid
46	Do	68	3	do	red leaf	213	17	
47	Kennington	69	6	do	bro pek	620	47	
48	Do	71	13	do	pekoe	1208	29	bid
49	Do	73	9	do	pek sou	860	35	bid
50	Do	75	1	do	congou	77	17	bid
51	Elston	76	15	hf-ch	dust	1050	20	bid
52	Do	78	8	do	congou	400	20	bid
53		80	5	ch	sou	400	20	bid

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 23rd Sept., the undermentioned lots of Tea (181,994 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	H & H	730	6	ch	bro tea	540	20	
2	N	732	1	do	sou	104	17	
3	N	734	3	do				
			1	hf-ch	fans	470	24	
4	Maha Uva	736	10	ch	bro pek	1100	73	
5	Do	738	11	do	pekoe	990	54	
6	Do	740	5	do	pek sou	475	44	
7	Do	742	2	do	dust	160	26	
18	M D	764	6	ch	pekoe	600	28	
19	We'oya	766	14	hf-ch	or.pek	770	54	
20	Do	768	14	do	bro pek	840	57	
21	Do	770	47	do	pekoe	2290	35	
22	Do	772	5	do	do No. 2	250	33	
23	Do	774	29	do	pek sou	1450	31	
24	N	776	30	ch	fans	3000	out	
25	K G	778	6	do	bro pek	600	39	bid
26	Do	780	1	do	pekoe	90	30	
27	Do	782	1	do	congou	90	24	
28	Ouvah Kellie, V	784	5	do	bro pek	550	76	
29	Do	786	7	do	pekoe	665	54	
30	Langdale, R	788	15	do	bro pek	1500	46	
31	Do	790	21	do	pekoe	1680	35	
32	Do	792	17	do	pek sou	1360	31	
33	Galkadua	794	6	do	bro pek	600	out	
34	Do	796	6	do	pekoe	600	out	
35	Do	798	9	do	pek sou	855	out	
36	Freds Ruhe	800	8	hf-ch	bro pek	400	46	
37	Do	2	5	ch	pekoe	500	34	
38	Do	4	6	do	pek sou	600	31	
39	Do	6	3	do	bro tea	345	29	
40	W A	8	4	hf-ch	bro pek	200	46	
41	Do	10	4	ch	pekoe	400	34	
42	Do	12	3	do	pek sou	300	30	
43	Do	14	1	do				
			1	hf-ch	bro tea	181	27	
44	Do	16	1	do	congou	80	20	
45	Do	18	1	do	red leaf	52	18	
46	Do	20	1	do	dust	98	22	
47	Clarendon	22	23	do	bro pek	1495	58	
48	Do	24	29	do	pekoe	1624	46	
49	R	26	4	do	dust	308	14	
50	Palmerston	28	7	do	bro pek	385	66	
51	Do	30	9	ch	pekoe	900	51	
52	Do	32	4	do	pek sou	400	40	
53	Bismark	34	8	hf-ch	bro pek	480	45	bid
54	Do	36	7	ch	pekoe	630	38	
55	Do	38	1	do	dust	130	23	
60	Tulloes	48	8	do	bro pek	880	54	bid
61	Do	50	10	do	pekoe	900	48	bid
62	Do	52	4	do	pek sou	380	34	bid
63	Do	54	1	hf-ch	dust	80	25	
64	Ragalla	56	39	ch	bro pek	4290	63	bid
65	Do	58	47	do	pekoe	4230	54	
66	Do	60	20	do	pk sou	1900	42	
67	Do	62	4	hf-ch	dust	320	26	
68	Do	64	3	do	sou	150	26	
69	St. Hellier's	66	10	ch	bro pek	1000	56	
70	Do	68	16	do	pekoe	1440	37	
71	Do	70	7	do	pek sou	630	31	
72	Do	72	5	hf-ch	dust	350	26	
73	Forest Hill	74	21	ch	bro pek	1867	52	bid
74	Do	76	5	hf-ch	bro or pek	294	48	bid
75	Do	78	14	ch	pekoe	1222	44	
76	Do	80	8	do	pek sou	713	32	
77	Do	82	1	do	fan	113	30	
78	Do	84	1	do	bro mix	68	15	
79	Do	86	3	hf-ch	dust	249	24	
80	E D K E, in estate mark	88	9	do	red leaf	450	17	
81	Deniyaya	90	5	ch	bro pek	520	46	
82	Do	92	8	do	pekoe	800	34	
83	Do	94	3	do	pek sou	300	29	
84	Do	96	1	do	sou	100	23	
85	Do	98	1	do	red leaf	60	17	
86	L G E	100	2	hf-ch	dust	170	22	
87	D C	102	3	ch	bro pek	300	39	
88	Do	104	3	do	pekoe	300	30	
89	Do	106	1	do	bro mix	112	18	
90	Do	108	2	hf-ch	dust	140	23	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
91	D C	110	4	ch	bro pek	400	39	
92	Do	112	5	do	pekoe	500	31	
93	Do	114	1	do	bro mix	112	19	
94	Do	116	2	hf-ch	dust	140	24	
95	Middleton	118	39	do	bro pek	2340	59	bid
96	Do	120	26	do	pekoe	1430	50	
97	Ederepolla	122	16	ch	sou	1440	29	
98	Do	124	3	hf-ch	pek dust	210	23	
99	A	126	3	ch	sou	300	25	
100	Eadella	128	1	do	dust	160	22	
101	Do	130	2	do	sou	170	23	
102	Do	132	1	do	red leaf	90	16	
103	Walahan-duwa	134	6	do	bro pek	660	51	
104	Do	136	11	do	pekoe	880	44	
105	Do	138	13	do	pek sou	1300	32	
106	S P A	140	18	do	unas	1800	29	
107	Do	142	2	do	bro mix	180	23	
108	Do	144	8	do	red leaf	800	25	
109	Do	146	2	do	dust	180	24	
110	G	148	4	do	dust	308	16	
111	Yataderia	150	11	do	bro pek	1210	44	bid
112	Do	152	8	do	or pek	520	53	
113	Do	154	24	do	pekoe	2400	34	
114	Do	156	25	do	pek sou	2250	30	bid
115	Do	158	2	do	bro tea	190	21	
116	I G	160	6	do	sou	540	27	
117	Alnoor	162	21	hf-ch	bro pek	1050	45	
118	Do	164	22	do	pekoe	1100	35	
119	Do	166	17	do	pek sou	850	30	
120	Do	168	2	do	congou	100	20	
121	Do	170	1	do	dust	80	23	
122	Warwick	172	3	ch	dust	240	26	
123	Do	174	1	do	bro pek	72	41	
124	Do	176	2	do	pekoe	169	33	
125	Do	178	1	do	pek sou	83	26	
126	Do	180	1	hf-ch	unas	46	26	
127	Semba-watte	182	50	do	bro pek	3750	35	bid
128	Do	184	40	do	pekoe	2400	31	bid
129	Do	186	20	do	pek sou	1300	out	
130	Udabage	188	33	do	dust	2310	25	
131	Do	190	15	do	fans	750	24	bid
132	Dunkeld	192	12	ch	bro pek	1200	59	bid
133	Do	194	21	hf-ch	or pek	945	50	bid
134	Do	196	15	ch	pekoe	1125	40	
135	Glasgow	198	4	do	bro mix	400	30	
136	Do	200	1	do	red leaf	100	21	
137	R A	202	7	do	pek son	700	23	
138	K A E	204	4	hf-ch	bro pek	224	out	
139	Do	206	5	do	pekoe	282	21	bid
140	Thornley	208	22	ch	bro pek	2420	54	bid
141	Do	210	16	do	pekoe	1600	43	bid
142	Do	212	11	do	pek sou	1100	34	bid
143	Do	214	2	hf-ch	dust	150	24	
144	Silver Kandy	216	3	do	unas	150	29	
			1	hf-ch	pek fans	75	33	
145	Polatagama	218	61	do	bro pek	3355	46	bid
146	Do	220	93	do	pekoe	4185	41	bid
147	Do	222	91	do	pek sou	4550	31	bid
148	C & G	224	37	ch	dust	3490	25	
149	Do	226	15	do				
			1	hf-ch	fans	1576	32	
150	Do	228	9	ch				
			1	box	bro mix	922	27	
151	Bandara-polla	230	23	hf-ch	bro pek	1150	50	bid
152	Do	232	36	do	pekoe	1800	40	
153	Do	234	35	do	pek sou	1575	33	
154	Ferndale	236	14	ch	bro pek	1400	55	
155	Do	238	20	do	pekoe	2000	46	
156	Do	240	1	do	dust	100	22	
157	Wavendon	242	21	hf-ch	bro pek	1050	44	bid
158	Do	244	12	do				
			1	box	pekoe	620	36	
159	Do	246	8	hf-ch				
			1	box	pek sou	420	36	
160	Do	248	7	hf-ch	sou	350	26	
161	Do	250	2	do	red leaf	76	19	
162	Do	252	6	do				
			1	box	dust	380	26	
163	Pansala-tenne	254	12	ch	bro pek	1260	44	bid
164	Do	256	12	do	pekoe	1200	35	bid
165	Do	258	12	do	pek sou	1140	31	bid
166	Ancoombra	260	40	do	bro pek	4524	50	bid
167	Avisawella	262	3	do	dust	450	22	
171	L W	270	3	do	congou	300	24	
172	Do	272	6	hf-ch	dust	420	23	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, September 4th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 4th September:—

Ex "Pak Ling"—Ampitiyakande, 1b 107s; 2c 104s 6d; c10 2s; 3c 1b 101s 6d; 1c 95s 6d; 1c 1b 120s; 1t 94s; 3b 101s 6d.

Ex "Orizaba"—Thotulagalla, 2c 106s; 19c 102s 6d; 3c 123s 6d; 1c 1t 94s; 4b 102s 6d; 1b 109s. Craig, 2c 1t 108s; 4c 1t 105s 6d; 3c 1t 103s; 1c 118s; 1c 96s 6d.

Ex "Nubia"—St. Leonards, 1b 106s; 2c 104s; 9c 102s 6d; 1t 113s.

Ex "Pak Ling"—Rappahannock, 1b 112s; 2c 100s 6d; 9c 104s 6d; 1c 1t 100s; 1c 117s; 1c 1b 94s; 2b 104s. Mousagalla, 5c 1t 107s 6d; 8c 1b 105s 6d; 4c 1b 102s; 1c 1t 115s 6d; 1c 1t 92s 6d; 3b 102s 6d.

Ex "Nubia"—Niabedda, 2c 1b 103s; 1c 122s; 3c 1b 107s; 2b 104s.

Ex "Oroya"—PDM, 1b 1c 1t 102s; 1c 70?s; 1b 97s; 1c 110s; 1b 88s; 1b 80s 1b 79s.

Ex "Capella"—Sarnia, 1t 100s; 1t 119s; 1c 94s; 1b 67s; 2b 100s; 1t 109s; 6c 107s 6d; 3c 103s, 1t 120s; 1c 97s 6d; 2b 103s. Verelapatana, 1c 1b 104s 6d; 2c 102s 6d; 1b 99s; 1b 114s; 1t 95s.

Ex "Pak Ling"—Brookside, 2c 1b 105s 6d; 4c 1b 104s; 1t 116s; 1c 96s; 1b 102s.

Ex "Tara"—Meddecombra, 1b 110s; 4c 109s; 3c 1b 105s 6d; 1t 101s; 2c 123s; 1b 93s; 1b 103s.

Ex "Orizaba"—Delmar, 1b 105s; 4c 1b 104s; 9c 101s 6d; 1c 1b 111s. Sherwood, 2c 106s; 8c 103s 6d; 1c 99s; 1c 119s. Haputale, 3c 107s 6d; 5c 103s 6d; 5c 1b 104s; 1c 1b 99s; 2c 118s. Mahadowa, 5c 1t 103s 6d; 5c 103s 6d; 4c 104s; 1c 100s; 1c 1b 120s.

Ex "Pak Ling"—Ragalla, 1b 104s; 3c 103s; 11b 102s. Palli, 1b 96s; 1c 1b 95s; 2b 1c 94s; 1b 100s. Hiralouv h. 1c 1b 111s 6d; 6c 106s 6d; 1c 1t 103s 6d; 1c 130s. Gonamotava, 2c 105s; 10c 104s; 2c 106s; 1c 1t 128s 6d. Ouvah, 3c 1b 103s 6d; 10c 100s; 1c 106s.

Ex "Capella"—Tillicoultry, 1b 103s; 1b 97s; 1t 110s.

Ex "Nubia"—Dunsinane, 1b 105s.

Ex "Pak Ling"—Galella, 1b 1c 102s 6d; 1c 90s; 1c 105s; 1c 100s; 1b 91s.

Ex "Polyphemus"—RWA, 1b 2c 106s; 1b 106s; 1t 91s 6d.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MNICING LANE, September 4th, 1891.

Ex "Mombassa"—Amba, 2b 87s 6d.

Ex "Nubia"—Hylton, 72b 120s; 4b 68s, 1b 60s; 1b 47s.

Ex "Mombassa"—Ross, 38b 111s; 4b 84s; 11b 72s; 2b 60s.

Ex "Kaisow"—Yattewatte, 1b 70s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, September 4th, 1891.

Ex "Pak Ling"—Vicarton, 2c 2s 10d; 2c 1s 10d; 1c 1s 6d.

Ex "Aberdeen"—Vicarton, 1c 2s.

Ex "Pak Ling"—Poengalla, 3c 2s 2d; 1c 1s 8d; 1c 2s.

Ex "Titan"—Galaha, 2c 2s 2d; 1c 2s 2d. Kitoolmoola, 1c 2s 2d.

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COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 23rd Sept., the undermentioned lots of Tea (47,555 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	P T E	165	1	hf-ch	dust	85	24	
2	D E	166	2	ch	bro mix	180	26	
3	Do	167	8	hf-ch	fans	656	39	
4	B, in estate mark,	168	1	ch	dust	80	22	
5	Do	169	3	do	congou	165	27	
6	Bittacy	170	26	hf-ch	bro pek	1430	48	bid
7	Do	172	34	do	pekoe	1870	36	
8	Labugama	174	11	do	bro pek	440	55	
9	Do	176	19	do	pekoe	760	33	
10	Do	178	9	do	pek sou	360	31	
11	Do	180	3	do	congou	120	24	
12	Do	181	4	do	pek fan	180	26	
13	Do	182	1	do	red leaf	45	21	
14	Do	183	2	do	pek dust	110	24	
15	Logan	184	16	ch	bro pek	1680	50	
16	Do	186	13	do	pekoe	1300	40	
17	Do	188	57	hf-ch	pek sou	2565	35	
18	Do	190	10	do	sou	500	27	
19	Do	192	12	do	dust	720	34	
20	Do	193	8	do	red leaf	400	28	
21	Dunbar	194	19	ch	bro pek	1805	59	
22	Do	196	18	do	pekoe	1530	40	
23	Tientsin	198	12	hf-ch	bro pek	720	65	
24	Do	200	17	ch	pekoe	1530	46	
25	Do	202	13	do	pek sou	1170	36	
26	Do	204	2	hf-ch	fans	140	29	
27	Do	205	1	do	dust	80	23	
28	Maddegedera	212	24	ch	bro pek	2376	40	bid
29	Do	214	22	do	pekoe	1760	37	bid
30	Do	216	4	do	sou	280	27	
31	Do	217	1	do	dust	143	22	
32	Ouvah Kellie	116	10	do	bro pek	1100	70	
33	Do	118	9	do	pekoe	855	58	
34	Panapitiya	222	3	hf-ch	bro pek	153	18	
35	Do	223	16	do	unas	880	28	
36	R	225	14	ch	dust	1940	10	
37	B C	226	14	do	bro pek sou	1050	23	
38	Do	228	6	do	pek dust	840	06	
39	Madooltenne	206	13	do	bro pek	1430	48	bid
40	Do	208	15	do	pekoe	1500	37	
41	Do	210	14	do	pek sou	1540	28	bid
42	W D, in estate mark	229	18	do	bro pek sou	1710	19	
43	Brownlow	231	15	do	bro pek	1650	56	bid
44	Albion	233	29	do	bro pek	3045	56	bid
45	Do	235	17	do	bro pek	1785	60	
46	Do	237	15	do	pekoe	1425	49	
47	Do	239	12	do	pek sou	1140	34	bid
48	Do	241	4	do	dust	320	29	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 23rd Sept., the undermentioned lots of Tea (48,242 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D H	85	1	ch	bro mix	75	18	
2	G L	86	3	do	congou	240	21	
3	Do	87	2	do	fans	240	25	
4	Do	88	1	do	bro tea	100	22	
5	Ceylon, T N C	89	5	hf-ch	pek sou	300	30	bid
6	Do	90	2	ch	unas	160	29	bid
7	Do	91	4	hf-ch	dust	384	25	
8	Do	92	2	do	red leaf	100	15	
9	E A T S, in estate mark	93	2	ch	bro pek	220	52	
10	Do	94	3	do	pekoe	285	43	
11	Do	95	2	do	pek sou	200	34	
15	G W	99	2	do	bro mix	200	22	
16	Kitrol Patna	100	3	do	bro pek	315	38	bid
17	Do	1	4	do	pekoe	360	20	bid
18	Blairavon	2	23	do	bro pek	2300	53	
19	Do	3	35	do	pekoe	3325	41	
20	Do	4	20	do	pek sou	1700	31	
21	Do	5	2	do	dust	240	22	
22	Do	6	2	do	bro tea	180	20	
23	C T M	7	1	do	bro mix	90	22	
24	Do	8	2	hf-ch	dust	140	22	
25	R X	9	3	ch	bro mix	360	31	
26	Do	10	2	do	dust	280	25	
27	I N G	11	1	do	congou	100	24	
28	Do	12	2	do	dust	200	22	
29	South Wanarajah	13	33	hf-ch	bro or pek	1650	59	bid
30	Do	14	10	ch	bro pek	1000	55	bid
31	Do	15	27	do	pekoe	2700	42	
32	Depedene	16	6	hf-ch	bro pek	300	45	bid
33	Do	17	8	do	pekoe	400	37	bid
34	Do	18	12	do	pek sou	600	35	
35	Do	19	2	do	pek dust	140	31	
36	H D	20	20	do	bro sou	1000	26	
37	Do	21	14	do	bro mix	700	15	bid
38	Do	22	2	do	dust	160	29	
39	K P	23	1	do	bro mix	42	16	
40	Blairavon	24	20	ch	bro pek	2000	48	
41	Do	25	28	do	pekoe	2660	cut	
42	Do	26	28	do	pek sou	2380	30	bid
43	Abbotsford	27	9	do	bro mix	810	25	
44	Charlie Hill	28	3	hf-ch	bro pek	137	52	
45	Do	29	5	ch	pekoe	250	36	
46	Do	30	5	do	pek sou	243	31	
87	Do	31	5	do	do No 2	226	25	
49	Do	32	1	hf-ch	fans	47	24	
50	Do	33	1	do	unas	50	20	
44	M	34	7	do	pekoe	314	34	bid
51	W	35	9	ch	pekoe	900	32	bid
52	W	36	13	do	do No. 2	1300	24	bid
53	Allakolla	37	16	hf-ch	bro pek	1040	47	
54	Do	38	20	ch	pekoe	2100	36	bid
55	Do	39	12	do	pek sou	1200	31	
56	Do	40	1	do	dust	100	24	
57	N	41	6	hf-ch	pekoe	300	cut	
58	Hopewell	42	15	do	bro pek	750	44	bid
59	Do	43	48	do	pekoe	1920	30	bid
60	Do	44	1	do	dust	74	22	
61	Ingeria	45	9	do	bro pek	495	46	
62	Do	46	13	do	pekoe	650	33	bid
63	Do	47	8	do	pek sou	400	31	
64	Do	48	2	do	bro tea	120	23	
65	Do	49	1	do	bro mix	50	20	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room, on the 30th Sept., the undermentioned lots of Tea (38,526 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	A S C, in estate mark	1	4	hf-ch	pek sou	200	27
2	Do	2	3	do	fans	150	22
3	Do	3	5	do	red leaf	250	18
4	D E C	4	12	do	red leaf	580	16
5	Dehiowita	6	25	ch	bro pek	2625	47
6	Do	8	50	do	pekoe	5000	33
7	Do	10	18	do	pek sou	1710	29
8	Do	12	1	do	bro tea	120	23
9	Do	13	1	do	dust	160	22
10	Gampolawatte	14	5	do	bro pek	500	44
11	Do	16	12	do	pekoe	1080	34

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
12	S, in estate mark	18	16	hf-ch	bro pek	800	45	bid
13	Penrhos	20	20	do	bro pek	1200	62	
14	Do	22	25	do	pekoe	1375	49	
15	Do	24	48	do	pek sou	2400	34	bid
16	Do	26	4	do	fans	240	28	
17	Pambagama	27	64	do	bro pek	3520	36	
18	Do	29	74	ch	pekoe	7030	26	bid
19	Do	31	25	do	pek sou	2250	25	
20	Do	33	3	hf-ch	dust	270	22	
21	Nahalma	34	17	do	bro pek	935	46	bid
22	Do	36	19	ch	pekoe	1900	35	
23	Do	38	4	do	sou	400	25	
24	Do	39	1	hf-ch	dust	75	22	
25	Shannon	40	5	ch	pek sou	500	22	
26	A G C	42	3	hf-ch	dust	210	22	
27	Do	43	4	ch	bro mix	400	12	
28	Do	44	1	hf-ch	dust	770	19	
29	M	45	2	do	bro mix	123	38	
30	M	46	2	ch	pekoe	164	25	bid
31	M	47	10	do	sou	930	25	bid
32	M	49	3	do	fans	326	24	
33	M	50	2	do	pek dust	280	17	
34	Dikmukalana	51	2	hf-ch	dust	100	19	
35	Comilah		8	do	pek sou	400	22	bid

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 30th Sept., the undermentioned lots of Tea (73,902 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	H Y	242	2	ch	bro mix	220	20	
2	Do	243	2	do	dust	260	24	
3	Tamaravalley	244	8	hf-ch	dust	560	22	
4	Do	245	1	do	pek dust	50	23	
5	Do	246	10	do	congou	500	17	
6	Do	247	50	do	pek sou	2500	24	bid
7	W, in estate mark	249	12	ch	bro pek	1260	48	
8	Do	251	19	do	pekoe	1900	35	bid
9	Do	253	6	do	pek sou	570	30	
10	Gonavy	255	37	do	bro pek	3700	50	bid
11	Great Valley	257	18	do	bro pek	1980	52	bid
12	Do	259	16	do	pekoe	1600	47	
13	Do	261	18	do	pek sou	1710	34	
14	Deeside	263	40	hf-ch	pro pek	2400	62	
15	Do	265	36	ch	pekoe	3600	43	
16	Coslande	267	2	do	bro pek	200	47	
17	Do	268	5	do	pekoe	500	36	bid
19	Do	269	1	do	pek sou	100	31	
19	Eila	270	16	do	bro pek	1600	36	bid
20	Do	272	27	do	pekoe	2160	33	bid
21	Do	274	15	do	pek sou	1200	30	
22	Do	276	5	do	bro mix	400	23	
23	Do	277	1	do	pek dust	125	23	
24	Troup	278	32	hf-ch	bro pek	1760	68	
25	Do	280	26	do	pekoe	2340	41	bid
26	Do	282	1	do	congou	90	28	
27	Gouravilla	283	12	hf-ch	bro or pek	600	43	bid
28	Do	285	52	do	or pek	2600	61	
29	Do	287	4	ch	bro pek	400	32	
30	Do	289	37	do	pekoe	3700	41	
31	Do	10	35	do	pek sou	3500	32	
32	Ford	12	14	do	pek sou	980	30	
33	Do	14	1	do	congou	90	22	
34	Templestowe	15	26	hf-ch	or pek	1352	58	
35	Do	17	17	ch	pekoe	1360	39	
36	Do	19	21	do	pek sou	1890	32	
37	Agra Ouvah	21	19	box	bro or pek	190	74	
38	Do	23	22	hf-ch	bro pek	990	75	
39	Do	25	23	do	pekoe	1035	58	
40	Do	27	19	do	pek sou	855	46	
41	Do	29	12	hf-ch	do No. 2	585	39	
42	W D, in estate mark	31	21	ch	bro pek sou	2005	18	bid
43	Dickoya	33	39	do	pekoe	3900	42	bid
44	Eila	35	19	do	pek sou	1520	28	bid
45	Watton	37	18	hf-ch	bro or pek	918	46	bid
46	Do	39	22	do	or pek	1100	41	
47	Do	41	32	do	pekoe	1600	35	
48	Do	43	14	do	pek sou	588	31	
49	Do	45	1	do	dust	48	18	
50	Maddegedera	46	24	ch	bro pek	2376	42	
51	Do	48	22	do	pekoe	1760	38	
52	Albion	50	16	ch	bro pek	1680	58	
53	Do	52	17	do	pekoe	1615	47	
54	Do	54	12	do	pek sou	1140	33	bid
55	Do	56	3	do	dust	240	32	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 30th Sept., the undermentioned lots of Tea (50,921 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Naseby	50	10	hf-ch	bro pek	500	75	
2	Do	51	25	do	pekoe	1250	52	
3	Do	52	1	ch	bro tea	84	22	
4	Kudaganga	53	4	do	bro pek	472	55	
5	Do	54	2	do				
			1	hf-ch	pekoe	245	38	
6	Do	55	7	ch	pek sou	721	34	
7	Do	56	1	do	congou	102	28	
8	Do	57	1	do	bro tea	128	27	
9	Do	58	1	do	bro mix	118	22	
10	St. Andrews	59	20	hf-ch	or pek	1320	65	bid
11	Do	60	43	box	do	860	66	
12	Do	61	15	hf-ch	bro pek	975	44	bid
13	Do	62	50	do	pekoe	3200	40	bid
14	Ceylon, T N C	63	5	do	pek sou	300	30	
15	Do	64	2	ch	unas	160	33	
16	Roseneath	65	28	hf-ch	bro pek	1820	48	
17	Do	66	17	ch	pekoe	1785	36	
18	Do	67	18	do	pek sou	1890	31	
19	B N	68	28	do	pek sou	2380	30	
20	Narangoda	69	2	do	or pek	220	48	
21	Do	70	7	do	pekoe	770	39	
22	Do	71	14	do	pek sou	1400	32	
23	Do	72	2	hf-ch	dust	140	26	
24	D	73	14	do	bro mix	700	18	
27	Ingeria	76	13	do	pekoe	650	34	
28	Kitool Patna	77	4	ch	pekoe	360	34	
29	Forest Hill	78	14	do	bro pek	1540	60	bid
30	Do	79	16	do	pekoe	1600	47	
31	Do	80	7	do	pek sou	700	31	bid
32	Do	81	1	do	dust	130	26	
33	Do	82	1	do	congou	100	26	
34	H V A	83	23	do	pekoe	2660	33	bid
35	D E	84	6	hf-ch	bro pek	300	49	bid
36	R	85	24	do	or pek	2160	38	
37	R	86	26	do	pekoe	2080	32	bid
38	R	87	31	do	pek sou	2790	28	
39	Udagama	88	6	ch	bro pek	600	44	
40	Do	89	20	do	pekoe	1800	34	
41	Do	90	4	do	pek sou	380	26	bid
42	M K	91	16	do	bro pek	1600	45	
43	Do	92	13	do	pekoe	1300	33	bid
44	Do	93	12	do	pek sou	1080	30	
45	M K	94	15	do	pekoe	1500	34	
46	Orion	95	16	hf-ch	pek sou	896	39	
47	Do	96	5	do	bro tea	300	30	
48	Do	97	2	do	dust	160	26	
49	Z Z Z	98	5	do	broken	225	25	
50	Do	99	2	do	dust	120	16	
51	Mousagalla	100	2	do	sou	100	24	
52	Do	1	1	do	dust	50	22	
53	Do	2	1	do	red leaf	50	16	
54	R X	3	3	ch	bro mix	360	26	
55	Do	4	3	do	dust	420	27	
56	D B G	5	4	do	bro mix	400	26	
57	Do	6	4	hf-ch	dust	320	23	
58	Do	7	5	do	fans	300	27	
59	D G	8	2	ch	bro or pek	220	33	bid
60	Do	9	5	do	fans	550	26	
67	Do	10	3	do	dust	330	22	
62	Do	11	5	do	bro mix	500	23	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 30th Sept., the undermentioned lots of Tea (150,123 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
5	Deltotta	282	27	ch	bro pek	2700	46
6	Do	284	8	do	pekoe	270	35
7	Do	286	9	do	pek sou	810	30
8	Do	288	1	do	dust	75	23
9	T N	290	22	do			
			1	hf-ch	bro pek sou	1834	19

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
10	T N	292	1	ch				
			1	hf-ch	sou	139	22	
11	Do	294	2	ch				
			1	hf-ch	dust	330	21	
12	Do	296	3	ch	red leaf	180	11	
13	Radella	298	23	do	bro pek	2300	44	
14	Do	300	27	do	pekoe	2160	34	
15	Do	302	30	do	pek sou	2400	30	
16	Do	304	2	do	red leaf	180	16	
17	Portmore	306	17	do	bro pek	1785	58	bid
18	Do	308	13	do	pekoe	1170	54	
19	Do	310	1	hf-ch	sou	53	37	
20	Do	312	1	do	fans	69	24	
21	H S, in estate mark	314	16	ch	bro or pek	1600	45	
22	Do	316	14	do	pekoe	1260	35	
23	Do	318	10	do	pek sou	805	30	
24	Do	320	3	do	sou	255	28	
25	Do	322	1	do	dust	150	26	
26	Ambalakande	324	7	do	bro or pek	730	51	
27	Do	326	18	do	pekoe	1620	36	
28	Do	328	4	do	sou	360	27	
29	B W	330	3	ch				
			5	hf-ch	bro tea	550	22	
30	Do	332	11	do	dust	800	23	
31	Do	334	9	do	pek fan	540	26	
32	Do	336	4	ch				
			2	hf-ch	red leaf	600	15	
33	Horagoda, Bark No. 1	338	1	hf-ch	bro or pek	60	34	bid
34	Do	340	7	do	bro pek	420	30	bid
35	Do	342	55	do	pekoe	2750	34	bid
36	Do	344	9	do	pek sou	450	28	bid
37	Do	346	2	do	dust	150	2	
38	Horagoda, Bark No. 2	348	1	do	bro or pek	50	35	
39	Do	350	7	do	bro pek	350	out	
40	Do	352	72	do	pekoe	2340	36	bid
41	Do	354	9	do	pek sou	405	27	i
42	Do	356	3	do	dust	195	23	
43	Polatagama	358	61	do	bro pek	3355	50	
44	Do	360	93	do	pekoe	4185	38	
45	Do	362	91	do	pek sou	4550	32	
46	Farnham	364	41	do	bro or pek	1640	55	bid
47	Do	366	43	do	pekoe	1935	45	bid
48	Do	368	26	do	pek sou	1170	34	
49	Do	370	7	do	unas	315	33	
50	Do	372	3	do	fans	180	28	
51	Do	374	2	do	dust	130	22	
52	F, in estate mark	376	8	do	bro tea	360	18	
53	O, in estate mark	378	3	do	bro mix	180	10	
54	P	380	5	ch	pekoe	500	29	
55	C	382	6	do	pek sou	600	25	
56	G	384	5	hf-ch	pekoe	282	29	
57	W T	386	19	do	pekoe	950	35	
58	Chesterford	388	12	ch	bro pek	1320	54	bid
59	Do	390	12	do	pekoe	1300	out	
60	Do	392	12	do	pek sou	1320	30	bid
61	Llaa Thomas	394	9	do	bro pek	900	54	
62	Do	396	9	do	pekoe	810	41	
63	Do	398	7	do	pek sou	630	33	
64	Do	400	1	do	dust	140	26	
65	O H O	402	17	do	bro or pek	1020	40	bid
66	Do	404	30	do	pekoe	3000	30	
67	Dunbuldanda	406	17	do	bro pek	2040	40	bid
68	Do	408	34	do	pekoe	3400	33	bid
69	Clyde	410	9	do	bro pek	900	46	
70	Do	412	20	do	pekoe	1800	36	
71	Do	414	6	do	pek sou	570	28	
72	V O	416	3	do	red leaf	330	15	
73	Do	418	2	do	dust	278	23	
74	Norwood	420	2	do	bro pek	164	54	
75	Do	422	4	do	pekoe	393	43	
77	Kirimettia	426	3	do	bro mix	300	22	
78	Do	428	3	do	dust	387	26	
79	I G	430	2	do	sou	270	31	
80	Yataderia	432	14	do	bro pek	1540	37	bid
81	Do	434	9	do	or pek	585	51	
82	Do	436	28	do	pekoe	2800	33	
83	Do	438	25	do	pek sou	2250	30	
84	St. Helen's	440	6	do	bro mix	570	17	
85	Do	442	4	do	pek dust	400	22	
86	Castlereagh	444	24	hf-ch	bro or pek	1200	63	bid
87	Do	446	51	do	pekoe	2295	45	bid
88	K	448	1	ch	pek sou	100	28	
89	U R	450	2	do	red leaf	140	16	
90	Algburth	452	31	do	bro pek	3100	50	bid
91	Do	454	26	do	pekoe	2600	36	bid
92	Do	456	23	do	pek sou	2300	32	
93	F F	458	2	do	bro pek dust	301	30	
94	Do	460	2	do	dust	286	25	
95	Do	462	3	do	bro mix	304	18	
96	Marlborough	464	2	do	bro mix	180	28	
97	Do	466	2	do	dust	320	22	
101	Inch Stelly	474	11	hf-ch	bro pek	550	44	
102	Do	476	25	do	pekoe	1125	34	
103	Do	478	3	do	sou	135	25	
104	Do	480	1	do	dust	61	25	
105	Monrovia	482	8	do	bro pek	415	46	
106	Do	484	8	ch	pekoe	800	32	
107	Do	486	6	do				
			1	hf-ch	pek sou	650	28	
108	Do	488	2	ch				
			1	hf-ch	bro mix	255	22	
109	Do	490	1	ch	dust	150	25	
110	E	492	4	hf-ch	pek dust	344	18	
111	E K	494	4	do	bro pek	190	43	
112	Do	496	4	ch	pekoe	400	32	
113	Do	498	2	do				
			1	hf-ch	pek sou	240	23	
114	Bismark	500	14	do	bro pek	810	46	
115	Do	502	11	ch	pekoe	990	39	
116	P G, in estate mark	504	21	do	bro pek	2100	45	
117	Do	506	15	do	pekoe	1350	35	
118	Do	508	13	do	pek sou	1105	31	
119	Do	510	4	do	sou	340	25	
120	Do	512	1	do	dust	150	22	
121	S	514	6	do	bro pek	600	46	
122	S	516	8	do	pekoe	720	35	
123	S	518	3	do	pek sou	255	31	
124	Berragalla	520	1	do	bro pek	96	46	
125	Do	522	2	do	congou	200	28	
126	Do	524	3	do	dust	474	22	
127	C R D	526	5	hf-ch	dust	275	28	
128	Do	528	6	do	red leaf	300	20	
129	M	530	4	do	pek dust	352	17	
130	Esperanza	532	11	do	bro or pek	550	45	
131	Do	534	41	do	pekoe	1886	37	
132	Do	536	1	do	congou	48	26	
133	Do	538	1	do	dust	82	24	
138	Yahalakele	548	4	do	dust	600	23	
139	Do	550	1	hf-ch	unas	50	28	
140	B L	552	3	do	pekoe	150	out	
141	Do	554	5	do	red leaf	167	15	
142	Thornfield	56	14	do	bro pek	840	74	
143	Do	558	13	ch	pekoe	1300	48	
144	Do	560	8	do	pek sou	800	33	
145	Do	562	2	hf-ch	dust	160	27	
49	Bandarapolla	570	23	hf-ch	bro pek	1150	52	
150	Do	572	35	do	pekoe	1750	37	
151	Do	574	27	do	pek sou	1215	32	
152	Court Lodge	576	30	do	bro pek	1740	97	
153	Do	578	20	do	pekoe	960	77	
154	Do	580	20	do	pek sou	940	60	
155	Do	582	1	ch	sou	86	46	
156	Do	584	1	do	dust	145	27	
157	Balgownie	586	16	do	bro pek	1600	37	bid
158	Do	588	27	do	pekoe	2160	28	bid
159	Do	590	15	do	pk sou	1200	31	bid
160	Do	592	5	do	bro mix	400	18	bid
161	Do	594	1	do	pek dust	125	22	
162	V	596	6	do	pek sou	540	24	
163	V	598	3	do	bro mix	270	15	
164	V	600	3	do	dust	420	23	
165	Salem	602	4	do	red leaf	340	11	
166	Do	604	2	do	red leaf dust	286	10	
167	N	606	12	hf-ch	sou	630	30	
168	N	608	6	do	dust	525	26	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 7th Oct., the undermentioned lots of Tea (22,981 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	N P	1	44	ch	red leaf	3795	19	
2	V E	3	6	hf-ch	bro pek	300	37	bid
3	Do	5	8	do	pekoe	320	31	
4	Do	7	10	do	pek sou	400	25	
5	V	9	12	do	pek fans	960	20	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
6	Kennington	11	4	ch	bro pek	400	48	
7	Do	12	4	do	pekoe	360	37	
8	Do	13	7	do	pek sou	630	27	bid
9	Do	15	2	do	congou	147	21	
10	Do	16	1	do	dust	124	25	
11	Ruanwella	17	9	do	bro pek	900	41	bid
12	Do	19	13	do	pekoe	1170	34	bid
13	Do	21	8	do	pek sou	680	28	bid
14	Ravenscraig	23	4	do	sou	360	26	
15	Do	24	1	do	bro mix	90	15	
16	Do	25	1	hf-ch	dust	75	21	
17	Nahalma	26	26	do	bro pek	1430	46	bid
18	Do	28	34	ch	pekoe	3400	35	
19	Do	30	7	do	pek sou	700	26	bid
20	Do	32	1	hf-ch	dust	75	23	bid
21	A G C	33	4	do	pek dust	280	23	
22	Do	34	3	ch	bro tea	240	13	
23	Preston	35	12	do	bro pek	1320	50	bid
24	Do	37	17	do	pekoe	1530	45	
25	Do	39	12	do	pek sou	1080	33	bid
26	Patulpana	41	9	hf-ch	bro pek	450	45	
27	Do	43	2	do	pekoe	100	30	
28	Do	44	9	do	pek sou	450	28	
29	Do	46	2	do	sou	100	23	
30	Do	47	2	do	congou	95	20	
31	J R P	48	25	hf-ch	pek sou	2260	out	
32	Do	50	7	do	sou	675	30	bid
33	Do	52	2	do	fans	123	16	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 7th Oct., the undermentioned lots of Tea (46,279 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	Marymount	18	6	hf-ch	unas	300	28	
2	Y	19	4	do	bro pek	200	45	bid
3	Y	20	9	do	pekoe	450	34	
4	Bentura	21	7	do	pek sou	350	27	
5	Do	22	3	ch	pek dust	420	25	
6	W A H	23	5	do	bro pek	500	40	bid
7	Do	24	19	do	pekoe	1900	36	
8	Do	25	5	do	pek sou	500	24	bid
9	Do	26	4	do	do No. 2	400	22	bid
10	Hatdowa	27	3	do	bro pek	300	41	bid
11	Do	28	4	do	pekoe	400	35	
12	Do	29	6	do	pek sou	600	28	
13	Do	30	3	do	unas	330	22	
14	Do	31	4	do	bro tea	400	22	bid
15	Allakolla	32	13	hf-ch	bro pek	845	46	
16	Do	33	20	ch	pekoe	2100	35	bid
17	Do	34	20	do	pek sou	2000	31	
18	Do	35	1	hf-ch	dust	100	25	
19	W G	36	9	ch	pekoe	900	31	
20	Do	37	13	do	pek sou	1300	27	
21	Mausagalla	38	7	hf-ch	bro pek	420	46	bid
22	Do	39	10	do	pekoe	500	45	
23	Do	40	30	do	pek sou	1500	32	
24	Do	41	5	ch	sou	250	25	
25	Do	42	21	hf-ch	unas	1050	30	
26	Do	43	2	do	red leaf	100	19	
27	Do	44	1	do	dust	80	21	
28	B	45	6	do	pekoe	350	30	bid
29	Malgolla	46	8	do	bro pek No. 1	400	56	bid
30	Do	47	25	do	do „ 2	1375	45	
31	Do	48	9	do	pekoe	405	45	
32	Do	49	45	do	pek sou	2025	33	bid
33	Do	50	30	do	pek fan	1500	43	
34	Chertsey	51	5	ch	bro pek	500	39	
35	Do	52	10	do	pekoe	800	34	
36	Do	53	7	do	pek sou	560	28	
37	Do	54	1	do	pek dust	31	23	
38	M	55	7	hf-ch	pekoe	315	36	bid
39	H V A	56	28	ch	pekoe	2660	33	
40	H P	57	20	do	bro tea	1600	16	bid
41	E C	58	2	hf-ch	dust	146	26	
42	Yahalatenne	59	10	do	bro pek	500	44	bid
43	Do	60	12	do	pekoe	540	38	
44	Do	61	15	do	pek sou	675	30	bid
45	Do	62	1	do	dust	49	23	
46	M G	63	14	do	bro pek	700	out	
47	Forest Hill	64	14	ch	bro pek	1540	56	bid
48	Do	65	7	do	pek sou	700	30	bid
49	G, in estate mark	66	5	do	congou	455	20	
50	Do	67	4	do	bro mix	360	17	bid
51	Do	68	4	do				
			1	hf-ch	bro tea	502	11	bid
52	Cherisey	69	23	do	pekoe	1150	34	
53	Do	70	4	do	bro tea	200	26	
54	Do	71	5	do	congou	250	23	
55	Do	72	5	do	pek fans	275	28	
56	Do	73	1	do	pek sou	50	27	
57	Do	74	1	do	red leaf	50	16	
58	Morningside	75	10	do	bro pek	550	40	
59	Do	76	9	do	pekoe	495	34	
60	Do	77	1	do	sou	55	22	
61	Do	78	1	do	bro tea	55	17	
62	Do	79	1	do	dust	80	23	
64	Goonambil	81	20	do	bro pek	1200	54	
65	Do	82	30	do	pekoe	1650	44	
66	Do	83	33	do	pek sou	1815	33	
67	Do	84	8	do	fans	470	32	
68	Do	85	3	do	dust	240	24	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, September 11th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 11th Sept.:—

Ex "Pack Ling"—Warwick, 1t 105s; 3c 102s; 2c 100s 6d; 1c 120s 6d; 1b 88s; 1b 102s

Ex "Clan McNeill"—Concordia, 1t 89s.

Ex "Lord Charlemont"—Kahagalla, 1c 105s; 6c 102s 6d; 2c 1b 100s; 1c 121s; 2b 100s. Needwood, 1c 1b 103s; 2c 99s; 1b 106s; 1b 96s 6d.

Ex "Rosetta"—Hillside, 1c 100s; 5c 99s 6d; 1c 1t 100s; 1b 95s; 1c 1b 89s; 4b 99s.

Ex "Glengyle"—Dambetenne, 1c 1t 102s; 1c 119s; 1b 83s; 17b 100s. St. Leonards, 1b 100s; 2c 98s 6d; 18c 1t 96s; 1t 101s; 3c 91s 6d; 1b 98s; 4b 95s 6d; 1b 83s.

Ex "Lord Charlemont"—Mahauva, 4c 1t 1b 99s 6d; 5c 1b 97s 6d; 1c 1t 95s 6d; 1c 108s; 1c 85s; 1t 97s 6d; 3c 97s; 1c 1b 95s 6d; 1b 102s, 2b 97s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 18th Sept.:—

Ex "Nubia"—OKO, 1b 100s; 1c 1b 99s; 3c 1t 97s; 1b 108s.

Ex "Glengyle"—OKO, 1b 100s; 1c 98s 6d; 1b 108s. New Cornwall, 1c 1b 100s; 1c 95s; 1b 110s 6d.

Ex "Orient"—Meriatenne, 3c 1b 105s; 4c 96s; 1c 118s. New Cornwall, 1b 107s. Nonpareil, 1b 103s, 2c 1b 104s 6d; 1c 118s. Cannaverella, 2c 1b 104s 6d; 2b 108s. Stafford, 1c 107s; 1b 100s; 3c 99s; 4c 1b 98s 6d; 1b 109s; 3c 97s 6d; 1b 104s; 4c 106.

Ex "Mira"—Hiralonvah, 1c 104s; 5c 101s; 1c 1t 96s; 1b 109s.

Ex "Golconda"—Amanadowa, 6c 92s 6d; 1t 92s; 1c 103s. Gonamotawa, 2c 105s; 12c 1b 100s 6d; 5c 97s 6d; 3c 1b 115s 6d.

Ex "Merkara"—HLOG 3c 110s; 6c 112s 6d.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MINCING LANE, September 11th, 1891.

Ex "Olan McNeill"—Ouvah, 3c 1t 104s; 11c 1b 99s 6d; 1b 99s; 1c 113s; 1c 1b 93s 6d; 5b 100s.

Ex "Capella"—Hantane, 2b 50s.

Ex "Orizaba"—Ross, 31b 108s; 1b 72s.

Ex "Pak Ling"—Bulatwatte, 3b 105s; 1b 76s. Maragalla, 1b 45s.

Ex "Clan McNeill"—Rajawelle, 34b 95s; 1b 76s; 4b 70s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, September 18th, 1891.

Ex "Rosetta"—Perce, 1c 1s 9d; 5c 1s 10d; 1c 1s 5d.

Ex "Ravenna"—Nugagalla, 1c 2s 8d.

Ex "Traveller"—Mysore, 1c 2s 5d.

Ex "Rosetta"—Mysore, 1c 1s 4d; 1c 1s 11d; 1c 1s 4d; 1c 2s.

Ex "Pak Ling"—New Forest, 1 box 1s 4d; 1 box 1s 4d.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 26.] COLOMBO, OCTOBER 17, 1891. {PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 7th Oct., the undermentioned lots of Tea (34,837 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Dorana-kande	56	1	hf-ch	unas	50	22	
2	Do	57	1	do	dust	70	23	
3	Do	58	2	do	red leaf	90	14	
4	L	59	12	do	mix tea	552	18	bid
5	Dikoya	60	6	ch	or pek	540	69	
6	Do	62	17	do	bro pek	2210	61	
7	Do	64	9	do	do	1080	66	
8	Do	66	40	do	pekoe	4000	47	
9	Westhall	68	18	do	fans	1620	17	
10	Mocha	70	40	hf-ch	bro pek	2200	76	
11	Do	72	23	ch	pekoe	2300	57	
12	Do	74	30	box	pek sou	600	40	
13	Morton	75	12	ch	bro pek	1200	42	
14	Do	77	18	do	pekoe	1440	31	
15	Do	79	10	do	pek sou	800	27	
16	Do	81	4	do	bro mix	320	23	
17	Do	82	3	do	unas	210	23	
18	Do	83	1	do	pek dust	150	22	
19	Eila	84	12	do	bro pek	1200	38	
20	Do	86	18	do	pekoe	1440	31	
21	Do	88	11	do	pek sou	880	27	
22	Do	90	4	do	bro mix	320	23	
23	B	101	3	hf-ch	dust	210	11	bid
24	Tomba-galla	102	19	do	bro or pek	916	42	
25	Do	104	3	ch	pekoe	255	35	bid
26	Do	105	8	do	pek sou	800	30	bid
27	Laleham	107	12	do	bro pek	1200	45	bid
28	G L	109	2	hf-ch	dust	140	11	bid
34	Blackburn	117	33	box	bro pek	660	55	
35	Do	119	17	hf-ch	bro pek	1020	52	
36	Do	121	17	ch	bro pek Nos. 62-78	1700	36	
37	Do	123	17	do	pekoe Nos. 96-112	1700	35	
38	Do	125	6	do	pek sou	600	29	
39	Do	127	4	do	dust	360	24	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 7th Oct., the undermentioned lots of Tea (94,906 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	M P	610	1	ch	dust	70	24	
2	A D, in estate mark	612	2	hf-ch	bro pek	105	30	bid
3	Do	614	2	do	pekoe	76	26	bid
4	Rondura	616	16	ch	bro pek	1760	46	
5	Do	618	15	do	pekoe	1500	35	
6	Do	620	18	do	pek sou	1620	30	
7	Do	622	7	do	bro mix	665	17	
8	Do	624	2	do	dust	300	20	
9	Galkadua	626	9	do	bro pek	900	31	bid
10	Do	628	12	do	pekoe	1200	31	bid
11	Do	630	11	do	pek sou	1100	25	bid
12	G	632	5	do	bro pek	500	out	
13	G	634	4	do	pekoe	400	out	
14	G	636	2	do	pek sou	200	out	
20	B	648	11	ch	bro pek	1100	48	
21	B	650	4	do	pekoe	360	34	
22	B	652	7	do	pek sou	630	30	
23	B	654	1	hf-ch	dust	75	27	
24	D	656	4	do	pek dust	344	21	
25	Agars Land	658	40	hf-ch	bro pek	2000	56	bid
26	Do	660	35	do	pekoe	1750	46	
27	Do	662	24	do	pek sou	1080	33	bid
28	Do	664	4	do	sou	180	30	
29	Do	666	20	do	bro pek	1000	60	
30	Talgas-wela	668	33	ch	bro pek	3300	42	
31	Do	670	14	do	do	1260	42	
32	Do	672	7	do	pek sou	630	31	
33	Do	674	4	do	sou	340	23	
34	Thornfield, M E	676	14	do	bro pek	820	59	bid
35	Do	678	12	ch	pekoe	1200	46	
36	Do	680	6	do	pek sou	600	33	
37	Court Lodge	682	30	hf-ch	bro pek	1740	98	
38	Do	684	20	do	pekoe	960	72	
39	Do	686	20	do	pek sou	940	59	
40	Do	688	1	ch	sou	88	43	
41	Do	690	1	do	dust	145	27	
42	Calefornia	692	1	hf-ch	bro pek	55	50	
43	Do	694	1	do	pekoe	55	37	
44	Do	696	2	do	pek sou	120	27	
45	Do	698	1	ch	sou	70	23	
46	Weddigodde	700	1	hf-ch	bro pek	50	52	
47	Do	702	6	do	pekoe	295	32	
48	Do	704	2	do	pek sou	95	26	
49	Do	706	3	do	bro sou	150	22	
50	Callander	708	12	do	bro pek	624	75	
51	Do	710	7	do	pekoe	364	57	
52	Do	712	3	do	pek sou	156	33	
53	R P D S	714	2	do	bro pek	118	30	
54	Do	716	2	do	pekoe	100	25	
55	Do	718	5	do	pek sou	210	18	
56	Theberton	720	30	ch	bro pek	3000	32	
57	Do	722	18	do	pek sou	1800	26	
58	Do	724	3	do	congou	300	21	
59	Do	726	1	do	pek dust	100	23	
60	Do	728	1	do	red leaf	100	13	
61	Middleton	730	45	hf-ch	bro pek	2700	63	
62	Do	732	14	ch	pekoe	1470	49	
63	Do	734	11	do	pek sou	1100	33	bid
64	Dunkeld	736	16	ch	bro pek	1606	55	
			12	do		1200	55	
65	Do	738	26	hf-ch	or pek	1170	45	
66	Do	740	14	ch	pekoe	1050	39	
67	D, in estate mark	742	6	do	pekoe	570	27	
68	Bismark	744	8	hf-ch	bro pek	480	51	
69	S	746	2	ch	bro or pek	200	45	
70	S	748	3	do	pekoe	270	34	
71	S	750	1	do	pek sou	85	25	
72	Avisawella	752	4	do	unas	400	31	
73	Ekelle	754	3	do	pek sou	290	20	
74	Do	756	2	do				
			1	hf-ch	sou	238	18	
75	Do	758	4	ch				
			1	hf-ch	dust	715	20	
76	Do	760	4	ch	red leaf	400	12	
81	Polatagama	770	51	hf-ch	bro pek	2550	53	
82	Do	772	94	do	pekoe	4230	40	
83	Do	774	81	do	pek sou	4455	34	
84	Abamalla	776	3	do	bro mix	198	24	
85	Do	778	8	do	dust	600	26	
86	R	780	6	ch	dust	840	23	
87	R	782	12	do	bro tea	960	16	bid
88	B P E, in estate mark	784	10	do	bro pek fans	1493	25	bid
89	Farnham	786	41	hf-ch	bro or pek	1640	59	
93	N	794	3	do	pek sou	240	27	
94	E D P	796	3	do				
			1	hf-ch	pekoe	350	25	
95	O B E C, in estate mark, Sinna-pittia	798	4	ch	red leaf	260	17	
96	K H L	800	4	do	bro mix	360	15	bid
97	Do	2	3	do	dust	420	24	
98	B B B B	4	1	do	bro tea	90	14	
99	B B B B, in estate mark	6	1	do	bro tea	70		

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
100	N M, in estate mark	8	3	ch	red leaf	310	13	
101	D W	10	1	hf-ch	pek sou	39	21	
102	Pallagalla	12	29	ch	pek sou	2600	28	
103	Wewesse	14	11	hf-ch	bro pek	550	54	
104	Do	16	13	do	pekoe	650	45	
105	Do	18	17	do	pek sou	850	34	
106	Holluganga	20	1	do	bro pek	59	35	
107	Do	22	1	do	pekoe No. 1	60	27	
108	Do	24	1	do	pekoe No. 2	50	27	
109	Do	26	1	do	pek sou	55	25	
110	Do	28	1	do	dust	45	18	
117	Thornley	30	22	ch	bro pek	2420	59	
112	Do	32	11	do	pek sou	1100	34	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 14th Oct., the undermentioned lots of Tea (52,580 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	A K AC, in estate mark	1	34	hf-ch	bro pek	1700	38	bid
2	Do	3	44	do	pekoe	2200	34	bid
3	Do	5	29	do	pek sou	1450	27	bid
4	Do	7	16	do	sou	800	24	bid
5	G, in estate mark	9	8	do	pek fans	635	22	bid
6	Agraoya	10	17	ch	bro pek	1700	40	bid
7	Do	12	13	do	pekoe	1300	30	bid
8	Do	14	13	do	pek sou	1300	25	bid
9	Do	16	1	do	red leaf	80	12	
10	Do	17	1	hf-ch	dust	80	22	
11	Harrow	18	6	do	bro pek	360	38	bid
12	Do	20	11	ch	pekoe	1100	30	bid
13	Do	22	1	hf-ch	bro mix	70	21	bid
14	Torrington	23	37	ch	bro pek	4070	45	bid
15	Do	25	32	do	pekoe	3200	35	bid
16	Do	27	40	do	pek sou	3600	31	bid
17	Do	29	9	hf-ch	dust	720	22	bid
18	H H	31	3	ch	pek sou	330	18	bid
19	N N N	32	2	hf-ch	dust	140	21	
20	B U S	33	2	ch	congou	210	22	bid
21	T	34	12	do	pek sou	1080	30	bid
22	C, in estate mark	36	4	hf-ch	pek fans	325	21	bid
23	P	37	3	ch	bro pek	220	35	bid
24	P	38	11	ch	pekoe	1150	out	
25	P	40	10	do	pek sou	960	out	
26	P	42	4	do	sou	274	14	bid
27	Kuntsford	43	4	hf-ch	bro or pek	207	49	bid
28	Do	45	3	do	bro pek	138	40	
29	Do	46	19	do	pekoe	1004	25	bid
30	Do	48	2	do	pek sou	90	25	
31	Do	49	2	do	fans	131	19	bid
36	Nahalma	56	22	hf-ch	bro pek	1210	45	bid
37	Do	58	26	ch	pekoe	2600	31	bid
38	Do	60	4	do	pek sou	400	25	bid
39	Do	61	1	hf-ch	dust	75	21	
40	Preston	62	9	ch	bro pek	990	52	bid
41	Do	64	16	do	pekoe	1440	38	bid
42	Do	66	10	do	pek sou	900	32	bid
43	Do	68	3	hf-ch	dust	240	22	bid
44	Ossington	69	8	do	bro pek	400	34	bid
45	Do	71	35	do	pekoe	1750	25	bid
46	Do	73	12	do	pek sou	600	20	bid
47	Do	75	3	do	dust	240	21	
48	Do	76	3	do	red leaf	135	13	
49	Nahalma	77	25	do	bro pek	1430	45	bid
50	Do	79	29	ch	pekoe	2900	33	bid
51	Do	81	7	do	pek sou	700	26	bid
52	Do	83	1	hf-ch	dust	75	21	
53	Mohedia	84	2	do	bro pek	112	45	
54	Do	85	4	do	pekoe	168	32	
55	Do	86	4	do	sou	176	25	
56	Do	87	1	do	red leaf	43	17	
57	Do	88	1	do	fans	50	22	
58	Mapitigama	89	5	ch	dust	615	19	
59	Do	90	6	do	red leaf	535	14	
60	Mayfair	91	4	do	bro mix	360	24	
67	Do	92	3	do	dust	480	22	bid
62	Horana	93	4	hf-ch	bro pek	220	44	
63	Do	94	5	do	pekoe	225	32	
64	Do	95	2	do	bro pek sou	99	20	
65	Do	96	8	do	pek sou	400	23	bid
66	Do	98	1	do	pek dust	60	23	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 14th Oct., the undermentioned lots of Tea (88,380 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D Y K	86	1	hf-ch	bro pek	60	51	
2	Do	87	1	do	pekoe	40	30	
3	Do	88	1	do	pek sou	61	22	
4	D Y K	89	22	ch	red leaf	1870	13	bid
5	Do	90	8	hf-ch	do	360	17	
6	Do	91	5	do				
			1	hf-ch	dust	654	22	
7	Lyndhurst	92	12	ch	bro pek	1320	43	
8	Do	93	25	do	pekoe	2335	34	
9	Do	94	23	do	pek sou	2185	28	
10	Do	95	6	do	dust	700	22	
11	Do	96	8	do	red leaf	715	14	
12	Depedene	97	14	hf-ch	bro pek	700	48	
13	Do	98	17	do	pekoe	850	38	
14	Do	99	20	do	pek sou	1000	30	
15	H D	100	30	do	bro sou	1500	25	
16	Do	1	14	do	bro mix	700	16	
17	Do	2	2	do	dust	160	23	
18	Hiralouvah	3	18	ch	bro pek bulked	1944	47	bid
19	Do	4	17	do	pekoe bulked	1700	35	bid
20	Do	5	13	do	pek sou	1300	30	bid
21	Do	6	1	do	fans	122	26	
22	Do	7	5	hf-ch	dust	357	25	
23	Do	8	3	do	bro mix	167	23	
29	J	14	6	hf-ch	pekoe	294	30	
30	H J S	15	7	do	bro pek	350	34	bid
31	Do	16	3	do	dust	160	22	
32	Do	17	1	ch	red leaf	90	19	
33	Stockholm	18	34	hf-ch	or pek	1700	54	bid
34	Do	19	20	ch	pek sou	1800	31	bid
35	Do	20	2	do	fans	280	20	
36	M K	21	19	do	bro pek	1900	38	bid
37	Do	22	13	do	pekoe	1170	32	bid
38	H G A	23	14	do	bro pek	1372	43	bid
39	Do	24	19	do	pekoe	1862	33	
40	Do	25	21	do	pek sou	2058	28	
41	W V	26	7	ch	unas	700	31	
42	Do	27	1	hf-ch	dust	50	23	
43	Do	28	1	do	congou	50	20	
44	A A	29	2	ch	pekoe	200	withd'n.	
45	South Wanarajah	30	30	hf-ch	bro or pek	1500	57	bid
46	Do	31	3	ch	bro pek	300	55	bid
47	Do	32	26	do	pekoe	2600	37	bid
48	Aadneven	33	11	do	bro pek	1100	50	
49	Do	34	11	do	pekoe	990	33	bid
50	Do	35	2	do	pek sou	180	28	
51	K M O K	36	1	do	bro pek	90	25	
52	Do	37	1	do	dust	80	23	
53	Yahalatenne	38	16	hf-ch	bro pek	800	48	
54	Do	39	13	do	pekoe	585	37	
55	Do	40	30	do	pek sou	1350	28	bid
56	Do	41	1	do	red leaf	42	14	
57	Do	42	1	do	dust	50	22	
58	Vincit	43	2	do	dust	150	22	
59	Do	44	1	do	red leaf	45	12	
60	Y, in estate mark	45	3	do	red leaf	156	15	
61	Do	46	5	do	dust	337	26	
62	Do	47	1	do	do	67	18	
63	R	48	16	ch	bro pek	1440	36	bid
64	R	9	19	do	pekoe	1520	31	
65	R	50	25	do	pek sou	2250	25	bid
66	R	51	12	do	pek sou	1080	25	bid
67	R	52	3	do	dust	420	25	
68	G W	53	2	do	bro mix	20	021	
72	G, in estate mark	57	4	ch				
			1	hf-ch	bro tea	502	12	bid
73	R	58	28	do	bro pek	1820	42	bid
74	G A	59	24	ch	bro or pek	2160	38	bid
78	Malgolla	63	32	do	bro pek No. 1	1600	withd'n.	
79	Do	64	15	do	bro pek ,, 2	825	40	bid
80	Do	65	8	do	pekoe	360	38	bid
81	Do	66	131	do	pek sou	5895	30	bid
82	Do	67	45	do	pek sou	2025	30	bid
83	Do	68	10	do	bro tea	600	24	bid
84	Do	69	6	do	sou	300	22	
85	Do	70	5	do	dust	350	22	
86	A B	71	6	ch	pekoe	600	26	bid
87	Do	72	4	do	pek sou	360	23	bid
88	T A	73	6	hf-ch	pekoe	350	26	bid
89	G, in estate mark	74	12	ch	bro pek	1260	32	bid
90	B L	75	12	do	bro pek	1320	33	bid
91	T, in estate mark	76	19	hf-ch	bro pek	910	34	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 14th Oct., the undermentioned lots of Tea (65,832 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	W, in estate mark	128	9	ch	pro pek	945	36 bid
2	Do	130	24	do	pekoe	2400	28 bid
3	Do	132	4	do	pek sou	380	24 bid
4	Do	134	2	do	fans	220	14
5	Do	135	1	do	dust	140	22
6	W D, in estate mark	136	13	do	pek sou	1270	21 bid
7	Do	138	17	do	bro tea	1707	14 bid
8	L	140	7	ch	congou	700	25
9	L	142	12	do	pek fan	1740	26
10	L	144	1	do	dust	178	17
11	L	145	1	do	red leaf	85	15
14	L E	149	4	do	dust	288	19
15	Logan	150	14	do	bro pek	1470	48
16	Do	152	13	do	pekoe	1300	36 bid
17	Do	154	31	do	pek sou	2790	30
18	Do	156	21	hf-ch	sou	1050	28
19	Do	158	14	do	dust	840	29
20	B T	159	49	ch	bro mix	4410	18
21	Kandenewera	161	19	do	bro pek	1710	52 bid
22	Do	163	33	do	pekoe	3630	39 bid
23	Do	165	9	do	pek sou	900	33
24	N	167	6	do	bro mix	600	25
25	M R	169	1	hf-ch	dust	83	23
26	Brownlow	170	18	ch	or pek	1800	52 bid
27	Do	172	12	do	bro pek	1260	50 bid
28	Do	174	26	do	pekoe	2600	39 bid
29	Do	176	18	do	pek sou	1620	33 bid
30	Do	178	1	do	dust	135	22
31	H	179	14	hf-ch	pekoe	700	31
32	H	181	15	do	pekoe	750	28
33	H	183	2	do	pek sou	100	23
34	H	184	8	do	pek sou	400	22
35	H	186	1	do	bro tea	77	12
36	H	187	1	do	dust	60	23
37	H	188	1	do	dust	60	23
38	Bittacy	189	15	do	bro pek	825	48
39	Do	191	17	do	pekoe	935	38
40	B, in estate mark	193	2	do	congou	110	22
41	Do	194	1	do	bro mix	50	19
42	Do	195	1	do	dust	80	21
43	Agra Ouvah	196	23	do	oro pek	1035	70
44	Do	198	22	do	pekoe	990	59
45	Do	200	20	do	pek sou	990	44
46	Do	202	11	do	pek sou No. 2	495	34
47	Do	204	3	do	pek fans	210	21
48	Tempiestowe	205	29	do	or ek	1508	47 bid
49	Do	207	17	ch	pekoe	1360	37
50	Do	209	17	do	pek sou	1530	30
51	Do	211	15	hf-ch	bro mix	780	21
52	Do	213	8	do	dust	640	22
53	W K	214	1	ch	pekoe	72	26
54	Do	215	2	do	unas	112	21
55	Do	216	2	hf-ch	red leaf	96	13
56	Orange Field P N R	217	3	ch	bro or pek	285	44 bid
57	Do	218	20	do	pekoe	1800	26 bid
58	Do	220	3	do	sou	270	19 bid
59	Do	221	5	do	bro mix	450	13
60	Albion	222	22	do	bro pek	2310	56
61	Do	224	26	do	pekoe	2470	41 bid
62	Do	226	24	do	pek sou	2280	31 bid
63	Do	228	12	do	pek sou	1140	28 bid
64	Do	230	3	do	red leaf	255	17
65	Do	231	3	do	dust	240	26
66	Do	232	1	do	sou	75	22
67	Acrawatte	233	5	do	bro pek	525	50
68	Do	235	10	do	pekoe	950	33 bid
69	Do	237	10	do	pek sou	900	28 bid

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 14th Oct., the under mentioned lots of Tea (186,457 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
1	E	34	4	hf-ch	pek dust	344	16
2	D C	36	3	ch	bro pek	300	32 bid
3	Do	38	8	do	pekoe	800	26 bid
4	Do	40	15	hf-ch	pek sou	750	24 bid
5	Do	42	1	ch	bro mix	112	13 bid
6	Do	44	1	do	dust	70	22
7	Kattiagalla	46	3	ch	bro pek	200	35
	Do	48	8	do	pekoe	750	27
9	Do	50	3	do	pek sou	250	18 bid
10	Do	52	1	do	red leaf	83	15
11	Do	54	1	do	dust	127	21
12	H E P	56	37	hf-ch	bro pek	2220	58
13	Do	58	41	do	pekoe	2255	46
14	Do	60	34	do	pek sou	2040	34
15	H	62	4	do	pek dust	352	21
16	Horagaskelle	64	8	do	bro pek	464	26
17	Do	66	9	do	pekoe	424	32
18	Do	68	15	do	pek sou	780	26
19	Do	70	1	do	congou	42	20
20	Do	72	3	do	bro mix	204	16
21	Patiagama	74	31	ch	bro pek	3410	37 bid
22	Do	76	65	do	pekoe	6500	26 bid
23	Do	78	1	do	pek sou	100	22
24	Do	80	7	do	bro mix	700	12 bid
25	Do	82	2	do	dust	300	22
26	Mousakelle	84	18	do	bro pek	2070	53 bid
27	Do	86	22	do	pekoe	2200	39 bid
28	Do	88	1	do	congou	100	24
29	Do	90	1	do	dust	188	20
30	Chesterford	92	6	ch	bro pek	660	53
31	Do	94	5	do	pekoe	500	38
32	Do	96	3	do	pek sou	330	27 bid
33	Uvakelle	98	29	hf-ch	bro pek	1595	60
34	Do	100	50	do	pekoe	2500	46
35	Do	102	2	do	congou	100	27
36	Do	104	4	do	dust	320	26
37	Langdale R	106	26	ch	bro pek	2600	44 bid
38	Do	108	33	do	pekoe	2640	33
39	Do	110	32	do	pek sou	3580	25 bid
40	Langdale	112	22	do	bro pek	2420	45 bid
41	Do	114	22	do	pekoe	2200	33 bid
42	Do	116	17	do	pek sou	1615	28 bid
43	Do	118	1	do	bro tea	100	12 bid
44	Avoca	120	10	do	bro pek	1100	42 bid
45	Do	122	10	do	pekoe	1000	35 bid
46	Do	124	8	do	pek sou	760	30 bid
47	Claremont	126	36	hf-ch	bro pek	1800	39
48	Do	128	30	do	pekoe	1350	32
49	Do	130	3	do	bro tea	120	15
50	L, in estate mark	132	1	do	pekoe	37	30
51	Do	134	1	do	pek sou	36	23
52	Do	136	1	do	do	31	20 bid
53	Columbia	138	25	do	bro pek	1500	59 bid
54	Do	140	15	do	pekoe	750	52
55	Do	142	2	do	pek sou	100	31
56	Do	144	1	do	dust	75	23
57	Farm	146	9	ch	bro pek	900	54
58	Do	148	20	do	pekoe	1900	42
59	Do	150	26	do	pek sou	2230	31
60	Do	152	1	hf-ch	dust	70	21
64	Shrubs Hill	160	101	hf-ch	bro pek	5050	51
65	Do	162	49	ch	pekoe	4165	37
66	Do	164	43	do	pek sou	4300	30
67	Do	166	10	do	bro tea	1000	23
68	Do	168	5	hf-ch	dust	365	26
69	A G	170	13	ch	pek sou	1300	out
70	Do	172	2	do	sou	225	out
71	Melrose, D	174	4	hf-ch	bro pek	224	39
72	Do	176	4	do	pekoe	440	35
73	Do	178	2	ch	pek sou	220	28
74	Do	180	1	do	red leaf	100	17
75	Do	182	1	hf-ch	congou	45	20
76	North Cove	184	1	do	bro mix	60	25
77	Do	186	1	do	red leaf	46	14
78	B & D	188	2	ch	red leaf	250	14
79	Do	190	2	do	dust	332	22
80	Kelaneiya	192	28	ch	bro pek	2[illegible]0	58
81	Do	194	28	do	pekoe	28[illegible]	42 bid
82	Do	196	1	do	dust	115	23
83	Do	198	1	do	congou	105	23
84	Theberton	200	19	do	bro pek	1900	26 bid
85	Do	202	16	do	pek sou	1600	25 bid
86	Do	204	2	do	congou	200	19
87	Do	206	1	do	pek dust	100	21
88	Do	208	1	do	red leaf	100	10
89	Hakurugalla	210	12	do	bro pek	1200	41 bid
90	Do	212	12	do	pekoe	1[illegible]80	30 bid
91	Do	214	8	do	pek sou	720	30
92	Do	216	1	do	dust	150	22 bid
93	Galkadua	218	9	do	bro pek	900	44 bid
94	Do	220	10	do	pekoe	1[illegible]00	out
95	Do	222	7	do	pek sou	665	out
96	Do	224	1	do	red leaf	100	out

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
97	Atherfield	226	8	hf-ch	sou	400	24	
98	Do	228	1	do	bro mix	50	14	
99	Do	230	4	do	dust	320	24	
100	Portmore	232	26	ch	bro pek	2730	55	bid
101	Do	234	20	do	pekoe	1900	44	bid
102	Do	236	1	hf-ch	sou	47	26	bid
103	Do	238	1	do	fans	62	23	bid
104	Sutton	240	13	ch	bro pek	1365	54	bid
105	Do	242	10	do	pekoe	900	45	bid
106	Do	244	1	hf-ch	sou	24	26	bid
107	Do	246	1	do	fans	40	22	bid
108	L B K	248	6	ch	red leaf	600	19	bid
109	Mukeloya	250	9	hf-ch	bro pek	540	54	bid
110	Do	252	12	do	pekoe	720	47	
111	Do	254	9	do	pek sou	540	31	
112	Thornfield	256	25	do	bro pek	1500	53	bid
113	Do	258	22	ch	pekoe	2200	40	bid
114	Do	260	6	do	pek sou	600	31	
115	Do	262	2	hf-ch	dust	160	25	
116	Bandarapolla	264	18	do	bro pek	900	48	bid
117	Do	266	31	do	pekoe	1550	37	
118	Do	268	31	do	pek sou	1395	28	bid
119	Queensland	270	35	ch	flowery pek	3500	58	bid
120	Do	272	27	do	pekoe	2565	40	bid
121	Do	274	4	do	unas	400	31	
122	Do	276	3	ch	pekfan	390	23	
123	Doonevale	278	21	do	bro pek	2100	33	bid
124	Do	280	22	do	pekoe	1980	30	bid
125	Yataderia	282	11	do	bro pek	1210	out	
126	Do	284	7	hf-ch	or pek	455	44	bid
127	Do	286	34	ch	pekoe	3400	32	
128	Do	288	26	do	pek sou	2340	27	bid
129	Ragalla	290	30	do	bro pek	3300	62	bid
130	Do	292	32	do	pekoe	2880	52	
131	Do	294	12	do	pek sou	1140	35	
132	Do	296	7	do	dust	560	26	
133	Harrington	298	18	do	or pek	1800	58	
134	Do	300	14	do	pekoe	1400	48	
135	Do	302	26	do	pek sou	2030	22	
136	Do	304	2	do	dust	280	24	
137	Bismark	306	16	hf-ch	bro pek	880	46	
138	Do	308	11	ch	pekoe	990	35	bid
139	Do	310	1	do	sou	100	25	
140	Do	312	1	do	dust	110	22	
141	Palmerston	314	10	hf-ch	bro pek	550	60	bid
142	Do	316	12	ch	pekoe	1200	45	bid
143	Do	318	5	do	pek sou	500	33	
144	St. Hellier's	320	16	hf-ch	bro or pek	800	55	
145	Do	322	12	ch	pekoe	1080	38	
146	Do	324	8	do	pek sou	720	27	bid
147	Do	326	2	do	bro tea	200	12	bid
148	Ismalle	328	3	hf-ch	pek fans	150	26	
149	Do	330	2	ch	dust	240	22	
150	T, in estate mark	332	7	do	bro pek	700	40	bid
151	Do	334	6	do	pekoe	540	33	bid
152	Ukuwella	336	12	do	bro pek	1260	45	bid
153	Do	338	12	do	pekoe	1200	36	bid
154	Do	340	12	do	pek sou	1140	32	
155	Do	342	4	do	congou	400	22	
156	Do	344	3	hf-ch	dust	225	21	
157	Pansalatenne	346	16	ch	bro pek	1680	46	bid
158	Do	348	21	do	pekoe	2100	37	bid
159	Do	350	14	do	pek sou	1330	31	bid
160	Do	352	7	do	congou	700	22	
161	Do	354	2	hf-ch	dust	150	21	
162	Palamcotta	356	2	do	dust	174	22	
163	Pallagalla	358	21	do	bro or pek	1075	out	
164	Do	360	20	do	pek sou	1010	out	
165	A D	162	26	do	bro tea	1026	16	
166	H, in estate mark	164	18	do	bro pek sou	788	18	
169	M	370	3	ch	unas	265	30	
170	M	372	1	do	red leaf	80	14	
171	Silver Valley	374	2	hf-ch	bro pek	87	52	
172	Do	376	10	do	pekoe	467	27	
173	Do	378	3	do	dust	168	20	
174	Traquair	380	5	do	bro pek	250	out	
175	Do	382	5	do	pekoe	260	out	
176	Do	384	12	do	pek sou	603	out	
177	Do	386	2	do	congou	90	out	
177	Ferndale	388	17	ch	bro pek	1700	out	
179	Do	390	36	do	pekoe	3600	34	bid
180	Do	392	1	do	pek sou	100	25	
181	Do	394	1	do	dust	100	20	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, September 25th, 1891.

Marks and prices of CEYLON COFFEE old in Mincing Lane up to 25th September:—

Ex "Legislator"—Gonamotava, 1c 104s; 6c 1b 100s; 2c 1t 97s; 1c 1t 92s 6d; 3b 98s 6d. Park, 7c 97s; 1b 105s; 1b 93s; 2b 96s; 1b 88s.

Ex "Ping Suey"—Rappahannock, 1c 1t 102s; 9c 1b 99s; 1c 1b 89s; 2c 96s 6d; 1c 87s; 1c 118s; 2c 79s; 1c 88s; 3b 96s 6d; 1b 105s; 1b 73s.

Ex "Mira"—Kelburne, 2c 94s; 1c 105s; 1c 1b 103s 6d; 2c 1t 86s 4d; 1b 97s 6d; 1b 83s.

Ex "Nubia"—St. Leonards, 1b 86s.

Ex "Lord Charlemont"—Gowerakellie, 1c 116s.

Ex "Glengyle"—Galloola, 1t 2c 96s; 5c 1b 93s: 1c 89s; 1b 101s.

Ex "Legislator"—Brookside, 1c 1b 97s 6d; 4c 1b 90s 6d; 1b 102s; 6c 1t 96s 6d; 1b 100s. Alnwick, 3c 1t 95s 6d.

Ex "Clan McNeil"—Concordia, 3c 2b 96s.

Ex "Ping Suey"—Rots, 1c 2b 72s 6d.

Ex "Port Darwin"—Ouvah, 3c 99s 6d; 5c 95s 6d; 3c 1t 96s 6d; 1c 107s; 1c 88s; 3b 95s 6d; 1b 86s.

Ex "City of Oxford"—Ouvah, 2c 90s.

Ex "Capella"—Alnwick, 3c 1b 90s 6d.

Ex "Mira"—(EM), 22b 76s 6d.

Ex "Governor"—Yoxford, 2c 89s.

Ex "Pakling"—Ampittiakande, 1b 85s 6d.

Ex "Rosetta"—Pittarat Malle, 1b 99s; 1c 97s; 5c 95s; 3c 1t 97s; 1t 4c 95s; 1b 2c 110s; 1c 1b 83s; 4b 95s; 1b 91s; 1b 83s.

Ex "Glengyle"—Pattarat Malle, 5c 1b 94s; 3c 92s 6d; 1b 101s; 1c 100s; 1c 86s; 2b 95s.

Ex "Port Darwin"—Ambawella, 1b 100s; 8b 95s; 1b 93; 1c 103s; 1t 85s 6d; 2b 70s; 2b 94s; 1b 2c 75s; 1b 66s; 1t 77s.

Ex "Agamemnon"—Nahaville, 1t 99s; 7t 1b 96s; 2t 1b 93s; 1t 112s; 1t 1b 84s; 1b 96s.

Ex "Ormuz"—Gordon, 2c 1t 96s 6d; 4c 1b 97s; 1c 1b 104s.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MINCING LANE, September 25th, 1891.

Ex "Ping Suey"—Yattewatte, 121b 101s; 65b 60s; 3b 60f; 8b 54s 0d; 10b 35s. Keenakelle, 23b 109s 6d; 4b 46s; 2b 50s; 3b 53s. Palli, 46b 120s; 9b 70s; 2b 80s 6d.

Ex "Pak Ling"—Palli, 3b 80s 6d.

Ex "Glengyle"—Beredewelle, 59b 120s; 6b 80s; 1b 54s; 2b 45s.

Ex "Rosetta"—Warrakettia, 1b 40s.

Ex "Port Darwin"—Glenalpin, 1p 61s; 1b 30s. Victoria, 18b 109s; 2b 73s 6d; 2b 45s; 2b 30s. Elmshurst, 6b 103s 6d; 1c 73s 6d; 1p 67; 1p 30s. Hunasgeria, 4b 102s 6d; 1p 45s; 1p 30.

Ex "Canton"—Aden, 3b 62s 6d.

Ex "Orizaba"—Kondesalle, 32b 123s; 30b 118s; 15b 70s.

Ex "Rosetta"—Mahaberia, 26b 123s; 1b 80s; 10b 105s; 1b 80s; 5b 50s 6d.

Ex "Golconda"—Kondesalle, 5b 92s; 4b 80s; 4b 45s 6d; 10b 103s; 2b 56s.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 27.] COLOMBO, NOVEMBER 3, 1891. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 21st Oct., the undermentioned lots of Tea (5,625 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
6	W O	20	3	ch	pek fans	330	26	
7	Do	22	1	do	bro tea	100	15	
8	Elston	24	7	do	fans	700	24	
9	H H	26	8	do	pek sou	720	27	bid
10	Do	28	3	do	bro mix	375	18	bid
11	Do	30	4	do	bro mix	460	18	bid
12	Mayfair	32	1	do	pekoe	100	30	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 21st Oct., the undermentioned lots of Tea (26,802 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Morland	1	6	ch	or pek	630	39	bid
2	Do	3	11	do	pekoe	1078	30	bid
3	Do	5	4	do	pek sou	400	25	bid
4	Do	6	2	do	red leaf	220	14	
5	C, in estate mark	7	34	hf-ch	bro pek	1700	48	bid
6	Do	9	29	do	pek sou	1450	31	bid
7	Do	11	16	do	sou	800	26	bid
8	Do	13	14	do	bro tea	680	13	bid
9	Do	15	2	do	dust	156	21	
10	Do	16	1	do	fans	63	23	
11	P	17	12	do	dust	960	22	
12	K	18	2	do	fans	131	21	
13	Nugagalla	19	7	do	bro pek	350	55	bid
14	Do	21	37	do	pekoe	1850	45	
15	Do	23	3	do	dust	150	24	
16	L A	24	3	ch	bro pek	220	out	
17	Do	25	11	do	pekoe	1150	26	bid
18	Do	27	10	do	pek sou	960	19	bid
19	Do	29	4	do	sou	274	15	bid
20	Kenning-ton	30	7	do	pek sou	630	24	bid
21	Comilah	32	13	hf-ch	bro pek	715	40	
22	Do	34	11	do	pekoe	550	28	bid
23	Do	36	10	do	pek sou	500	25	bid
24	Do	38	1	ch	dust	80	21	
25	Nahalma	39	28	hf-ch	bro pek	1540	52	
26	Do	41	27	ch	pekoe	2700	34	bid
27	Do	43	5	do	pek sou	500	25	
28	Do	45	1	hf-ch	dust	75	23	
29	Norton	46	9	do	pekoe	450	27	bid
30	Do	48	3	do	sou	150	12	
31	Do	49	2	do	congou	100	19	
34	Nahalma	52	22	hf-ch	bro pek	1210	52	
35	Do	54	26	do	bro pek	1430	49	bid
36	Do	56	26	ch	pekoe	2600	31	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 21st Oct., the undermentioned lots of Tea (91,563 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D E	239	9	hf-ch	fans	747	31	
2	Mahagalla	240	16	do	or mix	180	69	
3	Do	242	15	ch	pekoe	1425	42	bid
4	Do	244	3	do	pek sou	300	31	bid
5	Do	245	7	do	do No. 2	700	30	
6	Do	246	1	hf-ch	dust	90	21	
7	Maddege-dera	247	26	do	or pek	1300	39	bid
8	Do	249	16	ch				
			1	hf-ch	bro pek	1670	33	bid
9	Do	251	13	ch	pekoe	1105	37	
10	Do	253	21	hf-ch	pek sou	945	29	
11	Do	255	2	do	dust	164	21	
12	Gonavy	266	30	ch	bro pek	3000	42	bid
13	Do	258	10	do	pekoe	900	37	bid
14	Do	260	15	do	pek sou	1350	36	
15	Do	262	1	do	dust	150	24	bid
16	F T	263	17	do	bro pek	1700	38	bid
17	Do	265	13	do	pekoe	1300	37	
18	Do	267	12	do	pek sou	1200	28	bid
21	Dunbar	273	25	do	bro pek	2500	60	
22	Do	275	24	do	pekoe	2160	36	
23	Do	277	2	do	pek sou	180	25	
24	Galkande-watte	278	26	do	bro pek	2600	47	bid
25	Do	280	29	do	pekoe	2610	31	bid
26	Do	282	6	do	pek sou	540	25	
27	G K W	284	3	ch	bro tea	270	25	
28	Do	285	3	hf-ch	dust	240	21	
29	Great Val-ley	286	18	ch	bro pek	1980	50	
30	Do	288	16	do	pekoe	1600	37	bid
31	Do	290	17	do	pek sou	1615	30	
32	Madool-tenne	11	15	do	bro pek	1650	43	bid
33	Do	13	15	do	pekoe	1500	38	
34	Do	15	14	do	pek sou	1540	29	bid
35	B C	17	18	do	pek sou	1350	25	
36	G L	19	2	hf-ch	dust	140	11	
37	Mocha	20	12	ch	bro pek	1320	62	
38	Do	22	68	hf-ch	bro pek	3740	61	
39	Do	24	40	ch	pekoe	4000	54	
40	Do	26	26	do	pek sou	2340	37	
41	G B	28	3	hf-ch	dust	210	10	bid
42	Troup	29	26	do	bro pek	1430	61	
43	Do	31	24	ch	pekoe	2160	39	bid
44	Do	33	1	do	red leaf	100	16	
45	Lawrence	34	22	do				
			1	hf-ch	sou	2285	16	
46	Bollagalla	36	18	do	pekoe	1080	38	bid
47	Do	38	21	ch	pekoe	1785	29	bid
48	Do	40	25	do	pek sou	2250	25	bid
49	Do	42	1	do	bro mix	86	14	
50	Do	43	1	do	dust	120	21	
51	Gouravilla	44	18	hf-ch	or pek	1080	58	bid
52	Do	46	12	ch	pekoe	1200	40	bid
53	Do	48	13	do	pek sou	1300	28	bid
54	Do	50	9	do	unas	900	32	bid
55	Do	52	5	hf-ch	dust	300	22	
56	Ouvah Kellie	53	14	ch	bro pek	1540	58	bid
57	Do	55	11	do	pekoe	1045	40	bid
58	Cruden Fac-tory	57	20	do	flowery or pek	2000	66	bid
59	Do	59	25	ch	flowery pek	2500	48	bid
60	Do	61	5	do	do pek sou	500	35	
61	Do	63	19	hf-ch	sou	950	25	
62	Sumtra Valle	65	18	ch	bro pek	1980	47	bid
63	Do	67	13	do	pekoe	1300	46	
64	Do	69	16	do	pek sou	1600	36	
65	Do	71	2	do	bro mix	184	17	bid
66	Do	72	3	do	dust	195	21	
73	S, in estate mark	82	26	hf-ch	pek sou	1198	17	bid
74	Do	84	12	ch	bro tea	1168	15	
75	S S, in estate mark	86	3	hf-ch	pek dust	234	19	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 21st Oct., the undermentioned lots of Tea (47,056 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.	
1	Ellekande	77	2	hf-ch	bro pek	100	48	
2	Do	78	4	do	pekoe	200	33	bid
3	Do	79	12	do	pek sou	540	27	bid
4	Do	80	7	do	unas	350	28	
5	Do	81	1	do	dust	80	20	
6	Do	82	7	do	red leaf	315	15	
7	Do	83	5	do	bro mix	300	21	
8	C A, in estate mark	84	4	do	unas	200	32	
9	Do	85	6	do	bro mix	384	28	
10	Do	86	10	do	dust	820	23	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
11	Kuriwitty	87	11	do	bro pek	594	45	
12	Do	88	5	do	pekoe	250	33	
13	Do	89	29	do	pek sou	1392	29	
14	Do	90	14	do	sou	644	24	
15	Do	91	9	do	bro tea	486	27	
16	Do	92	3	do	congou	138	21	
17	Do	93	3	do	dust	234	23	
18	Arslena	94	83	do	bro pek	4150	39	bid
19	Do	95	53	do	pekoe	2650	30	
20	Do	96	4	do	sou	200	22	bid
21	Do	97	7	do	bro mix	350	17	bid
22	Do	98	9	do	dust	630	21	
23	E A T S, in estate mark	99	3	ch	bro pek	330	40	bid
24	Do	100	3	do	pekoe	285	39	
25	Do	1	3	do	pek sou	285	27	bid
26	R D, in estate mark	2	28	do	bro pek	2800	52	bid
27	Do	3	32	do	pekoe	3200	41	bid
28	Do	4	12	do	pek sou	1200	30	
29	Do	5	18	hf-ch	or pek	900	48	
30	Do	6	12	do	bro or pek	720	28	
31	Do	7	7	do	dust	560	22	
32	St. Andrews	8	21	do	or pek	1386	58	bid
33	Do	9	22	do	bro pek	1430	40	bid
34	Do	10	52	do	pekoe	3250	37	bid
35	Z Z S	11	3	hf-ch	broken	135	22	
36	Penrith	12	1	do	bro tea	50	17	
37	Do	13	3	do	dust	225	23	
41	D B	17	9	ch	pekoe	855	30	
42	G A	18	2	hf-ch	bro pek	124	33	bid
43	Do	19	4	do	pekoe	188	25	
44	Do	20	1	do	pek sou	47	21	
45	G L	21	2	ch	dust	320	18	
46	Do	22	2	do	bro tea	220	15	bid
47	H J S	23	7	hf-ch	bro pek	350	33	
48	Stockholm	24	34	do	or pek	1700	57	
49	Do	25	20	ch	pek sou	1800	32	
50	P	26	3	do	pek dust	420	21	bid
51	Killin	27	12	do	bro pek	1200	38	bid
52	Do	28	14	do	pekoe	1330	29	bid
53	Do	29	11	do	pek sou	990	24	bid
54	Do	30	7	do				
			6	hf-ch	bro tea	1030	17	bid
55	Do	31	8	ch	pek fan	800	25	
56	Diyagama	32	2	hf-ch	bro pek	112	44	bid
57	Do	33	6	ch	pekoe	550	30	bid
58	Do	34	2	do	pek sou	195	28	
59	Do	35	1	do	mix	100	18	bid
60	Do	36	1	hf-ch	dust	58	22	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 21st Oct.' the undermentioned lots of Tea (134,600 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	A	402	2	ch	pekoe	119	27	
2	A	404	2	do	bro tea	90	14	
3	Alton	406	15	do	bro tea	1350	24	
4	C, in estate mark	408	12	do	bro pek	1200	38	
5	Do	410	13	do	pekoe	1170	30	bid
6	Do	412	11	do	pek sou	990	24	bid
7	Do	414	7	do	bro mix	700	15	
8	Do	416	1	do	pek fan	100	25	
9	Ouvahkellie	418	13	do	bro pek	1430	58	bid
10	Do	420	9	do	pekoe	855	40	bid
11	W'eoya	422	18	hf-ch	bro pek	1080	52	
12	Do	424	20	do	bro pek	1100	49	
13	Do	426	33	do	pekoe	1650	36	
14	Do	428	28	do	pek sou	1400	30	
15	Do	430	3	do	pek dust	195	23	
16	Fred's Ruhe	432	10	do	bro pek	500	42	
17	Do	434	11	ch	pekoe	1100	29	bid
18	Do	436	10	do	pek sou	1000	24	bid
19	W A	438	3	do				
			1	hf-ch	bro tea	390	25	
20	Do	440	1	do	congou	43	19	
21	Do	442	1	do	dust	80	20	
22	Do	444	1	ch	red leaf	85	14	
23	H E P, in estate mark	446	6	hf-ch	bro pek	360	35	bid
24	Do	448	6	do	pekoe	330	out	
25	Do	450	6	do	pek sou	300	27	
26	Thornley	452	31	ch	bro pek	3410	45	bid
27	Do	454	26	do	pekoe	2600	39	
28	Do	456	18	do	pek sou	1800	31	
29	Do	458	3	hf-ch	dust	225	23	
30	Kirimettia, L M	460	4	ch	bro pek	380	37	
31	Do	462	4	do	pekoe	381	28	
32	Do	464	1	hf-ch	pek sou	52	20	
33	Do	466	1	ch	pek fans	150	18	
34	Do	468	1	do	red leaf	90	15	
35	G L, in estate mark	470	53	hf-ch	bro pek	2915	37	bid
36	Do	472	15	do	pekoe	675	32	
37	Do	474	7	do	pek sou	315	27	
38	H H	476	16	hf-ch	pekoe	720	31	bid
39	Do	478	1	do	pek sou	45	26	
40	Maha Uva	480	5	ch	bro pek	550	58	
41	Do	482	5	do	pekoe	450	42	bid
42	Do	484	2	do	pek sou	190	34	
43	Marguerita	486	21	hf-ch	bro pek	1125	29	
44	Do	488	17	do	pekoe	738	30	bid
45	Do	490	44	do	pek sou	2200	27	
46	Do	492	2	do	dust	150	25	
47	Do	494	1	do	sou	45	14	
48	Pallagalla	496	21	do	bro or pek	1075	37	bid
49	Do	498	22	do	pek sou	1020	25	
50	D	500	26	do	bro tea	1026	15	
51	J	502	18	do	bro pek sou	788	15	
52	Longdale, R	504	26	ch	bro pek	2600	43	bid
53	T	506	5	hf-ch	bro pek	250	32	
54	Horagoda	508	8	ch	bro pek	800	38	bid
55	Do	510	33	do	pekoe	3135	30	bid
56	Do	512	8	hf-ch	pek sou	360	out	
57	Do	514	2	ch	sou	190	21	
58	Do	516	2	do	bro mix	170	15	
59	Do	518	2	do	dust	250	21	
60	St. Catherine	520	7	do	bro pek	630	39	
61	Do	522	8	do	pekoe	680	30	
62	Do	524	7	do	pek sou	560	25	
63	Do	526	2	do	pek fans	180	22	
74	Langdale	548	22	ch	bro pek	2420	43	bid
75	Do	550	22	do	pekoe	2200	33	
76	Do	552	17	do	pek sou	1615	27	
77	B	554	17	do	bro pek	1700	44	
78	B	556	5	do	pekoe	450	35	
79	B	558	11	do	pek s u	990	28	
80	B	560	1	hf-ch	dust	75	23	
81	Hakurugalla	562	12	ch	bro pek	1200	38	bid
82	Do	564	12	do	pekoe	1080	30	
84	Middleton	568	37	do	bro pek	2220	54	bid
85	Do	570	12	ch	pekoe	1200	38	bid
86	Do	572	2	do	congou	200	22	
87	Avoca	574	10	do	bro pek	1100	43	
88	Do	576	10	do	pekoe	1000	34	
89	Do	578	8	do	pek sou	760	25	
90	Ekella	580	2	do				
			8	hf-ch	pek sou	565	out	
91	Alnoor	582	26	do	bro pek	1300	43	
92	Do	584	25	do	pekoe	1250	35	
93	Do	586	20	do	pek sou	1000	28	
94	Warwick	588	4	do	dust	320	26	bid
95	Do	590	2	do	congou	100	27	bid
96	Clyde	592	8	ch	bro pek	800	41	bid
97	Do	594	9	do	pekoe	810	35	
98	Do	596	18	do	pek son	1620	26	bid
99	I G	598	7	do	pek sou	630	24	bid
105	D G	610	1	do	pekoe	70	27	
106	Yataderia	612	11	do	bro pek	1210	42	
107	Do	614	7	hf-ch	or pek	455	43	bid
108	Do	616	34	ch	pek sou	3400	29	bid
109	Do	618	26	do	pekoe	2340	26	bid
110	St. Helier's	620	9	hf-ch	bro pek	450	54	
111	Do	622	7	ch	pekoe	700	39	
112	Do	624	6	do	pek sou	600	26	
113	P G, in estate mark	626	13	do	bro or pek	1300	43	
114	Do	628	15	do	pekoe	1350	34	
115	Do	630	8	do	pk sou	680	25	bid
116	Do	632	1	do	sou	85	22	
117	Do	634	1	do	dust	150	17	
121	Monrovia	642	17	do	bro pek	850	out	
122	Do	644	15	ch	pekoe	1500	30	
123	Do	646	5	do	pek sou	500	24	bid
124	Do	648	2	hf-ch	pek dust	150	22	
126	Dunkeld	652	17	ch	bro pek	1700	54	bid
127	Do	654	26	hf-ch	or pek	1300	45	bid
128	Do	656	17	ch	pekoe	1275	38	
129	Do	658	12	do	dust	1620	23	bid
130	Glasgow	660	2	do	dust	200	22	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
131	M	662	3	hf-ch	pek dust	265	20
132	M	664	3	ch			
			1	hf-ch	red leaf	233	11
133	Polatagama	666	42	do	bro pek	2100	52
134	Do	668	59	do	pekoe	2950	41
135	Do	670	50	do	pek sou	2500	30
136	Abamalla	672	3	do	bro pek	198	37
137	Do	674	6	do	pekoe	336	35
138	Do	676	7	do	pek sou	385	27
139	Bandarapolla	678	18	do	bro pek	900	46 bid
140	Catarateune	680	2	ch	congou	200	16
141	K, in estate mark	682	18	box	bro or pek	90	50 bid
142	Palmerston	684	13	hf-ch	bro pek	715	58
143	Do	686	15	ch	pekoe	1500	44 bid
144	Do	688	6	do	pek sou	600	30 bid
145	F, in estate mark	690	2	hf-ch	bro pek	80	32
146	Do	692	3	do	pekoe	145	28
147	Do	694	2	do	pek sou	70	24
148	Do	696	1	do	pek dust	55	22
149	S	698	1	do	dust	77	18
150	S	700	1	do	bro pek sou	64	14
151	Mousakelle	702	22	ch	pekoe	2200	35 bid
152	Theberton	704	16	do	bro pek	1600	36
153	Do	706	11	do	pekoe	1100	28 bid
154	Do	708	4	do	pek sou	400	24 bid
155	Do	710	1	do	congou	100	20
156	Do	712	2	do	pek dust	200	20
157	Do	714	2	do	red leaf	200	15
158	A	716	4	do	dust	344	14

Mr. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 28th Oct., the undermentioned lots of Tea (2,760 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Wavendon	10	21	hf-ch	bro pek	1155	38 bid
2	Do	12	13	do	pekoe	715	30 bid
3	Do	14	11	do	pek sou	550	27
4	Do	16	4	do	sou	200	23
5	Do	18	2	do	dust	140	23

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 28th Oct., the undermentioned lots of Tea (33,686 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Woodend	1	2	ch	dust	230	22
2	Do	2	1	do	congou	70	18
3	Sunnycroft	3	2	do	bro tea	160	15
4	Do	4	5	do	pek dust	350	23
5	X X X	5	1	ch	dust	70	21
6	Bogahagodawatte	6	3	hf-ch	bro pek	195	44
7	Do	7	3	do	pekoe	195	34
8	Do	8	7	do	pek sou	490	25
9	Do	10	13	do	bro mix	800	17
10	Do	12	1	do	pek fans	66	17
11	Do	13	2	do	fans	150	12
12	Do	14	2	do	dust	132	23
13	Glanrhos	15	30	ch	bro pek	3000	45
14	Do	17	32	do	pekoe	2880	36
15	Do	19	11	do	pek sou	990	25 bid
16	Do	21	2	do	bro tea	200	20
17	Do	22	2	do	dust	240	23
18	Dehiowita	23	25	do	bro pek	2625	41 bid
19	Do	25	59	do	pekoe	5900	33 bid
20	Do	27	20	do	pek sou	1900	25 bid
21	Do	29	1	do	bro tea	120	20 bid
22	Do	30	1	do	dust	160	22
23	Kelani	31	6	hf-ch			
			1	box	pekoe	300	36
24	Do	33	2	hf-ch	pek dust	140	22
25	Do	34	5	do	dust	850	20
26	A	35	4	ch	pek sou	377	out
27	A	36	4	do	dust	300	out
28	G	37	3	do	bro pek	220	25 bid
29	B	38	1	do	pekoe	100	out
30	B	39	1	do	pek sou	100	out
31	B	40	4	do	sou	274	12 bid
32	N C	41	9	hf-ch	pekoe	450	25 bid
33	Do	43	10	do	pek sou	500	23 bid
34	Shannon	45	7	ch	pek sou	700	21 bid
35	Do	47	4	do	bro tea	440	15
36	Nahalma	48	21	hf-ch	bro pek	1155	47 bid
37	Do	50	19	ch	pekoe	1900	36
38	Do	52	5	do	pek sou	500	25 bid
39	Do	54	1	hf-ch	dust	75	21 bid
43	H D A	61	8	hf-ch	pekoe	560	23
44	D H	63	1	ch			
			4	hf-ch	pekoe	270	20 bid
45	Do	64	5	do	red leaf	415	15
46	Nugagalla	65	7	do	bro pek	350	58

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 28th Oct., the undermentioned lots of Tea (45,948 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	H Y	87	3	ch	bro mix	330	14 bid
2	Do	88	2	do	dust	260	20
3	Ayr	89	1	hf-ch	pek dust	71	24
4	Do	90	5	do	fans	250	23
5	Do	101	3	do	congou	135	21 bid
6	Do	102	27	do	pek sou	1161	25 bid
7	Do	104	37	do	pekoe	1554	35 bid
8	Do	106	23	do	bro pek	1150	50
9	Orange Field P N R	108	20	ch	pekoe	1800	24 bid
10	Do	110	3	do	sou	270	22
11	Galkaudewatte	111	29	do	pekoe	2610	30 bid
12	Acrawatte	113	10	do	pekoe	950	32 bid
13	Do	115	10	do	pek sou	900	24 bid
14	Bowhill	117	2	do	pro pek	260	43 bid
15	Do	118	3	do	pekoe	360	33 bid
16	Do	119	5	do	pek sou	525	23 bid
17	Do	121	1	do	sou	100	18
18	N W	122	12	do	dust	1800	21 bid
19	Do	124	24	hf-ch	dust	2027	21 bid
20	Do	126	29	ch	red leaf	2900	16 bid
21	Maddegedera	128	26	hf-ch	or pek	1300	36 bid
22	Do	130	16	ch			
			1	hf-ch	pekoe	670	28 bid
23	S H S	132	6	ch	sou	510	14 bid
24	Do	133	1	hf-ch	unas	40	17
25	Labugama	134	13	do	bro pek	520	45
26	Do	135	20	do	pekoe	800	39
27	Do	138	11	do	pek sou	440	30
28	Do	140	10	do	sou	400	22
29	Do	142	9	do	pek fans	405	24 bid
30	Do	144	3	do	congou	120	19
31	Do	145	2	do	red leaf	85	15
32	Do	146	6	do	unas	240	25
33	Do	147	1	do	pek dust	70	23
34	Sumtra Valle	148	18	ch	bro pek	1980	42 bid
35	Madoolteune	150	15	do	bro pek	1650	41 bid
36	W D, in estate mark	152	17	do	bro tea	1707	16 bid
43	Vogan	165	41	do	pekoe	3180	29 bid
44	Do	167	12	do	pek sou	960	out
45	B C	169	6	hf-ch	dust	528	12 bid

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 28th Oct., the under mentioned lots of Tea (70,123 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Halpatenne	718	4	ch	bro pek	415	30 bid
2	Do	720	3	do	pekoe	303	26
3	Do	722	11	do	pek sou	1030	24
4	Do	724	2	do	sou	170	17
5	D C S	726	2	do	pekoe	205	24
6	Do	728	3	do	pek sou	300	21
7	Do	730	2	do	sou	170	17
8	Easdale	732	17	do	bro pek	1700	38
9	Do	734	16	do	pekoe	1280	29
10	Do	736	14	do	pek sou	1120	24
11	M C	738	15	do	bro pek	1500	37
12	Do	740	9	do	pekoe	819	27 bid
13	Do	742	16	do	pek sou	1456	20 bid
14	Do	744	15	do	unas	1365	12
15	Do	746	3	do	congou	300	17

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
26	Harangalla	768	33 hf-ch 4 ch	bro pek	2585	42
27	Do	770	20 hf-ch 8 ch	pekoe	2000	33
28	Do	772	40 hf-ch	pek sou	2200	25
29	N, in estate mark	774	3 ch	sou	312	24
30	D A	776	10 do	pekoe	1050	25
31	L	778	9 do	pek sou	860	18
32	L B K	780	6 do	red leaf	600	16
33	A G	782	13 do	pek sou	1300	15
35	C S O K, Ceylon, in estate mark	786	1 ch	dust	150	23
36	Do	788	1 do	red leaf	100	15
37	Do	790	1 do	congou	100	20
38	G	792	1 hf-ch	bro tea	40	10 bid
39	P D M, in estate mark	794	1 ch	congou	100	27
40	Do	796	3 hf-ch	dust	210	22
41	B F B	798	2 do	unas	67	17
42	Do	800	1 do	dust	57	22
43	Ancoombra	2	6 ch	dust	920	22
44	Do	4	1 do	red leaf	90	14
45	E D P	6	9 do	bro mix	890	18
46	Do	8	8 do	sou	720	23
47	Do	10	4 hf-ch	pek dust	300	22
48	O O	12	5 ch	bro pek	500	42
49	Do	14	5 do	pek sou	450	28
50	Do	16	1 do	dust	75	20
51	R	18	2 hf-ch	dust	154	16
52	R	20	3 ch	fans	290	10
53	Amblakande	22	2 do	bro or pek	200	43
54	Do	24	5 do	pekoe	450	30
55	Do	26	1 do	pek sou	90	22
56	A	28	9 hf-ch	dust	740	20
57	D	30	3 do	dust	230	17
58	Theydon Bois	32	6 ch	bro pek	600	41
59	Do	34	8 do	pekoe	720	30
60	Do	36	6 do	pek sou	519	25
61	Do	38	1 do	sou	85	17
62	D	40	17 hf-ch	bro tea	812	14
63	D	42	3 ch	red leaf	320	14
64	Theberton	44	11 do	pekoe	1100	28 bid
65	B	46	7 hf-ch	pekoe	350	28
66	B	48	7 do	pek sou	350	23
67	B	50	33 ch	bro tea	3300	24
71	Fred's Ruhe	58	11 do	pekoe	1100	24 bid
72	Do	60	10 do	pek sou	1000	17 bid
73	H E P, in estate mark	62	6 hf-ch	bro pek	360	35
74	G L, in estate mark	64	53 do	bro pek	2915	36
75	H H	66	16 do	pekoe	720	out
76	Monrovia	68	17 do	bro pek	850	39
77	Do	70	5 ch	pek sou	500	23
79	Bandara-palla	74	35 hf-ch	pekoe	1750	36 bid
80	Balgownie	76	13 ch	bro pek	1300	38 bid
81	Do	78	22 do	pekoe	1760	34
82	Do	80	15 do	pek sou	1200	23 bid
83	Do	82	1 do	pek dust	150	24 bid
85	Claremont	86	30 hf-ch	pekoe	1350	29 bid
86	Talgaswela	88	8 ch	bro pek	720	38
87	Do	90	12 do	bro pek	1140	36
88	Do	92	12 do	bro pek	1200	36
89	Do	94	5 do	pek sou	450	20 bid
90	M, in estate mark	96	1 hf-ch	or pek	53	out
91	C	98	2 ch	sou	175	19
92	C	100	1 do	dust	150	21

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, October 2nd, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 2nd October:—

Ex "Ballaarat"—Barragalla, 1c 111s; 1c 85s; 3b 95s 6d.

Ex "Manora"—Beenakelle, 1b 98s; 3c 95s 6d; 6c 92s 6d; 1c 89s; 1c 101s 6d; 1c 81s.

Ex "Ormuz"—Sherwood, 2c 97s 6d; 5c 1b 94s 6d; 6c 92s; 1c 113s. Haputale, 4c 100s 6d; 18c 94s 6d; 4c 92s; 5c 114s. Cocagalla, 1c 1b 96s 6d; 3c 1b 88s 6d; 1b 81s; 1b 92s. St. Leonard's 10c 90s 6d.

Ex "Manora"—Craig, 7c 1b 91s.

Ex "Karamania"—(DO), 1c 1b 90s 6d; 2c 1t 88s.

Ex "Ormuz"—Niabedda, 2c 1b 108s. Gowerakellie, 5b 88s 6d.

Ex "Mira"—Amherst, 2c 1b 94s; 2c 1b 92s 6d 1; 110s 6d.

Ex "Ormuz"—Concordia, 12c 93s.

Ex "Coromandel"—Sarnia, 3c 1t 98s; 1t 118s.

Ex "Glenavon"—Verelapatana, 5c 92s; 1c 1b 91s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 9th Oct.:—

Ex "Golconda"—Deagalla, 10b 80s 6d; 3b 91s.

Ex "Jason"—Coslanda, 1b 98s; 1c 1b 93s; 1c 1t 87s; 1b 101s. Denegama, 1b 100s; 1c 1b 97s; 2c 90s 6d; 1b 102s 6d. Thotula Galla, 2c 95s; 20c 91s; 3c 91s; 3c 110s 6d. Roehampton, 4c 98s; 10c 92s; 5c 92s 6d; 7c 92s; 5c 1t 90s; 4c 1t 114s 6d.

Ex "Orotava"—Albion, 1t 96s; 1c 1t 93s 6d; 1c 1b 87s; 1t 102s; 1b 78s. Goodwood, 1c 97s; 1b 102s; 5c 1b 81s 6d. Tulloes, 1t 1c 1b 81s; 1b 82s; 1c 1b 70s 6d. Nonpareil, 1b 95s; 1t 77s.

Ex "Orient"—Cannavarella, 2c 1t 88s.

Ex "Rosetta"—Hillside, 4b 99.

Ex "Ping Suey"—Ouvah, 3c 1t 95s; 11c 89s 6d; 1c 100s; 1c 1b 81s; 4b 91s; 1b 85s; 3c 97s; 15c 90s 6d; 1t 86s; 1t 106s; 1c 102s; 1c 1t 83s; 5b 92s 6d.

Ex "Peninsular"—Liddesdale, 1t 1b 93 6d; 3c 90s 6d; 7c 1b 90s; 1c 101s; 13c 84s; 1b 88s. Callander, 1b 91s; 2c 1t 90s; 1b 86s; 1b 97; 1b 79s.

Ex "Coromandel"—Sarnia, 5c 92s; 1c 1c 85s 6d.

Ex "Glenavon"—Verelapatana, 1c 96; 5c 91s 6d; 1c 1b 87s.

Ex "Jason"—Alnwick, 4c 94s.

Ex "Glengyle"—Galloola, 5c 1b 89s 6d.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MINCING LANE, October 2nd, 1891.

Ex "Clan Macdonald"—Arduthie, 33 bags 120s; 1 60s. 1 22s; 1 72s.

Ex "Rosetta"—Warakettia, 2 bags 30s.

Ex "Karamania"—Sangamma, 53 bags 122s 6d; 32 119s; 5 81s; 2 65s; 2 77s 6d; 1 45s.

Ex "Rosetta"—Kumaradola, 2 bags 78s; 10 81s; 1 36s; 1 65s; 1 78s; 2 74s; 1 63s. Woodslee, 1 bag 60s; 1 20s; 1 50s.

Ex "Karamania"—Dynevor, 9 bags 81s; 2 40s.

MINCING LANE, October 9th, 1891.

Ex "Scindia"—North Matale, 12b 81s.

Ex "Ormuz"—Cocowatte, 1b 70s; 1b 58s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, October 2nd, 1891.

Ex "Glenavon"—Nagalla, 7 cases 2s 10d; 7 2s; 1 1s 9d; 1 1s 11d; 1 1s 10d; 1 1s 9d; 1 2s 1d; 1 1s 10d. Nella Oolla, 1 case 1s 9d; 1 1s 10d; 3 1s 11d; 1 1s 6d; 1 2s; 3 1s 4d.

Ex "Karamania"—ABC, 13 cases 1s 4d; 1 1s 5d; 3 1s 4d; 1 1s 5d; 3 1s 4d; 9 1s 5d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 28th Oct. the undermentioned lots of Tea (52,604 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	R X	37	4	ch	bro mix	480	21	bid
2	Do	38	2	do	du	280	23	
3	C T M	39	3	do	bro mix	270	15	
4	Do	40	2	hf-ch	dust	140	22	
11	Marymount	47	4	do	bro pek	200	35	
12	Do	48	2	do	pekoe	94	24	
13	Do	49	1	do	pek sou	50	18	
14	Do	50	1	do	bro mix	45	14	
19	Hiralouvah	55	13	do	pek sou	1300	29	bid
20	Allakolla	56	17	hf-ch	bro pek	1105	38	bid
21	Do	57	22	ch	pekoe	2310	33	
22	Do	58	15	do	pek sou	1500	25	bid
23	Do	59	1	do	dust	100	23	
24	H H H	60	1	do	bro mix	100	14	
25	Do	61	1	hf-ch	dust	65	20	
26	A A	62	1	ch	pek sou	102	16	
27	T B W	63	8	do	bro pek	800	out	
28	Do	64	10	do	pekoe	1000	25	bid
29	Do	65	1	do	pek sou	125	20	
30	Roseneath	66	27	hf-ch	bro pek	1755	37	bid
31	Do	67	16	do	pekoe	1680	31	bid
32	Do	68	13	do	pek sou	1365	24	bid
33	Narangoda	73	3	ch	or pek	300	43	
34	Do	74	6	do	pekoe	660	33	
35	Do	75	17	do	pek sou	1700	27	
36	Do	76	1	do	sou	90	18	
37	Do	77	2	do	dust	140	21	
38	R N	78	28	hf-ch	bro pek	1820	35	bid
39	Ingeria	79	6	do	bro pek	330	46	
40	Do	80	10	do	pekoe	500	31	
41	Do	81	8	do	pek sou	400	22	bid
42	Do	82	2	do	bro tea	132	20	
43	Do	83	1	do	bro mix	50	14	
44	Do	84	1	do	dust	78	20	
45	B A	85	19	do	bro or pek	916	33	bid
46	Do	86	6	ch	pekoe	600	28	bid
47	Do	87	4	do	pek sou	360	23	bid
48	Pittawella	88	18	hf-ch	bro pek	1044	41	bid
49	Do	89	30	do	pekoe	1650	27	bid
50	Do	90	6	do	pek sou	348	23	bid
51	G	91	24	ch	bro or pek	2190	out	
52	G	92	6	hf-ch	pek sou	300	22	bid
53	C, in estate mark	93	12	ch	bro pek	1260	30	bid
55	L	95	22	ch				
			1	hf-ch	sou	2265	17	
56	E	96	17	do	bro mix	935	19	bid
57	E	97	7	do	dust	840	19	bid
62	R, in estate mark D	98	28	do	bro pek	2800	50	bid
63	B	99	18	do	pek sou	1350	15	bid

Messrs. E. BENHAM & BREMNER put up for sale at the Chamber of Commerce Sale-room on the 4th Nov. the undermentioned lots of Tea (7,760 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Wavendon	41	21	hf-ch	bro pek	1155	35	bid
2	Do	43	13	do	pekoe	715	30	
3	F, in estate mark	45	44	ch	sou	4070	17	bid
4	Do	47	3	do	congou	300	18	bid
5	Mayfair	20	6	do	unas	600	30	
6	Do	22	4	do	bro mix	360	15	bid
7	Do	24	2	do	dust	480	23	
8	Do	26	1	do	sou	80	17	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 4th Nov. the undermentioned lots of Tea (11,000 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	B S, in estate mark	1	2	ch	pek sou	180	24	
2	Do	2	1	hf-ch	dust	60	23	
3	Do	3	1	do	red leaf	50	17	
4	Preston	4	9	ch	bro pek	1035	52	bid
5	Do	6	16	do	pekoe	1600	36	bid
6	Do	8	9	do	pek sou	855	30	
7	Penrhos	10	22	hf-ch	pek sou	1100	39	
8	Do	12	4	do	congou	200	24	
9	Do	13	7	do	dust	490	28	
12	Norton	16	9	do	pekoe	450	20	bid
13	H H	18	3	ch	pek sou	331	18	bid
14	K	19	4	do	dust	320	12	
15	K	20	2	hf-ch	red leaf	100	12	
16	Nahalma	21	23	do	bro pek	1265	49	
17	Do	23	19	ch	pekoe	1900	35	
18	Do	25	5	do	pek sou	500	23	bid
19	Do	27	1	hf-ch	dust	75	23	
20	Mohedin	28	2	do	bro pek	100	51	
21	Do	29	3	do	pekoe	138	32	
22	Do	30	4	do	pek sou	164	24	
23	Do	31	1	do	bro pek fans	58	25	
24	Do	32	1	do	congou	37	17	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 4th Nov. the undermentioned lots of Tea (54,913 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D F D	170	6	ch	pek sou	570	30	bid
2	Do	172	1	do	congou	70	20	
3	Do	173	1	do	dust	116	21	
4	Albion	174	15	do	bro pek	1575	52	bid
5	Do	176	18	do	pekoe	1710	44	
6	Do	178	15	do	pek sou	1425	33	
7	Do	180	4	hf-ch	dust	320	25	
12	Gonavy	189	30	do	bro pek	3000	48	
13	Do	191	10	do	pekoe	900	46	
14	Do	193	1	do	dust	150	24	
15	Ottery	194	8	do	pek sou	720	27	bid
16	Do	196	8	do	bro mix	896	20	bid
17	Great Valley	198	24	do	bro pek	2640	46	
8 9	Do	200	19	do	pekoe	1900	33	bid
1	Do	202	21	do	pek sou	1995	23	bid
20	Eila	204	13	do	bro pek	1300	34	bid
21	Do	206	22	do	pekoe	1760	32	bid
22	Do	208	15	do	pek sou	1200	22	bid
23	Do	210	1	do	pk dust	150	22	
24	Mocha	211	30	hf-ch	bro pek	1650	67	
25	Do	213	30	box	bro pek	450	70	
26	Do	215	21	ch	pekoe	2100	52	
27	Do	217	17	do	pek sou	1530	36	
28	Do	219	12	do	sou	840	32	
29	Agra Ouvah	221	21	box	bro or pek	210	74	
30	Do	223	31	hf-ch	bro pek	1350	85	
31	Do	225	28	do	pekoe	1260	53	
32	Do	227	25	do	pek sou	1125	41	
33	Do	229	14	do	pek sou No. 2	630	30	
34	A O	231	4	do	pek fans	280	23	
41	A	241	8	do	pekoe	920	28	bid
42	B C	243	23	do	pek sou	1725	17	bid
43	D E	245	6	hf-ch	fans	492	34	
44	Tientsin	246	17	hf-ch	bro pek	1020	85	
45	Do	248	21	ch	pekoe	2100	54	
46	Do	250	12	do	pek sou	1200	37	
47	Do	252	2	hf-ch	dust	180	21	
48	Do	253	3	do	fans	210	24	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 4th Nov. the undermentioned lots of Tea (39,810 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	H J	1	7	hf-ch	bro pek	350	36	
2	W A H	2	12	ch	pek sou	1200	22	
3	Do	3	5	do	pek sou	500	16	bid
4	Do	4	1	do	bro tea	80	14	
5	X, in estate mark	5	3	do	bro pek	330	50	
6	Do	6	3	do	pek sou	285	31	
7	T B	7	8	do	bro pek	800	35	
8	Do	8	10	do	pekoe	1000	29	
9	Ingeria	9	8	hf-ch	pek sou	400	22	
10	N B	10	28	ch	bro mix	2800	19	bid
11	Depedene	11	11	hf-ch	bro pek	550	49	
12	Do	12	21	do	pekoe	1050	35	
13	Do	13	21	do	pek sou	1050	26	
14	H D	14	29	do	bro sou	1450	19	bid
15	Do	15	14	do	bro mix	700	15	
16	Do	16	2	do	dust	160	22	
21	Naseby	21	6	hf-ch	bro pek	300	92	
22	Do	22	15	do	pekoe	750	52	
23	Do	23	1	ch	bro tea	80	22	
24	Hatdowa	24	2	do	bro pek	220	40	
25	Do	25	2	do	pekoe	200	34	
26	Do	26	2	do	pek sou	180	22	
27	Do	27	3	do	unas	330	20	
28	Do	28	4	do	bro tea	400	19	bid
29	Wawetenne	29	3	hf-ch	bro pek	150	29	bid
30	Do	30	2	do	pekoe	80	24	
31	Roseneath	31	27	do	bro pek	1755	41	
32	Do	22	16	ch	pekoe	1680	31	
33	Do	33	13	do	pek sou	1365	25	
34	Allakolla	34	17	hf-ch	bro pek	1105	41	
35	B F	35	4	ch	dust	496	24	
36	D B G	36	6	do	bro mix	600	19	
37	Do	37	3	do	fans	315	23	
38	Do	38	3	hf-ch	dust	240	22	
39	D G	39	4	ch	bro or pek	440	37	bid
40	Do	40	4	do	fans	440	23	
41	Do	41	1	do	dust	110	21	
42	Do	42	2	do	bro mix	200	19	
43	G, in estate mark	43	4	do				
			1	hf-ch	bro tea	502	13	
44	Forest Hill	44	17	ch	bro pek	1904	47	
45	Do	45	17	do	pekoe	1700	30	bid
46	Do	46	8	do	pek sou	800	26	
47	Do	47	1	do	dust	130	23	
48	Do	48	1	do	red leaf	100	15	
49	H H	49	13	do	pek sou	1300	withd'n.	
50	Castle	50	1	hf-ch	bro pek	62	41	
51	Do	51	6	do	pekoe	320	30	
52	Do	52	3	do	pek sou	141	22	
53	Do	53	1	do	fans	75	22	
54	M K	54	15	ch	bro pek	1500	35	bid
55	Do	55	13	do	pek sou	1300	22	
56	Do	56	4	hf-ch	dust	280	17	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 4th Nov. the undermentioned lots of Tea (108,898 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	C B	102	2	hf-ch	dust	165	22	
2	Do	104	1	do	red leaf	60	14	
3	Walahandawa	106	4	ch	bro pek	400	46	
4	Do	108	8	do	pekoe	800	33	
5	Do	110	6	do	pek sou	600	24	
6	S P A	112	7	do	unas	700	30	
7	Do	114	4	do	red leaf	400	17	
8	S P V	116	2	do	bro pek	200	43	
9	Do	118	3	do	pekoe	300	30	
10	Do	120	6	do				
			5	hf-ch	pek sou	875	22	
11	S P K	122	2	do	bro pek	120	33	
12	Do	124	3	do	pekoe	165	27	
13	Galdola	126	3	ch	unas	300	29	
14	Do	128	1	do	mix	100	15	
15	T B W	130	1	do	bro pek	90	41	
16	Do	132	1	do				
			1	hf-ch	pekoe	120	27	
17	Do	134	3	ch	pek sou	240	22	
18	Do	136	1	hf-ch	fans	40	20	
19	J F E F	138	3	ch	unas	240	26	
26	Lesmoir	152	1	do	dust	150	21	
27	Do	154	1	do	red leaf	90	14	
28	Ragalla	156	13	do	bro pek	1430	59	
29	Do	158	13	do	pekoe	1170	45	
30	Do	160	5	do	pek sou	475	30	
31	Galkadua	162	10	do	bro pek	1000	35	bid
32	Do	164	12	do	pekoe	1200	31	bid
33	Do	166	10	do	pek sou	1000	21	bid
34	Citrus	168	6	hf-ch	bro pek	351	45	
35	Do	170	18	do	pekoe	990	30	
36	Do	172	7	do	pek sou	341	22	
37	Do	174	2	do	fans	150	25	
38	Do	176	1	do	congou	50	19	
39	Do	178	1	do	red leaf	55	12	
40	Do	180	1	do	bro mix	35	31	
41	L G E	182	2	ch	or pek	200	34	bid
42	Do	184	2	do	pekoe No. 1	200	27	
43	Do	186	3	hf-ch	dust	255	21	
44	Yataderia	188	12	ch	bro pek	1320	44	
45	Do	190	36	do	pekoe	3600	27	
46	Do	192	28	do	pek sou	2520	24	
47	T, in estate mark	194	7	do	dust	1050	20	
48	H H	196	3	do	bro mix	270	16	
49	Chesterford	198	13	do	bro pek	1430	48	
50	Do	200	12	do	pekoe	1200	30	bid
51	Do	202	8	do	pek sou	880	25	
52	Dunkeld	204	17	do	bro pek	1700	48	bid
53	Do	206	28	hf-ch	or pek	1400	43	bid
54	Do	208	16	ch	pekoe	1280	36	bid
55	Marlborough	210	7	do	bro mix	630	17	
56	Deltotte	212	14	do	bro pek	1400	45	
57	Do	214	4	do	pekoe	360	33	
58	Do	216	9	do	pek sou	810	25	
59	Do	218	1	hf-ch	dust	75	24	
60	Debatgama	220	1	ch	congou	90	19	
61	Do	222	1	do	red leaf	100	14	
62	Do	224	2	do	fans	220	23	
63	Iddegodda	226	2	hf-ch	sou	106	18	
64	Do	228	2	do	dust	75	29	
65	K G	230	12	ch	bro pek	1200	37	
66	Do	232	4	do	pekoe	360	25	
67	Do	234	3	do	pek sou	270	25	
68	Portmore	236	1	hf-ch	pek sou	55	33	
69	Do	238	1	ch	fans	91	26	
70	Farnham	240	41	hf-ch	bro or pek	1845	56	
71	Do	242	10	do	bro or pek	200	71	
72	Do	244	48	do	pekoe	2160	38	
73	Do	246	38	do	pek sou	1710	28	
74	Do	248	1	box	gold tips F. F. Street	2	R26·00	
75	St. Leonard's	250	5	ch	bro pek	500	35	
76	Do	252	6	do	pekoe	540	out	
77	Do	254	1	do	bro mix	100	15	
78	C R D	256	5	hf-ch	dust	275	24	
79	Do	258	8	do	red leaf	400	16	
80	Doonevale	260	21	ch	bro pek	2200	36	
81	Alnoor	262	22	hf-ch	bro pek	1100	43	
82	Do	264	24	do	pekoe	1200	30	
83	Do	266	23	do	pek sou	1150	25	
84	Do	268	1	do	sou	50	19	
85	Do	270	3	do	dust	240	24	
86	Yahalakelle	272	2	ch	red leaf	200	15	
87	Wewesse	274	20	hf-ch	bro pek	1000	55	
88	Do	276	13	do	pekoe	650	42	
89	Do	278	13	do	pek sou	650	39	
90	Do	280	1	do	sou	50	22	
91	Hunugalla	282	10	ch	bro pek	1150	out	
92	Do	284	33	do	pekoe	3585	out	
93	Do	286	1	do	pek sou	105	15	
94	Do	288	1	do	dust	155	withd'n.	
95	Talgaswela	290	5	do	pek sou	450	22	bid
96	Thornfield	292	26	hf-ch	bro pek	1560	53	bid
97	Do	294	22	ch	pekoe	2200	40	
98	Do	296	7	do	pek sou	700	30	
99	Do	298	1	do	dust	80	24	
100	Balgownie	300	13	do	bro pek	1300	40	
101	Do	302	15	do	pek sou	1200	21	bid
102	Do	304	1	do	pek dust	150	21	
103	Becherton	306	21	do	bro pek	2100	35	bid
104	Do	308	29	do	pekoe	2900	23	bid
105	Do	310	1	do	congou	100	19	
106	Do	312	2	do	dust	140	20	
107	Langdale	314	15	do	bro pek	1650	40	
108	Do	316	13	do	pekoe	1300	29	bid
109	Do	318	15	do	pek sou	1425	29	bid
110	Hunugalla	320	40	do	sou	3600	19	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
111	Bandara-Polla	322	32	hf-ch	bro pek	1600	50	
112	Do	324	31	do	pekoe	1550	30	bid
113	Do	326	28	do	pek sou	1260	26	bid
114	Do	328	4	do	sou	180	18	
115	Do	330	6	do	dust	420	23	
116	Middleton	332	13	ch	bro pek	1430	48	
117	Do	334	16	do	pekoe	1440	36	
118	Do	336	14	do	pek sou	1190	27	
119	Melrose, D	338	4	hf-ch	bro pek	224	41	bid
120	Do	340	4	ch	pekoe	410	35	
121	Melrose	342	19	do				
			5	hf-ch	bro pek	2390	37	bid
122	Do	344	30	ch	pekoe	3000	32	
123	Do	346	23	do	pek sou	2300	24	bid
124	Do	348	2	do	dust	300	23	
125	Do	350	2	do	congou	200	18	
129	B E R	358	16	ch	pek sou	1440	15	
130	Do	360	2	do	dust	280	20	
131	Angroo-wella	[162	2	hf-ch	dust	170	24	

Mr. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 11th Nov. the undermentioned lots of Tea (7,710 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	F, in estate mark	57	44	ch	sou	4070	13	bid
2	Do	59	3	do	congou	300	15	bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 11th Nov., the undermentioned lots of Tea (9,333 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	A O	1	3	ch	bro pek	220	22	bid
2	Do	2	1	do	pekoe	100	22	bid
3	Do	3	5	do	pek sou	477	out	
4	Do	4	4	do	sou	274	out	
5	Do	5	4	hf-ch	dust	300	12	
6	Preston	6	12	ch	bro pek	1315	57	
7	Do	8	15	do	pekoe	1425	37	bid
8	Do	10	10	do	pek sou	950	28	bid
9	Do	12	2	do	sou	150	22	
10	Do	13	5	do	dust	160	24	
11	A G C	14	5	do	dust	350	22	
12	X X X	15	2	do	brotea	140	24	
13	Gampola-watte	16	5	ch	bro pek	500	44	bid
14	Do	18	14	do	pekoe	1260	30	bid
15	Ravenscraig	20	6	do	pek sou	540	25	bid
16	Do	22	1	do	fans	100	22	
17	Knutsford	23	1	hf-ch	congou	91	18	bid
18	Do	24	17	do	unas	913	32	bid
19	Do	26	1	do	fans	68	20	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 11th Nov. the undermentioned lots of Tea (48,050 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	F T	254	1	ch	bro tea	120	19	
2	Do	255	1	do	dust	150	19	
3	Do	256	2	do	unas	174	27	
4	Do	257	12	do	pek sou	1080	27	
5	Do	259	13	do	pekoe	1300	36	
6	Do	261	15	do	bro pek	1500	53	
7	Gonakelle Factory	262	6	do	or pek	720	50	
8	Do	264	15	do	pro pek	1650	32	bid
9	Albion	266	12	do	bro pek	1260	55	
0	Do	268	12	do	pekoe	1140	41	bid
1	Do	270	13	do	pek sou	1235	30	
12	J, in estate mark	272	10	box	pekoe	80	out	
13	Temple-stowe	273	26	hf-ch	or pek	1352	40	bid
14	Do	275	16	ch	pekoe	1280	out	
15	Do	277	19	do	pek sou	1710	out	
16	Do	279	9	hf-ch	bro mix	468	17	bid
17	Do	281	7	do	dust	569	20	
18	Orange Field P N R	282	20	ch	pekoe	1800	25	
19	Bronlow	284	12	do	bro pek	1140	48	bid
20	Do	286	16	do	pekoe	1520	33	bid
21	Do	288	10	do	pek sou	900	26	bid
22	Do	290	1	hf-ch	dust	70	23	
23	Wewel-madde	10	5	do	dust	400	14	
24	Do	11	1	ch	red leaf	84	12	
25	Tare	12	9	do	bro pek	990	22	
26	Do	14	11	do	pekoe	1100	out	
27	DS	16	5	do	pek sou	475	22	
28	Do	18	1	hf-ch	dust	70	22	
29	B T	19	22	ch	bro mix	1870	12	bid
30	Vogan	21	20	ch	or pek	1800	37	
31	Do	23	29	do	bro pek	2900	54	
32	Do	25	41	do	pekoe	3280	30	
33	Do	27	12	do	pek sou	930	21	bid
34	Kandaloya	29	1	hf-ch	bro pek	48	35	
35	O C	30	22	do	bro tea	990	12	
36	Do	32	6	ch	dust	834	08	bid
37	L	34	15	do	pek fans	2025	25	
38	L	36	5	do	congou	500	26	
39	L	37	1	do	red leaf	88	14	
40	L	38	1	do	fluffy dust	180	05	
45	R G	46	3	hf-ch	bro pek	188	29	
46	Do	47	1	do	pek dust	45	20	
47	M L	48	15	ch	bro pek sou	1573	14	
48	B A	50	2	hf-ch	dust	132	15	
49	W P	51	5	ch	sou	400	17	
50	S G	52	2	do	sou	160	15	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 11th Nov. the undermentioned lots of Tea (46,646 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	G A	57	3	hf-ch	red leaf	150	13	
2	D	58	4	do	bro pek	200	39	
3	D	59	5	do	pekoe	250	30	
4	D	60	12	do	unas	580	25	
5	Bismark	61	38	do	bro pek	2090	39	
6	Do	62	24	ch	pekoe	2400	30	
7	Do	63	6	do	pek sou	550	24	
8	Do	64	1	do	sou	100	18	
9	Do	65	1	hf-ch	dust	70	21	
10	W	66	7	ch	pek sou	700	14	
11	W	67	4	do				
			1	hf-ch	red leaf	405	12	
12	W	68	1	ch	dust	128	21	
18	Killin	74	23	do	bro pek	1150	32	bid
19	Do	75	19	do	pekoe	950	out	
20	Do	76	4	do	dust	200	21	
12	G L	77	5	ch	congou	400	20	
22	M K	78	15	do	bro pek	1500	36	
23	Do	79	12	do	pekoe	1200	29	bid
24	X Y Z	80	39	do	fans	3900	11	bid
25	Lyndhurst	81	9	do	bro pek	987	36	bid
26	Do	82	21	do	pekoe	1885	30	
27	Do	83	20	do	pek sou	1886	20	bid
28	Arslena	84	83	hf-ch	bro pek	4150	45	
29	Do	85	4	do	sou	200	25	
30	Do	86	7	do	bro mix	350	12	
31	Friedland	87	18	do	bro pek	900	77	bid
32	Do	88	21	do	pekoe	1050	56	bid
33	Do	89	21	do	pek sou	1050	40	bid
34	Stockholm	90	32	hf-ch	or pek	1600	47	bid
35	Do	91	17	ch	pek sou	1530	33	
36	Do	92	1	do	fans	140	21	
37	B A G, in estate mark	47	6	do	pekoe	600	25	bid
38	Do	48	4	do	pek sou	360	24	
39	H J S	93	2	hf-ch	bro or pek	100	33	
40	Do	94	6	do	bro pek	300	36	
41	Do	95	4	ch	pekoe	400	27	
42	Do	96	5	do	pek sou	500	23	
43	Diganakelle	97	16	hf-ch	bro pek	800	43	
44	Do	98	6	do	pekoe	300	35	
45	Do	99	44	do	pek sou	2200	32	
46	Do	100	3	do	dust	240	20	
47	Do	1	5	do	fans	300	25	
	Do	2	3	do	bro mix	165	17	
49	G, in estate mark	3	6	do	pekoe	300	out	
50	C G	4	1	ch	pek sou	100	25	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 11th Nov. the undermentioned lots of Tea (111,531 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Deniyaya	364	5	ch	bro pek	520	48	
2	Do	366	7	do	pekoe	685	32	
3	Do	368	4	do	pek sou	360	20	bid
4	Do	370	2	do	sou	180	16	
5	Do	372	3	do	pek fan	300	25	
7	Polatagama	376	39	hf-ch	bro pek	2340	53	
8	Do	378	70	do	pekoe	3500	40	
9	Do	380	54	do	pek sou	2700	29	
10	G C S	382	34	ch	bro tea	3230	12	bid
11	Hidugalla Ouvah	384	1	do	bro pek	91	45	
12	Do	386	1	do	pekoe	92	30	
13	M B B	388	2	do	bro mix	180	11	bid
14	S K	390	3	hf-ch	pek fans	225	26	
15	St. Helier's	392	12	do	bro or pek	600	54	
16	Do	394	9	ch	pekoe	900	39	
17	Do	396	7	do	pek sou	700	28	
18	Deaculla	398	17	hf-ch	or pek	1020	55	
19	Do	400	32	ch	pekoe	3200	36	
20	Do	402	1	do	congou	100	20	
21	Do	404	2	hf-ch	dust	140	21	
23	L	408	17	do	bro pek	1190	50	
24	L	410	19	do	pek sou	1140	33	
25	L	412	38	dc	unas	2280	25	bid
26	Amblakande	414	5	ch	bro or pek	500	42	
27	Do	416	11	do	pekoe	990	28	
28	Do	418	2	do	peksou	180	22	
29	T B W	420	1	hf-ch	fans	40	20	
30	Do	422	1	ch				
			5	hf-ch	dust	425	20	
31	Anccombra	424	34	ch	bro pek	3664	43	bid
32	Do	426	29	do	pekoe	5135	32	bid
33	Do	428	12	do	pek sou	1134	27	bid
34	Do	430	31	do	sou	2800	21	bid
35	Angroowella	432	40	hf-ch	bro pek	2140	50	
36	Do	434	101	do	pekoe	5050	36	
37	Yataderia	436	20	ch	or pek	1300	50	
38	Do	438	29	do	pekoe	2900	29	
39	Do	440	20	do	pek sou	2520	23	bid
43	Ragalla	448	16	do	bro pek	1760	60	
44	Do	450	17	do	pekoe	1530	45	
45	Do	452	7	do	pek sou	665	32	
46	Do	454	4	do	dust	320	24	
47	Court Lodge	456	35	hf-ch	bro pek	2030	84	bid
48	Do	458	21	do	pekoe	1008	68	bid
49	Do	460	48	do	pek sou	2256	57	
50	Do	462	2	ch	sou	142	36	bid
51	Do	464	3	do	dust	435		
52	K W	466	2	do			24	
			3	hf-ch	pek dust	550	20	
53	Dunkeld	468	12	ch	bro pek	1200	53	
54	Do	470	17	do	do	1700	53	
55	Do	472	21	hf-ch	or pek	1050	40	
56	Do	474	28	do	do	1400	42	
57	Do	476	15	ch	pekoe	1200	32	
58	D K D	478	20	do	pek sou	1500	25	
59	Meddetenne	480	16	do	bro pek	1760	44	
60	Do	482	18	do	pekoe	1620	31	bid
61	Do	484	9	do	pek sou	810	26	
62	Do	486	1	hf-ch	dust	75	23	
63	Avoca	488	17	ch	bro pek	1870	35	bid
64	Do	490	13	do	pekoe	1300	26	bid
65	Do	492	11	do	pek sou	1045	22	bid
66	Do	494	1	do	bro tea	80	out	
67	Theydon Bois	496	5	do	sou	425	18	
68	Do	498	3	do	sou	255	18	
69	Do	500	1	do	dust	150	23	
70	Avisawella	502	3	do	sou	270	18	
71	Do	504	3	do	dust	450	22	
72	Claremont	506	30	hf-ch	pekoe	1350	out	
76	Hunugalla	514	10	ch	bro pek	1150	28	
77	Do	516	22	do	pekoe	3385	19	
78	Claremont	518	44	hf-ch	bro pek	2200	30	bid
79	Do	520	33	do	pekoe	1476	20	bid
80	Do	522	2	do	dust	112	19	bid
81	Do	524	3	do	bro tea	108	10	bid
82	Castlereagh	526	35	do	bro or pek	1750	62	
83	Do	528	93	do	pekoe	4185	39	bid
84	K	530	1	ch	sou	160	30	
85	K	532	1	do	dust	160	20	
86	B G	534	1	hf-ch	pek sou	50	20	
87	L A	536	7	ch	pekoe	700	18	bid
88	Midlothian	538	27	hf-ch	bro pek	1350	42	
89	Do	540	16	ch	pekoe	1600	27	
90	Do	542	12	do	pekoe	1200	25	
91	Do	544	2	hf-ch	congou	120	21	
92	Do	546	1	ch	dust	130	20	
93	Bramley	548	3	hf-ch	red leaf	159	15	
94	Do	550	1	do	unas	55	25	
99	Avisawella	560	2	do	bro pek	200	42	
100	Do	562	2	ch	pekoe	180	28	
101	Do	564	5	do	pek sou	450	20	
122	Hunugalla	566	1	do	dust	142	18	
103	C S O K, Ceylon, in estate mark	568	2	do	dust	300	24	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, October 16th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 16th Oct.:—

Ex "Orotava"—Park, 1b 95s; 9c 91s; 1b 105s; 1b 82s; 3b 92s.

Ex "Clan Alpine"—Delmar, 1c 95s; 6c 1b 91s; 1t 103s.

Ex "Ormuz"—Mahakanda, 2c 88s.

Ex "Orotava"—Hillside, 1b 96s; 10c 1t 92s 6d; 1b 107s.

Ex "Peninsular"—Hiralouvah, 1b 95s 6d; 2c 95s; 1c 89s 6d; 1b 106s.

Ex "Clan Macdonald"—Broughton, 2c 97s 6d; 8c 1t 82s 6d; 1c 1t 88s 6d; 1c 106s.

Ex "Jason"—Ouvah, 5c 97s 6d; 1c 1b 98s 6d; 11c 1b 92s; 1b 86s; 1c 112s.

Ex "Agamemnon"—Ouvah, 2c 1t 96s 6d; 15c 1b 91s; 1t 84s 6d; 1c 111s; 1t 104s.

Ex "Glenavon"—Cannavarella, 1c 1b 88s; 1b 91s,

Ex "Orotava"—Albion, 3c 93s.

Ex "Huntingdon"—Gonamotava, 1b 97s 6d; 4c 1t 92s; 5c 1t 91s; 1b 103s 6d.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 23rd Oct.:—

Ex "A saye"—Brookside, 2c 1t 95s; 13c 1t 96s; 1c 1b 106s; 3b 93s 6d.

Ex "Peninsular"—Alnwick 1c 1t 94s 6d; 2c 1b 92s 6d; 1b 102s; 1b 87s; 1b 96s 6d; 1b 1c 1t 69s 6d; 23b 79s 6d; 15c 77s 6d.

Ex "Canton"—Yapame, 1t 97s; 1c 1t 92s; 2c 87s 6d; 1b 86s; 1b 97s 6d; 1c 85s; 1b 88s; 1b 80s.

Ex "Karamania"—Gomalia, 2c 1b 97s; 3c 93s; 2c 91s; 1t 109s; 1c 84s; 1b 94s.

Ex "Canton"—Wiharagalla, 1t 102s; 2c 99s; 1c 1b 91s; 1c 113s; 1c 85s; 1b 95s.

Ex "Assaye"—Broughton, 1t 99s; 4c 1b 93s; 2c 90s; 1c 111s.

Ex "Canton"—Kahagalla, 2c 98s 6d; 6c 93s 6d; 2c 90s 6d; 1c 1t 117s. Meeriabedde, 1b 98s; 2c 95s 6d; 5c 92s; 1c 91s; 1c 1b 118s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, October 16th, 1891.

Ex "Ping Suey"—Yattawatte, 1c 2s 5d; 2c 2s; 3c 1s 7d; 6c 1s 8d.

Ex "Rosetta"—Mysore, 4c 2s 11d; 5c 2s 3d.

Ex "Sutlej"—(DO), 5c 2s; 1c 2s 2d.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 29.] COLOMBO, DECEMBER 1, 1891. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 18th Nov., the undermentioned lots of Tea (78,219 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Ottery	53	6	ch	bro mix	672	22
2	Stamford Hill	54	12	do	bro mix	1120	24
3	W, in estate mark	56	20	do	bro pek	2100	28 bid
4	Do	58	30	do	pekoe	3000	26 bid
5	Do	60	5	do	pek sou	475	21
6	Do	62	1	do	dust	150	20
7	W—T	63	35	do	bro pek	3500	43 bid
8	Do	65	9	do	pekoe	900	30 bid
9	Do	67	8	do	pek sou	720	27
10	Do	69	2	do	sou	180	19
11	Do	70	1	do	dust	150	24
12	W H	71	23	do	bro mix	1840	out
13	Albion	73	43	hf-ch	bro pek	2365	59
14	Do	75	18	do	pekoe	900	40
15	Do	77	14	ch	pekoe	1330	40
16	Do	79	19	do	pek sou	1805	27
17	Do	81	2	do	bro mix	180	20
18	Do	82	6	hf-ch	dust	480	29
19	M R	83	1	do	dust	78	22
20	Dickapittia	84	23	ch	bro pek	2300	38 bid
21	Do	86	5	do	pekoe	500	28
22	Do	88	12	do	pek sou	1200	25 bid
23	Do	90	2	do	sou	180	19
24	Lawrence	101	40	do	sou	3800	11 bid
25	Bittacy	103	13	do	bro pek	1005	49 bid
26	Do	105	30	do	pekoe	2250	32 bid
27	Vogan	107	12	do	pek sou	960	18 bid
28	Troup	109	27	hf-ch	bro pek	1485	73
29	Do	111	25	ch	pekoe	2250	44
30	B, in estate mark	112	4	hf-ch	congou	275	23
31	Do	113	5	do	unas	360	30
33	Kandenewera	115	25	ch	bro pek	2500	57 bid
37	D E	123	4	do	bro mix	352	24
38	Do	124	12	do	fans	960	28
39	Denegama	126	1	hf-ch	red leaf	50	13
40	Madoolletenne	127	14	ch	bro pek	1540	33 bid
41	Do	129	14	do	pekoe	1400	27 bid
42	Loonagalla	131	16	hf-ch	bro mix	960	20
43	Haudroo	133	14	do	pekoe	700	31 bid
44	Do	135	9	do	pek sou	450	23
45	Do	137	2	do	dust	120	23
46	Great Valley	138	20	ch	bro pek	2200	43
47	Do	140	19	do	pekoe Nos. 118 - 1199	1900	32 bid
48	Do	142	23	do	pekoe Nos. 2241- 2263	2,300	32
49	Do	144	21	do	pk sou Nos. 2264- 2284	1995	24 bid
50	Do	146	21	do	pk sou Nos. 1200- 1220	1995	25
51	Mocha	148	24	do	bro pek	2640	70
52	Do	150	17	do	pekoe	1700	48
53	Do	152	12	do	pek sou	1080	33
54	Agra Ouvah	154	23	hf-ch	bro pek	1260	77
55	Do	156	31	do	pekoe	1395	53
56	Do	158	28	do	pek sou	1170	39
57	Do	160	13	do	pek sou No. 2	585	30
58	A O	162	4	do	pek fans	280	20
59	L	163	12	do	bro pek sou	552	out
60	B B	165	13	ch	pek sou	975	17

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 18th Nov., the undermentioned lots of Tea (66,811 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Gampolawatte	1	5	ch	bro pek	500	41 bid
2	Do	3	14	do	pekoe	1260	25 bid
3	K	5	2	hf-ch	congou	91	16
4	K	6	17	do	unas	913	30 bid
5	D A	8	3	ch	bro pek	220	25
6	Do	9	1	hf-ch	pekoe	100	24
7	Do	10	5	do	pek sou	477	out
8	Do	11	4	ch	sou	274	13
9	Do	12	4	do	dust	300	13
12	Agrakande	15	60	do	pekoe	6000	39
13	M F	17	15	do	pekoe	1350	20 bid
14	Do	19	5	do			
			9	hf-ch	bro mix	940	15 bid
15	Do	21	7	ch	dust	945	18 bid
16	Agraoya	22	17	do	bro pek	1700	40 bid
17	Do	24	8	do	pekoe	850	25 bid
18	Do	26	17	do	pek sou	1700	19 bid
19	Do	28	1	do	dust	88	21
20	Torrington	29	31	do	bro pek	3410	48 bid
21	Do	31	30	do	pekoe	3000	31 bid
22	Do	33	28	do	pek sou	2730	24 bid
23	Do	35	9	hf-ch	dust	720	26
24	Helbeck	36	7	ch	bro pek	770	57
25	Do	38	7	do	pekoe	700	38
26	Do	40	6	do	pek sou	600	23 bid
27	B U S	42	1	ch	congou	110	15
28	C G	43	4	do	bro pek	400	24 bid
29	Do	44	5	do	pekoe	500	25
30	Do	45	6	do	pek sou	593	18 bid
32	Ettapolla	48	15	hf-ch	bro pek	825	35 bid
33	Do	50	23	do	pekoe	1260	23 bid
34	Morland	52	13	ch	or pek	1365	49
35	Do	54	23	do	pekoe	2254	28 bid
36	Do	56	7	do	pek sou	700	20 bid
37	Do	58	2	do	bro tea	220	withd'n.
38	Dehiowita	59	23	do	bro pek	2310	
39	Do	61	50	do	pekoe	5000	withd'n.
40	Do	63	14	do	pek sou	1330	
41	Do	65	1	do	bro tea	120	21
42	Do	66	1	do	dust	160	22
43	Penrhos	67	11	hf-ch	bro or pek	630	48
44	Do	69	21	do	bro pek	1155	55 bid
45	Do	71	30	do	pekoe	1650	33 bid
46	Do	73	48	do	pek sou	2400	30
44	Do	75	2	do	pek dust	140	26
43	Nahalma	76	46	do	bro pek	2530	55
49	Do	78	48	ch	pekoe	4800	38
50	Do	80	18	do	pek sou	1300	24 bid
51	Do	82	2	hf-ch	dust	150	25
52	Preston	83	15	ch	pekoe	1425	38
53	Do	85	10	do	pek sou	950	25 bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 18th Nov., the undermentioned lots of Tea (51,897 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Crurie	1	7	ch	sou	595	
2	Do	2	1	do	red leaf	80	
3	Do	3	1	do	dust	95	
4	I N G	4	1	do	bro mix	100	19
5	Do	5	2	do	red leaf	200	11
6	Do	6	1	do	dust	100	21
7	Kattukitula	7	1	hf-ch	bro pek	55	49
8	Do	1	2	do	pekoe	90	26
9	Do	9	3	do	pek sou	150	22
10	H S, in estate mark	10	8	ch	bro pek	800	3 bid
11	Do	11	19	do	pekoe	1515	22 bid
12	Do	12	2	do	pek sou	170	20
13	Do	13	1	do	sou	85	16 bid
14	Do	14	1	do	dust	150	21
15	Do	15	2	do	red leaf	99	10
16	T, in estate mark	16	24	hf-ch	pek sou	1104	22
17	Do	17	26	do	unas	1404	19
18	Do	18	6	do	congou	264	13
19	Do	19	3	do	mixed	135	17
20	Do	20	12	do	dust	816	22
21	Arslena	21	64	do	bro pek	3200	48
22	Do	22	37	do	pekoe	1850	31
23	Do	23	25	do	pek sou	1250	27
24	Do	24	13	do	bro mix	650	13
25	Do	25	4	do	dust	280	20

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
32	Lyndhurst	32	9	ch	bro pek	987	35	bid
33	Do	33	20	do	pek sou	1886	20	
34	Killin	34	23	hf-ch	bro pek	1150	33	id
35	Do	35	19	do	pekoe	950	21	bid
36	B	36	6	ch	pekoe	600	20	bid
37	Y, in estate mark	37	3	hf-ch	red leaf	156	11	
38	Do	38	4	ch	pek fans	485	21	
39	H G A	39	12	do	bro pek	1176	52	
40	Do	40	19	do	pekoe	1862	30	bid
41	Do	41	16	do	pek sou	1568	22	bid
42	St. Andrews	42	34	hf-ch	or pek	2244	55	bid
43	Do	43	44	box	do	880	55	bid
44	Do	44	29	hf-ch	bro pek	1885	35	bid
45	Do	45	68	do	pekoe	4352	30	bi
46	Ingeriya	46	6	do	bro pek	330	49	
47	Do	37	16	do	pekoe	800	27	
48	Do	48	10	do	pek sou	480	21	
49	Do	49	2	do	bro tea	130	20	
50	P G, in estate mark	50	12	ch	bro pek	1200	48	
51	Do	51	48	do	pekoe	4080	23	bid
52	Do	52	7	do	pek sou	595	21	
53	Do	53	6	do	sou	510	14	
54	P G, in estate mark	54	22	do	bro or pek	2200	40	
55	Do	55	3	do	pekoe	255	25	
56	Do	56	3	do	pek sou	255	18	
		56a	3	do	sou	255	14	
57	Do	57	1	do	dust	150	22	
58	Do	58	2	bag	red leaf	104	09	
59	Hopewell	59	1	hf-ch	dust	60	18	
60	Do	60	2	do	red leaf	90	09	
61	Vincit	61	1	ch	dust	110	22	
62	Y	62	3	hf-ch	unas	150	18	
63	M P	63	6	ch	bro pek sou	600	14	

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 18th Nov., the under mentioned lots of Tea (180,929 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Sapu	570	3	ch	red leaf	255	05	bid
2	Do	572	6	hf-ch	unas	300	19	
3	Ismalle	574	3	do	sou	144	10	bid
4	Do	576	2	do	dust	170	15	
5	Horazas-kelle	578	8	do	bro pek	464	30	bid
6	Do	580	8	do	pekoe	386	20	bid
7	Do	582	11	do	pek sou	580	out	
8	Do	584	1	do	congou	48	15	
9	Do	586	1	do	bro mix	74	10	
10	Lauadale	588	11	ch	bro pek	1210	37	
11	Do	590	9	do	pekoe	900	24	bid
12	Do	592	11	do	pek sou	1045	21	
13	Do	594	1	do	bro tea	75	11	
14	W T	596	15	hf-ch	bro pek	750	42	
15	Do	598	21	do	pekoe	1050	28	
16	Do	600	2	do	dust	130	22	
17	Do	602	1	do	congou	45	17	
20	Sutton	608	1	hf-ch	fans	49	27	
23	Portmore	614	2	ch	pek sou	200	36	
24	Do	616	1	hf-ch	fans	67	25	
25	Galkadua	618	11	do	bro pek	1100	35	bid
26	Do	620	10	do	pekoe	1000	out	
27	Do	622	9	do	pek sou	900	19	bid
28	Wewesse	624	22	do	bro pek	1100	58	bid
29	Do	626	15	do	pekoe	750	38	
30	Do	628	16	hf-ch	pek sou	800	33	
31	Maha Uva	630	5	ch	bro pek	550	49	
32	Do	632	6	do	pekoe	540	35	
33	Do	634	2	do	pek sou	190	23	
34	Do	636	2	do	dust	190	27	
35	Palmerston	638	22	hf-ch	bro pek	1210	65	
36	Do	640	23	ch	pekoe	2300	47	
37	Do	642	8	do	pek sou	800	31	
38	Farm	644	14	do	bro pek	1400	49	
39	Do	646	21	do	pekoe	1890	34	
40	Do	648	21	do	pek sou	1890	24	
41	Do	650	1	do	dust	158	19	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
42	Deaculla	652	10	hf-ch	or pek	600	69	
43	Do	654	21	ch	pekoe	2100	41	
44	Do	656	2	hf-ch	dust	140	20	
45	Do	658	1	do	bro tea	50	12	
46	St. Leonard's	660	6	ch	pekoe	540	23	
47	H E P, in estate mark	662	4	hf-ch	bro pek	240	58	
48	Do	664	6	do	pekoe	360	36	
49	Do	666	5	do	pek sou	300	23	
50	Harangalla	668	15	ch				
			1	hf-ch	bro pek	1565	33	bid
51	Do	670	8	ch	pekoe	760	24	bid
52	Do	672	15	do				
			11	hf-ch	pek sou	1895	23	
53	Do	674	5	ch	bro tea	450	out	
54	Bandara-Polla	676	26	hf-ch	bro pek	1300	39	bid
55	Do	678	31	do	pekoe	1550	32	
56	Do	680	43	do	pek sou	1935	24	
57	Chalmers	682	17	ch	bro pek	1700	44	bid
58	Do	684	18	do	pekoe	1620	25	bid
59	Do	686	13	do	pek sou	1040	28	
60	Do	688	1	do	dust	140	19	
61	Do	690	3	do	bro mix	240	22	
62	Caledonia	692	11	do	bro pek	1100	37	
63	Do	694	9	do	pekoe	855	23	bid
64	Do	696	1	do	sou	95	20	
65	Ellengowan	698	10	ch	bro pek	1000	41	
66	Do	700	9	do	pekoe	855	28	
67	Do	702	2	hf-ch	bro tea	110	12	
68	L, in estate mark	704	1	do	pek sou	71	17	
69	Do	706	1	do	do	34	17	
70	Do	708	1	do	dust	54	22	
71	D F	710	2	ch				
			1	hf-ch	sou	250	13	
72	Do	712	2	ch				
			1	hf-ch	bro mix	265	out	
73	Do	714	1	do	dust	31	18	
74	G L, in estate mark	716	48	do	bro pek	2100	35	bid
75	Do	718	24	do	pekoe	1080	27	
76	Do	720	6	do	pek sou	270	23	
77	G L, in estate mark	722	50	do	bro pek	2500	34	bid
78	Do	724	22	do	pekoe	990	28	
79	G L, in estate mark	726	22	ch	bro pek	2420	34	bid
80	Do	728	13	do	pekoe	1170	28	
81	Do	730	3	do	pek sou	270	19	bid
82	Campion	732	4	do	bro mix	360	10	bid
83	Kelvin	734	3	do	congou	300	20	
84	Do	736	1	do	red leaf	100	12	
85	Kelaniya	738	36	do	bro pek	3065	59	
86	Do	740	31	do	pekoe	3100	41	bid
87	Do	742	1	do	congou	100	20	
88	Do	744	2	do	dust	230	21	
89	E D P	746	7	do	sou	560	20	
90	Do	748	2	do	pek fans	180	24	
91	Do	750	1	do	pek dust	75	22	
92	Do	752	2	do	bro mix	180	16	
93	B & D	754	3	do	red leaf	300	10	
94	Do	756	2	do	dust	300	23	
95	Atherfield	758	8	hf-ch	sou	400	20	
96	Do	760	1	do	bro mix	50	12	
97	Do	762	3	do	dust	240	20	
98	Thornfield	764	26	do	bro pek	1560	65	
99	Do	766	24	ch	pekoe	2400	45	
100	Do	768	7	do	pek sou	700	25	
101	Do	770	1	do	bro mix	100	19	
102	Do	772	1	do	dust	150	25	
103	Radella	774	32	do	bro pek	3200	36	
104	Do	776	44	do	pekoe	3520	28	
105	Do	778	46	do	pek sou	3680	22	
106	N	780	11	hf-ch	sou	550	28	
107	N	782	1	do	dust	90	23	
108	Yataderia	784	13	ch	bro pek	1430	34	bid
109	Do	786	34	do	pekoe	3400	22	bid
110	Do	788	26	do	pek sou	2340	21	bid
111	Do	790	28	do	do	2520	21	bid
112	Do	792	3	do	bro tea	270	15	
113	Ingeriya	794	1	ch				
			1	hf-ch	pek sou	165	20	
114	Do	796	1	ch				
			1	hf-ch	dust	235	23	
115	N	798	2	ch	bro pek	182	33	
116	N	800	3	do	pekoe	246	25	
117	N	2	1	do	bro mix	88	11	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
118	Beausijour	4	25 do	bro pek	2500	31 bid
119	Do	6	46 do	pekoe	4140	25
120	Do	8	5 do	fans	550	22
121	Do	10	2 do	bro tea	210	13
122	Do	12	3 do	dust	450	20
124	Palamcotta	16	2 hf-ch	dust	174	18
125	Bandara-polla	18	51 do	pekoe	2550	24 bid
127	Keenagaha Ella	22	1 ch	dust	165	18
128	Kirimettia	24	10 do			
			1 hf-ch	bro pek	958	36
129	Do	26	12 ch			
			1 hf-ch	pekoe	1019	23
130	Do	28	1 ch			
			1 hf-ch	pek sou	125	19
131	Do	30	1 ch			
			1 hf-ch	pek fan	161	22
132	Do	32	1 do	red leaf	54	10
133	C, in estate mark	34	11 ch	bro pek	1100	35 bid
134	Do	36	13 do	pekoe	1170	26 bid
135	Do	38	6 do	pek sou	600	20 bid
136	Do	40	5 do	bro mix	500	13
137	Do	42	1 do	pek fan	100	20
138	Z, in estate mark	44	2 do	red leaf	148	10
139	Chesterford	46	21 do	bro pek	2310	48
140	Do	48	12 do	pekoe	1200	28
141	Do	50	12 do	pekoe	1200	28
142	Do	52	6 do	pek sou	660	20
143	Ouvah Kellie, V	54	11 do	bro pek	1210	62
144	Do	56	12 do	pekoe	1140	45
145	Do	58	23 do	pek sou	2185	27
146	Do	60	1 do	dust	105	26
147	Silver Valley	62	1 hf-ch	bro pek	50	52
148	Do	64	7 do	pekoe	322	24
149	Do	66	1 do	dust	58	21
150	Do	68	1 do	congou	44	19
151	Do	70	2 do	red leaf	94	12
152	Monrovia	72	10 do	bro pek	500	35
153	Do	74	8 ch			
			3 hf-ch	pekoe	950	27
154	Do	76	4 ch	pek sou	400	20
155	Do	78	2 do	unas	200	21
156	Do	80	3 hf-ch	pk dust	215	22
157	D K	82	4 do	bro pek	180	35
158	Do	84	4 ch	pekoe	395	25
159	Do	86	1 do	pek sou	90	15
160	Do	88	1 hf-ch	pek dust	75	22
161	C	90	30 do	pekoe	1350	23 bid
162	Bandara-polla	92	66 do	bro pek	3300	34 bid
165	Ukuwella	98	15 do	bro pek	1575	40
166	Do	100	13 do	pekoe	1300	29
167	Do	102	13 do	pek sou	1235	24
168	Do	104	7 do	congou	700	17
169	Do	105	2 hf-ch	dust	150	23
170	Bismark	108	19 do	bro pek	1045	41
171	Do	110	15 ch	pekoe	1500	27
172	Harrington	112	18 do	or pek	1800	56
173	Do	114	20 hf-ch	pekoe	1000	41
174	Do	116	18 do	pek sou	1440	27
175	Queensland	118	24 ch	flowery pek	2400	70
176	Do	120	43 do	pekoe	4085	43
177	Do	122	5 do	unas	500	26 bid
178	Do	124	2 do	pek fans	260	24
179	Theydon Bois	126	2 do	sou	170	17
180	Do	128	1 do	dust	150	22
181	A	130	7 do	pekoe	700	24
182	Uvakelle	132	25 hf-ch	bro pek	1375	54
183	Do	134	38 do	pekoe	1900	33
184	Do	136	2 do	congou	100	20
185	Do	138	1 do	red leaf	50	12
186	Do	140	1 do	dust	80	22
187	Rookwood	142	5 do	pekoe	278	22 bid
188	Star, in estate mark	144	5 ch	sou	450	16
189	Castlereagh	146	30 hf-ch	bro or pek	1500	62 bid
190	Do	148	60 do	pekoe	2700	34 bid
191	G A N	150	21 ch	bro pek	2100	35 bid
192	Do	152	35 do	pekoe	2800	out
193	Do	154	25 do	pek sou	2000	out
194	Do	156	1 do	pek dust	131	19
195	Do	158	5 do	bro mix	400	13
196	Middleton	160	42 hf-ch	bro pek	2352	49 bid
197	Do	162	18 ch	pekoe	1800	36 bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 25th Nov. the undermentioned lots of Tea (97,842 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
1	P T E	167	2 hf-ch	dust	155	21
2	Do	168	1 do	red leaf	45	07
3	Dickoya	169	6 ch	bro mix	623	11
4	Do	171	5 do	dust	727	20 bid
8	Mahagalla	176	20 do	or pek	1100	64 bid
9	Do	178	18 ch	pekoe	2016	44 bid
10	Do	180	4 do	pek sou	400	29 bid
11	Do	182	6 do	do No. 2	600	26
12	Do	184	1 hf-ch	dust	90	15
13	Kandenewera	185	25 ch	bro pek	2500	61
14	Do	187	45 do	pekoe	4500	41 bid
15	Do	189	24 do	pek sou	2400	25 bid
16	N	191	16 do	bro mix	1600	16 bid
17	Ivies	193	12 do	bro pek	1200	41 bid
18	Do	195	24 do	pekoe	2160	29 bid
19	Do	197	20 do	pek sou	1600	24 bid
20	Do	199	1 do	bro tea	90	out
21	Do	200	2 do	dust	240	19
22	Talagalla	201	27 do	bro pek	2700	36 bid
23	Do	203	15 do	pekoe	1500	28 bid
24	Do	205	12 do	pek sou	1140	26 bid
25	Do	207	1 do	dust	135	19
26	B C	208	17 do	pek sou	1275	out
27	Do	210	3 do	bro tea	225	out
28	Vogan	211	41 do	pekoe	3280	26 bid
92	Brownlow	213	40 do	bro pek	4000	28 bid
30	Do	215	41 do	pekoe	3690	25 bid
31	Do	217	23 do	pek sou	1955	25
32	Do	219	2 do	dust	230	21
33	Cruden	220	40 hf-ch	sou	2000	22
34	Galkandewatte	222	26 ch	bro pek	2600	34 bid
35	Do	224	31 do	pekoe	2790	25 bid
36	Do	226	5 do	pek sou	450	21
37	Morton	228	1 do	bro mix	80	15
38	M, in estate mark	229	2 do	pekoe	172	out
39	Ella	230	1 do	pek dust	142	18
30	G K W	231	4 do	bro tea	360	21 bid
41	Do	232	4 hf-ch	dust	320	19
42	E, in estate mark	233	4 ch	pekoe	344	20
43	Do	234	1 do	pek sou	70	19
44	A	235	1 hf ch	bro tea	50	out
45	Dunbar	236	32 ch	bro pek	3200	65
46	Do	238	25 do	pekoe	2250	37 bid
47	D R	240	14 hf-ch	bro pek	700	out
48	Whyddon	242	25 ch	bro pek	2750	out
49	Do	244	25 do	pekoe	2750	out
50	Do	246	20 do	pek sou	2000	26 bid
51	Logan	248	15 do	bro pek	1575	50
52	Do	250	13 do	pekoe	1300	37
53	Do	252	31 do	pek sou	2790	27
54	Do	254	24 hf-ch	sou	1200	20 bid
55	Do	256	6 do	pek fan	330	26
56	Do	257	11 do	dust	660	24
57	Do	258	4 ch	red leaf	400	14
58	B, in estate mark	259	2 hf-ch	dust	160	21
59	Maddegedera	260	27 ch	bro pek	2700	35 bid
60	Do	262	21 do	pekoe	1785	29 bid
61	Do	264	15 do	pek sou	1200	26
62	Do	266	9 do	sou	594	18 bid
63	Do	268	2 do	dust	200	19
64	Albion	269	15 do	bro pek	1650	55
65	Do	271	17 do	pekoe	1700	32
66	Do	273	17 do	pek sou	1700	29 bid
67	Do	274	3 hf-ch	dust	240	25
68	Dickapittiya	277	23 ch	bro pek	2300	out
69	Do	279	12 do	pek sou	1200	22 bid
70	Bittacy	281	13 ch	bro pek	1005	52
71	Do	283	30 do	pekoe	2250	36
72	M G	285	2 do	pekoe	224	20 bid
73	Labugama	117	10 ch	unas	1000	bid1[illegible]
74	Angroowella	286	41 hf-ch	pekoe	2050	37
75	Labugama	288	20 do	bro pek	800	55
76	Do	301	32 do	pekoe	1280	31
77	Do	303	11 do	pek sou	440	25
78	Do	305	12 do	sou	480	21
79	Do	307	9 do	pek fans	405	22
80	Do	308	2 do	congou	80	17
81	Do	309	1 do	pek dust	70	24

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 25th Nov., the undermentioned lots of Tea (41,184 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	Kennington	1	5 ch	bro pek	470	40	
2	Do	2	6 do	pekoe	540	25	bid
3	Do	4	6 do	pek sou	540	20	bid
4	Do	6	3 do	unas	207	19	bid
5	W S	7	2 do	congou	160	out	
6	Do	8	2 do	dust	240	21	
7	Do	9	2 hf-ch	red leaf	80	08	bid
8	Nugagalla	10	14 do	bro pek	700	52	bid
9	Do	12	34 do	pekoe	1700	40	bid
10	Do	14	4 do	pek sou	200	20	bid
11	Do	15	2 do	dust	160	21	bid
12	Penrhos	16	30 do	pekoe	1650	38	
13	G K	18	5 ch	bro pek	500	35	bid
14	Do	19	14 do	pekoe	1260	26	bid
15	Do	21	17 hf-ch	unas	913	20	bid
16	D	23	2 ch 1 hf-ch	sou	250	17	
17	D	24	2 ch 1 hf-ch	bro mix	265	15	
18	H	25	5 ch	pek sou	477	out	
19	S	26	4 do	sou	274	out	
20	T	27	4 do	dust	300	15	
21	W O	28	1 do	bro tea	100	15	
22	Do	29	3 hf-ch	pek fans	225	24	
23	Harrow	30	9 do	bro pek	540	60	
24	Do	32	14 ch	pekoe	1400	36	
25	Do	34	1 hf-ch	bro mix	65	23	
26	Woodend	35	2 do	dust	240	23	
27	Do	36	1 ch	congou	76	15	bid
28	T	37	15 hf-ch	bro pek	825	35	bid
29	T	39	10 do	pek sou	950	25	bid
30	T H	41	31 ch	bro pek	3410	45	bid
31	Do	43	15 do	pekoe	1350	25	bid
32	Do	45	14 hf-ch	pek sou	940	20	bid
33	Do	47	7 do	dust	945	20	
34	Agra Oya	48	17 ch	bro pek	1700	42	
35	Do	50	8 do	pekoe	800	28	bid
36	Do	52	17 do	pek sou	1700	21	bid
37	C G	54	4 do	bro pek	400	35	bid
38	Do	55	6 do	pek sou	593	18	bid
39	P B	57	4 do	dust	600	19	
40	L, in estate mark	58	1 hf-ch	pek sou	70	17	bid
41	Sunny-croft	59	6 do	pek dust	420	22	
42	X X X	60	3 do	dust	210	19	
43		61	9 ch	bro mix	900	15	bid
44	Managala	62	11 hf-ch	bro pek	605	withd'n	
45	Do	64	17 do	pekoe	850	withd'n	
46	Do	66	4 do	sou	224	withd'n	
47	Preston	67	10 ch	bro pek	1100	57	
48	Do	69	16 do	pekoe	1600	40	
49	Do	71	9 do	pek sou	900	30	
50	Nahalma	73	25 hf-ch	bro pek	1375	55	
51	Do	75	25 ch	pekoe	2500	37	
52	Do	77	5 do	sou	500	24	bid
53	Do	78	2 do	dust	150	23	
54	Comillah	79	11 hf-ch	bro pek	605	35	bid
55	Do	81	10 do	pekoe	500	25	bid
56	Do	83	7 do	pek sou	350	20	
57	Do	85	1 ch	dust	80	22	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, October 30th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 30th Oct. :—

Ex "Kintuck"—Keenakelle, 1t 103s; 4c 1t 96s 6d; 3c 1t 92s 6d; 1c 92s; 1c 113s; 1c 1b 85s 6d; 2c 1t 76s; 2b 95s 6d; 1b 74s. Rillamulle, 2b 2c 84s 6d; 2b 79s, 1b 81s. Ampittia, 1c 100s; 6c 94s; 1c 1b 92s; 1c 116s; 1c 84s 6d; 1c 1b 78s. Badullawatte, 2c 1b 93s; 11c 90s; 2c 87s 6d; 2t 1b 101s; 3c 2t 82s 6d, 3b 79s 6d; 1b 91s; 2b 90s; 1b 80 ; 8b 77s; 2b 82s.

Ex "Orient"—Nonpareil, 11c 93s; 1c 1t 92s. Forest Hill, 5c 90s; 2c 1b 90s 6d; 1c 87s. Tulloes, 1b 99s.

Ex "Austral"—Hillside, 1b 98s; 10c 95s 6d; 1b 107s.

Ex "Wileysike,"—Beauvais, 1b 102s; 3c 1b 106s 6d; 11c 94s 6d; 1c 1b 92s; 1c 1b 117s 6d.

Ex "Kintuck"—Sherwood, 1c 1t 100s 6d; 5c 95s; 11c 1b 95s 6d; 15c 92s 6d; 1c 1t 1b 93s; 2c 1t 119s 6d. Leangawelle, 2c 101s 6d; 5c 95s; 8c 95s 6d; 5c 93s; 3c 92s 6d; 1c 119s. Rappahannock, 1b 93s; 4c 1b 91s 6d; 2c 92s; 1t 98s; 1c 84s; 1b 92s.

Ex "City of Bombay"—Mahauva, 2b 87s 6d; 1b 84s; 1b 93s; 1b 73s.

Ex "Austral"—Tulloes, 2c 93s; 5c 92s; 1b 98s; 1b 92s; 1b 99s; 9c 96s 6d; 2b 96s; 5c 1b 85s 6d; 1b 84s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 6th Nov. :—

Ex "Kintuck"—Fermoyle, 1c 103s; 2c 1b 97s; 1c 92s 6d; 1b 113s.

Ex "Pallas"—Berragalla, 1c 103s; 5c 95s 6d; 2c 96s; 3c 1b 92s 6d; 1c 117s.

Ex "Golconda"—Ragalla, 1c 109s.

Ex "Ormuz"—Ragalla, 1c 109s.

Ex "Titan"—Ury, 3c 102s; 6c 1b 95s; 4c 1b 92s; 1c 116s.

Ex "Arabia"—Niabedda, 2c 1t 103s 6d; 12c 97s; 5c 93s; 2c 1t 115s; 1b 100s; 2b 97s; 1b 93s; 1c 104s.

Ex "Glenavon"—St. Leonards, 1t 93s.

Ex "Orizaba"—Gampaha, 1b 100s; 8c 1b 96s 6d; 6c 93s 6d; 2c 1b 91s; 1c 1b 111s 6d.

Ex " Glengyle"—Kirklees, 1c 99s; 1c 95s 6d; 92s; 1b; 107s; 1b 93s. Battawatte, 1c 1b 88s; 1c 93s; 1b 84s; 1b 91s; 1t 99s.

Ex "Orient"—Balmoral, 1b 95s; 1c 91s; 1t 115s.

Ex "Ormuz"—Kirklees, 1c 1b 99s; 1c 1t 95s 6d; 1c 92s; 1b 113s; 1t 100s 6d; 1t 94s; 1b 112s.

Ex "Moyune"—Koslanda, 1c 107s; 4c 1b 103s 6d; 3c 1t 94s 6d; 1b 91s; 1c 120s; 1c 89s; 2b 95s.

Ex "Arabia"—Idulgashena, 2c 101s; 9c 1b 96s 6d. 3c 93s 6d; 1c 1b 121s 6d.

Ex "Goorkha"—Leangawelle, 1c 1t 103s 6d; 10c 97s; 1c 1b 96s 6d; 5c 94s; 2c 93s 6d; 1c 1b 121 6d.

Ex "Glenogle"—Gracelyn, 1c 97s; 1c 94s; 1t 104s.

Ex "Assaye"—Ouvah, 3c 101s 6d; 5c 96s; 8c 95s; 1b 90s; 1c 114s; 1c 102s; 5c 1b 96s; 1b 90s 6d; 1t 114s.

Ex "Titan"—Nahavilla, 2c 101s; 3c 1t 95s 6d; 4c 93s 6d 1t 114s; 1b 95s; 2c 94s; 1c 1b 91s 6d; 1c 1b 85s 6d.

Ex "Moyune"—Gonamotava, 2c 103s 6d; 10c 97s 6d; 10c 97s; 5c 93s 6d; 8c 94s; 5c 118s 6d. Park, 5c 97s; 2c 98s; 1b 114s.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MINCING LANE, October 30th, 1891.

Ex "Gleneagles"—Udapola, 1b 67s; 3b 49s; 1b 62s.

Ex "Manora"—Victoria, 13b 109s 6d; 1b 57s

Ex "Mora"—Delgolla, 12b 71s 6d; 8b 57s 6d..

MINCING LANE, November. 6th, 1891.

Ex "Arabia"—Eriagastenne, 17b 111s.

Ex "Gleneagles"—AMK, 4b 110s 6d; 7b 88s; 2b 63s; 2b 50s; 1b 51s. Maynetrees, 5b 55s 6d; 3b 54s 6d; 2b 55s 6d; 1b 50s.

Ex "Jelunga"—Maragalla, 28b 117s; 12b 81s; 2b 74s 6d; 1b 33s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, October 30th, 1891.

Ex "Land Carriage"—OSBN, 1c 1s 8d.

Ex "Gleneagles"—Wattagalla, 2c 3s; 1c 2s; 1c 1s 8d; 1b 1s 9d; 1b 1s 11d. Gavatenne, 1c 2s 6d; 3c 2s 2d; 2c 1s 9d; 4c 1s 10d; 2c 1s 5d; 1c 1s 6d; 1c 2s 1d; 1c 2s 2d; 1c 1s 8d; 1c 1s 2c; 1b 2s 2d; 1b 1s 7d; 1b 1s. Ellangowan, 2c 2s; 2c 1s 7d; 1c 1s 2d; 1c 2s; 3c 2s 1d.

Ex "Wileysike"—Medagama, 6c 2s; 3c 2s 4d; 3c 2s 1d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 25th Nov. the undermentioned lots of Tea (37,516 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Blairavon	64	4	ch	bro tea	380	15	
2	Penrita	65	4	do	dust	300	21	
3	Do	66	1	do	fans	60	24	
4	Marymount	67	6	hf-ch	unas	300	19	
5	D B O	68	4	do	bro tea	400	10	
6	M A H	69	4	do	red leaf	400	08	
7	Do	70	3	do	congou	270	15	
8	Do	71	2	do	dust	260	20	
9	Depedene	72	10	hf-ch	bro pek	500	48	
10	Do	73	18	do	pekoe	900	35	
11	Do	74	19	do	pek sou	950	25	bid
12	H D	75	35	do	bro sou	1750	20	bid
13	Do	76	2	do	bro mix	100	11	
14	Do	77	1	ch	dust	80	21	
15	Kurunwitty	78	8	hf-ch	bro pek	416	51	
16	Do	79	6	do	pekoe	288	31	
17	Do	80	24	do	pek sou	1152	25	
18	Do	81	12	do	sou	510	21	
19	Do	84	7	do	bro tea	350	22	
20	Do	83	3	do	congou	138	19	
12	Do	84	2	do	dust	150	21	
22	N B	85	32	ch	bro mix	3200	18	bid
23	Naseby	86	8	hf-ch	bro pek	400	75	
24	Do	87	17	do	pekoe	850	54	
25	Do	88	1	do	bro tea	72	22	
26	Roseneath	89	51	do	bro pek	3315	39	bid
27	Do	90	30	ch	pekoe	3150	28	
28	Do	91	16	do	pek sou	1600	32	bid
29	Aadneven	92	2	do	pek sou	180	23	
30	K M O K	93	1	do	bro tea	90	18	
31	K W	94	14	hf-ch	bro pek	770	30	bid
36	E	99	1	do	pek sou	100	20	
37	H S, in estate mark	100	8	do	bro pek	800	32	bid
38	X, in estate mark	1	5	do	pek dust	630	22	
39	G W	2	3	do	bro mix	300	15	
40	A	3	5	hf-ch	unas	230	13	
41	A	4	1	do	dust	43	20	
42	Ais'era	5	83	do	bro pek	4150	40	bid
43	Salawe	6	13	ch	bro pek	1430	33	bid
44	Hatdowa	7	3	ch	bro pek	300	37	bid
45	Do	8	2	do	pekoe	200	26	bid
46	Do	9	7	do	pek sou	630	22	
47	Do	10	1	do	bro mix	115	14	
48	Do	11	3	do	unas	330	15	bid
49	Do	12	4	do	bro tea	400	15	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 25th Nov., the undermentioned lots of Tea (181,310 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	O O O O	154	3	ch	sou	348	09	
			1	do		88	18	
2	Poyston	166	2	do	dust	196	24	
3	K S P C, in estate mark	168	18	hf-ch	bro pek	1080	31	bid
4	Do	170	12	ch	pekoe	1080	25	bid
5	Ellakande	173	5	hf-ch	bro pek	275	46	
6	Do	174	11	do	pekoe	550	27	
7	Do	176	23	do	pek sou	1035	24	
8	Do	178	11	do	red leaf	495	12	bid
9	Kakirs-kande	180	5	do	bro pek	250	46	
10	Do	182	8	do	pekoe	400	27	
11	Do	184	10	do	pek sou	493	25	
12	Do	186	2	do	bro tea	100	14	
13	Do	188	1	do	dust	75	23	
14	Do	190	1	do	red leaf	50	12	
15	Maskeliya	192	18	hf-ch	or pek	936	59	
16	Do	194	12	ch	pek sou	1200	26	
17	Polatagama	196	34	hf-ch	bro pek	2040	46	
18	Do	198	46	do	pekoe	2300	38	
19	Do	200	57	do	pek sou	2550	26	
20	Abamalla	202	4	do	bro mix	240	14	
21	Do	204	7	do	dust	490	24	
22	Dunkeld	206	12	ch	bro pek	1320	60	
23	Do	208	28	hf-ch	or pek	1400	51	
24	Do	210	12	ch	pekoe	960	37	
25	St. Helier's	212	28	hf-ch	bro or pek	1400	59	
26	Do	214	17	ch	pekoe	1700	42	
27	Do	216	14	do	pek sou	1400	26	
28	Do	218	2	do	dust	280	24	
29	Langdale	220	14	do	bro pek	1400	41	
30	Do	222	21	do	pekoe	1920	23	
31	Do	224	27	do	pek sou	2160	23	
32	Weoyu	226	44	hf-ch	bro pek	2420	59	
33	Do	228	54	do	pekoe	2700	42	
34	Do	230	34	do	pek sou	1700	26	
35	Do	232	7	do	bro mix	455	11	
36	Havilland	234	52	do	bro pek	2600	40	bid
37	Do	236	52	do	pekoe	2340	38	bid
38	Do	238	48	do	pek sou	1920	26	bid
39	Katherine Valley	240	2	do	bro pek	100	33	
40	Do	242	10	do	pekoe	475	28	
41	Do	244	5	do	pek sou	250	24	
42	Do	246	2	do	fans	90	25	
43	Do	248	1	do	dust	70	24	
44	Wevagoda	250	10	ch	pek sou	1000	16	bid
45	B M	252	5	do				
			1	hf-ch	pekoe	550	20	
46	H	254	1	do	pek sou	50	15	
47	Ancoombra	256	9	ch	bro pek	905	42	
48	Do	258	9	do	pekoe	951	36	
49	Do	260	2	do	pek sou	194	22	bid
50	Do	262	10	do	sou	894	21	
51	Theberton	264	19	ch	bro pek	1900	33	
52	Do	266	12	do	pekoe	1200	25	bid
53	Do	268	5	do	pek sou	500	23	bid
54	Telisagalla	270	5	do	bro tea	450	10	
55	Do	272	1	do	bro mix	100	09	
56	Hakurugalla	274	8	do	bro pek	800	34	
57	Do	276	9	do	pekoe	810	25	
58	Do	278	10	do	pek sou	900	19	bid
59	Do	280	1	do	dust	150	24	
60	Do	282	6	do	bro tea	540	09	
65	X Y Z	292	1	ch				
			1	box	pekoe	108	withd'n	
66	C, in estate mark	294	3	ch	bro pek	282	43	
67	Do	296	2	do	pekoe	170	28	
68	Do	298	2	do	pek sou	174	22	
69	C C, in estate mark	300	1	hf-ch	unas	43	15	
70	Freds Ruhe	302	11	do	bro pek	550	38	
71	Do	304	10	ch	pekoe	1000	24	
72	Do	306	11	do	pekoe	1100	21	bid
73	Do	308	10	do	pek sou	996	21	
74	Do	310	10	do	pek sou	1000	20	
75	W A	312	3	do				
			1	hf-ch	sou	302	19	
76	Do	314	5	ch	bro tea	535	24	
77	Do	316	2	do	congou	110	15	
78	Do	318	1	bf-ch	dust	88	21	
79	Do	320	1	ch				
			1	hf-ch	red leaf	156	08	
80	Kottuagalla	322	11	ch	bro pek	904	32	bid
81	Do	324	22	do	pekoe	2200	24	
82	Do	326	13	do	pek sou	840	20	
83	Do	328	3	do	congou	245	12	
84	Do	330	3	do	red leaf	234	08	
85	Do	332	3	do	dust	345	23	
86	B	334	34	ch	bro mix	3400	20	
87	R V K	336	27	hf-ch	unas	1350	17	
88	L	338	4	do	pekoe	170	19	
89	Yataderia	340	15	ch	bro pek	1650	34	bid
90	Do	342	29	do	pekoe	2900	25	bid
91	Do	344	26	do	pek sou	2340	23	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
92	Alnoor	346	28	hf-ch	bro pek	1400	37	
93	Do	348	24	do	pekoe	1200	27	
94	Do	350	18	do	pek sou	900	23	
95	Do	352	2	do	sou	100	15	
96	Do	354	2	do	dust	160	23	
97	M C	356	45	do	unas	3600	07	
98	Doonevale	358	15	do	bro pek	1500	34	bid
100	F F	362	3	ch	bro pek dust	437	30	
101	Do	364	1	do	dust	148	22	
162	Do	366	3	do	bro mix	319	09	bid
103	Bismark	368	24	do	pekoe	2400	33	
104	Talgaswela	370	48	do	bro pek	4800	42	
105	Do	372	26	do	bro pek	2345	44	
106	Do	374	17	do	pek sou	1530	26	
107	Wewesse	376	20	hf-ch	bro pek	1000	57	bid
108	Do	378	18	do	pekoe	900	42	
109	Do	380	20	do	pek sou	1000	37	
110	Yahalakelle	382	5	ch	dust	750	21	
111	B, in estate mark	384	3	do	pekoe	258	18	
112	Do	386	1	do	pek sou	70	13	
121	Eadella	404	8	ch	bro pek	800	out	
122	Do	406	8	do	pekoe	680	out	
123	Do	408	4	do	pek sou	320	15	
124	N P	410	31	do	red leaf	2790	12	
125	G	412	1	do	unas	105	10	
126	Patiagama	414	20	ch	bro pek	2400	out	
127	Do	416	45	do	pekoe	4500	23	bid
128	Do	418	1	do	pek sou	100	12	
129	Do	420	2	do	dust	300	21	
130	Do	422	1	do	bro mix	100	08	
131	St. Catherine	424	7	do	bro pek	630	40	
132	Do	426	8	do	pekoe	680	30	
133	Do	428	7	do	pek sou	560	22	
134	Do	430	1	do	pek fans	100	24	
135	Do	432	1	do	red leaf	90	08	bid
136	Bandarapolla	434	66	hf-ch	bro pek	3300	34	bid
137	Do	436	51	do	pekoe	2550	26	bid
138	Do	438	42	do	pek sou	1890	23	
139	Bandarapolla	440	45	do	bro pek	2250	34	bid
140	Do	442	47	do	pekoe	2350	25	bid
142	Thornfield	446	18	do	bro pek	936	70	
143	Do	448	18	do	pekoe	1800	42	
144	Do	450	7	ch	pek sou	700	24	
145	Do	452	1	do	dust	75	26	
150	Shrubs Hill	462	18	do	bro pek	1800	49	
151	Do	464	45	do	pekoe	3825	35	
152	Do	466	29	do	pek sou	2755	25	
153	Do	468	21	do	bro tea	2100	20	
154	Do	470	6	do	dust	840	25	
155	Langdale	472	11	do	bro pek	1400	45	
156	Do	474	8	do	pekoe	760	32	
157	Do	476	14	do	pek sou	1120	25	
158	Kelaneiya	478	31	do	pekoe	3100	40	bid
159	Macaldeniya J AM	480	4 case contg. 45 lb. packets bro pek					
,,	Do	482	45 lb. packets pekoe			143	50	
,,	Do	484	50 lb. packets pek sou					
,,	Do	486	4 lb. packets sou					
160	Do	480	6 case each 32 lb. packets bro pek			192	51	bid
161	Do	,,	3	ch	bro pek	180	57	
162	Do	482	3 case each 32 lb. pkts. pekoe			96	49	
163	Do	482	6	hf-ch	pekoe	330	46	
164	Do	484	2 case contg. 75 ½ lb. pkts. pek sou					
			30 1 lb. pkts. pek sou			105	40	
			15 ,, 32 1 lb. pkts. pek sou			480	38	
165	Do	484	4	hf-ch	pek sou	200	34	
166	Do	480	1 case contg. 8 1 lb. pkts. bro pek					
,,	Do	482	4 1 lb. pkts. pekoe			32	77	
,,	Do	484	20 1 lb. pkts pek sou					
167	Macaldeniya J AM	486	3	ch	sou	150	26	
168	Do	488	2	do	fans	115	26	
169	F F	490	1	do	congou	100	14	bid
170	Mukeloya	492	9	hf-ch	bro pek	540	43	
171	Do	494	7	do	pekoe	420	30	
172	Do	496	7	do	pek sou	420	26	
173	Glasgow	498	3	ch	dust	300	24	
174	Agars Land	500	5	hf-ch	sou No. 1	225	21	
			3	do	sou No. 2	135	16	
175	Bandarapolla	502	31	do	pekoe	1550	26	bid
176	H & H	504	6	ch	bro mix	540	10	
177			1	do	dust	144	21	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 2nd Dec., the undermentioned lots of Tea (33,458 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Bogahagodawatte	1	5	hf-ch	bro pek	350	37	
2	Do	2	5	do	pekoe	325	28	
3	Do	3	15	do	pek sou	900	18	
4	Do	5	2	do	bro mix	120	10	
5	Do	6	2	do	pek fans	140	23	
6	Do	7	2	do	fans	140	24	
7	Do	8	1	do	dust	75	24	
8	D	9	9	ch	bro tea	900	12	bid
9	D	11	14	do	pekoe	1260	30	
10	D	13	5	do	bro pek	500	44	
11	W	15	1	do	congou	76	15	
12	C	16	4	do	bro pek	400	35	
13	C	17	6	do	pek sou	593	15	bid
14	M M H	19	9	do	bro mix	830	withd'n.	
15	Do	21	8	do	unas	760	withd'n.	
16	M	23	14	ch				
			1	hf-ch	pekoe	1350	24	
17	Nugagalla	25	14	do	bro pek	700	61	
18	Do	27	34	do	pekoe	1700	44	
19	Do	29	4	do	pek sou	200	27	bid
20	Do	30	2	do	dust	160	26	
21	Nahalma	31	23	do	bro pek	1265	55	
22	Do	33	14	ch	pekoe	1400	36	
23	Do	35	6	do	pek sou	600	25	bid
24	Do	37	2	hf-ch	dust	130	25	
25	Ossington	38	16	do	bro pek	800	33	bid
26	Do	40	44	do	pekoe	2200	24	
27	Preston	42	10	ch	bro pek	1100	60	
28	Do	44	8	do	pekoe	800	41	
29	Do	46	6	do	pek sou	500	28	
30	Do	48	2	hf-ch	dust	160	28	
31	Happagalla	49	21	ch	bro pek	2640	52	
32	Do	51	10	do	pek sou	950	25	bid
33	M F	53	15	do	pekoe	1350	29	
34	Do	55	15	hf-ch	pek sou	940	21	
35	E P	57	15	do	bro or pek	825	45	
36	Comillah	59	11	do	bro pek	605	32	bid
37	Do	61	10	do	pekoe	500	25	
38	F, in estate mark	62	1	do	pek sou	70	22	
39	Morland	63	23	ch	pekoe	2254	27	bid
40	Do	65	7	do	pek sou	700	21	bid
41	P		4	hf-ch	bro or pek	257	48	
42	P		6	do	bro pek	320	47	
43	P		14	do	pek e	702	29	
44	D		8	ch	dust	1200	27	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 2nd Dec. the undermentioned lots of Tea (85,332 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	K	310	3	hf-ch	unas	129	21	bid
2	K	311	1	do	do	33	18	
3	K	312	1	do	sou	28	18	
4	Orange Field P N R	313	3	ch	bro mix	310	15	
5	Do	314	4	do	sou	400	19	
6	Do	3 5	18	do	pekoe	1800	23	
7	Do	317	5	do	bro pek	500	36	
8	W, in estate mark	319	16	do	bro pek	1680	38	
9	Do	321	25	do	pekoe	2560	28	
10	Gouravilla	323	32	hf-ch	or pek	1920	50	
11	Do	325	27	ch	pekoe	2700	28	bid
12	Do	327	12	do	pek sou	1200	25	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
13	Golgawatte	329	16	hf-ch	bro pek	800	out
14	Do	331	9	ch	pekoe	900	out
15	Do	333	9	do	pek sou	900	out
16	G	335	7	h'f-ch	or pek	420	43
17	M G	337	2	ch	pekoe	224	36
18	W, in estate mark	338	30	do	pekoe	3000	22 bid
19	Blackburn	340	1	do	dust	150	23
20	Little Valley	341	1	hf-ch	dust	80	20
21	W—T	342	9	ch	pekoe	900	30 bid
22	Doronakande	344	2	hf-ch	unas	100	17
23	Do	345	1	do	dust	70	21
24	Faithlie	346	9	do	dust	675	26
25	Do	347	3	ch	sou	270	21
26	Do	348	3	do	bro mix	255	15
27	Great Valley	349	16	do	bro pek	1760	50
28	Do	10	12	do	pekoe	1200	38
29	Do	12	15	do	pek sou	1425	26
30	Coslande	14	5	ch	bro pek	500	39 bid
31	Do	16	12	do	pekoe	1200	28
32	Do	18	3	do	pek sou	300	20
33	Do	19	2	do	bro tea	200	out
34	Mocha	20	60	hf-ch	bro pek	3300	63 bid
35	Do	22	26	ch	pekoe	2600	44 bid
36	Do	24	20	do	pek sou	1800	32 bid
37	Tamaravelly	26	1	hf-ch	or pek	50	31
38	Do	27	5	do	bro mix	250	16
39	Do	28	16	do	congou	800	12
40	Do	30	11	do	dust	770	23
54	Brownlow	38	13	ch	bro pek	1235	40 bid
46	Do	40	16	do	pekoe	1440	36
47	Meddum pittiya			f-ch	bro or pek Nos. 1-6	380	46
48	Do	44	4	do	bro or pek A	240	39
49	Do	46	2	do	bro pek	120	38
50	Do	47	12	do	pekoe Nos. 7-18	720	39
51	Do	49	4	do	pekoe A	240	39
52	Do	51	7	do	pek sou	420	26
53	Ayr	53	21	do	bro pek	1050	41 bid
54	Do	55	34	do	pekoe	1428	29 bid
55	Do	57	30	do	pek sou	1290	25
56	Do	59	4	do	congou	172	17
57	Do	60	6	do	fans	300	22
58	Do	61	2	do	pk dust	142	24
59	Kataboola	62	6	ch	sou	650	19
60	Do	64	2	do	bro tea	210	cut
61	Y S	65	3	do	red leaf	240	11
62	Ormidale	66	39	hf-ch	bro pek	1950	77
63	Do	68	42	do	pekoe	1890	56
64	Do	70	14	do	pek sou	700	41
65	C H	72	3	ch	pekoe	270	30
66	Kandenewera	73	24	do	pek sou	2400	26 bid
	Agra Ouvah	75	28	hf-ch	bro pek	1250	73 bid
	Do	77	31	do	pekoe	1395	52 bid
	Do	79	26	do	pek sou	1170	41
70	Do	81	12	do	do No. 2	540	33
71	A O	83	3	hf-ch	pek fans	195	24
80	T P	108	10	hf-ch	bro pek	600	34 bid
81	Do	110	9	ch	pekoe	900	27 bid
82	Sumtra Valle	112	29	do	bro pek	3190	44 bid
83	Do	114	16	do	pekoe	1600	42
84	Do	116	17	do	pek sou	1700	27 bid
85	Do	118	4	hf-ch	dust	260	25

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 2nd Dec. the undermentioned lots of Tea (52,687 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	H	1	3	ch	bro pek	300	38
2	H	2	2	do	pekoe	200	29
3	H	3	3	do	unas	330	15
4	M K	4	18	do	bro pek	1800	33 bid
5	Do	5	13	do	pekoe	1170	28
6	Do	6	12	do	pek sou	1080	22 bid
7	Do	7	5	do	bro tea	500	22
8	H J S	8	8	hf-ch	pekoe	400	29
9	Do	9	6	ch	pek sou	600	22
10	S	10	6	do	pek dust	840	23
11	P G, in estate mark	11	15	ch	bro or pek	1500	33 bid
12	Do	12	58	do	pekoe	4930	24
13	Do	13	7	do	pek sou	595	21
14	Do	14	6	do	sou	510	17
15	Do	15	1	do	dust	150	22
16	Do	16	2	do	bro mix	260	13
17	H H	17	13	do	bro pek	1430	36
18	Do	18	17	do	pekoe	1700	31
19	Do	19	24	do	pek sou	2256	23
20	Roseneath	20	4	ch	red leaf	463	13
21	Penrith	21	2	do	bro pek	200	40
22	Do	22	1	do	pekoe	90	28
23	Do	23	1	do	pek sou	85	21
27	D	27	35	hf-ch	bro pek sou	1750	21
28	Morningside	28	15	do	bro pek	825	35 bid
29	Do	29	20	do	pekoe	1100	29
30	Do	30	1	do	sou	55	21
31	Do	31	3	do	bro tea	165	11
32	Chertsey	32	13	do	bro pek	650	48
33	Do	33	17	do	pekoe	850	29
34	Do	34	17	do	pek sou	815	22 bid
35	Do	35	7	do	congou	325	17
36	Do	36	3	do	pek dust	180	23
37	A A	37	36	do	bro pek	1800	45
38	Forest Hill	38	7	ch	bro pek	784	50
39	Do	39	10	do	pekoe	1000	34
40	Do	40	4	do	pek sou	400	25
41	Do	41	1	do	dust	130	25
42	Do	42	1	do	congou	100	17
43	H S, in estate mark	43	8	do	bro pek	800	33
52	F H	52	47	do	bro pek	2350	44
53	Goonambil	53	24	do	bro pek	1140	40
54	Do	54	34	do	pekoe	1870	32
55	Do	55	36	do	pek sou	1980	24
56	Do	56	9	do	fans	540	22
57	Do	57	2	do	dust	180	24

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 2nd Dec., the undermentioned lots of Tea (145,235 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		De-cription.	Weight lb.	c.
1	Bon Accord	506	1	ch	congou	80	18
2	Do	508	5	do	dust	375	22
3	Numunthagalla	510	1	hf-ch	bro pek	50	34
4	Do	512	1	do	pekoe	60	29
5	Do	514	1	ch	pek sou	120	21
6	N	516	1	do	bro mix	88	12
7	Ingeriya	518	1	do			
			1	hf-ch	pek sou	165	22
8	Monrovia	520	2	ch	unas	200	21
9	E K	522	4	do	pekoe	395	27
10	L G E	524	7	do	or pek	700	32
11	Do	526	3	do	pekoe No. 1	300	23
12	Do	528	4	hf-ch	dust	340	21
13	Nahaveena	530	33	hf-ch	bro pek	1650	59
14	Do	532	16	do	pekoe No. 1	800	49
15	Do	534	29	do	do ,, 2	1450	34
16	Do	536	22	do	pek sou	1100	26
17	Do	538	2	do	dust	140	25
18	Ragalla	540	38	do	bro pek	2090	58
19	Do	542	54	do	pekoe	2700	38
20	Do	544	20	do	pek sou	1000	26
21	Calefornia	546	2	hf-ch	pek sou	122	20
22	Harangalla	548	18	ch	bro pek	1710	35
23	Do	550	16	do	pekoe	1280	27
24	Do	552	10	do	pek sou	700	22
25	A T W	554	2	do	bro mix	106	30
26	Do	556	1	hf-ch	dust	45	24
27	C & Co.	558	1	ch	pekoe	90	32
28	X Y Z	560	1	box	pekoe	18	31
29	Columbia	562	25	hf-ch	bro pek	1500	51
30	Do	564	14	do	pekoe	700	39
31	Do	566	1	do	pek sou	50	21
32	Do	568	2	do	pek dust	150	26
33	Udabage	570	14	do	dust	980	24
34	Debatgama	572	1	ch	congou	90	
35	Do	574	1	do	red leaf	100	
36	Do	576	2	do	fans	220	withd'n.
37	K G	578	9	do	bro pek	900	
38	Do	580	3	do	peke	270	
39	Do	582	2	do	pek sou	180	
40	E D K E, in estate mark	584	9	hf-ch	red leaf	450	10
41	R	586	3	ch	fans	390	14
42	Portmore	588	24	do	bro pek	2520	68
43	Do	590	18	do	pekoe	1620	43 bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
44	Callander	592	16	hf-ch	bro pek	892	60	
45	Do	491	7	ch				
			1	hf-ch	pekoe	752	43	
46	Do	595	6	do	pek sou	298	29	
47	Do	598	2	do	pek dust	140	26	
48	Palmerston	600	22	do	bre pek	1210	59	
49	Do	602	24	ch	pekoe	2400	40	
50	Do	604	10	do	pek sou	1000	25	
51	Theberton	606	7	do	bro pek	700	33	
52	Do	608	4	do	pekoe	400	26	
53	Do	610	3	do	pek sou	300	20	
54	Do	612	5	do	pek sou	500	20	
55	Queensland	614	12	do	flowery pek	1200	74	
56	Do	616	12	do	pekoe	1140	50	
57	Ferndale	618	22	do	bro pek	2200	41	bid
58	Do	620	42	do	pekoe	4200	25	bid
59	Lamiliere	622	38	hf-ch	unas	2280	31	
60	Court Lodge	624	35	do	bro pek	2030	78	bid
61	Beau S jour	626	25	ch	bro pek	2500	31	bid
62	Doonevale	628	15	do	bro pek	1500	28	bid
63	Do	630	30	do	pekoe	2700	20	bid
64	N	632	5	do	bro pek	460	41	
65	N	634	10	do	pekoe	800	27	
66	Ystaderia	636	14	do	bro pek	1540	31	bid
67	Do	638	36	do	pekoe	3600	28	
68	Do	640	31	do	pek sou	2790	21	bid
69	Do	642	4	do	bro tea	360	17	
70	Do	644	20	do	or pek	1300	47	
71	Do	646	42	do	pekoe	4200	24	bid
72	Do	648	46	do	pek sou	4140	20	
73	H O	650	4	do	congou	360	15	
74	Do	652	5	do	bro tea	475	00	
75	Do	654	3	do	dust	450	20	
76	Middleton	656	30	hf-ch	bro pek	1680	36	
77	Do	658	10	ch	pekoe	1000	42	
78	Do	660	15	do	peksou	1425	27	
79	Mousakande	662	7	do	bro pek	784	47	
80	Do	664	9	do	pekoe	900	31	bid
81	Do	666	4	do	pek sou	400	25	bid
82	Do	668	1	do	dust	130	26	
83	Bismark	670	10	do				
			1	hf-ch	bro pek	1150	42	bid
84	Do	672	12	ch	pekoe	1080	34	
85	Do	674	7	do	pek sou	630	26	
86	Do	676	5	do	sou	500	20	
87	Do	678	2	do	dust	280	26	
88	Do	680	5	do	unas	500	24	
89	Easdale	682	13	do	bro pek	1300	38	
90	Do	684	19	do	pekoe	1520	25	
91	Do	686	26	do	pek sou	2080	20	
92	Polatagama	688	45	hf-ch	bro pek	2700	50	
93	Do	690	75	do	pekoe	3750	42	
94	Do	692	57	do	pek sou	2850	26	
95	Wevagoda	694	10	ch	pek sou	1000	18	
96	Hakuru-galla	696	10	do	pek sou	900	20	
97	Kottmagalla	698	11	do	bro pek	594	32	
98	Loombagas-talawa	700	1	do	bro pek	98	34	
99	Horagoda	702	3	do	pek sou	270	22	
100	Do	704	2	do	sou	170	19	
101	Do	706	1	do	red leaf	85	09	
102	Do	708	1	do	dust	125	25	
103	Do	710	1	do	fans	110		
104	Havilland	712	37	hf-ch	bro pek	185	40	bid
10	Do	714	26	o	pekoe	1170	33	bid
106	Do	716	25	o	pek sou	2000	25	bid
107	Do	718	27	do	bro mix	1215	16	bid
108	Alnoor	720	20	do	bro pek	1000	40	
109	Do	722	20	do	pekoe	1000	30	
110	Do	724	18	do	pek sou	900	22	
111	Bandara-polla	726	31	do	pekoe	1550	30	bid
112	N C	728	66	do	bro pek	3300	32	bid
113	Do	730	45	do	do	2250	33	bid
114	Do	732	51	do	pekoe	2550	24	bid
115	Do	734	47	do	do	2350	26	
116	Do	736	40	do	pek sou	1800	22	
117	Do	738	14	do	dust	980	27	
122	Bandara-polla	748	41	hf-ch	bro pek	2050	33	bid
123	Do	750	45	do	pekoe	2250	25	bid
124	Chester-ford	752	13	ch	bro pek	1430	49	
125	Do	754	12	do	pekoe	1200	39	
126	Do	756	10	do	pek sou	1100	23	
127	Horagas-kelle	758	8	hf-ch	bro pek	464	33	
130	G L	764	3	do	pek sou	270	22	
131	C, in estate mark	766	11	do	bro pek	1100	38	bid
132	Do	768	13	do	pekoe	1170	32	
133	Do	770	6	do	pek sou	600	20	bid

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, November 13th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 13th Nov.:—

Ex "Orizaba"—Gampaha, 1b 100s; 5c 97s; 2c 99s 6d; 6c 1b 94s; 2c 1t 92s 6d; 1c 1b 114s; 2c 88s.

Ex "Gleneagles"—Battawatte, 4c 97s 6d; 3c 1b 94s; 1c 1b 89s; 1c 118s: 1c 1t 84s 6d.

Ex "Moyune"—Mausagalla, 3c 102s 6d; 7c 97s 6d; 5c 94s; 1c 1b 117s; 1c 1t 85s 6d; 2b 95s.

Ex "Chancellor"—Craig, 1c 100s 6d; 3c 97s; 6c 1b 95s; 1c 106s; 1c 88s; 2c 2t 86s; 1c 65s; 10b 76s; 4c 78s 6d.

Ex "Jelunga"—Marigold, 1c 1t 97s 6d; 7c 94s 6d; 1c 1t 92s 6d; 1c 108s; 1c 83s.

Ex "Oruba"—Gowerakellie, 2c 103s; 6c 97s; 3c 92s 6d; 1b 108s; 1c 1b 88s; 1b 89s; 1c 1b 88s 6d; 1b 89s; 1c 103s; 4c 1t 77s 6d; 1b 77s; 1b 95s; 1b 70s.

Ex "Chancellor"—Amherst, 1b 98s 6d; 1c 1b 96s; 1b 108s; 1b 86s 6d; 1b 84s; 1b 85s; 1b 62s; 2b 63s 6d.

Ex "Mira"—Theresia, 2t 97s 6d; 1b 93s; 1b 109s.

Ex "Glenavon"—Deregama, 1c 106s 6d; 1c 1t 99s; 1t 92s; 1b 112s.

Ex "Chancellor"—Broughton, 1c 1b 105s; 14c 1t 98s. 5c 94s; 2c 118s 6d.

Ex "Goorkha"—Ouvah, 1c 93s 6d; 13c 1b 97s; 1c 1t 93s; 1c 110s; 1b 96s.

Ex "Rewa"—Kahagalla, 2c 104s 6d; 6c 99s 6d; 3c 95s 6d; 2c 120s 6d. Needwood, 2c 105s; 9c 95s 6d; 4c 95s 6d; 1c 1b 119s 6d.

Ex "Glenogle"—Delmar, 1b 97s; 1c 1t 96s; 1b 103s; 1c 1t 72s.

Ex "Jelunga"—Kondaselle, 1c 103s; 1c 97s; 1c 1b 94s 6d; 1b 90s; 1b 100s.

Ex "Glenogle"—Pittarat Malle, 1b 101s; 4c 98s; 3c 1t 95s; 1c 112s.

Ex "Assaye"—Wellekelle, 1b 97s; 1c 1b 94s.

Ex "Chancellor"—Ambawella, 3c 99s 6d; 1b 95s; 1b 110s 6d; 3c 1t 97s 6d; 1t 100s.

CEYLON COCOA SALES IN LONDON.

From Our Commercial Correspondent.

MINCING LANE, November 13th, 1891.

Ex "Gulf of Corcovado"—Gangwarily, 3c 75s 6d; 3c 53s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, November 13th, 1891.

Ex "Glenogle"—JF&Co., 1c 1s 8d; 3c 1s 7d; 3c 2s 1d.

Ex "Titan"—Mt. Pleasant, 4c 2s 4d.

Ex "Myrmidon"—Cottaganga, 2c 2s; 1c 2s 1d; 1c 1s 8d; 2c 1s 6d.

Ex "Wileysike"—Katooloya, 1c 2s 9d; 1c 2s; 2c 1s 9d; 3c 1s 6d.

Ex "Moyune"—Midlands, 1c 2s 7d; 2c 2s 1d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Messrs. E. BENHAM & BREMNER put up for sale at the Chamber of Commerce Sale-room on the 9th Dec., the undermentioned lots of Tea (13,105 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	F, in estate mark	20	1	ch	pekoe	115	27	
2	Do	22	1	do	sou	100	18	
3	Do	24	1	do	congou	80	12	
4	Do	26	44	do	sou	4070	14	bid
5	D P O	28	7	hf-ch	dust	455	22	
6	Do	30	3	do	sou	135	15	
7	H	32	6	do	pek sou	300	18	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 9th Dec., the undermentioned lots of Tea (20,675 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	A K A C, in estate mark	1	20	hf-ch	sou	1000	25	
2	Do	3	4	do	dust	290	24	
3	C, in estate mark	4	3	do	bro tea	150	09	
4	Gampola-watte	5	14	ch	pekoe	1260	28	bid
5	Do	7	5	do	bro pek	500	38	bid
6	Agra Oya	9	3	do	or pek	300	46	
7	Do	10	13	do	bro pek	1300	42	
8	Do	12	23	do	pekoe	2300	32	
9	Do	14	18	do	pek sou	1800	26	
10	Do	16	1	do	bro mix	100	8	
11	Do	17	1	do	dust	100	23	
12	I W	18	2	do	unas	97	17	
13	Comillah	19	11	hf-ch	bro pek	605	35	
14	P	21	15	ch	dust	2250	24	
15	D	23	2	do	sou	200	15	
16	D	24	4	do	dust	600	24	
17	D	25	9	do	bro mix	900	13	
23	P, in estate mark	35	12	ch	pek sou	1114	23	
24	Yarrow	37	15	hf-ch	bro pek	960	50	
25	Do	39	30	do	pekoe	1800	34	
26	C, in estate mark	41	2	ch	pek sou	168	10	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 9th Dec. the undermentioned lots of Tea (49,697 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Bagalla	119	2	ch	dust	246	14	bid
2	Do	120	23	do	pek sou	2070	24	
3	Do	122	22	do	pekoe	1870	31	
4	Do	124	19	hf-ch	bro pek	1140	41	bid
5	Albion	126	17	ch	bro pek	1870	66	
6	Do	128	15	do	pekoe	1500	42	
7	Do	130	12	do	pek sou	1200	33	
8	Do	132	4	do	dust	320	26	
9	Vogan	133	21	do	bro pek	2205	42	bid
10	Do	135	15	do	or pek	1410	33	bid
11	Do	137	47	do	pekoe	3760	26	bid
12	Anchor, in estate mark	139	15	do	bro pek	1725	64	
13	Do	141	29	do	pekoe	2900	45	
14	Do	143	16	do	pek sou	1600	30	bid
15	Do	145	12	do	bro mix	1200	23	
16	Do	147	10	do	dust	750	23	
17	Do	149	8	do	bro tea	760	12	
18	Talagalla	150	23	do	bro pek	2300	48	
19	Do	152	13	do	pekoe	1300	42	
20	Do	154	6	do	pek sou	642	30	
21	Do	156	1	do	bro tea	112	20	
22	Dickoya	157	4	do				
			1	hf-ch	bro mix	446	10	
23	Dickoya	158	2	ch	dust	334	22	
24	Kahakelle	159	31	do				
			3	hf-ch	bro tea	2742	11	bid
25	Glasgow	160	28	ch	bro pek	2520	71	
26	Do	162	24	do	pekoe	2400	50	
27	Do	164	1	do	bro mix	100	23	
28	Troup	165	27	hf-ch	bro pek	1485	64	bid
29	Do	167	22	ch	pekoe	2090	43	
30	Do	169	1	do	red leaf	77	13	
31	Dickapitti-ya	170	21	do	bro pek	210032		bid
32	Do	172	16	do	pekoe	1600	26	
33	Do	174	10	hf-ch	pek sou	1000	23	
34	Do	176	3	ch	sou	270	18	
35	D K P	177	14	do				
			1	hf-ch	pek sou No. 1	1293	19	
36	Do	179	4	ch	bro mix	360	10	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 9th Dec. the undermentioned lots of Tea (65,069 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	G A	58	4	hf-ch	red leaf	200	13	
2	Do	59	2	do	unas	80	23	
3	Kattukitula	60	1	do	bro pek	32	35	
4	Do	61	1	do	pekoe	40	27	
5	Do	62	2	do	pek sou	90	22	
6	Wawatenre	63	5	do	bro pek	240	37	
17	Do	64	2	do	pekoe	80	22	
18	Malgolla	65	1	pkg	flowery or pek	19	R2·00	bid
19	Do	66	25	hf-ch	bro pek No. 1	1250	50	
10	Do	67	11	do	do ,, 2	605	37	bid
11	Do	68	18	do	pekoe	810	37	bid
2	Do	69	126	do	pek sou	5670	27	bid
13	Do	70	16	do	bro tea	960	24	
14	Do	71	6	do	sou	270	19	
16	Do	72	3	do	dust	195	24	
71	Allakolla	73	50	ch	bro pek	3250	39	bid
28	Do	74	54	do	pekoe	5670	29	bid
29	Do	75	30	do	pek sou	2850	23	bid
20	Do	76	3	hf-ch	dust	300	25	
21	T B W	77	6	ch	bro pek	600	36	bid
22	Do	78	7	do	pekoe	700	29	bid
23	Do	79	1	do	dust	150	27	
4	Lyndhurst	80	10	do	bro pek	1320	40	
25	Do	81	25	do	pekoe	2310	28	bid
	Do	82	23	do	pek sou	2196	21	bid
26	H S, in estate mark	83	10	do	bro or pek	1000	46	
27	Do	84	20	do	pekoe	1700	28	
28	Do	85	4	do	pek sou	340	20	
29	Do	86	3	do	sou	255	17	
30	Do	87	1	do	dust	150	25	
31	Do	88	2	do	bro mix	260	08	
32	E A T S, in estate mark	89	3	do	bro pek	315	50	
33	Do	90	4	do	pekoe	380	37	
34	Do	91	3	do	pek sou	285	27	
35	I N G	92	3	ch	dust	300	25	
36	Do	93	1	do	bro mix	100	16	
37	R X	94	5	do	bro mix	600	17	
38	Do	95	6	do	dust	840	25	
39	R Y	96	18	hf-ch	bro pek	810	65	
40	Do	97	18	do	pekoe	810	54	
41	Do	98	18	do	pek sou	810	40	
42	Do	99	12	ch	bro pek sou	900	13	bid
43	Do	100	2	hf-ch	pek fans	146	24	
44	G	1	23	ch	bro pek sou	2017	18	bid
45	C T M	2	3	hf-ch	dust	210	23	
46	Do	3	2	ch	bro mix	180	16	
47	X, in estate mark	4	5	hf-ch	bro or pek	275	32	bid
48	Do	5	12	do	pek dust	960	22	
49	Do	6	3	ch	bro mix	300	19	bid
50	D G	7	1	do	bro mix	100	15	
51	Do	8	1	do	dust	110	23	
52	Do	9	1	do	fans	110	24	
53	Do	10	6	do	bro or pek	660	33	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
54	Roseneath	11	23	ch	pekoe	2415	30	
60	Depedene	17	4	do	bro pek	200	50	
61	Do	18	9	do	pekoe	450	36	
62	Do	19	9	do	pek sou	450	25	
63	H D	20	15	do	bro sou	750	20	
64	Do	21	7	do	bro mix	350	13	
65	Do	22	1	do	dust	80	23	
66	E	23	8	ch	sou	960	18	bid
67	Stockholm	24	24	hf-ch	bro pek	1200	55	
68	Do	25	16	ch	pekoe	1440	29	
69	Do	26	1	do	fans	140	18	
70	D B G	27	2	hf-ch	dust	160	24	
71	Do	28	3	ch	bro mix	300	15	
72	Do	29	6	do	pek sou	570	24	
73	Ingiriya	30	6	hf-ch	bro pek	330	47	
74	Do	31	15	do	pekoe	750	28	
75	Do	32	11	do	pek sou	528	22	
76	Do	33	1	do	bro mix	54	12	
77	H H, in estate mark	34	33	do	bro pek	1782	42	
78	Do	35	9	ch	pekoe	720	29	
79	Do	36	12	do	pek sou	1080	25	

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 9th Dec., the under mentioned lots of Tea (151,486 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	P K	772	1	ch	bro pek	118	26	
2	Do	774	1	do	pekoe	94	23	
3	S	776	4	do	or pek	360	35	
4	S	778	5	do	pekoe	400	30	
5	S	780	12	do	pek sou	1080	22	
6	Langdale	782	5	do	bro pek	550	33	
7	Do	784	4	do	pekoe	400	29	
8	Do	786	2	do				
			1	hf-ch	pek sou	245	24	
9	Ouvah Kellie	788	16	ch	bro pek	1760	58	
10	Do	790	14	do	pekoe	1330	39	
11	Do	792	30	do	pek sou	2850	28	
12	Do	794	1	do	dust	120	24	
13	Dunkeld	796	14	do	bro pek	1540	52	
14	Do	798	27	hf-ch	or pek	1350	43	
15	Do	800	17	ch	pekoe	1360	31	bid
16	Palmerston	8	16	hf-ch	dust	1120	26	
17	M R	10	3	do	bro pek	144	25	
18	Do	12	4	do	pekoe	184	22	
19	Do	14	1	do	pek sou	28	23	
20	Do	16	1	do	dust	38	23	
21	M	18	2	do	bro pek sou	124	12	
22	S, in estate mark	20	10	ch	pek sou	900	22	
23	Roudura	22	12	do	pek sou	1080	24	
24	Do	24	7	do	bro tea	630	10	
25	Thornfield	26	19	hf-ch	bro pek	1007	73	
26	Do	28	17	ch	pekoe	1700	44	bid
27	Do	30	3	do	pek sou	300	26	bid
28	Do	32	1	do	dust	75	25	
29	L B K	34	13	ch	red leaf	1300	09	
30	H & H	36	3	do	bro mix	270	14	
31	Wolley Field	38	2	do				
			1	hf-ch	bro pek	230	30	
32	Do	40	3	ch	pekoe	255	20	
33	Do	42	3	do	pek sou	240	18	
34	Do	44	1	do	fans	80	22	
35	Farnham	46	46	hf-ch	bro or pek	2070	56	
36	Do	48	40	do	pekoe	1800	41	
37	Do	50	46	do	pk sou	2070	27	
38	Do	52	7	do	fans	420	24	
39	Do	54	2	do	dust	130	24	
40	Do	56	3	do	bro tea	135	10	
41	Do	58	1	box	gold tips	2	R20·00	
42	C R D	60	8	hf-ch	red leaf	400	11	
4	Do	62	5	do	dust	275	25	
4	Angroo-wella	64	1	do	dust	85	27	
45	Ancoombra	66	4	ch	dust	600	24	
46	Palamcotta	68	2	hf-ch	dust	172	20	
47	U	70	14	do	bro mix	840	9	
48	U	72	6	do	dust	480	23	
49	Bandara-polla	74	50	do	pekoe	2500	28	bid
50	Do	76	65	do	pek sou	2925	23	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
51	Yataderia	78	13	ch	bro pek	1430	35	
52	Do	80	37	do	pekoe	3700	26	
53	Do	82	32	do	pek sou	2880	23	
54	Do	84	20	do	or pek	1300	47	
55	Do	86	36	do	pekoe	3600	28	
56	Do	88	36	do	pek sou	3240	25	
57M	R A	90	8	do	bro pek	800	31	
58	Do	92	4	do	pekoe	364	24	
59	Do	94	5	do	pek sou	455	17	
60	Do	96	46	do	unas	3680	06	bid
61	Doonevale	98	23	do	bro pek	2300	26	bid
26	Do	100	23	do	pekoe	2070	21	bid
63	Do	102	3	do	fans	330	24	
64	Do	104	1	do	bro tea	105	14	
65	Balgownie	106	10	do	bro pek	1000	28	bid
66	Do	108	19	do	pekoe	1520	24	bid
67	Do	110	12	do	pek sou	960	20	bid
68	Do	112	15	do	do	1200	21	bid
69	Do	114	1	do	pk dust	142	21	
70	Do	116	14	do	bro pek	1400	31	bid
71	Do	118	33	do	pekoe	2640	27	bid
72	Do	120	14	do	pek sou	1120	23	bid
73	Midlothian	122	16	hf-ch	bro pek	960	51	bid
74	Do	124	16	ch	pekoe	1600	36	
75	Do	126	2	hf-ch	congou	120	19	
78	St. Helier's	132	29	do	bro or pek	1450	62	
79	Do	134	22	ch	pekoe	2200	38	
80	Do	136	18	do	pek sou	1800	28	
81	Do	138	3	do	bro tea	300	13	
82	Debatgama	140	1	do	congou	90	13	
83	Do	142	1	do	red leaf	100	10	
84	Do	144	2	do	fans	220	15	
85	K G	146	9	do	bro pek	900	34	
86	Do	148	3	do	pekoe	270	22	
87	Do	150	2	do	pek sou	180	20	
88	G L, in estate mark	152	4	do	pek sou	360	23	
89	Do	154	4	do	bro mix	332	9	
90	Do	156	4	hf-ch	dust	340	24	
91	Eadella	158	8	ch	bro pek	800	25	
92	Do	160	8	do	pekoe	680	21	
93	R	162	5	do	dust	700	24	
94	R	164	10	do	bro tea	900	12	
100	Monrovia	176	12	hf-ch	bro pek	600	36	
101	Do	178	12	ch	pekoe	1200	27	
102	Do	180	5	do	pek sou	500	22	
103	Do	182	4	do				
			1	hf-ch	unas	450	18	
104	Do	184	1	ch	pek dust	140	23	
105	Do	186	1	do	bro mix	100	14	
106	Kirimettia, L M	188	8	do	bro pek	718	36	
107	Do	190	12	do				
			1	hf-ch	pekoe	1102	27	
108	Do	192	1	ch				
			1	hf-ch	pek sou	131	21	
109	Do	194	1	ch	bro tea	70	22	
110	Do	196	2	do	pek fan	235	24	
111	Do	198	1	ht-ch	red leaf	50	11	
112	Talgaswela	200	26	ch	bro pek	2420	43	
113	Do	202	4	do	sou	380	22	
114	Claremont	204	45	hf-ch	bro pek	2250	37	
115	Do	206	30	do	pekoe	1350	25	
116	Do	208	2	do	dust	144	25	
117	Do	210	3	do	bro tea	96	12	
118	Court Lodge	212	17	do	bro pek	986	85	
119	Do	214	12	do	pekoe	576	65	
120	Do	216	17	do	pek sou	799	54	
121	Do	218	1	ch	sou	84	35	
122	Bismark	220	10	hf-ch	bro pek	500	51	
123	Do	222	6	ch	pekoe	540	38	
124	Do	224	7	do	pek sou	630	25	
125	Do	226	3	do	unas	300	20	
126	Amblakan-de	228	11	do	bro pek	1100	43	
127	Do	230	22	do	pekoe	1980	33	
128	Do	232	3	do	pek sou	270	23	
129	B E R	234	2	do	pek dust	300	24	
130	Do	236	4	do	bro mix	400	10	
131	Avisawella	238	6	do	dust	900	24	
132	Patiagama	240	12	do	bro pek	1320	32	
133	Do	242	29	do	pekoe	2900	24	
134	Do	244	3	do	bro mix	300	10	
135	T B, in estate mark	246	5	do	bro mix	650	09	
136	Do	248	1	do	dust	150	22	
137	Do	250	7	do	sou	595	14	
138	C	252	1	do				
			1	hf-ch	bro pek	149	34	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
139	C	254	2	hf-ch	pek sou	111	24	
140	M	256	4	do	bro or pek	191	35	
141	M	258	11	do	pekoe	503	25	
142	Lankapura, W	260	100	ch	pekoe	11000	38	
143	Do	262	27	do	pek sou	2700	26	
144	Do	264	17	do	do	1700	26	
145	K—C, in estate mark	266	5	hf-ch	bro pek dust	375	24	
146	Do	268	6	do	bro pek fans	360	24	
147	Do	270	9	do	bro pek sou	540	15	
148	D A	272	5	do	sou	250	17	
149	Do	274	6	do	dust	420	20	
150	Castlereagh	276	39	do	bro or pek	1950	63	
151	Do	278	84	do	pekoe	3780	40	bid
152	Bandarapolla	280	28	do	bro pek	1400	45	
153	Gallamudina	282	1	ch	bro pek	94	30	
154	Do	284	1	do	pekoe	80	23	
155	B, in estate mark	286	3	hf-ch	dust	207	22	
156	H E	288	1	ch	bro pek	94	28	
157	Do	290	1	hf-ch	do	48	28	
158	Do	292	1	do	pek fans	28	23	
159	Farm	294	15	ch	bro pek	1500	51	
160	Do	296	21	do	pekoe	1995	34	
161	Do	298	25	do	pek sou	2250	24	
162	Do	300	3	hf-ch	dust	186	21	
163	Do	302	1	ch	red leaf	95	10	

Mr. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 16th Dec. the undermentioned lots of Tea (7,410 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
2	{S R	22	10	do	bro pek	900	39
3	Do	24	10	do	pekoe	800	29
4	Do	26	19	do	pek sou	1710	23
5	B E R	28	7	do	bro pek	630	37
6	Do	30	7	do	pekoe	560	29
7	Do	32	17	do	pek sou	1530	19
8	Do	34	2	do	dust	280	24

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 16th Dec., the undermentioned lots of Tea (53,751 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	K'della	1	5	ch	bro pek	550	40	
2	Do	3	6	do	pekoe	540	26	bid
3	Do	5	2	do	pek sou	180	22	
4	Do	6	1	hf-ch	dust	60	23	
5	Glanrhos	7	5	ch	bro pek	475	50	
6	Do	9	8	do	pekoe	720	32	bid
7	Do	11	2	do	pek sou	180	27	
8	Citrus	12	19	hf-ch	pekoe	1030	32	
9	Do	14	12	do	pek sou	600	25	
10	Do	16	3	do	fans	210	19	
11	Do	17	1	do	congou	50	12	
12	Do	18	1	do	red leaf	40	10	
13	W L G	19	16	ch	fans	1460	16	
14	Penrhos	20	17	hf-ch	bro pek	1020	54	bid
15	Do	22	15	do	pekoe	825	40	bid
16	Do	24	27	do	pek sou	1350	withd'n.	
17	Do	26	2	do	bro pek fans	130	28	bid
18	Do	27	2	do	dust	140	26	bid
19	Nugagalla	28	13	do	bro pek	650	57	bid
20	Do	30	43	do	pekoe	2150	39	bid
21	Do	32	6	do	pek sou	300	26	
22	Do	34	3	do	dust	240	24	
23	Woodend	35	2	ch	dust	260	23	
24	Do	36	1	do	congou	90	16	
25	P K	37	7	do	bro pek	700	33	
26	Do	39	8	do	pekoe	800	23	bid
27	Do	41	8	do	pek sou	750	20	
34	D	52	2	do	dust	300	24	
Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
35	Preston	53	14	do	bro pek	1524	63	bid
36	Do	55	14	do	pekoe	1400	44	bid
37	Do	57	7	do	pek sou	700	32	bid
38	Ossington	59	19	hf-ch	pek sou	950	25	
39	Do	61	3	do	dust	240	23	
40	Do	62	7	do	bro tea	315	14	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
41	Penrhos	63	9	hf-ch	congou	405	20	
42	Do	65	5	do	pek fans	300	26	bid
43	Do	66	6	do	dust	420	24	
44	Elan	67	47	hf-ch	bro pek	2585	42	
45	Do	69	29	do	pekoe	1305	29	
46	Do	71	50	do	bro pek sou	2250	24	
47	Do	73	33	do	pek son	1485	23	
48	Do	75	35	d0	bro tea	1575	12	
49	Nahalma	77	36	do	bro pek	1980	51	
50	Do	79	45	ch	pekoe	4500	36	
51	Do	81	10	do	pek sou	1000	25	
52	Do	83	2	do	dust	150	24	
53	Kennington	86	6	do	pekoe	450	30	
54	Do	88	13	do	pek sou	1170	25	
55	Do	90	3	do	unas	207	21	
56	Do	91	2	do	congou	160	15	
57	Do	92	2	hf-ch	red leaf	80	11	
58	Ethuluwa	93	8	do	pekoe	400	24	
59	M E	94	1	do	bro pek	70	32	
60	Do	95	1	do	pekoe	65	22	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 16th Dec. the undermentioned lots of Tea (77,315 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Bollagalla	180	2	ch	dust	246	19	
2	L	181	3	do	red leaf	279	13	
3	L	182	5	do	dust	839	21	
4	L	183	14	do	sou	1400	24	bid
5	L	185	31	do	sou	2790	27	bid
6	J, in estate mark	187	16	box	pekoe	80	33	
7	Eltofts	188	33	hf-ch	bro pek	1980	57	bid
8	Do	190	16	ch	pekoe	1440	47	bid
9	Do	192	29	do	pek sou	2755	33	bid
10	Do	194	2	do	dust	180	22	bid
11	Talagalla	195	27	do	bro pek	2700	42	
12	Stamford Hill	197	13	do	bro mix	1456	16	bid
13	Wewelmadde	199	4	do	dust	352	21	
14	D E	200	8	do	fans	656	26	bid
15	Little Valley	201	7	do	red leaf	595	12	
16	Lawrence	203	42	do	sou	4200	13	bid
17	Great Valley	205	27	do	bro pek	2970	51	
18	Do	207	23	do	pekoe	2300	39	
19	Do	209	26	do	pek sou	2470	28	
20	Tientsin	211	16	hf-ch	bro pek	960	85	
21	Do	213	27	ch	pekoe	2700	48	
22	Do	2 5	12	do	pek sou	1200	32	
23	Do	217	1	hf-ch	sou	34	23	
24	Do	218	4	do	fans	280	22	
25	Do	219	2	do	dust	160	23	
26	Templestowe	220	45	do	or pek	2340	49	
27	Do	222	20	ch	pekoe	1600	39	
28	Do	224	15	do	pek sou	1260	28	
29	Mocha	226	40	hf-ch	bro pek	2200	71	
30	Do	228	29	ch	pekoe	2900	50	
31	Do	230	16	do	pek sou	1520	34	
32	Do	232	18	do	dust	1800	23	
37	T P	238	9	hf-ch	bro pek	540	39	
38	Do	240	9	ch	pekoe	900	26	
39	Mahagalla	242	17	hf-ch	or pek	1020	75	
40	Do	244	22	ch	pekoe	2200	53	
41	Do	246	3	do	pek sou	300	34	
42	Do	247	2	do	do No. 2	200	19	
43	Do	248	1	do	dust	90	22	
44	Meddegedera	249	20	ch	bro pek	2000	38	bid
45	Do	251	18	do	pekoe	1530	34	
46	Do	253	13	do	pek sou	975	27	
47	Do	255	5	do	sou	380	20	
48	Do	257	3	do	dust	270	23	
49	Polgahakande	258	1	do	bro pek	100	32	
50	G T	259	12	do	dust	1260	23	
51	Do	260	12	do	congou	720	20	
52	Talagalla	262	16	do	bro pek	1600	57	
53	Do	264	12	do	pekoe	1260	42	
65	B C	282	12	do	pek sou	900	12	
67	Campion	286	20	box	unas	100	50	
68	Do	286	40	do	do	200	out	
69	Do	286	30	do	do	150	out	
70	W, in estate mark	287	12	ch	bro pek	1260	43	
71	Do	289	21	do	pekoe	2100	28	bid
72	Do	301	8	do	pek sou	760	24	
73	Do	303	1	do	dust	150	23	

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 16th Dec., the undermentioned lots of Tea (48,893 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pakgs.		Description.	Weight lb.	c.	
1	Castle	37	2	hf-ch	bro pek	120	44	
2	Do	38	5	do	pekoe	275		
3	Do	39	2	do	pek sou	100		withd'n.
4	Do	40	1	do	fans	56		
5	W V	41	7	ch	unas	700	25	
6	Do	42	1	hf-ch	dust	50	24	
7	Depedene	43	4	do	bro pek	200	58	
8	Do	44	7	do	pekoe	350	36	
9	Do	45	9	do	pek sou	450	30	
10	H D	46	16	do	bro sou	800	23	
11	Do	47	2	do	bro mix	100	14	
12	Do	48	2	do	dust	160	25	
13	St. Andrews	49	24	ch	or pek	1584	40	
14	Do	50	22	do	bro pek	1430	27	
15	Do	51	69	do	pekoe	4416	26	
16	T N C	52	3	do	dust	495	23	
17	Do	53	3	do	bro tea	300	14	
18	Arslena	54	52	hf-ch	bro pek	2600	50	
19	Do	55	29	do	pekoe	1450	33	
20	Do	56	21	do	pek sou	1050	27	
21	Do	57	6	do	bro mix	300	12	
22	Do	58	3	do	dust	150	24	
23	Aadneven	59	10	do	bro pek	1900	50	
24	Do	60	14	do	pekoe	1260	34	
25	Do	61	4	do	pek sou	360	24	
26	K M O K	62	3	do	bro tea	270	23	
27	Kitulgala	63	3	do	bro pek	300	36	
28	Do	64	8	do	pekoe	640	28	
29	Do	65	5	do	pek sou	400	20	
30	Do	66	1	do	pek dust	130	23	
31	Do	67	2	do	sou	160	17	
32	Oveca A I	68	16	do	bro mix	1920	22	
33	Do	69	18	hf-ch	dust	1350	23	
34	Do	70	5	ch	bro tea	545	13	
35	B	71	1	do	unas tea	90	22	
36	B	72	1	do	do	100	22	
37	B	73	1	do	do	105	22	
38	E	74	1	do	sou	100	18	
34	G H R, in estate mark	75	32	hf-ch	bro pek	1600	26	bid
44	Do	76	34	do	pekoe	1700	25	
45	Do	77	3	do	pek fans	150	24	
46	M K	78	16	ch	bro pek	1600	38	
47	Do	79	16	do	pekoe	1440	31	
48	G L	80	2	do	dust	270	25	
49	Do	81	3	do	congou	255	19	
55	Chertsey	87	6	do	bro pek	600	30	bid
56	Roseneath	88	27	hf-ch	bro pek	1755	45	
57	Do	89	15	ch	pek sou	1575	26	
58	G L	90	8	do				
			3	hf-ch	pek dust	1181	23	
59	E	91	17	do	pek dust	935	20	bid
60	Pittawella	92	21	do	bro pek	1155	47	
61	Do	93	42	do	pekoe	2100	31	
62	Do	94	5	do	pek sou	280	22	
63	Do	95	4	do	bro mix	200	11	
64	Do	96	3	do	dust	210	23	
65	M	97	5	do				
			1	ch	pek dust	388	24	
66	M D	98	3	do	dust	300	22	
67	Marymount	99	3	hf-ch	bro pek	150	30	
68	Do	100	2	do	pekoe	1000	27	
69	Ꝺ W	1	5	ch	bro mix	475	14	
70	Diyagama	2	1	hf-ch	bro pek	50	46	
71	Do	3	5	ch	pekoe	440	29	
72	Do	4	1	do				
			1	hf-ch	pek sou	137	21	
73	Do	5	1	ch				
			1	hf-ch	mixed	140	23	
74	Do	6	1	do	dust	40	25	
75	Kudaganga	7	1	box	flowery pek	20	65	bid
67	Do	8	10	hf-ch	bro pek	500	60	bid
77	Do	9	1	do	bro pek No. 2	50	45	
78	Do	10	12	do	pekoe	547	31	bid
79	Do	11	1	ch				
			1	hf-ch	pek sou	150	27	
80	Do	12	4	ch	pek sou No. 2	408	22	
81	Do	13	2	do	congou	200	20	
82	Do	14	2	do	bro tea	250	22	
83	Do	15	1	hf-ch	bro mix	57	21	
84	Do	16	1	do	dust	84	24	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, November 20th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 20th Nov. :—

Ex "Oruba"—Engurukande, 10t 97s 6d; 1b 97s.

Ex "Orient"—Gampaha, 1b 104s 6d; 7c 102s 6d; 10c 100s; 4c 1b 98s; 2c 117s; 1c 1t 91s.

Ex "Ormuz"—Gampaha, 5c 103s; 9c 98s 6d; 6c 96s 6d; 2c 119s 6d; 2c 1t 90s.

Ex "Rewa"—Niabedde, 1c 104s 6d; 6c 102s; 10c 99s; 2c 1b 99s 6d; 2c 115s.

Ex "Titan"—Lauriston' 1t 103s; 4c 1t 100s; 1c 97s; 1b 113s; 1c 89s; 1b 90s.

Ex "Yorkshire"—Kahagalla, 3c 106s 6d; 5c 101s 6d; 3c 1t 102s; 3c 98s; 2c 1b 120s 6d. Indulgashena, 1c 106s 6d; 7c 101s 6d; 3c 98s 6d; 1c 1b 119s 6d. Haldumulla, 2c 108s 6d; 3c 1b 102s; 1c 98s 6d; 1t 98s.

Ex "Oruba"—Verelapatna. 1t 103s; 2c 1t 102s 6d; 6c 99s; 1t 98s; 1c 1b 95s 6d; 1c 115s.

Ex "Clan Mackinnon"—Brookside, 1c 1t 104s; 10c 100s; 1c 113s.

Ex "Moyune"—Cranley, 1b 103s 6d; 2c 100s; 1t 95s; 1t 112s.

Ex "Yorkshire"—St. Leonards, 1c 80s; 2c 84s 6d.

Ex "Oruba"—Tulloes, 7b 75s 6d; 40b 83s; 2b 75s.

Mincing Lane, November 27th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 27th Nov :—

Ex "Clan Mackinnon"—Maousava, 25b 85s; 1b 85s; 1b 60s.

Ex "Keemun"—(G), 2t 109s 6d; 1b 98s.

Ex "Gaekwar"—Gonakelle, 1c 1b 106s; 4c 1b 105s; 11c 101s; 3c 1t 98s; 1c 1b 117s.

Ex "Clan Mackinnon"—Kelburne, 1c 1t 1b 103s 6d; 8c 1b 99s 6d; 3c 1b 99s; 1t 112s; 1c 1t 109s.

Ex "Keemun"—Roehampton, 1t 104s; 5c 1b 100s; 2c 99s; 1c 1b 114s 6d.

Ex "Clan Mackinnon"—Haldumulla, 3c 105s; 5c 100s 6d; 5c 101s; 2c 1b 99s; 1c 1t 117s. Kahagalla, 1c 1b 106s; 6c 1t 100s 6d; 2c 1b 99s; 2c 118s 6d.

Ex "Moyune"—Ouvah, 1c 105s; 11c 100s; 2c 1b 97s 6d; 1t 98s 6d; 1b 108s; 1c 107s; 1c 1t 91s; 4b 100s; 1b 92s.

Ex 'Chancellor"—Ouvah, 5b 1c 77s.

Ex "Oopack"—Concordia, 2b 101s 6d; 5c 100s 6d; 10c 101s; 5c 1t 100s 6d: 1c 1b 110s 6d; 2b 92s 6d; 1c 1t 92s; 5b 99s 6d.

Ex "Keemun"—Eilaoya, 2t 100s 6d; 8c 99s; 1b 105s; 2t 1b 103s 6d; 2b 99s.

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, November 20th, 1891.

Ex "Capella"—Suduganga, 12b 48s 6d.

Ex Wileysike"—Maousava, 4b 112s; 1b 74s; 5b 112s; 5b 57s 6d; 5b 54s 6d; 2b 51s 6d.

Mincing Lane, November 27th, 1891.

Ex "Clan Mackinnon"—(Z), 16b 73s 6d; 15b 54s 6d. Warriapolla, 5b 110s; 17b 108s 6d; 3b 73s; 5b 54s.

Ex "Glenfalloch"—Kumaradola, 11b 109s; 5b 85s 6d; 5b 88s; 3b 75s 6d; 1b 65s; 1b 59s.

Ex "Yorkshire"—Rockhill, 8b 90s; 3b 56s; 2b 60s.

Ex "Arabia"—Goonambil, 7b 90s 6d.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, November 27th, 1891.

Ex "Glenfallock"—Tonacombe, 4c 2s 10d; 1c 1s 11d; 1b 1s 1d; 2c 1s 6d; 1c 1s 6d; 1c 1s 8d. Deanstone, 1c 1s 6d; 1c 1s 7d; 1c 1s 6d; 1c 2s 3d; 1c 1b 1s 2d; 1b 1s 4d; 1b 1s.

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COLOMBO SALES OF TEA.

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 16th Dec., the undermentioned lots of Tea (173,063 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	N, in estate mark	301	5	hf-ch	dust	375	22	bid
2	Do	306	3	ch	sou	247	15	bid
3	Lethenty	308	8	do	sou	760	20	
4	M R	310	4	hf-ch	pekoe	184	25	
5	E B R	312	2	ch	pek dust	300	24	
7	Hakuru-galla	316	9	do	bro pek	900	43	
8	Do	318	10	do	pekoe	900	29	bid
9	Do	320	16	do	pek sou	1440	26	
10	Do	322	1	do	dust	150	23	
11	Do	324	3	do	bro tea	270	13	
12	C, in estate mark	326	9	do	bro pek	900	40	
13	Do	328	12	do	pekoe	1080	32	
14	Do	330	8	do	pek sou	800	24	
15	Do	332	2	do	pek fans	200	28	
16	Do	334	4	do	bro mix	400	11	
17	Ancoombra	336	2	do	pek sou	194	24	
18	Atherfield	338	11	hf-ch	sou	550	23	
19	Do	340	3	do	dust	240	24	
20	Harrington	342	20	ch	or pek	2000	61	
21	Do	344	24	do	pekoe	2400	45	
22	Do	346	23	do	pek sou	1840	31	
23	Do	348	2	do	dust	280	23	
24	M G	350	10	hf-ch	bro pek	520	36	bid
25	Do	352	30	do	pekoe	1470	33	
26	Do	354	1	do	dust	48	22	
27	Lankapura W, H	356	24	ch	bro pek	2400	45	bid
28	Do	358	53	do	pekoe	5035	31	
29	Do	360	48	do	pek sou	4320	25	
30	Do	362	10	hf-ch	pek fans	630	23	bid
31	Do	364	2	do	red leaf	90	11	
32	Do	366	2	do	red leaf	110	11	
33	Do	368	2	do	pek dust	160	24	
34	Glengariffe	370	1	ch	bro pek sou	100	11	
35	Lagalla	372	2	hf-ch	bro mix	100	12	
36	T, in estate mark	374	9	ch	bro tea	810	15	
37	Dunbar	376	32	do	bro pek	3200	60	
38	Do	378	34	do	pekoe	2880	40	
39	Do	380	6	do	pek sou	540	24	
40	Do	382	2	do	dust	300	25	
41	B D	384	5	do	dust	755	23	
42	Do	386	2	do	red leaf	270	08	
43	P D M, in estate mark H	388	4	do	pek sou	360	32	
44	Do	390	2	hf-ch	dust	140	23	
45	Ancoombra	392	3	ch	dust	450	24	
46	Kelaneiya	394	54	do	bro pek	4590	53	bid
47	Do	396	53	do	pekoe	5300	35	bid
48	Do	398	3	do	congou	300	18	
49	Do	400	2	do	dust	230	23	
50	Do	402	1	do	red leaf	85	09	bid
51	Freds Ruhe	404	11	hf-ch	bro pek	550	44	
52	Do	406	6	do	pekoe No. 1	600	27	
53	Do	408	6	do	pekoe ,, 2	600	25	
54	Do	410	16	ch	pek sou	1400	22	
55	W A	412	4	do	bro tea	440	26	
56	Do	414	1	hf-ch	congou	47	15	
57	Do	416	1	ch	dust	120	23	
58	Do	418	1	do	bro mix	112	17	
59	Do	420	2	do				
			1	hf-ch	red leaf	220	13	
60	S K	422	8	do	pek fans	480	35	
61	Do	424	3	do	unas	150	24	
62	Meddeteenne	426	11	do	or pek	990	31	bid
63	Do	428	10	do	bro pek	1100	42	
64	Do	430	8	do	pek sou	720	21	
65	Do	432	1	hf-ch	bro tea	50	14	
66	Do	434	1	ch	dust	75	23	
67	Chesterford	436	13	do	bro pek	1300	52	
68	Do	438	12	do	pekoe	1200	41	
69	Do	440	12	do	pek sou	1200	26	
70	Langdale	442	31	do	bro pek	3720	49	
71	Do	444	17	do	pekoe	1870	38	
72	Langdale	446	23	ch	pek sou	2300	28	
73	Yataderia	448	13	do	bro pek	1430	39	
74	Do	450	31	do	pekoe	3100	29	
75	Do	452	34	do	pek sou	3060	23	
76	Beausijour	454	12	do	bro pek	1200	34	
77	Do	456	23	do	pekoe	2070	26	
78	C, in estate mark	458	7	do	bro tea	700	13	bid
79	N W D	460	3	do	bro pek	300	46	
80	Do	462	5	do	pekoe	450	39	
81	Do	464	1	do	bro mix	107	18	
82	W	466	3	hf-ch	pek fans	180	30	
83	W	468	3	do	pek dust	255	25	
84	W	470	2	do	fans	100	14	
85	W	472	2	do	congou	120	16	bid
86	Ingeriya	474	2	ch				
			1	hf-ch	pek sou	260	20	
87	Do	476	1	do	dust	90	23	
88	H E P, in estate mark	478	20	do	bro pek	1200	57	
89	Do	480	12	do	pekoe	720	43	
90	Do	482	10	do	pek sou	600	25	
91	Harangalla	484	6	ch	bro pek	600	38	bid
92	Do	486	7	do	pekoe	630	31	
93	Do	488	17	do	pek sou	1360	27	
94	Palmerston	490	13	hf-ch	bro pek	732	62	
95	Do	492	15	ch	pekoe	1500	45	
96	Do	494	9	do	pek sou	900	29	
97	Ragalla	496	45	hf-ch	bro pek	2475	62	
98	Do	498	59	do	pekoe	2950	43	
99	Do	500	19	do	pek sou	950	30	
100	Do	502	7	do	dust	560	25	
101	Do	504	13	do	fans	845	27	
107	E D P	516	1	do	congou	80	15	
108	Do	518	1	do	bro mix	80	10	
109	G O	520	5	hf-ch	bro pek	300	61	
110	Glenorchy	522	12	do	bro pek	720	64	
111	Do	524	18	do	bro pek	900	66	
112	Do	526	32	do	pekoe	1440	41	
113	Do	528	35	do	pekoe	1925	42	
114	Do	530	9	do	pek sou	405	29	
115	Do	532	5	do	pek sou	150	29	
116	St George, R A	534	2	do	red leaf	112	11	bid
117	Do	536	2	do	dust	136	22	
118	Gallawatte	538	19	do	bro pek	1045	48	
119	Do	540	24	do	pekoe	1200	30	bid
120	Do	542	2	do	pek sou	100	20	
121	Do	544	1	do	dust	55	22	
122	Polatagama	546	29	do	bro pek	1740	55	
123	Do	548	64	do	pekoe	3200	48	
124	Do	550	62	do	pek sou	3100	30	
125	L G E	552	9	ch	or pek	900	38	
126	Do	554	8	do	pekoe No. 1	800	27	
127	Do	556	4	hf-ch	dust	340	23	
128	Ouvah-kellie	558	15	ch	bro pek	1650	63	
129	Do	560	24	do	pekoe	2280	47	
130	Do	562	13	do	pek sou	1235	31	
131	Do	564	1	do	dust	130	25	
132	Ouvah-kellie, V	566	11	do	bro pek	1210	62	
133	Do	568	16	do	pekoe	1520	42	
134	Do	570	9	do	pek sou	855	30	
135	Do	572	1	do	dust	130	24	
136	Clyde	574	10	do	bro pek	950	45	
137	Do	576	10	do	pekoe	850	31	
138	Do	578	10	do	pek sou	900	25	
139	Do	580	10	do	congou	850	15	
140	L C E, in estate mark	582	7	do	bro pek	770	39	
141	Do	584	9	do	pekoe	810	27	
142	Do	586	7	do	pek sou	630	21	
143	Havilland	588	47	hf-ch	bro pek	350	59	
144	Do	590	40	do	pekoe	800	34	bid
145	Do	592	43	do	pek sou	1720	27	bid
146	Bandara-pella	594	30	do	bro pek	150047		
147	Do	596	33	do	pekoe	165012		
148	Do	598	24	do	pek sou	103027		
149	Hunugalla	600	6	ch	bro pek	63024	bid	
150	Do	602	28	do	pekoe	252220	bid	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
151	Do	604	3	do	pek sou	300	10	bid
152	Do	606	1	do	dust	160	22	
153	Mahauva	608	42	hf-ch	bro pek	2310	24	
154	Do	610	27	ch	pekoe	2430	35	
155	Do	612	18	do	pek sou	1710	26	
156	Do	614	2	do	dust	160	24	
157	N C	616	50	hf-ch	pekoe	2500	29	
158	Do	618	65	do	pek sou	2925	25	
159	C'arendon	620	30	do	bro pek	1950	58	
160	Do	622	32	ch	pekoe	3200	41	bid
161	Middleton	626	26	hf-ch	bro pekoe	1560	72	
162	Do	628	10	ch	pek	1000	47	
163	Do	630	7	do	pekoe	700	34	
164	Do	632	2	do	congou	210	17	
165	Queensland	634	15	ch	flowery pek	1500	65	
166	Do	636	13	do	pekoe	1235	47	
167	Do	638	13	do	do No. 2	1300	40	
168	Do	640	2	do	pek fans	260	26	
169	Chrystlers Firm	642	5	do	sou	450	24	
170	Do	644	1	do	bro mix	110	13	
171	Do	646	4	hf-ch	dust	280	25	

Messrs. A. H. THOMPSON & Co. put up for sale at hat Chamber of Commerce Sale-room on the 22nd Dec., the undermentioned lots of Tea (31,129 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	A S C	1	2	hf-ch	fans	100	22	
2	Do	2	1	do	dust	80	20	
3	Do	3	3	do	red leaf	150	10	bid
4	D E C	4	3	do	fans	135	25	
5	Do	5	16	do	red leaf	720	13	
6	Sunnycroft	7	15	ch	dust	1050	20	bid
7	Torrington	8	87	do	bro pek	4070	55	bid
8	Do	10	49	do	pekoe	4900	34	bid
9	Do	12	20	do	pek sou	2000	29	bid
10	Do	14	11	do	dust	880	25	bid
11	B U S	15	2	do	congou	200	18	
12	P B	16	4	do	dust	600	20	
13	Dehiowita	17	22	do	bro pek	2310	49	
14	Do	19	54	do	pekoe	5400	35	
15	Do	21	16	do	pek sou	1520	29	
16	Do	23	2	do	bro tea	240	22	
17	Do	24	2	do	dust	320	22	
18	V E	25	3	do	bro pek	320	37	bid
19	Do	26	4	do	pekoe	360	28	
20	Do	27	2	do	pek sou	180	24	
22	K	29	2	do	dust	140	29	
23	K'della	30	6	ch	pekoe	540	29	
24	A & F L	32	1	hf-ch	bro pek	60	35	
25	Do	33	2	do	fans	160	24	
26	Do	34	3	do	sou	165	21	
27	Nahalma	35	20	do	bro pek	1100	48	bid
28	Do	37	21	ch	pekoe	2100	36	bid
29	Do	39	4	do	pek sou	500	25	bid
30	Do	40	1	hf-ch	dust	75	22	bid
31	C		1	box	silver tips	4	R5·50	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 22nd Dec., the undermentioned lots of Tea (86,284 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D F D	304	1	hf-ch	bro pek	43	35	
2	Do	305	1	do	pekoe	38	33	
3	Do	306	1	ch	congou	80	20	
4	Do	307	1	do	dust	78	22	
5	B, in estate mark	308	3	do	congou	225	24	
6	Do	309	1	do	dust	80	24	
7	B C	310	12	do	pek sou	900	15	
8	Do	312	18	hf-ch	fans	864	15	
9	Galkandewatte	314	36	ch	bro pek	3600	50	
10	Do	316	43	do	pekoe	3870	38	
11	Do	318	16	do	pek sou	1440	29	
12	Madoolteone	320	13	do	bro pek	1300	51	
13	Do	322	17	do	pekoe	1700	37	
14	Do	324	12	do	pek sou	1200	27	
15	G K W	326	9	do	bro tea	810	25	
16	Albion	328	12	do	bro pek	1320	76	
17	Do	330	13	do	pekoe	1300	52	
18	Do	332	10	do	pek sou	1000	40	
19	Do	334	2	do	sou	190	27	
20	Do	335	3	do	bro mix	270	23	
21	Do	336	1	do	dust	80	25	
22	Bittacy	338	14	do	bro pek	1120	0	
23	Do	340	23	do	pekoe	1725	42	
24	W—T	342	24	do	bro pek	2400	56	
25	Do	344	16	do	pekoe	1530	39	
26	Do	346	13	do	pek sou	1170	32	
27	Do	348	3	do	sou	270	26	
28	Do	349	1	do	dust	150	24	
29	Great Valley	350	14	do	bro pek	1540	51	
30	Do	11	12	do	pekoe	1200	38	
31	Do	13	14	do	pek sou	1330	28	
32	Do	15	18	hf-ch	dust	1260	24	
33	Templestowe	17	15	ch	or pek	1500	53	bid
34	Do	19	12	do	pekoe	1008	out	
35	Do	21	16	do	pek sou	1440	out	
36	Do	23	3	do	bro mix	300	out	
37	Eila	24	15	do	bro pek	1500	47	
38	Do	26	38	do	pekoe	3040	34	
39	Do	28	12	do	pek sou	960	27	
40	Do	30	6	do	sou	450	18	
41	Do	32	2	do	dust	250	23	
42	Kandenewera	33	28	do	bro pek	2800	62	
43	Do	35	50	do	pekoe	5000	47	
44	Do	37	26	do	pek sou	2600	29	
45	N	39	10	do	bro mix	1000	23	
46	G	41	14	do	bro mix	1400	13	
47	Gouravilla	43	38	hf-ch	bro pek	2280	53	
48	Do	45	27	ch	pekoe	2700	35	bid
49	Do	47	12	do	pek sou	1200	28	
50	Do	49	6	hf-ch	dust	300	25	
51	Cruden	50	42	do	sou	2100	25	
52	Battangalla	52	15	ch	bro pek	1500	50	
53	Do	54	16	do	pekoe	1440	35	bid
54	Do	56	15	do	pek sou	1425	26	bid
55	Agra Ouvah	58	14	box	bro or pek	140	75	
56	Do	59	4	hf-ch	do	208	75	
57	Do	60	22	do	bro pek	990	80	
58	Do	62	22	do	pekoe	990	54	
59	Do	64	19	do	pek sou	855	42	
60	Do	66	10	do	pek sou No. 2	450	34	
61	A O	68	2	do	pek fans	140	24	
62	Logan	69	15	ch	bro pek	1575	51	
63	Do	71	27	hf-ch	pekoe	1215	40	
64	Do	73	95	ch	pek sou	4275	28	
65	Do	75	9	do	dust	540	22	
66	Do	76	3	ch	red leaf	300	18	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 22nd Dec., the undermentioned lots of Tea (38,816 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	R X	17	3	ch	bro mix	290	14	
2	Do	18	2	do	dust	280	24	
3	E	19	5	hf-ch	bro or pek	275	38	
4	E	20	5	do	pekoe	240	32	
5	E	21	4	do	pek sou	160	23	
6	B G B	22	7	ch	bro tea	700	withd'n.	
7	Coneygar	23	4	do	bro pek	220	54	
8	Do	24	6	do	pekoe	300	36	bid
9	Do	25	2	do	pek sou	100	24	bid
10	Do	26	1	do	fans	65	27	
11	H S in estate mark	27	10	do	pekoe	850	28	
12	D	28	31	do	pek sou	2790	25	
13	E S	29	17	hf-ch	pek dust	935	22	
14	M	30	3	ch	bro mix	270	16	bid.
15	M	31	1	hf-ch	do	45	17	
16	Yahalatenne	32	19	do	bro pek	950	41	bid.
17	Do	33	33	do	pekoe	1320	34	
18	Do	34	28	do	pek sou	1120	26	
19	Do	35	12	do	sou	480	22	
20	Do	36	2	do	dust	150	23	
21	Do	37	1	do	red leaf	45	13	
22	R	38	23	ch	bro pek sou	2017	20	bid.
23	E P	39	4	ch	bro pek	406	withd'n	
24	Do	40	11	do				
			1	hf-ch	pek sou	1205		
25	C T M	41	2	ch	dust	180	23	
26	Do	42	3	hf-ch	bro mix	210	20	
27	K W	43	14	do	bro pek	770	withd'n.	
28	H	44	4	ch	bro tea	390	18	bid
29	H	45	8	do	sou	960	18	bid.
30	V	46	3	hf-ch	dust	180	22	
31	V	47	2	do	bro tea	80	15	
32	V	48	1	do	fans	60	13	
33	Brunswick	49	1	box	cont, 3 bottels golden tips	2	R24·00	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
34	C	50	15	hf-ch	or pek	859	52	
35	Charley Hill	51	3	do	bro pek	150	45	
36	Do	52	3	do	pekoe	150	40	
37	Do	53	11	do	pek sou	547	25	
38	Do	54	3	do	sou	140	18	
29	Do	55	1	do	fans	50	25	
40	S B R	56	17	ch	bro pek	1530	41	
41	Do	57	20	do	pekoe	1600	31	
42	Do	58	25	do	pek sou	2250	24	
43	Wandale	59	16	hf-ch	bro pek	720	34	
44	Do	60	11	do	pekoe	440	27	
45	Do	61	12	do	pek sou	480	25	
46	Do	62	1	co	dust No. 1	60	25	
47	Do	63	1	do	do " 2	50	24	
48	Marymount	64	2	do	unas	93	20	
49	W W	65	1	do	pekoe	50	30	
50	Do	66	1	ch	peg sou	102	23	
51	T, in estate mark	67	2	hf-ch	unas	100	31	
52	Do	68	6	do	fans	312	24	
53	Do	69	2	do	congou	88	18	
54	Do	70	10	do	dust	620	26	
55	T	71	4	ch	bro pek	420	41	bid
56	T	72	4	do	pekoe	400	31	bid
57	N B	73	13	do	bro pek sou	1170	23	
58	Do	74	11	do	bro mix	1100	18	bid
59	Do	75	4	do	unas	400	32	
63	H H H	79	1	ch	bro mix	100	12	
64	Do	80	1	hf-ch	dust	60	20	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 22nd Dec., the undermentioned lots of Tea (84,583 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Telisagalla	648	1	ch	red leaf	85	10	
2	L B K	650	7	do	red leaf	700	16	
3	Tonacombe Uva	652	27	hf-ch	bro pek	1350	51	
4	Do	654	25	do	pekoe	1250	39	
5	Do	656	31	do	pek sou	1350	31	
6	Do	658	6	do	sou	300	22	
7	Do	660	4	do	dust	320	24	
8	Do	662	5	do	pek fans	300	27	
9	C S O K, Ceylon in estate mark	664	2	ch	dust	300	25	
10	Do	666	1	do	congou	100	19	
11	Portmore	668	2	do	fans	154	23	
15	Thornfield	676	27	do	bro pek	1431	71	bid
16	Do	678	23	ch	pekoe	2100	45	bid
17	Do	680	17	do	pekoe	1700	46	
18	Do	682	3	do	sou sou	300	31	
19	Do	684	1	do	dust	75	26	
20	C	686	7	do	sou	595	18	
21	C	688	2	do	dust	300	24	
22	C	690	5	do	bro mix	650	10	
23	M	692	4	do				
			2	hf-ch	bro mix	440	14	
24	P O	694	7	ch	bro pek	700	41	
25	Lankapura, W	696	10	hf-ch	pek fans	630	23	
32	Harangalla	710	6	do	bro pek	600	41	
33	Do	712	7	do	pekoe	630	withd'n.	
34	Dunkeld	714	21	do	bro pek	2310	56	bid
35	Do	716	42	do	or pek	2100	53	
36	Do	718	24	do	pekoe	2160	40	
37	Do	720	14	do	pek sou	1120	29	
38	Mukeloya	722	16	hf-ch	bro pek	960	49	
39	Do	724	9	do	pekoe	540	38	bid
40	Do	726	8	do	pek sou	480	27	bid
41	N	728	1	do	sou	50	20	
42	M	730	1	do	pek sou	28	23	
43	M	732	1	do	fans	40	13	
55	B G, in estate mark	756	21	ch	pekoe	2100	30	
56	G	758	1	do	red leaf	80	13	
57	B B B B	760	1	do	bro tea	75	14	
58	B T N	762	1	box	sou	27	23	
59	Do	764	1	do	dust	46	22	
60	Llandaff	766	48	ch	pek sou	4320	27	
61	Dunkeld	768	17	do	pekoe	1360	35	
62	St. Hellier's	770	21	hf-ch	bro or pek	1050	61	
63	Do	772	13	ch	pekoe	1300	41	
64	Do	774	12	do	pek sou	1200	30	
5	Do	776	2	do	dust	240	24	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
66	A N	778	2	box	bro pek	24	32	
67	Do	780	5	do	pekoe	50	25	
68	Do	782	4	do	pekoe No. 2	81	23	
69	Yataderia	784	17	ch	bro pek	1870	42	
70	Do	786	26	do	pekoe	2600	31	
71	Do	788	35	do	pek sou	3150	27	
72	C, in estate mark	790	7	do	bro tea	700	15	
73	L, in estate mark	792	4	do	bro tea	400	15	
74	W	794	2	hf-ch	congou	120	21	
75	Becherton	796	18	ch	bro pek	1800	36	
76	Do	798	12	do	pekoe	2200	20	
77	B	800	21	do	bro pek sou	1995	25	
78	B	2	25	do	bro mix	2500	17	
79	Silver Valley	4	2	hf-ch	bro pek	90	53	
80	Do	6	9	do	pekoe	414	31	
81	Do	8	2	do	red leaf	100	16	
82	Do	10	1	do	congou	46	12	
83	Do	12	1	do	dust	56	23	
84	Do	14	1	ch	bro mix	100	10	
85	St. Catherine	16	16	do	bro pek	540	44	
86	Do	18	7	do	pekoe	595	30	
87	Do	20	6	do	pek sou	480	23	
88	Do	22	2	do	pek fans	200	25	
89	Castlereagh	24	3	hf-ch	bro or pek	170	69	
90	Do	26	6	do	pekoe	270	48	
91	K—C, in estate mark	28	3	do	bro pek sou	180	22	
92	Do	30	2	do	bro pek dust	130	24	
93	Do	32	3	do	bro pek fans	180	24	
94	Bandarapolla	34	34	do	bro pek	1700	55	
95	Do	36	40	do	pekoe	2000	38	
96	Do	38	33	do	pek sou	1485	28	
97	Talagaswela	40	40	ch	bro pek	3680	40	bid
98	Do	42	8	do	pek sou	760	27	
99	Marguerita	44	11	hf-ch	bro pek	550	41	
100	Do	46	8	do	pekoe	336	31	
101	Do	48	23	do	pek sou	1150	27	
102	Yahalakelle	50	1	box	flowery golden tips	23	out	

Mr. E. BENHAM put up for sale at the Chamber of Commerce Sale-room on the 6th Jan., the undermentioned lots of Tea (4,160 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	O H O	40	11	hf-ch	bro or pek	620	37	
2	Do	42	28	ch	pekoe	2680	28	bid
3	Pemberton	44	12	hf-ch	pekoe	480	37	
4	Do	46	4	do	unas	160	25	
5	Do	48	13	do	pekoe	550	38	
6	Do	50	5	do	pek sou	200	30	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 6th Jan., the undermentioned lots of Tea (37,303 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D	1	6	ch	sou	540	22	
2	D	3	5	do	bro mix	450	15	
3	D	5	2	do	dust	300	24	
4	Sunnycroft	6	15	hf-ch	pek dust	1050	22	
5	A G C	7	10	do	pek dust	700	23	
6	Comillah	8	13	do	bro pek	715	40	
7	Do	10	13	do	pekoe	650	31	
8	Do	12	9	do	pek sou	450	25	
9	Do	14	1	ch	dust	80	24	
10	Nahalma	15	26	hf-ch	bro pek	1430	52	
11	Do	17	24	ch	pekoe	2400	37	
12	Do	19	9	do	pek sou	900	28	
13	Do	21	2	do	dust	150	23	
14	Yarrow	22	12		bro pek	720	54	
15	Do	24	20		pekoe	1200	38	
16	Do	26	11		pek sou	616	25	bid
17	Peurhos	28	29	hf-ch	or pek	1305	56	
18	Do	30	18	do	pekoe	900	37	bid
19	Do	32	36	do	pek sou	1800	31	
20	Torrington	34	27	ch	bro pek	2970	56	bid
21	Do	36	40	do	pekoe	4000	38	
22	Do	38	6	do	pek sou	600	29	bid
23	Agraoya	40	6	do	or pek	600	48	
24	Do	42	7	do	bro pek	700	43	bid
25	Do	44	8	do	pekoe	800	32	bid
26	Do	46	9	do	pek sou	900	25	bid

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
27	P	48	5 do	red leaf	500	10	
28	W L G	49	5 ch	pek dust	400	23	
29	Do	50	4 hf-ch	bro pek sou	180	14	
30	Preston	51	16 ch	bro pek	1760	70	bid
31	Do	53	21 do	pekoe	2100	53	
32	Do	55	8 do	pek sou	800	39	bid
33	Do	57	2 do	dust	160	30	
34	Woodend	58	1 do	dust	120	24	
35	Moorlands	59	23 do	pekoe	2254	34	bid
36	Do	61	7 hf-ch	pek sou	700	21	bid
37	Horana	63	4 do	bro pek	200	47	
38	Do	64	8 do	pekoe	360	34	
39	Do	66	12 do	pek sou	565	28	
40	Do	68	1 do	dust	70	25	
41	S	69	1 ch				
			1 hf-ch	dust	280	24	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 6th Jan., the undermentioned lots of Tea (54,635 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	Tamaravelly	101	9 hf-ch	bro mix	450	15	
2	Do	102	5 do	dust	350	23	
3	Gonakelle	103	14 ch	bro or pek	1540	48	
4	Do	105	9 do	bro pek	990	33	
5	Vogan	107	14 do	or pek	1330	50	
6	Do	109	20 do	bro pek	2100	55	
7	Do	111	22 do	pekoe	1870	37	
8	Albion	113	13 do	bro pek	1430	63	bid
9	Do	115	14 do	pekoe	1400	54	
10	Do	117	11 do	pek sou	1155	34	
11	Do	119	3 hf-ch	dust	240	31	
12	Bowhill	120	4 ch	sou	410	16	
13	Orimdale	121	48 hf-ch	bro pek	2400	83	
14	Do	123	38 do	pekoe	1710	56	
15	Do	125	15 do	pek sou	750	45	
16	Gouravilla	127	27 ch	pekoe	2700	36	
17	R	129	14 do	dust	1960	18	
18	Anchor, in estate mark	131	13 do	bro pek	1495	62	
19	Do	133	27 do	pekoe	2700	45	
20	Do	135	18 do	pek sou	1800	33	
21	Meddegedera	137	20 do	bro pek	2000	44	
22	Madoolteune	139	12 do	bro pek	1300	54	
23	Do	141	12 do	pekoe	1200	35	
24	Eila	143	12 do	bro pek	1200	53	
25	Do	145	27 do	pek e	2160	33	
26	Do	147	10 do	pek sou	800	27	
27	Do	149	1 do	pek dust	125	23	
28	Do	150	2 do	sou	180	26	
29	Sumtra Valle	151	1 do	bro mix	100	20	
30	Do	152	4 hf-ch	dust	280	25	
31	D E	153	7 do	fans	525	31	
32	Acrawatte	155	14 ch	bro pek	1470	60	
33	Do	157	17 do	pekoe	1615	45	bid
34	Do	159	18 do	pek sou	1620	28	bid
35	Agra Ouvah	161	32 hf-ch	bro pek	1600	81	
36	Do	163	35 do	pekoe	1575	56	
37	Do	165	30 do	pek sou	1350	46	
38	Do	167	10 hf-ch	pek sou No. 2	450	34	
39	A O	169	3 do	pek fans	195	23	
40	Elfofts	170	29 do	bro pek	1740	70	bid
41	Do	172	16 ch	pekoe	1440	57	bid
42	Do	174	25 do	pek sou	2375	44	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, December 4th, 1891.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 4th Dec.:—

Ex "Mombassa,"—Pall, 1c 101s 6d; 3c 90s; 3c 1b 95s 6d; 1b 90s; 1c 113s. Amanadowa, 1b 101s; 4b 1b 100s 6d; 2c 1t 96s 6d; 1b 107s; 2b 90s; 7b 84s 6d.

Ex "Goorkha"—Leangawella, 1b 98s 6d.

Ex "Khedive"—WPF, 1t 104s 6d; 2c 104s; 2c 100s; 1b 94s; 1t 111s; 1b 88s 6d; 1b 96s 6d; 1t 2b 79s 6d.

Ex "Chingwo"—Kumara Iola, 22b 88s 6d; 18b 79s; 1b 55s. Wavekelle, 1c 83s.

Ex "Port Jackson"—BGT, 2b 1t 89s 6d; 1b 95s; 1c 1t 83s 1b 77s.

Ex "Khedive"—Kadienlena, 2t 113s; 2c 107s 6d; 1b 99s; 1b 116s; 1b 89s; 1b 107s.

Ex "Mombassa"—Kalupahani, 1b 103s; 1c 1t 107s; 2c 1b 100; 1b 94s; 1t 115s; 1c 88s.

Ex "Port Jackson"—Brookside, 1c 104s; 5c 102s 6d; 2c 103s; 1c 1t 110s; 1c 1b 97s 6d; 1b 101s 6d.

Ex "Port Denison"—Brookside, 3b 1c 74s 6d; 1b 60s; 7b 70s; 8b 62s 6d; 1b 70s.

Ex "Electrician"—Alnwick, 7c 1b 108s.

Ex "Khedive"—Liddesdale, 1t 101s 6d; 2c 1t 101s; 1b 910; 1t 96s; 1b 101s.

Ex "Port Jackson"—Berragalla, 1c 107s; 4b 103s 6d; 1c 8s; 1c 117s; 1c 93s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 11th Dec.:—

Ex "Chingwo Grattan"—Meddecombra, 1c 117s; 5s 113; 3s 113s 6d; 3c 1b 107s; 1t 100s; 2s 123s; 1t 95s 1b 111s.

Ex "City of Cambridge Black"—Kandahena, 1t 107s; c 1b 102s; 1b 95s; 1b 105s; 1t 92s 6d; 1b 96s 6d.

Ex "City of Cambridge"—Ouvah, 3c 1b 105s 6d; 16c 1b 101s; 1c 98s 6d; 1c 111s; 1t 106s; 3c 93s 6d; 6b 101s; 1b 88s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, December 4th, 1891.

Ex "Clan Mackinnon"—Suduganga, 14b 109s 6d; 1b 65s 2b 53s 6d,

MINCING LANE, December 11th, 1891.

Ex "Ormuz"—Cocoawatte, 4b 93s 6d.

Ex "Mombassa"—Gangwarily, 16b 103s; 2b 75s 2b 55s.

Ex "Gulf of Corcovado"—Gangwarily, 12b 108s 6d.

Ex "Port Denison"—Kepitigalla, 11b 90s 6d; 1b 56s,

Ex "Asia"—Crystal Hill, 12b 62s.

Ex "Austral"—Crystal Hill, 4b 63s.

Ex "Glensheil"—Suduganga, 4b 54s 6d; 1b 75s; 1b 67s 3b 45s 6d.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, December 11th, 1891.

Ex "Keemun"—Malabar (M), 10c 1s 10d; 4 1s 9d; 1 1s 11d. Kura, 9c 2s. 1 1s 8d; 1 2s. (OBE), 3c 2s 1d; 7c 1s 10d; 8 1s 11d; 6 2s; 1 1s 4d; 1 1s 2d; 3c 2s 1d.

Ex "Port Denison"—Maynetrees, 2c 2s 2d; 2 1s 9d; 1 1s 4d.

Ex "Gashawar"—Lebanon A, 2c 2s.

Ex "Yorkshire"—Kitco'moola, 2c 2s 10d; 2 2s 2d; 2 1s 10d; 1 1s 5d; 2 1s 4d.

Ex "Clan Mackinnon"—Galaha, 1c 3s; 1 2s 8d; 3 1s 11d; 3 1s 5d; 1 2s 8d; 1 2s 2d; 1 1s 11d; 1 2s.

Ex "Port Denison"—Dryburg, 1c 3s; 2 1s 6d; 4 1s 1d; 2 1s 8d, 1 1s 1d; 1 2s 2d; 1 1s 3d; 1 2s; 1 1s 8d; 3 4s 9d; 2 1s 3d. Newanagalla, 6c 1s 5d; 1 1s 6d; 8 1s 5d; 3 1s 8d; 2 1s 5d; 6 1s 4d; 1 1s 2d.

Ex "Glen Talloch"—Brougham, 1c 1s 3d

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 2.] COLOMBO, JANUARY 23, 1892. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 6th Jan. the undermentioned lots of Tea (55,583 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	M A H	81	3	ch	red leaf	300	10	
2	Do	82	7	do	congou	630	20	
3	Hiralouvah	83	1	do				
			1	hf-ch	fans	158	26	
4	Do	84	1	ch	bro mix	105	15	
5	Do	85	4	hf-ch	dust	282	24	
6	Narangode	86	20	ch	pekoe	2200	36	
7	Do	87	39	do	pek sou	3900	27	
8	Do	88	4	hf-ch	dust	280	24	
9	Pearith	89	3	ch	bro pek	300	41	
10	Do	90	3	do	pekoe	270	32	
11	Do	91	2	do	pek sou	170	28	
12	Do	92	2	do	fans	232	25	
13	Do	93	3	do	dust	465	25	
14	Coodagama	94	12	do	bro pek	1200	52	
15	Do	95	10	do	pekoe	900	36	
16	Do	96	10	do	pek sou	850	27	
17	Allakolla	97	27	hf-ch	bro pek	1755	52	
18	Do	98	30	ch	pekoe	3150	36	
19	Do	99	20	do	pek sou	2000	27	
20	Do	100	3	hf-ch	dust	300	25	
21	S	1	6	ch	dust	840	22	
22	Yabalatenna	2	19	hf-ch	bro pek	950	48	
23	I N G, in estate mark	3	12	ch	bro pek	1200	55	
24	Do	4	11	do	pekoe	1100	36	
25	Do	5	1	do	bro mix	100	15	
26	Do	6	3	do	dust	300	24	
27	Do	7	2	do	red leaf	200	12	
28	B F	8	2	do	pek fans	236	26	
29	Do	9	3	do	dust	378	25	
30	Do	10	3	do	bro mix	315	16	
31	Y B	11	10	do	bro pek	1050	50	bid
32	Do	12	10	do	pekoe	950	34	bid
33	Do	13	13	do	pek sou	1170	27	bid
34	St. Leys	14	2	do	bro mix	260	20	
35	D B G	15	10	do	bro mix	1000	19	
36	Do	16	4	do	fans	440	24	
37	Do	17	7	hf-ch	dust	560	23	
38	B G	18	6	ch	bro red leaf	630	11	
39	Do	19	1	do	bro mix	100	24	
40	B	20	1	do	bro pek	11	38	
41	B	21	2	do	pekoe	200	35	
42	B	22	3	do	pek sou	300	26	
43	B	23	1	do	unas	96	24	
44	Liskilleen	24	1	do	dust	100	23	
45	N B	25	11	do	bro mix	1100	18	
46	Wawatenne	26	6	hf-ch	bro pek	300	33	
47	Do	27	2	do	pekoe	100	29	
48	St. Andrew's	28	22	do	or pek	1452	56	
49	Do	29	50	box	or pek	1000	59	
50	Do	30	32	hf-ch	bro pek	2080	45	
51	Do	31	62	do	pekoe	3968	37	
52	Naseby	32	15	do	bro pek	750	78	
53	Do	33	25	do	pekoe	1250	58	
54	Do	34	2	ch	bro tea	176	25	
55	S B R	35	16	do	bro pek	1440	47	
56	Do	36	19	do	pekoe	1520	35	
57	Do	37	23	do	pek sou	2070	25	bid
58	Ingiriya	38	7	hf-ch	bro pek	385	45	
59	Do	39	15	do	pekoe	750	37	
60	Do	40	13	do	pek sou	624	25	
61	Do	41	2	do	bro tea	132	25	
62	Do	42	1	do	dust	70	24	
63	Do	43	1	do	bro mix	55	15	
64	H H, in estate mark	44	16	ch	bro pek	1728	44	
65	Do	45	12	do	pekoe	1248	35	
66	Do	46	14	do	pek sou	1344	27	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 6th Jan. the under mentioned lots of Tea (128,600 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Eadella	60	1	ch	dust	150	22	
2	Do	62	1	hf-ch	red leaf	40	14	
3	M	64	1	do	dust	86	22	
4	M G	66	6	ch	dust	633	23	
5	Aigburth	68	10	do	bro pek	1000	50	
6	Do	70	6	do	pekoe	600	32	bid
7	Do	72	6	do	pek sou	600	24	bid
8	F F	74	1	do	congou	100	20	
9	Do	76	1	do	bro mix	70	15	
10	Do	78	1	do	bro pek dust	155	27	
11	Do	80	1	do	dust	133	25	
12	Radella	82	37	do	bro pek	3700	57	
13	Do	84	43	do	pekoe	3870	38	
14	Do	86	32	do	pek sou	2880	29	
15	Lankapura, M	88	28	hf-ch	bro pek	1540	61	bid
16	Do	90	75	ch	pekoe	8250	36	bid
17	Do	92	23	do	pek sou	2300	27	
18	Do	94	8	hf-ch	fans	600	26	
19	Do	96	3	do	dust	240	23	
20	Do	98	4	ch				
			1	hf-ch	unas	464	31	
21	Do	100	1	ch	red leaf	85	14	
22	H E P, in estate mark	102	7	hf-ch	bro pek	420	52	
23	Do	104	7	do	pekoe	420	44	
24	Do	105	4	do	pek sou	240	27	
25	Wallahanduwa	108	5	ch	bro pek	475	56	
26	Do	110	8	do	pekoe	720	43	
27	Do	112	17	do	pek sou	1700	32	
28	S P A	114	12	do	unas	1200	26	bid
29	Do	116	6	do	red leaf	540	21	
30	Do	118	2	do	dust	180	24	
31	Halpatenne	120	3	ch	sou	240	15	
32	Do	122	1	do	pek sou	95	20	
33	Do	124	1	do	dust	145	10	
34	Do	126	11	do	unas	880	18	
35	D C S	128	2	do	pekoe	210	20	
36	Do	130	4	do	unas	345	19	
37	H	132	4	hf-ch	bro pek	200	39	
38	H	134	4	do	pekoe	172	28	
39	H	136	5	do	pek sou	220	23	
40	H	138	1	do	fans	50	26	
41	C P H Galle, in estate mark	140	12	do	pek sou	600	24	
42	G L, in estate mark	142	2	ch	pek sou	180	27	
43	Macaldenia	144	22	hf-ch	bro pek	1320	60	
44	Do	146	14	ch	pekoe	770	44	
45	Do	148	8	do	pek sou	840	30	bid
46	Do	150	1	do	sou	100	20	bid
47	Do	152	1	hf-ch	bro tea	60	27	
48	Do	154	2	do	dust	148	26	
49	Do	156	2	do	fans	120	27	
50	H & H	158	6	ch	bro mix	600	18	
51	Castlereagh	160	33	hf-ch	bro or pek	1650	64	
52	Do	162	76	do	pekoe	3420	45	
53	Wallah	164	6	do	bro pek	330	44	
54	Do	166	7	do	pekoe	308	33	
55	Do	168	4	do	pek sou	188	23	
56	Amblakande	170	6	ch	bro or pek	680	41	bid
57	Do	172	14	do	pekoe	1260	37	
58	Do	174	3	do	pek sou	270	23	bid
59	P, in estate mark	176	11	do	bro pek	1210	37	
60	Do	178	48	do	pekoe	4800	25	bid
61	Do	180	1	do	pk sou	100	19	
62	Do	182	9	do	bro mix	900	15	
63	Do	184	4	do	dust	600	21	
64	Havilland	186	33	hf-ch	bro pek	1650	49	
65	Do	188	37	do	pekoe	1665	40	
66	Do	190	58	do	pek sou	2320	27	
67	Do	192	21	do	fans	1155	25	bid
68	Bandarapolla	194	43	do	bro pek	2150	55	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
69	Bandarapolla	196	41	hf-ch	pekoe	2050	45	
70	Do	198	40	do	pek sou	1800	27	
71	Do	200	15	do	sou	675	19	
72	Alnoor	202	21	do	bro pek	1050	54	
73	Do	204	18	do	pekoe	900	42	
74	Do	206	18	do	pek sou	900	27	
75	Yataderia	208	12	ch	bro pek	1320	49	
76	Do	210	32	do	pekoe	3200	33	
77	Do	212	32	do	pek sou	2880	27	
78	Do	214	14	do	bro pek	1540	53	
79	Do	216	38	do	pekoe	3800	32	
80	Do	218	29	do	pek sou	2610	27	
81	R, in estate mark	220	7	do	dust	980	23	
82	Do	222	2	do	red leaf	232	13	
83	Chalmers	224	36	do	bro pek	3600	48	bid
84	Do	226	24	do	pekoe	2160	35	bid
85	Do	228	18	do	pek sou	1440	27	bid
86	Do	230	2	do	dust	280	21	
87	Do	232	4	do	bro mix	320	23	
88	Polatagama	234	31	hf-ch	bro pek	1860	55	
89	Do	236	65	do	pekoe	3250	50	
90	Do	238	58	do	pek sou	2900	31	
91	Talgaswela	240	6	ch	dust	840	24	
92	Do	242	1	do	fans	130	26	
93	Wewerse	244	26	hf-ch	bro pek	1300	54	bid
94	Do	246	20	do	pekoe	1000	46	
95	Do	248	21	do	pek sou	1050	37	
96	Do	250	1	do	sou	50	21	
97	Dunbar	252	25	ch	bro pek	2500	59	
98	Do	254	26	do	pekoe	2340	39	
99	Harrangalla	256	14	do	bro pek	1400	46	
100	Do	258	12	do	pekoe	1080	36	
101	Do	260	16	do	pek sou	1280	27	
102	P K	262	17	hf-ch	bro pek	860	48	
103	Do	264	13	do	or pek	598	41	
104	Do	266	2	do	pek sou	106	25	
105	St. Leonards-On-Sea	268	1	ch	congou	100	15	
106	Do	270	1	do	bro mix	100	20	
107	C R D	272	9	do	red leaf	450	13	
108	Do	274	4	do	dust	212	24	
109	Ancoombra	276	4	do	dust	600	24	
110	Angroowella	278	2	hf-ch	dust	160	25	
111	Palamcotta	280	1	ch	red leaf	100	14	
112	Do	282	3	hf-ch	dust	258	22	
114	Debatgama	286	5	do	dust	600	21	
115	Do	288	1	do	congou	90	15	
116	Do	290	1	do	red leaf	100	10	
117	Do	292	1	do	fans	110	82	
118	Kelvin	294	5	do	congou	450	12	
119	Do	296	1	do	red leaf	90	22	
120	Do	298	2	do	dust	300	12	
121	Pantiya	300	4	do	bro pek sou	380	97	
122	Do	302	4	do	dust	442	54	
123	Midlothian	304	35	hf-ch	bro pek	2100	41	
124	Do	306	11	ch	pekoe	1100	21	

Messrs. E. BENHAM & Co. put up for sale the Chamber of Commerce Sale-room on the 13th Jan., the undermentioned lots of Tea (7,084 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	A H O	2	28	ch	pekoe	2660	27	bid
2	W O	4	2	do	bro tea	200	10	
3	Do	6	3	hf-ch	pek fans	225	20	
4	Mapitiagama	8	2	ch	dust	245	22	
5	Do	10	1	do	red leaf	90	10	
6	Galloola	12	3	do	congou	150	12	
7	Do	14	5	do	dust	350	21	
8	Mayfair	16	4	do	dust	640	25	
9	Pathragalla	18	1	hf ch	sou	50	22	
10	Do	20	1	do	pekoe	50	26	
11	Do	22	1	do	bro pek	64	37	
12	Do	24	1	do	dust	50	23	
13	Elston	26	3	ch	bro mix	300	24	bid
14	Do	28	3	do	dust	390	20	
15	Do	30	6	do	congou	600	20	
16	Pemberton	32	4	hf-ch	bro pek	360	50	
17	Do	34	6	do	pekoe	240	33	
18	Do	36	3	do	pek sou	120	28	
19	Do	38	5	ch	unas	500	26	bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 13th Jan., the undermentioned lots of Tea (31,217 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Gampolawatte	1	12	hf-ch	bro pek	600	47	
2	Do	3	20	do	pekoe	1000	32½	bid
3	A K A C, in estate mark Ceylon	5	13	do	sou	650	24	
4	Do	7	3	do	dust	228	23	
5	A G C	8	10	do	pek dust	700	22	
6	Do	10	7	do	bro tea	630	10	
7	X X X	11	3	do	dust	210	22	
8	Harrow	12	15	do	bro pek	900	62	bid
9	Do	14	24	do	pekoe	2400	40	bid
10	Do	16	1	ch	bro mix	90	22	bid
11	W R	17	1	hf-ch	bro pek	60	39	
12	Do	18	2	do	pekoe	105	29	
13	P G	19	1	ch	pekoe	70	32	
14	Dehiowita	20	27	do	bro pek	2835	48	bid
15	Do	22	71	do	pekoe	7100	35	bid
16	Do	24	24	do	pek sou	2280	25	bid
17	Do	26	2	do	bro tea	240	23	bid
18	Nahama	27	54	hf-ch	bro pek	2970	46	bid
19	Do	29	48	ch	pekoe	4800	33	bid
20	Do	31	10	do	pek sou	1000	25	bid
21	Do	33	4	ch	congou	388	20	
22	Do	34	2	hf-ch	dust	150	22	bid
23	Penrhos	35	1	box	golden tips	5	12·00	bid
24	K	36	7	hf-ch	sou	350	27	bid
25	K	38	12	do	dust	840	24	bid
26	Yarrow	39	11	do	pek sou	616	25	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 13th Jan. the undermentioned lots of Tea (82,097 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Labugama	175	1	ch	pek dust	120	26	
2	Do	176	2	do	red leaf	200	15	
3	Do	177	36	do	unas	3600	24	bid
4	Labugama	179	29	hf-ch	bro pek	1160	55	
5	Do	181	20	do	pekoe	800	34	bid
6	Do	183	11	do	pek sou	440	25	
7	Meddegeddera	185	13	ch	bro pek	1235	52	
8	Do	187	17	do	pekoe	1360	40	bid
9	Do	189	18	do	pek sou	1440	28	
10	Albion	191	15	do	bro pek	1650	69	bid
11	Do	193	12	do	pekoe	1200	56	
12	Acrawatte	195	1	do	bro pek	101	47	
13	S G	196	13	do	unas	1040	27	
14	Do	198	2	do	sou	160	18	
15	W in estate mark	199	19	do	bro pek	1995	46	
16	Do	201	41	do	pekoe	4100	25	bid
17	Do	203	11	do	pek sou	1045	24	
18	Do	205	4	do	fans	428	15	
19	Do	205	3	do	dust	450	22	
20	Nahakettia	207	12	do	bro pek	1200	withd'n.	
21	Do	209	17	do	pekoe No. 1	1700	withd'n.	
22	Do	211	8	do	pekoe No. 2	800	25	bid
3	Do	213	11	do	sou	990	23	
4	Do	215	2	do	bro tea	200	15	
25	Do	216	1	do	pek dust	100	25	
26	Talagalla	217	26	do	bro pek	2600	60	
27	Do	219	15	do	pekoe	1350	49	
28	Do	221	34	do	pek sou	3400	36	
29	Do	223	4	do	bro tea	456	28	
30	Do	224	2	do	dust	240	24	
31	Do	225	1	do	unas	97	31	
32	W A	226	2	do	congou	180	15	
33	P, in estate mark	227	1	do	pek sou	100		
34	V M	228	6	hf-ch	fans	300	23	
35	Great Valley	229	14	ch	bro pek	1540	55	
							23	
36	Do	231	12	do	pekoe	1200	42	
37	Do	233	20	do	pek sou	1900	30	
38	Do	235	14	hf-ch	dust	980	25	
44	Coslande	246	4	do	bro pek	400	47	
45	Do	248	9	do	pekoe	900	34	
46	Do	250	4	do	pek sou	360	24	
47	Do	252	1	do	bro mix	100	28	
48	Do	253	1	do	pek dust	100	24	
49	Do	254	2	do	bro tea	200	17	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
50	Glasgow	255	40	hf-ch	bro pek	3600	74	
51	Do	257	44	do	pekoe	4400	53	bid
52	Do	259	2	do	bro mix	200	34	
53	Do	260	2	do	dust	200	25	
54	Agra Ouvah	261	10	hf-ch	bro pek	1000	74	bid
55	Do	263	23	do	pekoe	1035	62	
56	Do	265	22	do	pek sou	995	50	
57	Do	267	9	do	do No. 2	405	32	bid
62	Ayr	277	27	hf-ch	bro pek	1350	63	
63	Do	279	42	do	pekoe	1764	41	
64	Do	281	32	do	pek sou	1376	27	
65	Do	283	4	do	congou	172	19	
66	Do	284	6	do	fans	300	23	
67	Do	285	5	do	pek dust	355	25	
68	T P	286	18	do	bro pek	1080	49	bid
69	Do	288	18	ch	pekoe	1800	36	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 13th Jan. the undermentioned lots of Tea (125,022 lb.), which sold as under :—

Lot No	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Ruanwella	47	7	hf-ch	bro pek	350	40	
2	Do	48	10	do	pekoe	450	27	
3	Do	49	3	ch	pek sou	255	22	
4	Do	50	2	hf-ch	fans	100	16	
5	C C C	51	3	ch	pek sou	270	24	
6	Do	52	4	do	pekoe	364	34	
7	Depedene	53	11	hf-ch	bro pek	550	54	
8	Do	54	23	do	pekoe	1150	37	bid
9	Do	55	23	do	pek sou	1150	28	
10	Do	56	39	do	bro sou	1950	23	bid
11	H D	57	2	do	bro mix	100	13	bid
12	Do	58	2	do	dust	160	22	
13	Hatdowa	59	2	ch	bro pek	240	46	
14	Do	60	2	do	pekoe	200	35	
15	Do	61	4	do	pek sou	360	24	
16	Do	62	4	do	bro sou	360	22	
17	Do	63	8	do	unas	800	22	
18	Hattdowa	64	2	do	bro pek	220	46	
19	Do	65	2	do	pekoe	220	34	
20	Do	66	3	do	pek sou	300	22	bid
21	Do	67	1	do	unas	110	20	
22	Do	68	4	do	bro tea	440	18	
23	Lyndhurst	69	18	do	bro pek	1988	47	
24	Do	70	29	do	pekoe	2625	33	
25	Do	71	28	do	pek sou	2667	24	
26	Do	72	7	do	dust	875	22	
27	Do	73	3	do	red leaf	270	10	
28	S S S	74	14	do	bro mix	1260	10	
29	Do	75	10	do	fans	800	13	
30	Stockholm	76	18	hf-ch	bro pek	990	65	bid
31	Do	77	22	do	pekoe	1100	50	bid
32	Do	78	15	ch	pek sou	1350	32	bid
33	Do	79	2	do	fans	280	22	
34	Narangoda	80	20	ch	pekoe	2200	38	bid
35	B A	81	2	do	pekoe	200	37	
36	P	82	9	do	bro mix	900	09	bid
37	Kuruwitte	83	8	hf-ch	bro pek	432	58	
38	Do	84	5	do	pekoe	240	36	bid
39	Do	85	23	do	pek sou	1104	31	
40	Do	86	16	do	sou	736	24	
41	Do	87	9	do	bro tea	504	25	bid
42	Do	88	3	do	congou	138	19	
43	Do	89	3	do	dust	228	24	
44	Do	90	3	do	red leaf	198	15	
45	C A, in estate mark	91	19	do	unas	1064		
46	Do	92	2	do	bro mix	112	33	bid
47	Do	93	3	do	dust	195	17	bid
48	E C	94	28	do	bro pek	1400	22	
49	Do	95	11	do	pekoe No. 1	550	49	
50	Do	96	17	do	do „ 2	850	38	
51	Do	97	15	do	pek sou	750	32	
52	Do	98	1	do	congou	40	26	bid
53	Do	99	2	do	dust	120	19	
54	G B	100	10	ch	bro tea	1000	24	
55	Do	1	19	do	dust	2945	16	bid
60	Aadneven	6	11	do	bro pek	1100	23	bid
61	Do	7	15	do	pekoe	1350	56	
62	Do	8	4	do	pek sou	360	44	
63	K M O K	9	3	do	bro tea	270	28	
64	Rosenrath	10	27	hf-ch	bro pek	1755	25	
65	Do	11	18	ch	pekoe	1890	55	
66	Do	12	12	do	pek sou	1260	38	
67	S B R	13	23	do	pek sou	2070	28	
68	G L	14	14	do	pek sou	1190	24	bid
69	Do	15	4	do	bro pek sou	390	26	
70	Chertsey	16	10	hf-ch	bro pek	500	16	bid
71	Do	17	12	do	pekoe	600	25	
72	Chertsey	18	10	hf-ch	pek sou	500	33	bid
73	Do	19	2	do	dust	130	26	
74	P K	20	14	do	bro pek	770	23	
75	Do	21	11	ch	pekoe	880	30	bid
76	W A H	22	18	do	bro pek	1800	26	
77	Do	23	22	do	pekoe	2200	42	bid
78	Do	24	13	do	pek sou No. 1	1300	28	bid
79	Do	25	6	do	do „ 2	600	24	
80	Do	26	2	do	dust	280	14	bid
81	G H	27	13	do	pekoe	1170	23	
82	Narangoda	28	12	do			20	bid
			1	hf-ch	pekoe	1370	40	
83	Do	29	20	ch	pek sou	2000	27	
84	Do	30	6	hf-ch	do	300	26	
85	Do	31	2	do	do	90	18	bid
86	Do	32	3	do	dust	210	22	
87	D H	33	15	ch	pek sou	1125	17	bid
88	Do	34	20	do	do	1500	17	bid
89	Do	35	17	do	do	1275	21	bid
90	Do	36	9	hf-ch	fans	450	24	
91	R	37	1	do	bro pek	65	36	
92	Talgaswela	38	1	ch	pek sou	90	26	
93	Abbotsford	39	19	hf-ch	bro or pek	1045	50	bid
94	Do	40	62	ch	bro pek	6510	55	bid
95	Do	41	44	do	pekoe	4400	43	bid
96	Do	42	14	do	pek sou	1400	33	bid
97	Do	43	5	do	bro mix	450	18	
98	Do	44	8	hf-ch	pek dust	480	25	
99	Killin	45	22	do	bro pek	1100	40	bid
100	Do	46	25	do	pekoe	1250	31	bid
101	Do	101	10	do	pek sou	500	23	bid
102	Do	103	3	do	dust	180	22	
103	Do	105	10	do	red leaf	500	14	
104	Eilandhu	107	6	ch	pek sou	480	15	bid
105	Do	109	1	do	unas	68	31	
106	Do	111	4	do	dust	360	21	
107	V	113	19	hf-ch	bro pek	1140	40	bid
108	V	115	1	do	do No. 2	60	out	
109	V	117	4	ch	or pek	400	out	
110	V	119	6	do	pekoe	600	23	b d
111	V	121	5	do	pek sou	500	22	bid
112	V	123	1	hf-ch	bro tea	60	out	
113	V	125	1	do	red leaf	60	out	
114	V	127	3	do	dust	200	out	
120	M K	139	21	ch	bro pek	2100	45	
121	Do	141	4	do	dust	280	21	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room, on the 13th Jan., the undermentioned lots of Tea (189,771 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	N	308	6	ch	dust	900	22	
2	N	310	6	do	unas	600	26	
3	Kattiagalla	312	14	do	bro pek	1400	40	
4	Do	314	25	do	pekoe	2500	26	
5	De	316	9	do	pek sou	900	21	
6	Do	318	2	do	dust	300	20	
7	Dewala-kande	320	7	do	bro pek	665	36	bid
8	Do	322	8	do	pekoe	680	32	
9	Do	324	1	do	pek sou	87	23	
10	Do	326	6	do	bro tea	540	15	
11	Do	328	3	do	dust	420	22	
12	T C O	330	2	do	bro pek	178	18	
13	Do	332	1	do	pek sou	113	24	
14	Do	334	2	do	sou	235	15	
15	Do	336	2	do	dust	280	24	
16	G P	338	6	ch	pekoe	618	16	
17	Pallagalla	340	21	hf-ch	bro or pek	1075	43	
18	Aveca	342	25	ch	bro pek	2750	56	
19	Do	344	34	do	pekoe	3400	38	
20	Do	346	11	do	pek sou	1100	27	
21	Langdale	348	12	ch	bro pek	1200	55	
22	Do	350	12	do	pekoe	1080	40	
23	Do	352	12	do	pek sou	960	28	
24	Uvakelle	354	25	hf-ch	bro pek	1375	52	
25	Do	356	37	do	pekoe	1850	36	
26	Do	358	2	do	congou	100	18	
27	Do	360	3	do	dust	240	22	
28	Dunedin	362	17	do	bro pek	850	22	
29	Meddetenne	364	13	ch	bro pek	1430	52	
30	Do	366	12	do	pekoe No. 1	1080	36	
31	Do	368	9	do	pek sou	810	25	bid
32	Chesterford	370	20	do	bro pek	2200	59	
33	Do	372	24	do	bro pek	2400	41	
34	Do	374	13	do	pekoe	1300	26	
35	Do	376	3	do	dust	480	13	
36	Do	378	3	do	congou	280	15	
37								

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
42	Talgaswella	390	22	ch	bro pek	2200	38	bid
43	Do	392	3	do	pekoe sou	300	25	bid
44	Do	394	1	do	sou	100	20	
45	Do	396	2	do	red leaf	200	12	
46	Yahalakelle	398	2	do	red leaf	200	13	
47	Baudara-polla	400	29	hf-ch	bro pek	1450	51	
48	Do	402	28	do	pekoe	1400	34	bid
49	Do	404	36	do	pek sou	1620	26	
50	Do	406	12	do	dust	840	22	bid
51	T, in estate mark	408	22	do	pek sou	1352	27	bid
52	M, in estate mark Ceylon	410	26	hf-ch	bro tea	1225	12	bid
53	R P	412	7	ch	bro pek	700	out	
54	Do	414	8	do	pekoe	800	22	bid
55	Do	416	5	do	pek sou	500	23	
56	B M	418	3	hf-ch	bro pek	144	33	
57	Do	420	2	do	pekoe	100	22	
58	Do	422	3	ch	unas	300	24	
59	P	424	5	do	pek dust	700	13	
60	Horagas-kelle	426	7	hf-ch	bro pek	420	41	
61	Do	428	7	do	pekoe	378	32	
62	Do	430	14	do	pek sou	791	24	
63	Do	432	1	do	congou	54	15	
64	Do	434	1	do	bro mix	73	12	
65	Weddegodde	436	2	do	bro pek	100	57	
66	Do	438	8	do	pekoe	400	23	
67	Do	440	8	do	pek sou	400	25	
68	Aigburth	442	6	ch	pekoe	600	32	bid
69	Castlereagh	444	28	hf-ch	bro or pek	1400	63	
70	Do	446	64	do	pekoe	2880	51	
71	Do	448	4	do	bro pek sou	240	22	
72	Do	450	3	do	bro pek fans	180	25	
73	Do	452	1	do	dust	80	23	
74	N	454	2	ch	bro pek	200	40	
75	N	456	4	do	pekoe	336	26	
76	Doonevale	458	16	do	bro pek	1600	44	
77	Do	460	49	do	pekoe	4410	25	bid
78	Do	462	11	do	fans	1210	21	bid
79	Do	464	2	do	bro tea	210	14	
80	Do	466	4	do	dust	600	21	
81	Yoxford	468	1	do	bro mix	162	23	
82	Do	470	2	do	congou	200	23	
83	Do	472	10	do	dust	800	24	
84	Yataderia	474	12	ch	bro pek	1320	51	
85	Do	476	36	do	pekoe	3600	25	bid
86	Do	478	45	do	pek sou	4050	24	bid
87	Do	480	6	do	bro tea	540	14	
88	Do	482	13	do	bro pek	1430	50	
89	Do	484	37	do	pekoe	3700	30	bid
90	Do	486	28	do	pek sou	2520	35	bid
91	Wewesse	488	26	hf-ch	bro pek	1300	53	bid
95	Macaldeniya	496	8	do	pek sou	840	27	bid
96	Do	498	1	do	sou	100	23	
97	Hatherleigh	500	8	do	congou	720	14	
99	Do	504	12	hf-ch	dust	160	24	
100	Bambrakelly and Deil	506	3	ch	dust	446	25	
101	Do	508	4	do	red leaf	533	10	
102	Angroowell	510	10	hf-ch	bro pek	500	47	bid
103	Do	512	60	do	pekoe	3000	39	
104	Palamcotta	514	74	do	bro pek	3700	50	
105	Do	516	22	do	pekoe	1100	39	
106	Wavendon	518	18	do	bro pek	900	43	bid
107	Do	520	35	do	pekoe	1760	30	bid
108	Ancoombra	522	39	ch	bro pek	4024	53	
109	Do	524	28	do	pekoe	2977	35	bid
110	Do	526	41	do	pek sou	4098	29	
111	Do	528	23	do	sou	2104	24	
112	Dunkeld	530	23	do	bro pek	2940	66	
113	Do	532	68	hf-ch	or pek	3400	57	
114	Do	534	23	do	pekoe	2070	43	
115	D K D	536	14	ch	dust	1820	21	
116	Clarendon	538	24	hf-ch	bro pek	1560	58	bid
117	Do	540	34	do	pekoe	2970	47	
118	Do	542	32	ch	pekoe	3200	44	
121	Beverley	548	2	hf-ch	sou	100	14	
122	Do	550	1	do	congou	50	14	
123	Do	552	4	do	pek dust	300	22	
124	Do	554	7	do	dust	525	22	
125	Weoya	556	41	do	bro pek	2460	59	
126	Do	558	46	do	pekoe	2300	43	
127	Do	560	29	do	pek sou	1150	29	
128	Do	562	25	do	sou	1375	21	
129	Do	564	8	do	pek dust	193	22	
130	Do	566	30	do	pekoe	1500	48	
131	Do	568	4	do	pek sou	200	25	
132	Do	570	5	do	bro tea	325	23	
133	B E R	572	6	ch	bro pek	340	39	
134	Do	574	7	do	pekoe	560	25	bid
135	B E R	576	18	hf-ch	pek sou	1620	20	
136	Do	578	2	do	dust	280	22	
137	Lankapura, W	580	12	ch	bro pek	1200	65	bid
138	Do	582	29	do	pek	2755	45	bid
139	Do	584	21	do	pek sou	1890	35	
140	Do	586	2	hf-ch	pek dust	154	23	
141	Do	588	3	do	pek fans	189	24	
142	M	590	14	do	unas	1254	24	bid
143	Do	592	1	do	dust	125	23	
144	K	594	2	ch	pek sou	200	25	
145	Do	596	1	do	dust	160	18	
146	Queensland	598	29	hf-ch	flowery pek	2900	74	
147	Do	600	23	ch	pekoe	2185	51	
148	Do	602	3	do	pek fans	390	22	
149	C	604	7	do	bro pek	700	43	bid
150	Do	606	8	do	pek	720	32	
151	Do	608	5	do	pek sou	500	26	
152	Do	610	1	do	pekoe fans	100	21	
153	Do	612	2	do	bro mix	200	10	
154	T B	614	2	hf-ch	dust	300	20	
155	Do	616	2	ch	bro mix	260	11	bid
156	B W	618	3	do	bro mix	285	15	
157	Polata-gama	620	31	hf-ch	bro pekoe	1860	58	
158	Do	622	55	do	pek	2750	47	
159	Do	624	56	do	pek sou	2800	34	
160	Abamalla	626	4	do	bro mix	260	17	
161	Do	628	8	hf-ch	dust	582	22	
163	B G, in estate mark	632	7	do	pek sou	700	20	
164	Do	634	6	do	dust	840	20	
165	Do	636	9	do	fans	10	22	
172	Langdale	650	15	ch	bro pek	1875	55	
173	Do	652	19	do	pekoe	2090	39	
174	Do	654	6	do	pek sou	570	30	
175	Dunkeld	656	21	do	bro pek	2310	54	bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 20th Jan., the undermentioned lots of Tea (41,297 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Bogahagoda-watte	1	5	hf-ch	bro pek	355	42	
2	Do	3	7	do	pekoe	455	25	bid
3	Do	5	26	do	pek sou	1560	16	bid
4	Do	7	3	do	bro mix	180	13	
5	Do	8	2	do	pek fans	140	20	
6	Do	9	6	do	fans	420	10	
7	Do	10	1	do	dust	75	21	
8	K D F	11	25	ch	bro pek	2500	42	bid
9	Do	13	23	do	pekoe	2300	28	bid
10	Do	15	33	do	pek sou	3300	20	bid
11	Do	17	1	do	red leaf	100	08	bid
12	Do	18	4	do	dust	400	21	
13	P G	19	10	hf-ch	dust	800	20	
14	Do	20	5	do	congou	425	out	
26	W	33	2	ch	bro pek	200	32	bid
27	W	34	22	do	pekoe	1980	24	
28	W	36	5	do	pek sou	400	18	bid
29	W	37	2	do	dust	240	20	
30	W	38	2	do	congou	150	out	
31	Torrington	39	13	do	bro pek	1413	57	
32	Do	41	26	do	pekoe	2600	40	
33	Do	43	4	do	pek sou	400	23	
34	Do	44	12	hf-ch	dust	960	21	bid
35	B U S	45	2	ch	congou	200	15	
36	Agrapya	46	7	box	or pek	75	51	
37	Do	48	6	ch				
			1	hf-ch	do	663	47	
38	Do	50	4	ch	bro pek	400	48	
39	Do	51	5	do	pekoe	459	31	
40	Do	52	8	do	pek sou	760	29	bid
41	Do	54	2	do	dust	130	22	
42	Do	55	1	hf-ch	bro mix	58	68	
43	Ettapolla	56	13	do	bro pek	650	43	
44	Do	58	24	do	pek sou	1200	25	
45	Preston	60	16	ch	bro pek	1752	76	
46	Do	62	16	do	pekoe	1600	54	
47	Do	64	6	do	pek sou	600	32	bid
48	Do	66	2	do	dust	160	24	bid
49	Naha'ma	67	48	do	pekoe	4800	34	bid
50	Do	69	10	do	pek sou	1000	26	bid
51	Do	71	2	do	dust	150	21	bid
52	K	72	12	hf-ch	dust	840	21	bid
53	B P T	74	6	ch				
			1	box	unas	591	35	bid
54	C, in estate mark	76	4	hf-ch	pekoe	200	21	

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COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 20th Jan., the undermentioned lots of Tea (79,201 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	P T E	301	1	ch	dust	108	21	
2	Do	302	1	do	fans	90	19	bid
3	N	303	4	do	bro mix	400	out	
4	M R	304	1	do	dust	114	21	
5	Do	305	1	do	fans	88	18	bid
6	Kandenewera	306	29	do	bro pek	2900	56	bid
7	Do	308	51	do	pekoe	5100	35	bid
8	Do	310	26	do	pek sou	2600	26	
9	Templestowe	312	29	do	or pek	2900	57	bid
10	Do	314	17	do	pekoe	1428		
11	Do	316	22	do	pek sou	1980		
12	Do	318	6	do	bro mix	600	withd'n.	
13	Do	320	4	do	dust	560		
14	Hattangalla	321	13	do	bro pek	1300	44	bid
15	Do	323	13	do	pekoe	1170	30	bid
16	Do	325	6	do	pek sou	540	23	
17	Troup	327	38	hf-ch	bro pek	1930	71	
18	Do	329	28	ch	pekoe	2800	45	
19	Do	331	1	do	congou	100	18	
20	Stamford Hill	332	12	do	bro mix	1344	20	bid
21	Verelepatna	334	1	do	pek sou	99	20	
22	Anchor, in estate mark	335	9	do	bro pek	1035	60	bid
23	Do	337	16	do	pekoe	1600	41	bid
24	Do	339	8	do	pek sou	800	26	bid
25	Do	341	4	do	bro mix	560	26	
26	Do	342	5	hf-ch	dust	375	24	
27	Do	343	3	ch	bro tea	315	11	
28	Galkandewatte	344	29	do	bro pek	2900	55	
29	Do	346	40	do	pekoe	3600	39	
30	Do	348	12	do	pek sou	1080	28	
31	Tientsin	350	15	hf-ch	bro pek	900	84	
32	Do	11	20	ch	pekoe	2000	51	
33	Do	13	10	do	pek sou	1000	37	
34	Do	15	3	hf-ch	dust	240	23	
35	Do	16	1	ch	sou	100	19	
36	G K W	17	8	do	bro tea	720	27	
37	Madoolteune	19	20	do	bro pek	2100	48	
38	Do	21	9	do	pekoe	900	33	
39	Do	23	16	do	pek sou	1600	24	bid
40	Do	25	11	do	congou	990	15	bid
41	Lawrence	27	5	ch	sou	600	14	
42	Do	29	1	hf-ch	sou	55	14	
43	Airy Hill	30	4	do	unas	200	19	bid
44	Orange Field A N C	31	3	ch				
			1	hf-ch	bro pek	360	34	bid
45	Do	33	12	ch	pekoe	1200	19	bid
46	Do	35	6	do	sou	600	18	
47	Do	37	5	do	bro mix	475	11	bid
48	Do	39	1	hf-ch	dust	60	20	
49	Orange Field P N R	40	3	ch				
			1	hf-ch	bro pek	350	39	bid
50	Do	42	16	ch				
			1	hf-ch	pekoe	1675	32	bid
51	Do	44	5	ch	sou	570	16	bid
52	Do	46	5	do	bro mix	500	11	
53	Do	48	2	do				
			1	hf-ch	bro or pek	269	80	
54	Do	49	1	ch				
			1	hf-ch	dust	203	21	
55	L	50	13	ch	bro pek	1560	29	
56	L	52	26	do	sou	2080	20	bid
57	L	54	5	do	dust	800	13	
58	L	55	2	do	red leaf	134	10	
59	Loonagalla	56	2	hf-ch	bro mix	120	18	
60	Bowhill	57	2	ch	bro pek	260	54	
61	Do	58	3	do	pekoe	342	40	
62	Do	59	8	do	pek sou	880	26	
63	Do	61	2	do	sou	220	22	bid
64	Wewelmadde	62	3	hf-ch	dust	270	19	
65	Do	63	1	ch	red leaf	83	09	
66	Albion	64	25	do	bro pek	2750	70	
67	Do	66	23	do	pekoe	2300	54	
68	Do	68	18	do	pek sou	1800	36	
69	Do	70	2	do	sou	210	26	
70	Do	71	4	hf-ch	dust	360	24	
71	Do	72	3	do	pek fan	210	35	
72	R D	73	4	ch				
			1	hf-ch	dust	626	09	bid
73	Labugama, invoice No. 12	74	36	ch	unas	3600	19	bid
47	Labugama, invoice No. 13	76	20	hf-ch	pekoe	800	25	bi
75	T P	78	18	ch	pekoe	1800	37	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 20th Jan., the undermentioned lots of Tea (64,585 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Wawatenne	1	3	hf-ch	bro pek	150	43	
2	Do	2	3	do	pekoe	96	25	
3	Mousagalla	3	2	do	sou	96	22	
4	Do	4	2	do	red leaf	92	13	
5	Do	5	1	do	dust	75	21	
6	Kuruwitte	6	5	do	pek e	240	36	
7	C A, in estate mark	7	19	do	unas	1064	31	bid
8	Do	8	2	do	bro mix	112	17	
9	Monaragalla	9	10	do	bro pek	500	41	
10	Do	10	8	do	pekoe	360	31	
11	Do	11	11	do	pek sou	495	25	
12	Do	12	6	do	sou	270	18	
13	Do	13	1	do	dust	70	20	
14	Hatdowa	14	3	ch	pek sou	300	22	
15	H H, in estate mark	15	9	do	bro pek	990	43	
16	Do	16	7	do	pekoe	700	32	
17	Do	17	15	do	pek sou	1410	26	
18	H S, in estate mark	18	8	do	bro or pek	800	47	
19	Do	19	2	do	bro pek	200	45	
20	Do	20	16	do	pekoe	1440	27	bid
21	Do	21	6	do	pek sou	510	24	
22	Do	22	3	do	sou	255	17	
23	Do	23	2	do	dust	300	20	
24	Do	24	2	do	bro mix	250	10	
25	Coneygar	25	4	do	bro pek	220	54	
26	Do	26	2	do	pekoe	180	35	bid
27	Do	27	1	do	pek sou	95	27	
28	Arslena	28	59	hf-ch	bro pek	2950	53	
29	Do	29	32	do	pekoe	1600	34	
30	Do	30	14	do	pek sou	700	29	
31	Do	31	4	do	unas	200	30	bid
32	Do	32	5	do	dust	250	21	
33	Stockholm	33	22	do	pekoe	1100	53	
34	Do	34	15	ch	pek sou	1350	29	bid
35	P G, in estate mark	35	24	do	bro or pek	2400	45	
36	Do	36	6	do	bro pek	600	44	
37	Do	37	48	do	pekoe	4320	27	bid
38	Do	38	20	do	pek sou	1700	24	
39	Do	39	10	do	sou	850	16	
40	Do	40	4	do	bro mix	520	11	bid
41	Do	41	4	do	dust	600	20	
42	Eilandhu	42	20	do	bro pek	1600	47	bid
43	Do	43	34	do	pekoe	2700	36	bid
44	U B	44	12	do	bro pek sou	1140	22	
45	Do	45	4	do	bro mix	420	13	bid

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
57	Narangoda	57	20 ch	pekoe	2200	36	bid
58	Ovoca	58	4 do	bro mix	504	23	
59	Do	59	4 do	dust	320	22	
60	Do	60	1 do	bro tea	127	08	bid
61	S B R	61	14 do	bro pek	1260	39	
62	Do	62	16 do	pekoe	1280	28	bid
63	Do	63	23 do	pek sou	2070	23	
64	H J S	64	3 hf-ch	bro pek	150	54	
65	Do	65	5 do	pekoe	250	36	
66	Do	66	16 do	pek sou	800	27	
67	Do	67	1 ch	sou	100	18	
68	Do	68	1 do	congou	90	16	
69	Do	69	1 hf-ch	red leaf	50	10	
70	Do	70	1 do	dust	60	20	
71	G W	71	4 ch	bro mix	380	13	
72	S B R	72	16 do	bro pek	1440	39	
73	Do	73	19 do	pekoe	1520	28	bid
74	Do	74	29 do	pek sou	2610	24	
75	Forest Hill	75	8 do	bro pek	896	53	
76	Do	76	14 do	pekoe	1400	34	
77	Do	77	1 do	dust	130	21	
78	W A H	78	1 do	dust	140	19	
79	X, in estate mark	79	2 hf-ch	bro pek	74	33	
80	Do	80	3 do	bro mix	156	10	
81	Do	81	1 do	dust	57	21	
82	D Y	82	1 ch				
			1 hf-ch	bro pek	112	35	
83	Do	83	3 do	pekoe	175		out
84	M D	84	2 ch	bro tea	190	10	bid
85	S B R	85	23 do	pek sou	2070	23	bid
86	T	86	14 hf-ch	bro pek	700		out
87	T	87	11 ch				
			1 hf-ch	pekoe	1205		out
88	T, in estate mark	88	5 ch	unas	500	22	
89	Do	89	4 do	dust	560	21	
90	Do	90	3 do	fans	330	21	
91	Do	91	1 do	congou	100	14	
92	Do	92	1 hf-ch	mixed	55	15	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 20th Jan., the undermentioned lots of Tea (185,361 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	Ismalle	658	3 hf-ch	bro mix	156	14	
2	Do	660	5 do	dust	420	20	
3	M K	662	11 do	red leaf	495	8	
4	S C	664	1 do	bro pek	60	47	
5	Do	666	1 ch	pekoe	90	30	
6	Do	668	1 do	pek sou	90	17	
7	Portmore	670	3 hf-ch	fans	150	18	bid
8	Glendon	672	1 do	red leaf	46	08	
9	Court Lodge	674	20 do	bro pek	1160	76	bid
10	Palmerston	676	19 do	bro pek	1045	63	
11	Do	678	20 ch	pekoe	2000	52	
12	Do	680	13 do	pek sou	1300	33	
13	Bismarck	682	19 do	bro pek	2030	55	
14	Do	684	27 do	pekoe	2420	39	
15	Do	686	15 do	do No. 2	1650	35	
16	Do	688	25 do	pek sou	2210	30	
17	Do	690	10 do	do No. 2	1000	24	
18	Do	692	4 do	dust	480	21	
19	Do	694	3 bag	red leaf	150	08	
20	Harangalla	696	24 ch	bro pek	2400	48	
21	Do	698	11 do	pekoe	990	44	
22	Do	700	13 do	pek sou	1040	27	
23	Ouvah-kellie	702	12 do	bro pek	1320	72	bid
24	Do	704	14 do	pekoe	1330	52	bid
25	Gallawatte	706	20 hf-ch	bro pek	1000	44	bid
26	Do	708	14 do	pekoe	700	26	bid
27	Do	710	1 do	sou sou	50	16	
28	G L W	712	2 do	red leaf	100	08	bid
29	Midlothian	714	16 do	bro pek	960	50	
30	Do	716	16 do	do	960	48	
31	Do	718	19 ch	pekoe	1900	29	
32	Do	720	3 hf-ch	congou	180	17	
33	Do	722	1 ch	dust	120	21	
34	Do	724	2 hf-ch	red leaf	100	9	
35	Ellengowan	726	10 ch	bro pek	1000	43	
36	Do	728	10 do	do	1000	43	
37	Do	730	10 do	pekoe	950	24	
38	Do	732	1 hf-ch	sou	55	16	
39	Do	734	2 do	bro tea	110	11	
40	Gikiyana-kande	736	2 ch	bro mix	180	10	
41	Do	738	1 do	dust	132	18	
42	L, in estate mark	740	1 hf-ch	bro pek	38	27	39
43	Do	742	1 do	pekoe	31	25	
44	Do	744	1 do	do	71		
45	Do	746	1 do	do	72	25	
46	Claremont	748	26 ch	bro pek	2643	47	
47	Do	750	16 do	pekoe	1440	29	
48	Do	752	1 hf-ch	bro tea	30	10	
49	Do	754	2 do	dust	128	21	
55	Hunugalla	766	6 ch	bro pek	630	45	
56	Do	768	23 do	pekoe	2300	19	bid
57	Do	770	2 do	pek sou	190	13	
58	Do	772	1 do	dust	150	20	
61	Winestave mark	784	1 box	unas	28	15	
65	Kelaneiya	786	53 ch	bro pek	4505	56	
66	Do	788	47 do	pekoe	4700	39	
67	Do	790	3 do	dust	345	20	
68	Do	792	2 do	congou	200	18	
69	Llandaff	794	25 do	pekoe	2500	28	
70	Do	796	73 do	pek sou	6570	24	bid
71	Mousakanda	798	7 do	bro pek	784	57	
72	Do	800	14 do	pekoe	1400	37	
73	Do	2	1 do	dust	130	20	
74	Atherfield	4	11 hf-ch	sou	550	22	
75	Do	6	5 do	dust	400	19	
76	Do	8	1 do	bro mix	50	10	
77	Rambodde	10	3 ch	congou	300	24	
78	Do	12	2 hf-ch	dust	150	21	
79	Farnham	14	10 box	bro or pek No. 1	200	55	bid
80	Do	16	42 hf-ch	bro or pek	1875	60	
81	Do	18	57 do	pekoe	2565	42	
82	Do	20	72 do	pek sou	3240	27	
83	Do	22	2 do	bro tea	90	13	
84	Do	24	7 do	fans	382	23	
85	Do	26	2 do	dust	130	19	
89	Dunkeld	34	31 ch	pekoe	2790	43	
90	D K D	36	9 do	dust	1260	21	
94	Fred's Rube	44	10 do	bro pek	500	46	
95	Do	46	10 ch				
			1 hf-ch	pekoe	1063	28	
96	Do	48	14 ch				
			2 hf-ch	pek sou	1496	24	
97	W A	50	4 ch				
			1 hf-ch	bro tea	500	24	
98	Do	52	2 ch				
			1 hf-ch	bro mix	291	14	bid
99	Do	54	1 do	congou	60	10	
100	Do	56	4 ch	fans	372	17	
101	Do	58	1 hf-ch	dust	84	19	
102	Tonacombe	60	22 do	bro pek	1100	54	
103	Do	62	28 do	pekoe	1400	36	
104	Do	64	27 do	pek sou	1350	27	
105	Do	66	8 do	sou	400	25	
106	Do	68	2 do	dust	140	20	
107	Do	70	2 do	pek fans	120	28	
108	S, in estate mark	72	32 ch	bro tea	3840	08	bid
109	Hatther-leigh	74	19 do	sou	1520	20	bid
110	Do	76	26 do	congou	2340	10	bid
113	East Holy-rood	82	3 ch	pek sou	240	20	
114	Do	84	2 hf-ch	bro mix	297	13	
116	Morland	88	4 do	bro tea	450	10	
117	V O	90	7 do	bro tea	770	10	
118	Do	92	1 do	dust	140	19	
119	Kolaienia	94	3 do	red leaf	351	8	
120	Hangranoya	96	1 do	pek sou	93	19	
125	Ederapolla	106	1 do	sou	80	13	
126	E D P	108	2 do	pek fans	180	9	
127	Ambla-kande	110	9 ch	bro or pek	990	46	
128	Do	112	13 do	pekoe	1170	34	
129	Do	114	4 do	pek sou	360	23	
130	C A, in estate mark	116	7 do	pekoe	626	27	bid
131	Craighead	118	13 do	bro pek	1300	53	
132	Do	120	23 do	pekoe	2070	33	bid
133	Do	122	10 do	pek sou	950	24	
134	Do	124	1 do	fans	150	17	
135	Volley Field	126	7 do	unas	595	20	
136	Do	128	3 hf-ch	do	150	20	
137	Do	133	1 do	fans	50	18	
138	B	123	4 ch	bro pek	400	32	bid
139	Do	134	15 do	bro pek sou	1425	25	
140	Do	136	14 do	bro mix	1400	18	
141	Claredon	138	32 do	pek	3200	41	bid
142	Shrubs Hill	140	42 do	bro pek	4300	53	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
143	Do	142	64	do	pekoe	5355	35
144	Do	144	40	do	pek sou	3800	27
147	T, in estate mark	150	24	do	bro or pek	2680	37
148	Do	152	1	do	dust	170	18
153	H & H	162	4	ch	bro mix	360	23
154	L B K	164	7	do	red leaf	700	10
155	Alnoor	166	1	box	Golden Tips (Grossweight)	10	80 bid
161	M C	178	17	ch	bro pek	1700	33
162	Do	180	9	do	pekoe	819	20
163	Do	182	13	do	pek sou	1183	17
164	Do	184	5	do	bro tea	560	19
165	Do	186	6	do	congou	564	cut
166	Do	188	26	do	unas	2080	4 bid
167	Do	190	4	do	dust	448	18
168	C H	192	27	do	dust	2160	18 bid
169	Do	194	10	do	red leaf	918	10
170	G M	196	4 1	do hf-ch	dust	675	11
171	Putupaula	198	1	ch	dust	155	19
172	Do	200	1	do	bro mix	102	11
173	G C S	202	19	do	bro tea	1691	18
174	P D M	204	2	hf-ch	dust	142	20
175	Do	206	1	ch	con (H)	84	23
176	Do	208	3	do	pek sou (H)	285	37
181	Doonevale	281	11	do	fans	1210	out
182	Do	220	28	hf-ch	pekoe	1400	29 bid
183	Do	222	12	do	dust	840	20 bid
184	P, in estate mark	324	8	ch	bro pek	800	39 bid
185	Do	226	25	do	pek	2400	24
186	Do	228	1	do	sou	100	out
187	Do	230	1	do	bro mix	100	7
188	Do	232	1	do	dust	150	19

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 27th Jan., the undermentioned lots of Tea (38,090 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	A G C	1	11	hf-ch	dust	770	15
2	Do	2	7	do	congou	630	12
3	Do	3	3	ch	bro tea	240	08 bid
4	X X X	4	4	do	bro pek No. 1	420	30
5	Do	5	6	do	do „ 2	630	
6	Do	7	5	hf-ch	bro pek	250	22 bid
7	Do	9	4	ch	pekoe No. 1	400	20
8	Do	10	2	do	do „ 2	200	20
9	Do	11	3	do	pekoe	250	18
10	Do	12	3	do	pek sou	300	15
11	Do	13	2	hf-ch	dust	140	15
12	Bogahagoda-watte	14	2	do	bro pek	124	35
13	Do	15	9	do	pekoe	585	21
14	Do	17	32	do	pek sou	1920	15 bid
15	Do	19	1	do	pek fans	70	11
16	Do	20	3	do	fans	210	13
17	Do	21	1	do	dust	65	16
18	R B	22	23	ch	pekoe	2300	25 bid
19	Do	24	33	do	pek sou	3300	20 bid
20	Do	26	1	do	red leaf	100	08 bid
21	Elston	27	2	do	dust	260	16 bid
22	Do	28	2	do	bro mix	200	15
23	Do	29	2	do	congou	200	08 bid
24	Preston	30	21	do	bro or pek	2310	76
25	Do	32	21	do	pekoe	2100	56
26	Do	34	6	do	pek sou	600	37
27	Do	36	2	do	dust	180	32 bid
28	A O	37	8	do	pek sou	760	23 bid
29	Preston	39	6	do	pek sou	600	30 bid
30	Nahalma	41	48	do	pekoe	4800	33
36	Norton	51	12	hf-ch	pekoe	600	30 bid
37	Patulpana	53	4	do	bro pek	350	35 bid
38	Do	54	1 1	ch hf-ch	pekoe	153	out
39	Do	55	3	do	pek sou	270	22 bid
40	Do	56	4	do	sou	350	20
41	Do	57	2	do	congou No. 1	135	12 bid
42	Do	58	1	do	do „ 2	45	12 bid
43	Do	59	1	ch	red leaf	100	08 bid
44	Knuts-ford	60	4	hf-ch	pekoe	173	25 bid
45	Do	61	1	do	fans	60	17
46	P B	62	3	ch	dust	450	15
47	Do	63	1	do	red leaf	90	out
48	Comillah	64	10	hf-ch	bro pek	550	35 bid
49	Do	66	8	do	pekoe	400	27
50	Do	68	5	do	pek sou	250	20
51	Do	70	1	do	dust	80	18

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 27th Jan., the undermentioned lots of Tea (189,576 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	S, in estate mark	234	10	ch	bro tea	1200	12
5	Wewagoda	242	9	h-ch	bro pek	540	39
6	Do	244	12	do	pekoe	800	27
7	Do	246	8 2	ch hf-ch	pek sou	900	21
8	Do	248	3	do	fans	225	20
9	Do	250	1	ch	dust	100	19
10	M T	252	23	do	bro pek	2300	29
11	Kirimettia	254	22	hf-ch	bro pek	1100	41
12	Do	256	32	do	pekoe	1576	28
13	Do	258	5	do	pek sou	248	19
14	Do	260	3 4	ch hf-ch	dust	525	19
15	Halpatenne	262	16	ch	bro pek	1620	40
16	Do	264	11	do	pekoe	1074	27
17	Do	266	19	do	pek sou	1735	22
18	Kattiagalla	268	2	do	dust	220	17
19	Do	270	1	do	pek sou	70	14
20	Rondura	272	7	do	pek sou	700	21
21	Do	274	3	do	bro tea	270	10
22	Do	276	3	do	dust	480	18
23	Farm	278	18	ch	bro pek	1800	54
24	Do	280	26	do	pekoe	1950	40
25	Do	282	26	do	pek sou	2080	28
26	Do	284	2	do	sou	160	20
27	Do	286	3	hf-ch	dust	192	18
28	Do	288	1	ch	red leaf	86	10
29	Harrington	290	5	do	bro or pek	575	47
30	Do	292	28	do	or pek	2800	70
31	Do	294	21	do	pekoe	2100	49
32	Do	296	22	do	pek sou	1760	34
33	St. Helier's	298	34	hf-ch	bro or pek	1700	56
34	Do	300	19	ch	pekoe	1900	40
35	Do	302	13	do	pek sou	1300	28
41	Kelvin	314	1	ch	congou	90	15
42	K G	316	21	do	bro pek	2100	39
43	Do	318	8	do	pekoe	720	28
44	Do	320	9	do	pek sou	810	23
45	Pantiya	322	1	do	dust	112	20
46	W T	324	13	hf-ch	bro pek	650	43
47	Do	326	21	do	pekoe	1050	27 bid
48	S, in estate mark	328	9	ch	bro pek	990	23 bid
49	Do	330	4	do	pekoe	400	23 bid
50	Do	332	9	do	dust	1440	16 bid
51	Do	334	12	do	bro tea	1440	out
52	Nahaveena	336	47	hf-ch	bro pek	2350	52
53	Do	338	22	do	pekoe	1100	39
54	Do	340	32	do	pek sou	1600	30
55	Do	342	1	do	dust	84	20
56	H E P	344	8	hf-ch	bro pek	520	57
57	Do	346	5	do	pekoe	300	38
58	Do	348	3	do	pek sou	180	26
59	Mahatenne	350	5	hf-ch	or pek	310	47
60	Do	352	9	do	pekoe	540	30
61	Columbia	354	22	do	bro pek	1320	60
62	Do	356	19	do	pekoe	950	47
63	Do	358	2	do	pek sou	120	30
64	Do	360	1	do	pek dust	70	20
65	St. Catherine	362	9	do	bro pek	810	41
66	Do	364	10	do	pekoe	850	26 bid
67	Do	366	7	do	pek sou	560	23
98	Do	368	3	do	pek fan	300	21
69	Bandaapolla	370	17	hf-ch	bro pek	850	out
70	Do	372	19	do	pekoe	950	25 bid
71	Do	374	15	do	pek sou	675	23
72	Do	376	3	do	sou	135	14
73	Do	378	4	do	dust	280	18
74	Havilland	380	43	do	bro pek	2365	54 bid
75	Do	382	33	do	pekoe	1650	44 bid
76	Do	384	40	do	pek sou	1800	31
77	B	386	1	ch	pekoe	96	23
78	Mukeloya	388	15	hf-ch	bro pek	975	48
79	Do	390	10	do	pekoe	600	33 bid
80	Do	392	6	do	pek sou	360	24
81	Do	394	1	do	dust	80	18
82	S S S	396	10	ch	fans	800	13
83	Waltrim	398	2	do	dust	280	22
84	Ederapolla	400	1	do	sou	80	18
85	Middleton	402	38	hf-ch	bro pek	2280	70
86	Do	404	12	ch	pekoe	1200	50 bid
87	Farnham	406	10	box	bro or pek No. 1	200	55
88	Theberton	408	26	ch	bro pek	2600	36
89	Do	410	19	do	pekoe	1900	27
90	Do	412	9	do	pek sou	900	22

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
91	Yataderia	414	11	do	bro pek	1210	50	
92	Do	416	32	do	pekoe	3200	30	
93	Do	418	30	do	pek sou	2790	24	
94	Do	420	10	do	bro tea	900	16	
95	Do	422	9	do	bro pek	990	46	
96	Do	424	45	do	pekoe	4500	29	
97	Do	426	51	do	pek sou	4590	24	
98	Do	428	6	do				
			1	hf-ch	bro tea	602	16	
99	Castlereagh	430	30	do	bro or pek	1500	70	
100	Do	432	23	do	pekoe	1035	51	
101	Do	434	37	do	pekoe	1665		
102	C S K, Ceylon in estate mark	436	3	ch	dust	450	22	
103	Do	438	1	do	congou	100	18	
104	A	440	1	hf-ch	bro pek	45	36	
105	I	442	1	do	bro pek	54	49	
106	Horagoda	444	9	ch	bro pek	855	44	bid
107	Do	446	20	do	pekoe	1900	29	bid
108	Do	448	9	do	pek sou	855	21	
109	Do	450	1	do	red leaf	95	07	
110	Do	452	2	do	dust	274	19	
111	Easdale	454	2	ch	dust	240	19	
112	Do	456	2	do	red leaf	180	10	
113	M C	458	60		congou	564	out	
114	R H	460	44	do	red leaf	3740	out	
115	Do	462	16	hf-ch	dust	1120	16	bid
116	H F	464	9	ch	red leaf	750	out	
117	Do	466	7	hf-ch	dust	490	13	bid
118	Rothschild	468	1	ch	bro tea	135	15	
119	S S S	470	7	do	congou	776	15	
120	Do	472	11	do	red leaf	1488	8	
121	I G	474	1	do	red leaf	80	8	
122	Dromoland	476	5	hf-ch	red leaf	132	7	
123	Dambagastalawa	478	4	ch	red leaf	400	12	
124	Walahanduwa	480	5	do	bro pek	500	52	
125	Do	482	7	do	pekoe	665	40	
126	Do	484	6	do	pek sou	600	28	
127	S P A	486	6	do	unas	660	24	bid
128	Do	488	2	do	red leaf	200	15	
129	Do	490	1	do	bro mix	100	15	
130	Do	492	1	do	dust	90	17	
131	S P V	494	2	do	bro pek	220	42	
132	Do	496	1	do	pekoe	95	24	
133	Do	498	2	do	pek sou	230	20	bid
134	Do	500	3	do	unas	315	22	
135	Galdola	502	4	do	unas	420	24	
136	Do	504	2	hf-ch	red leaf	110	10	
137	Palmerston	506	17	do	bro pek	935	63	
138	Do	508	17	ch	pekoe	1700	47	
139	Do	510	11	do	pek sou	1100	34	
140	Aigburth	512	31	do	bro pek	2945	49	
141	Do	514	19	do	pekoe	1710	33	
142	Do	516	15	do	pek sou	1350	24	
143	Do	518	2	do	dust	250	19	
144	Wewesse	520	62	hf-ch	bro pek	3100	49	bid
145	Do	522	32	do	pekoe	1600	42	bid
146	Do	524	38	do	pek sou	1900	30	bid
147	Do	526	1	do	sou	50	21	
148	Do	528	3	do	dust	240	20	
154	B G, in estate mark	540	7	ch	pek fans	910	18	bid
155	St. Helen	542	11	do	pek fans	1100	21	
156	Do	544	2	do	red leaf	190	10	
157	D A	546	4	hf-ch	sou	200	14	
158	Do	548	5	do	dust	350	17	
159	U R	550	1	ch	red leaf	70	08	
160	Do	552	1	do				
			2	hf-ch	bro tea	260	08	
161	N	554	4	ch	dust	600	23	
162	Beausejour	556	9	do	bro pek	900	40	bid
163	Do	558	12	do	pekoe	1080	26	
164	Doonevale	560	6	do	bro pek	600	39	bid
165	Do	562	23	do	pekoe	2070	23	bid
166	D K D	564	14	do	dust	1820	22	
167	Talgaswela	566	59	do	bro pek	5900	39	
168	Do	568	5	do	pek sou	445	26	
169	Do	570	1	do	dust	140	17	
170	Do	572	1	do	sou	100	14	
171	Nugegalla	574	17	hf-ch	pekoe	850	38	
175	M, in estate mark	582	4	hf-ch	dust	380	19	
184	Eadella	600	3	ch	sou	240	16	
185	Do	602	1	do	dust	150	15	
186	Do	604	1	do	red leaf	90	07	
189	Hakurugalla	610	13	do	bro pek	1322	49	
190	Do	612	8	do	pekoe	746	33	
191	Do	614	26	do	pek sou	1840	25	
192	Do	616	2	do	dust	300	17	
193	Do	618	6	do	bro tea	542	12	
198	Bismark	628	9	ch	bro pek	990	43	
199	Do	630	8	do	pekoe	720	30	bid
200	Do	632	7	do	pekoe No. 2	770	24	bid
201	Do	634	11	do	pek sou	990	26	
202	Do	636	6	do	pek sou No. 2	540	22	
203	W F G, in estate mark	638	28	do	sou	2800	14	
204	A D	640	14	do	bro tea	1130	12	
205	K, in estate mark	642	3	hf ch	dust	180	10	
206	Do	644	2	do	bro tea	100	17	
207	Silver Valley	646	2	hf-ch	bro pek	78	44	
208	Do	648	9	do	pekoe	414	24	
209	Do	650	1	do	dust	60	16	
210	Do	652	2	do	red leaf	112	10	
211	Do	654	1	do	mix	52	08	
212	Do	656	1	do	congou	44	10	
213	T, in estate mark	658	11	ch	dust	1650	12	bid
214	Deaculla	660	10	hf-ch	or pek	600	55	bid
215	Do	662	6	do	do	360	57	
216	Do	664	5	do	do	300	54	bid
217	Do	666	14	ch	pekoe	1400	44	
218	Do	668	10	do	do	1000	41	
219	Do	670	11	do	do	1100	41	
220	Do	672	1	hf-ch	dust	70		
221	Do	674	1	do	do	70	19	
222	Do	676	1	do	do	70		
223	Do	678	1	ch	congou	100	16	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, December 18th, 1891.

Mark and prices of CEYLON COFFEE sold in Mincing Lane up to 18th Dec :—

Ex Duke of "Cambridge"—Ragalle, 16c 100s 6d,

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 8th Jan.:—

Ex "Golconda"—Ouvah, 1b 103 ; 3c 1t 100s; 1c 100s 6d; 3c 105s 6d; 17c 102s; 4c 99s 6d; 1c 1b 99s; 2c 1t 109s 6d. Kotiyagalla. 2c 111s; 1c 104s; 1b 101s; 1t 119s.

Ex "Plassey"—WP, 1t 104s; 3c 103s 6d; 3c 1t 100s; 1b 97s; 2c 114s 6d; 1c 1t 92s: 1b 86s. Poonagalla, 1b 104 ; 3c 1b 103s 6d; 1c 97s; 1b 94s; 1t 113s; 1t 86s 6d; 1t 93s; 1b 99s; 1b 86s 6d.

Ex "Manora"—Tbotula, 1b 108s 6d; 1c 107s; 2c 102s; 1t 100s 6d; 1b 112s; 1b 91s; 1b 102s.

Ex "Plassey"—Tillicoultry. 1c 1t 115s; 4c 111s 6d; 3c 107s 6d; 1b 102s, 1c 1t 129s 6d; 1c 96s 6d; 1b 95s 6d; 1b 105s 6d; 1b 90s. Lunugalla, 3c 1b 106s; 5c 102s 6d; 5c 102s 6d, 2c 102s. 1c 1b 100s; 1c 1b 114s 6d; 2c 91s; 2b 105s; 1b 90s.

Ex "Plassey"—Wiharagalla, 5c 2t 108s; 3c 1b 103s; 1b 101s; 2t 120s; 1c 93s.

Ex "Gleneagle"—Wiharagalla, 2b 81s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, January 8th, 1892.

Ex "Manora"—Sherwood, 3c 2s 6d; 1c 1s 11d; 2c 1s 10d; 1c 1s 6d; 1c 1s 5d; 1c 1s 8d.

Ex "Golconda"—Maynetrees, 2c 2s 10d; 3c 2s 9d; 7c 2s; 3c 1s 6d.

Ex "Kaisow"—Maynetrees, 2c 3s; 2c 2s 2d; 2c 2s 3d; 2c 1s 5d; 1c 1s 6d, 1c 3s; 2c 2s 3d; 1c 2s 4d; 1c 1s 7d; 1c 1s 9d; 1c 1s 6d.

Ex "Port Denison"—Wewelmadde, 4c 2s 1d; 3c 1s 11d; 2c 2s; 2c 1s 7d; 2c 1s 6d; 3c 1s 5d; 1c 1s 1d.

Ex "Manora"—Tonacombe, 2c 1s 9d; 2c 1s 10d.

"CEYLON OBSERVER" PRESS, COLOMBO.

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COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 27th Jan. the undermentioned lots of Tea (84,226 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Sutton	80	2	hf-ch	fans	120	20	
2	Fernlands	81	1	ch	red leaf	100	08	
3	A, in estate mark	82	11	do	bro tea	1235	31	bid
4	Do	84	2	do	bro mix	200	18	
5	Do	85	6	hf-ch	dust	450	19	bid
6	A	86	35	do	bro pek No. 1	1750	31	bid
7	A	88	13	do	do No. 2	715	out	
8	A	90	8	ch	pekoe	920	25	bid
9	A	102	8	do	do	840	22	bid
10	A	104	2	do	bro tea	210	19	
11	A	105	1	hf-ch	dust	75	20	
12	Ardlow	106	45	box	bro or pek	810	76	
13	Do	108	19	ch	bro pek	2185	58	
14	Do	110	18	do	pekoe	1980	49	
15	Do	112	6	do	pek sou	630	34	
15a	Do	212	4	do	bro tea	460	out	
16	W—T	114	30	do	bro pek	3000	50	bid
17	Do	116	9	do	pekoe	810	43	
18	Do	118	10	do	pek sou	900	29	
19	Do	120	1	do				
			1	hf-ch	dust	225	22	
20	W in estate mark	121	10	ch	bro pek	1050	42	
21	Do	123	24	do	pekoe	2280	26	
22	Wewel-madde	125	6	do	bro pek	624	41	
23	Do	127	2	do	pekoe	180	22	bid
24	Do	128	2	do	pek sou	186	21	
25	Nahakettia	129	8	do	pekoe No. 2	800	21	bid
26	H L	131	12	do	bro or pek	1560	30	bid
27	Great Valley	133	13	hf-ch	dust	910	23	
28	Ayr	134	2	do	pek dust	142	22	
29	Whyddon	135	12	ch	bro pek	1344	55	
30	Do	137	12	do	pekoe	1320	47	
31	Do	139	12	do	pek sou	1200	29	
32	Mocha	141	67	hf-ch	bro pek	3685	77	
33	Do	143	45	ch	pekoe	4500	56	
34	Do	145	20	do	pek sou	1900	37	
37	Mahagalla	149	24	do	or pek	1440	72	
38	Do	151	27	ch	pekoe	2700	47	
39	Do	153	6	do	pek sou	600	34	
40	Do	155	1	do	bro mix	100	14	
41	Logan	156	10	do	bro pek	1050	51	
42	Do	158	21	hf-ch	pekoe	945	40	
43	Do	160	51	do	pek sou	2295	29	
44	Do	162	9	do	dust	540	21	
45	Do	163	10	do	pek fans	550	23	
46	Do	164	2	ch	red leaf	210	15	
47	Meedum-pittiya	165	2	do	or pek	120	44	
48	Do	166	5	do	pekoe	300	out	
49	Do	167	3	do	unas	180	24	
50	H, in estate mark	168	11	hf-ch	unas	699	out	
51	N	170	4	ch	bro mix	400	18	
52	Bowhill	172	2	do	sou	220	18	bid
53	Cruden	173	33	do	sou	3300	24	
54	B H	175	1	do	pekoe	108	26	
55	Ivies	176	14	do	bro pek	1400	45	
56	Do	178	23	do	pekoe	2070	26	bid
57	Do	180	15	do	pek sou	1275	23	
58	Do	182	1	do	bro tea	100	10	
59	Do	183	3	do	dust	210	17	
60	D E	184	6	do	bro mix	462	30	
61	Talawalla	186	13	do	bro pek	1300	58	bid
62	Do	188	14	do	pekoe	1260	49	
63	Do	190	16	do	pek sou	1600	33	bid
64	Dikoya	192	3	do	dust	494	20	bid
65	Agra Ouvah	193	3	hf-ch	bro or pek	180	79	bid
66	Do	194	32	do	bro pek	1600	76	bid
67	Do	196	6	do	do	280	76	bid
68	Do	197	37	do	pekoe	1665	56	bid
69	Do	199	31	do	pek sou	1395	46	bid
70	Do	201	13	do	do No. 2	585	30	bid
71	Do	203	4	do	pek fans	264	23	
72	Meddegedde-ra	204	13	ch	bro pek	1235	45	bid
73	Do	206	25	do	pekoe	2000	33	bid
74	Do	208	18	do	pek sou	1440	25	
75	Do	210	3	do	bro mix	300	18	
76	Do	211	2	do	dust	260	19	
77	Kandenewe-ra	214	51	do	pekoe	5100	30	bid
78	Hattan-galla	216	13	do	pekoe	1170	30	bid
79	Labugama	218	20	hf-ch	pekoe	800	26	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 27th Jan. the undermentioned lots of Tea (52,910 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	S	1	5	hf-ch	bro tea	250	12	
2	S	2	10	do	dust	800	21	
3	Coodagama	3	11	ch	bro pek	1100	40	
4	Do	4	8	do	pekoe	720	33	
5	Do	5	5	do	pek sou	425	25	
6	Do	6	1	do	dust	150	19	
7	Do	7	1	do	fans	130	20	
8	W A	8	8	do	bro pek	800	50	
9	Do	9	6	do	pekoe	600	34	
10	Do	10	1	do	dust	150	21	
11	Do	11	1	do	congou	100	16	
12	T N C	12	11	do	pek sou	880	23	
13	Do	13	3	do	unas	300	15	
14	Do	14	6	do	dust	480	19	
15	R—T, in estate mark	15	1	do	bro mix	100	12	
16	Do	16	2	hf-ch	pek fans	120	20	
17	Do	17	22	do	dust	1540	18	bid
18	A R	18	9	ch	bro mix	900	12	
19	Do	19	16	hf-ch	dust	1280	23	
20	A	20	4	do	pekoe	200	28	bid
25	Allakolla	25	72	do	bro pek	4680	46	
26	Do	26	37	ch	pekoe	3885	30	bid
27		27	26	do	pek sou	2600	25	bid
28		28	2	hf-ch	dust	200	20	
29	P G, in estate mark	29	48	ch	pekoe	4320	28	
30	Do	30	4	do	bro mix	520	10	bid
31	S M	31	10	ch	bro mix	900	12	
32	S B R	32	35	do	pekoe	2800	28	
33	M A H	33	2	do	congou	180	16	
34	Do	34	1	do	dust	100	18	
35	Hopewell	35	4	hf-ch	sou	140	14	
36	Do	36	3	do	dust	150	16	
37	Do	37	2	do	red leaf	80	out	
38	Glenella	38	31	ch	or pek	2480	43	bid
39	Do	39	49	do	pekoe	4410	28	bid
40	Do	40	19	do	pek fans	1900	22	bid
42	Do	41	6	do	sou	540	16	
41	Do	42	2	do	dust	250	22	
43	Mervingside	43	16	hf-ch	bro pek	880	39	bid
44	Do	44	20	do	pekoe	1100	25	bid
45	Do	45	1	do	sou	55	14	
46	Do	46	2	do	bro tea	110	10	
47	Do	47	1	do	dust	80	17	
48	Roseneath	48	14	ch	pekoe	1470	36	
49	H S, in estate mark	49	16	do	pekoe	1440	27	bid
50	N N	50	1	hf-ch	pekoe	50	28	
51	Do	51	1	do	pek sou	100	out	
52	Marymount	52	4	hf-ch	bro pek	200	out	
53	Do	53	1	do	pekoe	50	out	
54	G W	54	2	ch	bro pek	200	31	
55	M	55	38	hf-ch	red leaf	1900	10	bid

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 3rd Feb. the undermentioned lots of Tea (44,510 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Glanrhos	1	3	ch	dust	300	16	
2	Do	2	3	do	bro mix	300	15	
3	Do	3	27	do	pek sou	2160	28	
4	Do	5	49	do	pekoe	3920	33	
5	Do	7	38	do	bro pek	3420	54	
6	P O	9	11	do	bro pek	1100	30	bid
7	D F K	11	1	do	red leaf	100	06	
8	Do	12	33	do	pek sou	3300	20	bid
9	Do	14	23	do	pekoe	2300	28	bid
10	L, in estate mark	16	2	do	sou	176	10	bid
11	Do	17	1	do	bro mix	82	12	
14	X	20	26	hf-ch	unas	1430	15	bid
15	X	22	2	ch	dust	200	19	
16	Y D	23	3	do	bro mix	228	09	
17	Goodhope	24	6	box	dust	170	20	
18	Dikmukalana	25	2	hf-ch	dust	100	18	
25	N	35	12	hf-ch	pekoe	600	26	bid
26	A D	37	2	ch	bro pek	185	29	bid
27	Do	38	1	hf-ch	pek dust	70	16	
28	Do	39	3	ch	pek sou	295	out	
29	Do	40	5	do	sou	349	out	
30	K—C	42	14	do	pekoe	1330	21	bid

Mr. E. John put up for sale at the Chamber of Commerce Sale-room on the 3rd Feb. the undermentioned lots of Tea (69,965 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Y S	220	3	ch	red leaf	240	07	
2	C	221	2	do	unas	151	21	
3	Hattangalla	222	6	do	bro tea	540	out	
4	Do	223	4	do	dust	560	14	
5	Tamaravelly	224	5	hf-ch	bro mix	250	11	bid
6	Do	225	3	do	dust	210	19	
7	L	226	26	ch	sou	2000	20	bid
8	Vogan	228	33	do	bro pek	3300	51	
9	Do	230	24	do	or pek	2280	41	bid
10	Do	232	57	do	pekoe	4560	32	
11	Do	234	17	do	pek sou	1275	22	
12	Do	236	3	do	bro tea	240	out	
13	Do	237	17	do	dust	1955	09	
14	Moneragalla	239	4	hf-ch	bro pek	210	56	
15	Do	241	17	ch	pekoe	1870	30	bid
16	Do	243	3	do	pek sou	330	29	bid
17	Do	244	2	do	sou	200	19	bid
18	Do	245	19	do	unas	2090	21	bid
91	Do	247	1	hf-ch	dust	80	12	bid
20	Deaculla	248	3	do	dust	210	14	bid
21	Great Valley	249	17	ch	bro pek	1870	61	
22	Do	251	9	do	pekoe	900	41	
23	Do	253	26	do	pek sou	2470	58	
24	Do	255	26	do	bro mix	2470	24	
25	Do	257	4	hf-ch	dust	280	20	
26	Mocha	258	15	ch	bro pek	1650	77	bid
27	Do	260	22	do	pekoe	2200	57	
28	Do	262	12	do	pek sou	1140	36	bid
29	Do	264	12	do	sou	1020	26	
30	Talagalla	266	16	do	pek sou	1600	33	bid
31	Litte Valley	268	5	do	bro tea	475	14	
32	Do	269	5	do	dust	600	out	
33	Nartakande	270	6	do	congou	360	10	
34	Do	272	11	do	red leaf	550	07	
35	Albion	274	22	do	bro pek	2420	67	
36	Do	276	24	do	pekoe	2400	48	
37	Do	278	12	do	pek sou	1260	33	
38	Do	280	3	hf-ch	dust	270	23	
39	T P	281	20	do	bro pek	1200	51	
40	Do	283	16	ch	pekoe	1600	34	
41	Glasgow	285	22	do	bro pek	1980	73	
42	Do	287	25	do	pekoe	2500	54	
43	Faithlie	289	2	do	sou	180	22	
44	Do	290	2	do	bro mix	170	11	
45	Do	301	7	hf-ch	dust	525	24	
46	Ivies	302	23	ch	pekoe	2070	26	bid
47	H, in estate mark	304	11	hf-ch	unas	699	24	bid
48	Agra ouvah	306	3	do	bro or pek	180	62	bid
49	Do	307	20	do	bro pek	1000	75	bid
50	Do	309	22	do	pekoe	990	66	
51	Do	311	22	do	pek so	990	44	bid
52	Do	313	8	do	do No. 2	360	32	bid
53	Do	315	2	do	pek fans	112	22	
58	Tombagalla	322	15	do	pekoe	1831	33	
59	K	324	8	hf-ch	bro pek	400	39	
60	K	326	6	do	pekoe	300	28	
61	K	328	9	do	do No. 2	350	25	
62	K	330	15	do	pek sou	750	24	
63	K	332	9	do	do No. 2	450	24	
64	K	334	3	do	bro tea	135	out	
65	K	336	1	do	dust	80	14	

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 3rd Feb. the undermentioned lots of Tea (61,712 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	G A	56	4	hf-ch	red leaf	225	11	
2	A E	57	11	do	dust	825	10	bid
3	Do	58	21	ch	sou	2100	27	
4	Do	59	5	do	bro tea	500	10	
5	Do	60	4	do	unas	400	25	
6	Do	61	1	hf-ch	do	50	25	
7	W V	62	6	ch	unas	600	24	
8	Do	63	1	do	dust	100	15	bid
9	Y	64	22	hf-ch	pekoe	1100	24	
10	Y	65	9	do	pek sou	450	22	
11	Y	66	1	do	dust	80	15	
12	P G, in estate mark	67	5	do	bro pek	500	40	
13	Do	68	16	do	or pek	1600	42	
14	Do	69	21	do	pekoe	1890	29	
15	Do	70	19	do	pek sou	1615	22	
16	Do	71	3	do	dust	450	15	
17	Do	72	3	do	bro mix	390	08	
18	Do	73	3	do	sou	255	14	
19	H S, in estate mark	74	2	do	bro pek	200	42	
20	Do	75	7	do	or pek	700	42	
21	Do	76	9	do	pekoe	810	27	
22	Do	77	8	do	pek sou	680	24	
23	Do	78	1	do	dust	150	14	
24	Do	79	2	do	dust	170	16	
25	Do	80	1	do	bro mix	130	08	
26	Hiralouvah	81	9	do	bro pek	972	46	
27	Do	82	7	ch				
			1	hf-ch	pekoe	753	28	bid
28	Do	83	14	ch	pek sou	1400	24	
29	Do	84	1	do	unas	105	16	
30	Do	85	1	do				
			1	hf-ch	bro mix	139	12	
31	Do	86	1	do	fans	62	21	
32	Do	87	3	do	dust	225	18	
33	Naseby	88	8	do	bro pek	400	83	
34	Do	89	17	do	pekoe	850	58	
35	Do	90	1	do	bro tea	70	23	
36	S B R	91	11	ch	bro pek	990	40	
37	Do	92	16	do	pekoe	1280	27	bid
38	Do	93	21	do	pek sou	1890	22	
39	B, in estate mark	94	3	hf-ch	bro pek	150	40	
40	Do	95	6	do	pekoe	300	27	
41	Do	96	3	do	pek sou	150	21	
42	Chertsey	97	5	do	bro pek	250	49	
43	Do	98	6	do	pekoe	300	35	
44	Do	99	11	do	pek sou	550	25	
45	Do	100	2	do	dust	120	16	
46	Do	1	1	do	congou	52	08	
47	S B R	2	3	do	bro pek	270	38	bid
48	Do	3	4	do	pekoe	320	23	bid
49	Do	4	7	do	pek sou	630	22	
50	St. Leys	5	2	ch	bro mix	270	20	
51	M W	6	10	do	bro tea	1000	11	bid
52	C T M	7	2	do	bro mix	189	11	bid
53	Do	8	3	hf-ch	dust	210	16	bid
54	R X	9	4	ch	bro mix	480	19	
55	Do	10	2	do	dust	280	17	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
56	I N G	11	2	do	dust	200	17
57	Do	12	1	do	red leaf	100	08 bid
58	Charlie Hill	13	3	hf-ch	bro pek	150	42
59	Do	14	4	do	pekoe	200	23
60	Do	15	7	do	pek sou	350	out
61	Do	16	2	do	do No. 2	100	out
62	Do	17	4	do	sou	200	10
63	Do	18	2	do	fans	112	14
64	I N G	19	1	ch	bro mix	100	03 bid
65	R T, in estate mark	20	22	hf-ch	dust	1540	17
66	P G, in estate mark	21	4	do	bro mix	520	18 bid
67	Marymount	22	4	do	bro pek	200	21 bid
68	Do	23	1	do	pekoe	50	13 bid
69	Depedene	24	9	do	bro pek	450	53
70	Do	25	23	do	pekoe	1150	31 bid
71	Do	26	20	do	pek sou	1000	26
72	H D	27	35	do	bro sou	1750	18 bid
	Do	28	2	do	bro mix	100	10
74	Do	29	3	do	dust	240	17
75	H H, in estate mark	30	28	do	bro pek	1404	43
76	Do	31	21	do	pekoe	1050	30
77	Do	32	38	do	pek sou	1748	25
78	Ingeriya	33	7	do	bro pek	385	45
79	Do	34	16	do	pekoe	800	28
80	Do	35	13	do	pek sou	624	25
81	Do	36	2	do	bro tea	128	15
82	Do	37	1	do	dust	69	15
83	Do	38	1	do	bro mix	52	08
84	R V	39	17	ch	pek sou	1275	21
85	Do	40	6	do	pek fans	600	15
86	Diyagama	41	1	do	bro pek	65	48
87	Do	42	5	do	pekoe	470	28
88	Do	43	2	do	pek sou	200	20
89	Do	44	1	do	mixed	100	14
90	Do	45	1	hf-ch	dust	55	14
91	S S, in estate mark	46	32	ch	bro tea	3840	10 bid
92	E P	47	11	do			
			1	hf-ch	pek sou	1205	out
93	H	48	4	ch	bro sou	390	out
94	R V K, in estate mark	49	8	hf-ch	bro pek	400	35
95	Do	50	7	do	pekoe	350	23
96	Do	51	15	do	pek sou	750	18
97	Do	52	1	do	bro tea	50	08
102	G B	103	2	hf-ch	bro pek	120	30 bid
103	Do	105	4	do	unas	220	out
104	Do	107	3	do	pek sou	165	16 bid
105	Liskilleen	109	15	ch	bro pek	1500	34
106	Do	111	18	do	pekoe	1800	27

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 3rd Feb. the under mentioned lots of Tea (133,946 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
	L P G	680	3	ch	red leaf	300	18
	Letheuty	682	12	do	sou	1200	25
3	W F, in estate mark	684	27	do	fans	2430	16
4	S K	686	9	hf-ch	fans	540	23
5	Do	688	4	do	unas	240	15
7	Eliakande	692	7	do	bro pek	350	49
8	Do	694	11	do	pekoe	550	30
9	Do	696	30	do	pek sou	1200	26
10	Do	698	12	do	bro mix	660	23
11	Do	700	5	do	dust	400	17
12	Do	702	8	do	red leaf	320	16
13	Polatagama	704	26	do	bro pek	1560	62
14	Do	706	43	do	pekoe	2150	48
15	Do	708	38	do	pek sou	1900	30
16	Chalmers	710	21	ch	bro pek	2100	45 bid
17	Do	712	18	do	pekoe	1620	31 bid
18	Do	714	13	do	pek sou	1040	25
19	Do	716	2	do	bro mix	200	14
20	Beauvais	718	2	do	bro pek	200	43
21	Do	720	6	hf-ch	do	309	43

Lot No.	Mark	Box No.	Pkgs.		Description.	Weigh lb.	c.
22	Do	722	6	ch	pekoe No. 1	540	30
23	Do	724	3	do	do „ 2	300	26
24	Do	726	2	hf-ch	do „ 2	100	23
25	Do	728	1	ch	dust	100	16
26	D C	730	19	hf-ch	pek sou	950	21
27	Do	732	1	do	dust	63	22
28	Halpatenne	734	2	ch	bro pek	200	38
29	Do	736	4	do	pekoe	440	25
30	Do	738	11	do	pek sou	1080	23
31	Do	740	4	do	sou	325	14
32	Do	742	3	do	pek fans	355	out
33	Beverley	744	9	hf-ch	dust	675	18
34	Do	746	4	do	congou	200	13
35	Do	748	11	do	sou	550	15
36	Portmore	750	1	ch	pek sou	77	40
37	Do	752	2	hf-ch	fans	150	21
38	Riverside	754	4	ch	sou	480	15
39	Do	756	3	hf-ch	bro mix	270	09
40	Ewhurst	758	10	do	bro pek	633	51
41	Do	760	11	do	pekoe	682	30 bid
42	M'galla	762	19	ch	pekoe	1900	43
43	Do	764	13	hf-ch	dust	910	22 bid
44	Maha Uva	766	6	ch	bro pek	660	63
45	Do	768	9	do	pekoe	810	39
46	Do	770	4	do	pek sou	380	25
47	Do	772	1	do	dust	80	17
48	A	774	8	hf-ch	bro tea	360	11
49	A	776	8	do	pekoe	400	29
50	Alton	778	11	do	bro tea	990	22
51	Havilland	780	11	do	bro mix	440	24
52	Do	782	6	do	fans	420	23
53	Deniyaya	784	3	ch	bro pek	299	50
54	Do	786	5	do	pekoe	500	31
55	Do	788	2	do	pek sou	180	22
56	Do	790	3	do	sou	255	19
57	Do	792	2	do	pek fans	200	19
58	Do	794	2	do	red leaf	160	07
59	K A	796	32	hf-ch	pekoe	1576	28 bid
60	L G E	798	2	ch	or pek	900	26 bid
60½		799	6	do	pekoe No. 1	600	20 bid
61	Do	800	3	hf-ch	dust	255	12 bid
62	S, in estate mark	2	5	ch	pekoe	500	21 bid
	Do	4	15	do	pek sou	1500	19 bid
63	Sutton	6	8	do	bro pek	880	77
64	Do	8	8	do	pekoe	800	55
65	Do	10	1	hf-ch	sou	42	38
66	Do	12	1	do	fans	50	23
67	Do	14	6	ch	unas	660	24
68	S P A	16	2	do	bro tea	220	08 bid
69	V O	18	1	do	dust	140	08 bid
70	Do	20	2	do	pek sou	157	18
71	A W	22	3	do			
72	Do		3	hf-ch	dust	656	14 bid
73	G A	24	4	do	pekoe	420	25 bid
74	Chesterford	26	14	ch	bro pek	1540	65
75	Do	28	25	do	pekoe	2500	41 bid
76	Do	30	16	do	pek sou	1600	27 bid
77	Bismark	32	8	do	pekoe	720	30
78	Do	34	7	do	do No.	770	24
79	W	36	21	hf-ch	pekoe	1050	31
80	Alnoor	38	35	do	bro pek	1750	53
81	Do	40	31	do	pekoe	1550	34 bid
82	Do	42	27	do	pek sou	1350	26 bid
83	Do	44	5	do	sou	250	19
84	Do	46	5	do	dust	395	16 bid
85	Castlereagh	48	21	do	bro or pek	1050	70
86	Do	50	48	do	pekoe	2160	54
87	Torwood	52	2	do	red leaf	125	11
88	Do	54	3	do	fans	180	26
89	Do	56	2	do	dust	160	18
90	Clyde	58	18	ch	bro pek	1800	55
91	Do	60	16	do	pekoe	1440	32
92	Do	62	10	do	pek sou	900	26
93	Do	64	3	do	bro tea	270	10
94	Do	66	2	do	dust	280	17
95	Arapola-kanda	68	7	do	bro mix	665	08 bid
96	Do	70	10	do	bro tea	900	09
97	Do	72	4	do	dust	560	out
98	Kirimettia	74	3	do	dust	396	15
99	Asgeria	76	2	do	red leaf	200	out
100	C, in estate mark	78	2	do	bro tea	200	10
101	M C	80	6	do	congou	564	out
102	Ingeriya	82	2	do	pek sou	200	21
103	Do	84	1	do	dust	145	out
104	Rosita	86	1	do	pekoe	100	"
105	H	88	26	hf-ch	congou	2340	"

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
106	P F H	90	1	do	bro pek	50	32	
107	Do	92	1	do	pekoe		26	
108	Do	94	1	do	pek sou	45	20	
109	Amblakande	96	3	ch	bro or pek	330	46	
110	Do	98	8	do	pekoe	720	31	
111	Do	100	2	do	pek sou	180	23	
112	T B in estate mark	102	2	do	dust	300	21	
113	Do	104	1	do	bro mix	130	12	bid
114	S B R	106	16	do	bro pek	1440	39	
115	Do	108	17	do	pekoe	1360	25	
116	Do	110	24	do	pek sou	2160	21	
117	Do	112	4	do	dust	560	15	
118	Langdale	114	15	do	bro pek	1500	53	
119	Do	116	22	do	pekoe	1980	35	
120	Do	118	12	do	pek sou	960	23	
121	Do	120	3	do	dust	348	14	
122	G C	122	10	hf-ch	bro pek	550	40	
123	Do	124	18	do	pekoe	720	30	
124	Nahaveena	126	13	do	pekoe No. 2	650	27	bid
125	Do	128	1	do	dust	75	21	
126	D A	130	12	ch	bro pek	1200	25	
127	Dunkeld	132	20	do	bro pek	2000	66	
128	Do	134	42	hf-ch	or pek	2100	50	
129	Do	136	22	ch	pekoe	1870	35	bid
132	D P O	142	3	do	sou	135	out	
133	Do	144	5	do	dust	325	out	
134	Bandarapolla	146	17	do	bro pek	850	40	
135	Do	148	21	do	bro pek	1050	45	
136	Do	150	18	do	pekoe	900	30	
137	Do	152	26	do	pek sou	1170	35	
138	Lunugalla	154	2	do	red leaf	100	21	
139	Dunbar	156	34	ch	bro pek	3060	64	
140	Do	158	34	do	pekoe	3060	42	
141	Loinorn	160	28	hf-ch	bro pek	1568	70	
142	Do	162	31	ch	pek sou	2945	43	
147	B A, in estate mark	172	3	box	bro pek	31	40	
148	Do	174	3	do	pekoe	30	31	
149	Do	176	5	do	do No. 2	96	20	
150	Kukiriskande	178	5	hf-ch	bro pek	250	51	
151	Do	180	10	do	pekoe	500	31	bid
152	Do	182	11	do	pek sou	550	26	
153	Do	184	1	do	bro tea	55	10	
154	Do	186	1	do	dust	84	16	
155	Do	188	1	do	red leaf	72	08	
156	W H	190	18	do	pek sou	882	18	
157	Do	192	2	do	bro mix	100	10	
158	X X X	194	11	do	sou	495	20	
159	Do	196	3	ch	dust	240	15	
160	St. Helier's	204	35	hf-ch	bro or pek	1750	63	
161	Do	206	21	ch	pekoe	2100	40	
162	Do	208	10	do	pek sou	1000	27	
163	Do	210	4	hf-ch	dust	300	17	
167	Udabage	218	7	do	dust	490	16	bid
168	Palamcotta	220	3	do	dust	258	14	
169	Ancoombra	222	2	ch	dust	300	16	
170	Do	224	3	do	red leaf	279	08	
171	B F B	226	1	do	unas	71	21	
172	Sapu	228	3	hf-ch	red leaf	134	08	
173	H	230	20	do	sou	1000	08	
174	Lankapura	232	12	ch	bro pek	1200	68	
175	Do	234	66	do	pekoe	6270	46	bid
176	Do	236	25	do	pek sou	2250	30	bid
177	Bandarapolla	238	21	hf-ch	bro pek	1050	46	
178	Do	240	35	do	pekoe	1750	30	
179	Do	242	24	do	pek sou	1080	26	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, January 15th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 15th Jan. :—

Ex "Plassey,"—Meeriabedde, 1c 109s; 3c 107s; 2c 1t 103s 6d; 1b 100s; 1c 122s.

Ex "Kaisow"—Palli, 2c 100s 6d; 7c 1b 98s; 6c 4sd; 1c 97s; 3c 107s. Sheen, 1c 116s; 3c 114s; 2c 106s 6d; 1c 129s. Delrey, 1t 118s 6d; 3c 1t 114s 6d; 4c 1t 107s; 1b 103s; 1c 1b 129s 6d; 1b 98s.

Ex "Myrmidon"—Meddecombra, 1c 116s; 3c 107s; 1t 104s; 2c 128s 6d; 1b 98s 6d.

Ex "Manora"—Ouvah, 2c 104s 6d; 11c 1t 101s; 1t 1c 100s 6d; 1b 99s; 1b 108s; 1c 118s; 2c 94s 6d; 5b 101s.

Ex "Kaisow"—Elbedde, 1c 114s; 5c 111s; 6c 106s 6d; 1b 102s; 2c 128s; 1t 100s 6d; 2b 98s 6d.

Ex "Khedive"—Pittarat Malle, 1b 100s; 1b 97s.

Ex "Golconda"—Pittarat Malle, 1c 104s; 1b 100s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 22nd Jan.:—

Ex "Port Phillip"—Yoxford, 5c 112s; 6c 107s 6d; 1c 102s; 1c 1b 107s; 2b 108s; 1b 83s.

Ex "Manora"—Balmoral, 1t 103s; 1c 1b 100s; 1t 101s; 1c 107s; 1t 93s.

Ex "Orient"—Kotiyagalla, 1b 117s; 3c 114s; 1c 1b 107; 1b 103s; 1t 124s; 1t 101s 6d.

Ex "Bohemia"—Ouvah, 2c 106s 6d; 13c 102s; 2c 1t 100s; 1b 102s; 1b 112s; 1c 110s; 1c 1t 91s; 5b 103s 1b 91.

Ex "Myrmidon"—Norwood, 1b 119s; 5c 113s; 3c 1b 108s; 1c 103s 6d; 1c 1t 126s 6d; 1b 100s.

Ex "Port Phillip"—Suduganga, 1c 1b 103s 6d; 1c 98s 6d; 1b 106s 6d; 1t 85s; 1b 80s.

Ex "Bohemia"—PDM, 1c 1b 113s 6d; 6c 1b 110s; 1c 102s; 1b 104s; 1c 116s; 1t 99s; 1b 72s; 1b 66s.

Ex "Port Phillip"—Ragalla, 1t 106s; 5c 105s; 1c 121s; 1t 109s.

Ex "Orient"—Macoolussa, 1t 102s; 3b 84s.

Ex "City of Vienna"—Ouvah, 2c 106s 6d; 10c 102s 6d; 3c 10s 6d; 1b 100s 6d; 1b 114s 6d; 1c 110s; 1c 1b 97s; 2b 102s.

Ex "Bohemia"—Palli, 1b 99s; 1c 97s; 1c 1b 94s 6d; 1b 93s; 1t 105s; 1b 94s; 1t 81s; 1c 89s. Middleton, 4c 112s; 1c 1b 106s; 1b 101s; 1c 119s.

Ex "Plassey"—Middleton, 2c 1b 110s; 1c 104; 1b 102s 1c 117s.

Ex "Port Phillip"—Caledonia, 1c 1b 118s 6d; 3c 114s 6d; 2c 1b 108s; 1b 104s; 1c 121s; 1c 1b 99s 1b 112s.

Ex "Orient"—Deyanella, 1b 110s; 2c 1t 109s 6d; 1t 103s; 1b 112s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, January 22nd, 1892.

Ex "Myrmidon"—Mahaberia. 20b 109s: 14b 109s; 11b 100s 6d; 7b 60s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Jan. 22nd.

Ex "Clyde"—CC, 1b 10d; 1b 2s 1d; 1b 1s 6d.

Ex "Port Phillip"—WS, 2c 1s 4d; 2c 2s 1d; 4c 1s 2d; 6c 2s. Mt. Pleasant, 5c 1s 4d 1c 1s 9d. Delpotonoya; 1c 2s 4d; 5c 1s 9d; 1c 1s 10d; 2c 1s 9d; 1c 1s 4d; 10c 1s 9d.

Ex "Traveller"—Lebanon, 4c 2s; 2c 1s 10d; 2c 1s 8d; 4c 1s 4d; 3c 1s; 4c 1s 4d; 1c 1s 9d; 1c 1s 7d; 1c 1s 1d.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 5.] COLOMBO, FEBRUARY 22, 1892. [PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 10th Feb. the undermentioned lots of Tea (58,228 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D	1	6	ch	dust	900	20	
2	D	2	10	do	congou	1000	20	
3	A G C	4	8	do	pek dust	560	16	
4	Do	5	2	do	congou	140	16	
5	Nahalma	6	47	hf-ch	bro pek	2585	59	
6	Do	8	31	ch	pekoe	3100	37	
7	Do	10	9	do	pek sou	900	26	
8	Do	12	2	do	dust	150	18	
9	Dehiowita	13	28	do	bro pek	2940	52	
10	Do	15	75	do	pekoe	7500	29	bid
11	Do	17	24	do	pek sou	2280	25	
12	Do	19	1	do	bro tea	120	15	
13	Do	20	1	do	dust	160	16	
14	Gampola-watte	21	8	do	bro pek	400	44	bid
15	Do	23	10	hf-ch	pekoe	500	28	bid
16	Andasa-deniya	24	5	ch	bro pek	510	35	
17	Do	25	3	do	pek sou	280	21	
18	Do	26	1	do	unas	80	15	
19	Do	27	3	do	fans	360	15	
10	Do	28	1	do	dust	140	05	
11	Nugagalla	29	12	hf-ch	bro pek	600	61	
12	Do	31	37	do	pekoe	1750	39	
13	Do	32	4	do	pek sou	200	17	
14	Do	34	3	do	dust	240	23	
15	Penrhos	35	29	do	or pek	1305	50	bid
16	Do	37	25	do	bro pek	1250	60	bid
17	Do	39	21	do	pekoe	1050	40	
18	Do	41	38	do	pek sou	1900	30	
19	Do	43	6	do	pek fans	390	30	
30	Do	44	2	do	dust	110	24	bid
31	Yarrow	45	14	do	bro pek	896	54	
32	Do	47	23	do	pekoe	1380	32	
33	Do	49	6	do	pek sou	336	23	
23	Preston	50	17	ch	bro or pek	1870	71	bid
45	Do	52	25	do	pekoe	2500	48	bid
36	L, in estate mark	54	2	do	sou	176	15	
37	Woodend	55	3	ch	dust	360	16	
38	Do	56	2	do	congou	130	10	
39	Y D	57	1	do	red leaf	90	02	bid
40	C G	58	4	do	bro pek	400	27	bid
41	Do	59	5	do	pekoe	500	25	
42	Do	60	4	do	pek sou	400	18	
43	P G	61	12	do	pekoe	1200	50	bid
44	M W	63	7	ch	bro tea	630	12	bid
45	Agraoya	64	3	hf-ch	bro or pek	150	45	bid
46	Do	65	9	ch	bro pek	900	38	
47	Do	66	10	do	or pek	1000	35	
48	Do	68	10	do	pekoe	1000	22	bid
49	Do	70	13	do	pek sou	1300	18	
50	Do	72	2	do	do No. 2	200	13	
51	Do	73	1	do	bro mix	100	out	
52	Do	74	1	do	dust	90	18	
53	K	76	20	do	pekoe	2300	25	bid
54	K	78	30	do	pek sou	3300	18	bid
55	B P	80	10	do	pekoe	1000	25	
56	Dunnottar	81	1	hf-ch	dust	68	15	
57	Do	82	1	do	red leaf	54	05	
58	E K	84	10	ch	pek sou net	900	18	bid
59	Do	87	20	do	bro tea	2000	13	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 10th Feb. the undermentioned lots of Tea (90,541 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	B, in estate mark	337	4	ch	congou	300	21
	Do	338	1	hf-ch	dust	80	21
11	W, in estate mark	12	12	ch	bro pek	1260	46
12	Do	14	35	do	pekoe	3325	30
13	Do	16	16	do	pek sou	1520	23
14	Do	18	6	do	fans	600	18
15	Do	20	4	do	dust	560	19
16	Bittacy	22	23	ch	bro pek	1840	66
17	Do	24	29	do	pekoe	2175	45
23	Eila	34	16	ch	bro pek	1600	52
24	Do	36	27	do	pekoe	2160	30	bid
25	Do	38	12	do	pek sou	960	24	
26	Do	40	1	do	pek dust	150	20	
27	Madooltenne	41	26	do	bro pek	2730	53	
28	Do	43	12	do	pekoe	1200	33	bid
29	Do	45	12	do	pek sou	1200	27	
30	Do	47	16	do	pek sou No. 1	1600	27	
31	Do	49	11	do	congou	990	17	
32	Ardlaw	51	11	hf-ch	bro or pek	605	82	
33	Do	53	21	ch	bro pek	2415	72	
34	Do	55	13	do	or pek	1430	55	
35	Do	57	5	do	pek sou	525	40	
36	A, in estate mark	59	17	do	pekoe	1870	39	
37	Do	61	2	do	do	224	41	
38	Do	62	3	do	fans	390	21	
39	Do	63	6	hf-ch	dust	450	18	
40	L	64	14	box	golden bro pek	252	71	bid
41	A	65	48	hf-ch	bro pek	2465	44	
42	A	67	16	ch	pekoe	1760	30	
43	Fassifern, E	69	4	hf-ch	pek sou	360	31	
44	Tallagalla	71	12	ch	bro pek	1260	69	
45	Do	73	14	do	pekoe	1330	49	
46	Do	75	17	do	pek sou	1700	35	
47	Do	77	7	do	bro tea	812	22	
48	F T	79	1	do	bro pek	113	49	
49	Do	80	2	do	pekoe	160	40	
50	Fernlands	81	1	do	unas	110	25	
51	K H G	82	8	do	bro pek	800	38	
52	Do	84	8	do	pekoe	720	25	
53	Logan	86	12	ch	bro pek	1260	57	
54	Do	88	23	hf-ch	pekoe	1035	38	bid
55	Do	90	57	do	pek sou	2565	28	
56	Do	102	6	do	dust	360	22	
57	Do	103	15	do	sou	675	17	
58	Do	105	2	ch	red leaf	180	08	
59	Troup	106	42	hf-ch	bro pek	2310	72	
60	Do	108	34	ch	pekoe	3400	50	
61	Do	110	1	do	dust	120	20	
62	Aibion	111	22	do	bro pek	2420	72	
63	Do	113	13	do	pekoe	1300	53	
64	Do	115	12	do	pek sou	1260	34	
65	Gouravilla	117	15	do	bro pek	1500	out	
66	Do	119	43	hf-ch	or pek	2150	58	
67	Do	121	22	ch	pekoe	2200	35	bid
68	Do	123	22	do	pek sou	2200	27	
69	Do	125	3	do	unas	300	18	
70	Do	126	4	hf-ch	or pek dust	233	31	
71	Do	127	2	ch	dust	126	20	
72	N K	128	8	do	pekoe No. 2	800	25	
73	Stamford Hill	130	12	do	bro mix	1344	20	
74	L	132	11	do	sou	1100	22	
75	L	134	4	do				
			2	hf-ch	dust	764	16	bid
82	H L	144	13	ch	bro or pek	1560	29	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 10th Feb. the undermentioned lots of Tea (37,806 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Wandale	1	2	ch	bro pek	200	34
2	Do	2	6	do			
			1	hf-ch	pekoe	555	25
3	Do	3	3	ch			
			1	hf-ch	pek sou	335	19
4	Do	4	1	ch	bro mix	100	out
5	Do	5	1	hf-ch	pek dust	65	21

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
6	K A	6	26	ch	bro mix	200		out
7	St. Andrews	7	26	hf-ch	or pek	1716		63 bid
8	Do	8	50	box	do	1000	64	
9	Do	9	32	ch	bro pek	1920	46	
10	Do	10	26	do	pekoe	2600	38	
11	Stockholm	11	18	hf-ch	bro pek	990	68	
12	Do	12	18	do	pekoe	900	54	
13	Do	13	18	ch	pek sou	1620	32	
14	Do	14	2	do	fans	280	16	
15	A	15	11	hf-ch	dust	825	14	
16	Mousagalla	16	2	do	sou	79	19	
16a			1	do	dust	44	21	
17	Do	17	1	do	red leaf	35	10	
18	D E	18	23	do	pekoe	1150	28	bid
19	H M	19	4	ch	bro mix	520		out
20	M T	20	4	hf-ch	bro pek	200	26	
21	Do	21	1	do	pekoe	50	15	
22	P G, in estate mark	22	1	do	unas	41	23	
23	W P H	23	5	do	unas	275	25	
24	S B R	24	10	ch	bro pek	900	39	bid
25	Do	25	14	do	pekoe	1120	27	bid
26	Do	26	22	do	pek sou	1980	22	bid
27	Killin	27	10	hf-ch	bro pek	500	46	
28	Do	28	27	do	pekoe	1350	29	bid
29	Do	29	13	do	pek sou	650	20	bid
30	Do	30	1	do	dust	60	19	
31	Mousagalla	31	17	do	bro pek	1020	58	
32	Do	32	5	do	pekoe	250	43	
33	Do	33	9	do	pek sou	450	31	
34	Kuruwitty		1	box	golden tips No. 1	4	R10·00	bid
35	Do		1	do	do No. 2	4	R8·00	bid
36	Do	34	3	hf-ch	bro pek	150	54	
37	Do	35	2	do	pekoe	84	37	
38	Do	36	12	do	pek sou	576	31	
39	Do	37	8	do	sou	368	22	bid
40	Do	38	16	do	bro mix	800	21	
41	Do	39	2	do	congou	84	14	
42	Do	40	1	do	dust	76	23	
43	Do	41	2	do	red leaf	84	09	
44	Do	42	14	do	pek sou	644	31	
45	Ingeria	43	6	do	bro pek	330	45	bid
46	Do	44	13	do	pekoe	650		out
47	Do	45	10	do	pek sou	480		out
48	Do	46	2	do	bro mix	100	10	
49	Do	47	1	do	bro tea	62	15	
50	Do	48	1	do	sou	48	15	
51	Do	49	2	do	unas	100	24	
52	C H	50	7	do	pek sou	350	17	
53	Do	51	2	do	pek sou No. 2	100	15	
54	Lyndhurst	52	16	ch	bro pek	1760	46	
55	Do	53	31	do	pekoe	2790	27	bid
56	Do	54	40	do	pek sou	3792	22	
57	Do	55	2	do	dust	250	17	
58	Do	56	6	do	red leaf	540	10	

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 10th Feb. the undermentioned lots of Tea (130,711 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	H & H	244	4	ch	bro mix	360	22
2	C	246	4	do	bro pek	420	44
3	C	248	5	do	pekoe	514	30
4	C	250	8	do	pek sou	804	26
5	C	252	1	do	dust	85	20
6	C	254	1	hf-ch	congou	27	15
7	Elgin	256	3	do	bro pek	135	49
8	Do	258	1	ch	pekoe	103	37
9	Do	260	3	hf-ch	pek sou	138	29
0	Do	262	1	ch	dust	108	22
11	T C	264	3	do	dust	420	out
12	Radella	266	36	do	bro pek	3600	63
13	Do	268	48	do	pekoe	4320	42
14	Do	270	30	do	pek sou	2700	28
15	Do	272	3	do	dust	390	20
16	Mousakelle	274	30	do	bro pek	3450	67
17	Do	276	40	do	pekoe	4000	44
18	Do	278	2	do	congou	210	19
19	Do	280	2	do	dust	340	17
20	Do	282	1	do	red leaf	102	10
21	B G, in estate mark	284	7	do	pek fans	910	22

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
22	Castlereagh	286	18	hf-ch	bro or pek	900	71	
23	Do	288	45	do	pekoe	2025	48	bid
24	Warwick	290	22	do	bro pek	1210	63	bid
25	Do	292	35	do	pekoe	1725	52	
26	W	294	4	do	bro pek	220	42	
27	W	296	8	do	pekoe	400	33	
28	W	298	3	do	dust	180	21	
29	W	300	1	do	congou	45	21	
30	L A	302	3	do	pek dust	180	20	
31	Do	304	4	do	sou	200	10	
37	Esperanza	316	3	hf-ch	congou	142	18	
38	Do	318	2	do	dust	178	15	
39	D P O	320	3	do	sou	135	15	
40	Do	322	5	do	dust	125	20	
41	Yahalakele	324	4	ch	dust	600	18	
42	Claremont	326	1	hf-ch	bro tea	55	10	
43	Do	328	1	do	dust	80	22	
44	Talgaswela	330	8	ch	bro pek	1800	45	
45	Do	332	2	do				
			1	hf-ch	pek sou	221	25	
46	Marguerita	334	9	do	bro pek	450	58	
47	Do	336	7	do	pekoe	294	42	
48	Do	338	11	do	sou	550	32	bid
49	Do	340	1	do	dust	75	22	
50	Do	342	1	do	sou	45	14	
51	A P	344	3	do	dust	236		out
52	Palmerston	346	15	do	bro pek	825	68	
53	Do	348	14	ch	pekoe	1400	48	
54	Do	350	12	do	pek sou	1200	35	
55	Do	352	10	hf-ch	dust	700	22	
56	Bismark	354	9	ch			50	
			1	hf-ch	bro pek	1050		
57	Do	356	7	ch	do No. 2	770	38	
58	Do	358	13	do	pekoe	1170	40	
59	Do	360	6	do	do No. 2	540	27	
60	Do	362	14	do	pek sou	1260	30	
61	Do	364	2	do	dust	280	20	
62	Farm	366	13	do	bro pek	1300	67	
63	Do	368	24	do	pekoe	1920	39	
64	Do	370	26	do	pek sou	2080	29	
65	Do	372	1	hf-ch	sou	65	19	
66	Do	374	1	ch	dust	150	20	
67	Do	376	1	do	red leaf	90	10	
68	Shrubs Hill	378	11	do	bro pek	1100	60	
69	Do	380	13	do	do	1300	64	
70	Do	382	31	do	pekoe	2635	41	
71	Do	384	21	do	pek sou	1995	28	
72	Do	386	3	do	bro pe ksou	300	14	
73	Do	388	14	hf-ch	dust	980	24	
74	Polatagama	390	26	do	bro pek	1560	63	
75	Do	392	44	do	pekoe	2200	44	bid
76	Do	394	34	do	pek sou	1650	31	
77	T C O	396	2	ch	sou	230	14	
78	Portmore	398	1	do	pek sou	91	33	
79	Do	400	1	do	fans	97	21	
80	Ukuwella	402	2	hf-ch	bro pek	88	37	
81	Do	404	1	do	pekoe	40	30	
82	Do	406	1	do	pek sou	40	23	
83	Atherfield	408	21	do	sou	1050	23	
84	Do	410	7	do	dust	560	18	
85	Do	412	1	do	bro mix	50	09	
86	Battgodda	414	5	hf-ch	bro pek	250	40	
87	Do	416	1	ch				
			4	hf-ch	pekoe No. 1	313	26	
88	Do	418	6	do	do No. 2	300	24	
89	Bray	420	4	do	bro pek	200	43	
90	Do	422	3	ch	pekoe No. 1	270	28	
91	Do	424	4	hf-ch	dy No. 2	200	22	
92	M, Ceylon in estate mark	426	18	ch	pek sou	1862	18	bid
93	Halpatenne	428	3	do	pek fans	355	06	
94	S, in estate mark	430	9	do	bro pek	990	22	
95	Do	432	4	do	pekoe	400	28	
96	Do	434	15	do	pek sou	1500	23	
97	Do	436	12	do	bro tea	1440	11	
98	Middleton	438	32	hf-ch	bro pek	1920	70	
99	Do	440	11	do	pekoe	1100	55	
100	Do	442	14	do	pek sou	1330	36	
108	M B	458	1	ch	bro pek	74	37	
109	Do	460	1	do	pekoe	80	28	
110	Do	462	1	hf-ch	bro pek sou	64	10	
111	Do	464	1	do	dust	33	22	
112	R	466	4	ch	pekoe	400	25	
113	Pallagalla	468	20	hf-ch	bro or pek	1075	38	
114	Langdale	470	19	ch	bro pek	1900	62	
115	Do	472	16	do	pekoe	1440	42	
116	Do	474	14	do	pek sou	1120	31	
117	Chesterford	476	20	do	bro pek	2200	64	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
118	Ewhurst	478	11 hf-ch	pekoe	682	28 bid
120	Court Lodge	482	20 do	bro pek	1160	72 bid
121	Do	484	20 do	pekoe	960	57
122	Do	486	20 do	pek sou	960	49
123	Do	488	1 do	sou	84	30
124W	D, in estate mark	490	1 ch			
			7 hf-ch	dust	697	31
125	Macaldenia	492	1 box	golden tips	5 R17	00
126	Do	494	15 hf-ch	bro pek	900	64
127	Do	496	12 do	pekoe	660	51
128	Do	498	10 ch	pek sou	1050	33
129	Do	500	3 hf-ch	sou	250	26
130	Do	502	1 do	dust	74	22
131	Do	504	2 do	fans	120	36
132	Do	506	6 do	bro pek	360	59
133	Do	508	4 do	pekoe	220	46
134	Do	510	4 ch	pek sou	420	33
135	Do	512	1 hf-ch	sou	50	22
136	Do	514	1 do	fans	60	25
137	Chrystler's Farm	516	8 ch	sou	680	26
138	Do	518	2 do	bro mix	210	10
139	Do	520	4 hf-ch	dust	300	18
140	E M, in estate mark	522	1 ch			
			6 hf-ch	dust	645	11
141	P D M	524	2 ch			
			1 hf-ch	pek sou	235	35
142	Do	526	1 do	sou	47	26
143	Do	528	2 do	dust	145	21
144	C R D	530	8 do	red leaf	400	10
145	Do	532	4 do	dust	248	19
150	Theberton	542	38 ch	bro pek	3800	39
151	Do	544	27 do	pekoe	2700	27
152	Do	546	12 do	pek sou	1200	22

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 17th Feb the undermentioned lots of Tea (178,024 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
1	Tellisagalla	548	1 ch	bro mix	100	15
2	N	550	8 hf-ch	dust	600	22
3	L G E	552	4 ch	or pek	400	33 bid
4	Do	554	4 do	pekoe No. 1	400	28
5	Do	556	2 hf-ch	dust	170	15
6	H E P, in estate mark	558	17 do	bro pek	1105	67
7	Do	560	8 do	pekoe	480	43
8	Do	562	4 do	pek sou	240	30
9	Do	564	1 do	dust	80	17
10	Dunbar	566	1 ch	or pek	100	70
11	Do	568	26 do	bro pek	2340	61
12	Do	570	20 do	pekoe	1800	43
13	Do	572	5 do	pek sou	450	27
14	Do	574	3 do	dust	405	17
15	B G, in estate mark	576	3 do	fans	390	18
16	Do	578	2 do	congou	200	15
17	Midlothian	580	20 hf-ch	bro pek	1200	46
18	Do	582	20 ch	pekoe	200	30
19	Do	584	2 hf-ch	congou	100	14
20	Caledonia	586	12 ch	bro pek	1200	42
21	Do	588	11 do	pekoe	1045	30
22	Do	590	1 hf-ch	sou	55	17
23	Do	592	2 do	bro tea	110	10
24	Harangalla	594	24 ch	bro pek	2400	59
25	Do	596	40 do	pekoe	3200	33 bid
26	Do	598	13 do	pek sou	1040	29
27	Yatederia	600	20 do	bro pek	2200	45
28	Do	602	49 do	pekoe	4900	29
29	Do	604	30 do	pek sou	2700	25
30	Katherine Valley	606	2 hf-ch	bro pek	100	50
31	Do	608	8 do	pekoe	400	28
32	Do	610	12 do	pek sou	600	22
33	Do	612	3 do	sou	180	20
34	Do	614	2 do	congou	90	14
35	Do	616	2 do	fans	100	25
36	Do	618	1 do	mixed	60	21
37	T, Ceylon in estate mark	620	21 do	pek sou	1352	24
38	Maha Uva	622	8 ch	bro pek	880	61
39	Do	624	11 do	pekoe	990	38
40	Do	626	5 do	pek sou	475	26
41	Do	628	1 hf-ch	dust	80	19
42	Harrington	630	29 ch	or pek	2900	69
43	Do	632	18 do	pekoe	1800	49
44	Do	634	16 do	pek sou	1280	35
45	Do	636	4 do	dust	560	20
47	Kola Oya	638	40 hf-ch	pek sou	2034	27
48	D	640	1 ch	congou	100	06
49	D	642	55 hf-ch	do	2750	11
49	D	644	4 ch	red leaf	410	08
50	R S J	646	1 do	pekoe	100	27
51	St. Martin	648	2 hf-ch	bro or pek	96	48
52	Do	650	4 do	pekoe	183	27
53	Do	652	1 do	unas	24	26
54	Do	654	1 do	dust	41	18
55	Donside	656	3 do	sou	207	14
56	Do	658	1 ch	dust	147	19
57	Do	660	2 hf-ch	red leaf	163	08
58	Tarquair	662	2 do	bro pek	100	38
59	Do	664	2 do	pekoe	106	22
60	Do	666	8 do	pek sou	404	16
61	Do	668	2 do	congou	77	withd'n.
62	Ragalla	670	40 do	pekoe	2000	36 bid
63	Thornfield	672	17 ch	pekoe	1700	41
64	Aigburth	674	28 do	bro pek	2660	57
65	Do	676	18 do	pekoe	1620	34
66	Do	678	12 do	pek sou	1080	27
67	F F	680	2 do	dust	260	22
68	Do	682	1 do	bro mix	95	13
69	A & F L	684	1 hf-ch	bro pek	60	37
70	E	686	4 do	pek sou	160	12
71	Frds Ruhe	688	7 do	bro pek	350	46
72	Do	690	8 ch			
			1 hf-ch	pekoe	847	26 bid
73	Do	692	10 ch	pek sou	982	18 bid
74	W A	694	1 do			
			1 hf-ch	bro pek	141	46
75	Do	696	2 ch			
			1 hf-ch	pekoe	250	26
76	Do	698	2 ch	pek sou	200	22
77	Do	700	8 do	bro tea	880	17
78	Do	702	2 do			
			1 hf-ch	fans	227	10
79	Do	704	1 ch	dust	127	16
80	Do	706	2 do	red leaf	181	11
82	S S S	710	10 do	fans	800	out
83	Dunkeld	712	16 do	bro pek	1600	60
84	Do	714	33 hf-ch	or pek	1815	41
85	Do	716	16 ch	pekoe	1360	32
86	Ederapolla	718	73 hf-ch	bro pek	3650	56
87	Do	720	19 ch	pekoe	1520	35 bid
88	Do	722	12 do	pekoe No. 2	960	28 bid
89	Do	724	21 do	pek sou	1680	29 bid
90	Farnham	726	27 hf-ch	bro or pek	1350	65
91	Do	728	48 do	pekoe	2160	45
92	Do	732	66 do	pek sou	2970	28
93	Do	732	6 do	fans	390	23
94	Do	734	1 do	dust	80	18
95	E D P	736	2 do	pek dust	150	19
96	Do	738	1 do	pek fans	60	19
97	Do	740	2 ch	bro mix	150	09
98	Do	742	2 do	congou	160	14
99	Do	744	1 do	unas	90	15
100	Theberton	746	6 do	pek dust	600	17
101	Do	748	1 do	red leaf	100	08
102	Do	750	8 do	congou	800	14
103	Bambrakelly and Dell	752	2 do	dust	13	18
104	Do	754	6 do	bro mix	16	10
105	H	756	20 do	congou	23	01 bid
106	G V	758	13 do	bro mix	12	01 bid
107	P	760	3 do	bro tea	3	07
108	K A	762	20 hf-ch	pekoe	10	26 bid
109	S, in estate mark	764	15 ch	pek sou	1500	21 bid
110	Do	766	12 do	bro tea	1440	07 bi
111	T, in estate mark	768	11 do	dust	1650	15
112	Udabage	770	7 hf-ch	dust	490	18
113	Nahaveena	772	13 do	pekoe No. 2	650	33
114	L	774	26 ch	sou	2080	out
115	L V	776	5 do	bro tea	475	06 bid
116	M	778	10 do	bro tea	1000	11 bid
117	G A	780	4 do	pekoe	420	22 bi

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
118	Yataderia	782	19	do	bro pek	2090	47	
119	Do	784	37	do	pekoe	3700	27	
120	Do	786	39	do	pek sou	3510	24	
121	Chesterford	788	16	do	pek sou	1600	25	bid
122	Bon Accord	790	5	do	dust	450	12	bid
123	Do	792	1	do	congou	110	15	
124	Horagaskelle	794	7	hf-ch	bro pek	420	36	bid
125	Do	796	7	do	pekoe	380	22	bid
126	Do	798	8	do	pek sou	454	21	bid
127	Do	800	2	do	bro mix	158	15	
128	Bandarapolla	2	14	ch	bro pek	1400	48	
129	Do	4	20	do	pekoe	2000	30	
130	Do	6	18	do	pek sou	1800	27	
131	Hakurugalla	8	9	do	bro pek	900	51	
132	Do	10	22	do	pekoe	1980	28	bid
133	Hunugalla	12	4	do	bro pek	420	53	
134	Do	14	15	do	pekoe	1500	24	bid
135	Do	16	1	do	pek sou	83	10	
136	Cattaratenne	18	1	do	dust	112	17	
137	Do	20	8	do	congou	800	15	
138	Kakiriskande	22	10	hf-ch	pekoe	500	26	bid
139	Tonacombe	24	19	do	bro pek	950	57	
140	Do	26	21	do	pekoe	1050	39	
141	Do	28	15	do	pek sou	750	29	
142	Do	30	5	do	sou	250	19	
143	Do	32	2	do	dust	140	17	
144	Do	34	2	do	fans	120	26	
145	Dunkeld	36	37	ch	or pek	1850	50	bid
153	Langdale	52	13	do	bro pek	1625	53	
154	Do	54	9	do	pekoe	945	31	
155	Do	56	9	do	pek sou	900	23	
156	Clarendon	58	32	hf-ch	bro pek	1920	63	
157	Do	60	64	do	pekoe	3520	47	bid
158	Alnoor	62	24	do	bro pek	1200	43	
159	Do	64	24	do	pekoe	1200	28	
160	Do	66	24	do	pek sou	1200	25	
161	Easdale	68	15	ch	bro pek	1500	50	bid
162	Do	70	20	do	pekoe	1800	39	bid
163	Do	72	12	do	pek sou	1080	28	tid
164	Monrovia	74	16	hf-ch	bro pek	800	37	
165	Do	76	20	ch	pekoe	1980	25	
166	Do	78	6	do				
			4	hf-ch	pek sou	800	21	
167	Do	80	12	ch	unas	1185	19	
168	Do	82	2	do	bro tea	200	13	
169	Do	84	4	do				
			1	hf-ch	pek dust	585	17	
170	E K	86	1	ch				
			1	hf-ch	bro pek	126	38	
171	Do	88	3	ch				
			1	hf-ch	pekoe	350	20	
172	Do	90	2	ch	pek sou	200	17	
173	Queensland	92	29	ch	bro pek	2900	73	bid
174	Do	94	24	do	pekoe	2280	48	bid
175	Do	96	4	do	pek sou	110	31	
176	Do	98	3	do	pek fans	390	25	
177	C	100	8	do	bro pek	800	39	bid
178	C	102	8	do	pekoe	720	27	
179	C	104	6	do	pek sou	600	25	
180	C	106	1	do	pek fans	100	22	
181	C	108	1	do	dust	100	16	
182	C	110	1	do	bro mix	100	07	
185	Glenorchy	116	4	hf-ch	bro pek	240	52	
186	Do	118	10	do	pekoe	500	35	
187	G O	120	15	do	pek sou	750	27	
188	Do	122	9	do	dust	675	20	
189	Do	224	2	do	red leaf	90	10	
190	Donside	126	1	do	pek sou	30	19	
191	Mukeloya	128	7	do	bro pek	455	50	
192	Do	130	4	do	pekoe	240	36	
193	Do	132	3	do	pek sou	180	27	
194	Do	134	1	ch	dust	80	16	
195	N W D	136	2	hf-ch	bro pek	132	47	
196	Do	138	3	ch	pekoe	237	27	
197	Do	140	1	do	bro mix	97	withd'n.	
198	S S S	142	3	do	sou	345	22	
199	Do	144	1	do	congou	112	09	
200	Do	146	4	do	red leaf	540	withd'n.	
201	L, in estate mark	148	5	do	bro tea	500	07	
202	R, in estate mark	150	4	do	dust	560	16	
203	Do	152	1	do				
			1	hf-ch	red leaf	168	06	bid
204	Alton	154	7	ch	bro tea	630	20	
205	S	156	1	do	sou	98	13	
206	S	158	1	hf-ch	fans	50	15	
207	St. Catherine	160	6	ch	bro pek	540	45	
208	Do	162	6	do	pekoe	510	30	
209	Do	164	6	do	pek sou	480	25	
210	Do	166	2	do	pek fans	180	17	
211	Ancoombra	168	3	do	dust	460	16	
212	Do	170	1	do	red leaf	73	06	
213	B F B	172	3	do	unas	158	17	
214	Do	174	1	ch	dust	54	15	
215	Becherton	176	10	do	bro pek	1000	32	bid
216	Do	178	20	do	pekoe	2000	27	bid

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, January 29th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 29th Jan.:—

Ox "Oanfa"—Kondesalle, 1c 104s; 2c 101s 6d; 2c 97s; 1b 96s; 1c 1b 110s.

Ex "Polyphemus"—Poonagalla, 1b 109s; 3c 107s 6d; 1c 103s 1b 100s; 1t 114s; 1c 95s 6d; 1b 109s. Morar, 1c 118s 6d; 4c 116s 6d; 4c 1t 110s 6d; 1b 104s; 1c 1b 128s 6d; 2c 103s; 2b 112s 6d; 1b 102s; 1t 1b 42s.

Ex "Oanfa"—Venture, 1b 122s; 2c 117; 2c 110s 6d; 1b 104s 6d; 1t 129s 1b 101s; 1b 112s 6d; 1b 121s; 2c 117s 6d; 3c 113s; 1b 103s; 1c 129s; 1b 107s; 1b 112s 6d, Ouvah, 1c 1t 107s 6d; 12c 1b 103s; 3c 1t 101s; 1t 99s; 1b 113s; 1c 1b 110s 6d; 2c 1t 97s; 6b 105s; 1b 94s.

Ex "Port Phillip"—Kadienlena, 1c 115s; 2c 114s 6d; 3c 109s 6d; 1t 101s 6d; 1c 123s; 1t 99s; 1b 85s; 1b 112s; 1b 96s; 1b 92s.

Ex "Oanfa"—Bridwell, 1b 122s; 2c 1b 117s 6d; 1b 115s; 3c 1b 110s; 1b 115s; 1b 104s; 1c 129s; 1c 102s; 1c 120s; 3c 118s 6d; 1b 115s; 2c 111s 6d; 1b 115s; 1b 103s; 1t 128s; 1t 102s. Kirkoswald, 1b 122s; 2c 1t 115s 6d; 1b 115s; 4c 1t 110s; 1b 115s; 1b 103s; 1c 128s 6d; 1t 102s 1b 003s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, January 29th, 1892.

Ex "Port Phillip"—Kepitigalla, 16b 105s; 18b 92s 6d; 2b 60s 6d.

Ex "Orion"—Gangwarily, 13b 110s 6d; 2b 73s; 2b 56s 6d.

Ex "Polyphemus"—Warriapolla, 83b 11 s; 8b 70s 6d; 11b 55s 6d.

Ex "Mira"—Delgolla, 16b 90s 6d; 4b 54s 6d.

Ex "Port Phillip"—Delgolla, 37b 105s; 6b 56s.

"CEYLON OBSERVER" PRESS, COLOMBO.

No. 6.] COLOMBO, MARCH 7 1892. [PRICE:—12½ cents each; 3 copies, 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 17th Feb. the undermentioned lots of Tea (44,878 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Bogahagoda-watte	1	3	hf-ch	bro pek	198	50	
2	Do	2	5	do	pekoe	332	29	
3	Do	3	16	do	pek sou	960	23	
4	Do	5	2	do	bro mix	108	12	
5	Do	6	3	do	fans	215	21	
6	Do	7	1	do	pek fans	75		
7	Gampola-watte	8	2	do	bro pek	100	46	
8	Do	10	30	do	pekoe	1500	29	
9	B	12	7	ch	bro tea	630	8	
10	Citrus	14	15	hf-ch	bro pek	895	40	bid
11	Do	16	22	do	pekoe	1210	28	bid
12	Do	18	9	do	pek sou	450	23	
13	Do	20	3	do	fans	210	21	
14	Do	21	1	do	congou	50	13	
15	Do	22	1	do	red leaf	40	9	
16	Balagoda	23	2	do	bro pek	110	42	
17	Do	24	4	do	pekoe	220	26	bid
18	Do	25	2	do	pek sou	100	24	
19	Torrington	26	45	ch	bro pek	4950	59	
20	Do	28	77	do	pekoe	7700	37	
21	Do	30	12	do	pek sou	1200	29	
22	Do	32	13	hf-ch	dust	1040	21	
23	B U S	33	2	ch	congou	200	19	
24	P	34	13	do	dust	1950	18	
25	Managalla	36	9	hf-ch	bro pek	405	44	bid
26	Do	38	18	do	pekoe	756	28	bid
27	Do	40	1	do	sou	46	16	bid
28	Do	41	1	do	congou	50	withd'n.	
29	Do	42	2	do	dust	100	18	
30	Do	43	1	do	bro mix	48	12	
31	K'Della	44	4	ch	bro pek	400	40	
32	Do	45	5	do	pekoe	450	27	bid
33	Do	46	2	do	pek sou	160	24	
34	Do	47	1	do	dust	70	18	
35	D E	48	12	do	bro pek	1100	31	
36	Do	50	10	ch	pekoe	1000	30	
37	Do	52	5	do	sou	350	11	bid
38	A D D S	53	4	do	unas	400	20	
39	Do	54	1	do	sou	80	14	bid
40	Do	55	4	do	bro mix	387	8	bid
41	Do	56	1	do	dust	135	11	
42	A B	57	4	do	bro pek	400	37	
43	M M H	58	9	do	bro mix	830	withd'n.	
44	Do	60	8	do	unas	760		
45	C, in estate mark	62	10	do	pek sou	900	19	
46	K C	64	4	hf-ch	dust	340	16	
47	Nahalma	65	48	do	bro pek	2530	59	
48	Do	67	34	ch	pekoe	3400	37	
49	Do	69	12	do	pek sou	1200	28	
50	Do	71	3	do	dust	150	19	
51	A G C	72	3	hf-ch	bro pek	150	out	
52	Do	73	5	do	bro tea	400	out	
53	Do	74	3	do	congou	270	out	
54	Do	75	15	do	pek dust	1050	out	
55	X X X	77	2	do	dust	140	15	bid
56	Preston	78	17	ch	bro or pek	1870	76	bid

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 17th Feb. the undermentioned lots of Tea (94,849 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	V, in estate mark	146	3	ch	fans	295	15	
2	Ayr	147	4	hf-ch	congou	172	14	
3	Do	148	8	do	fans	400	18	bid
4	Do	149	1	do	pk dust	71	17	
5	Tientsin	150	20	do	bro pek	1000	91	
6	Do	152	21	ch	pekoe	2100	55	
7	Do	154	12	do	pek sou	1200	38	
8	Do	156	5	hf-ch	dust	370	22	
9	Do	157	1	do	sou	54	22	
10	K	158	13	do	bro pek	585	49	
11	K	160	20	do	pekoe	700	32	
12	K	162	19	do	pek sou	627	26	
13	K	164	1	do	sou	33	14	
14	K	165	1	do	dust	58	15	
15	K	166	1	do	red leaf	33	11	
16	S T	168	2	ch	sou	200	15	
17	G K W	169	6	do	bro tea	540	24	
18	Do	171	16	do	dust	1280	18	
19	Do	173	1	do	red leaf	90	13	
20	Great Valley	174	18	do	bro pek	1980	58	bid
21	Do	176	13	do	pekoe	1300	41	bid
22	Do	178	23	do	pek sou	2185	29	
23	Do	180	3	do	bro mix	285	15	bid
24	Do	181	3	hf-ch	dust	210	21	
25	E la	182	16	ch	bro pek	1600	50	
26	Do	184	30	do	pekoe	2400	30	
27	Do	186	27	do	do	2160	30	bid
28	Do	188	24	do	pek sou	1920	24	
29	Do	190	1	do	pek dust	125	17	
30	Anchor, in estate mark	191	12	do	bro pek	1380	72	
31	Do	193	28	do	pekoe	2800	42	bid
32	Do	195	14	do	pek sou	1400	33	
33	Galkande-watte	197	36	do	bro pek	3600	61	
34	Do	199	47	do	pekoe	4230	40	bid
35	Do	201	9	do	pek sou	810	28	
6	Dickoya	203	3	ch	dust	494	15	bid
37	W D, in estate mark	204	17	do	bro tea	1707	13	bid
38	K	206	20	do	bro pek	2100	49	bid
39	K	208	17	do	pekoe	1700	34	bid
40	K	210	17	do	pek sou	1615	29	bid
41	K	212	6	do	congou	600	16	bid
42	K	213	3	hf-ch	dust	225	19	
43	D E	214	7	do	dust	560	21	
44	W—T	215	19	ch	bro pek	1900	55	
45	Do	217	4	do	pekoe	360	37	
46	Do	219	3	do	pek sou	270	26	
47	Orange Field, A N C	221	6	do	bro pek	570	33	bid
48	Do	223	18	do	pekoe	1710	23	bid
49	Do	225	4	do	pek sou	380	21	
50	Do	227	8	do	bro mix	760	12	
51	Do	229	1	do	dust	140	21	
52	Gonakelle Factory	230	23	do	bro or pek	2530	50	
53	Do	232	12	do	bro pek	1320	30	
54	Tarf	234	13	do	sou	1170	27	
55	Orange Field P N R	236	5	do	sou	570	14	
56	Agra Ouvah	238	27	hf-ch	bro pek	1350	80	bid
57	Do	240	28	do	pekoe	1260	61	bid
58	Do	242	27	do	pek sou	1215	43	bid
59	Albion	244	20	ch	bro pek	2200	73	
60	Do	246	17	do	pekoe	1700	55	
61	Do	248	22	hf-ch	pek sou	1100	37	
62	Do	250	4	do	dust	340	22	
63	Mahagalla	251	38	do	or pek	2090	71	bid
64	Do	253	37	ch	pekoe	3700	52	bid
65	Do	255	8	do	pek sou	800	33	
66	Do	257	2	hf-ch	dust	180	20	
67	Cruden Factory	258	22	ch	flowery or pek	2200	74	bid
68	Do	260	32	do	do pekoe	3200	56	bid
69	Do	262	10	do	do pek sou	1000	38	
70	Do	264	30	do	sou	3000	23	
71	Dickapittia	266	43	do	bro pek	4300	50	
72	Do	268	15	do	pekoe	1500	31	
73	Do	270	22	do	pek sou	2200	26	
74	Do	272	5	do	sou	450	19	
75	Gowravilla	274	22	do	pekoe	2200	34	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 17th Feb. the undermentioned lots of Tea (44,557lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Coneygar	57	9	hf-ch	pekoe	459	47	
2	Aadneven	58	18	ch	bro pek	1800	56	bid
3	Do	59	25	do	pekoe	2070	40	
4	Do	60	5	do	pek sou	450	28	
5	K M O K	61	3	do	bro tea	279	27	
11	Arslena	67	52	hf-ch	bro pek	2860	49	bid
12	Do	68	22	do	pekoe	1100	32	
13	Do	69	4	do	pek sou	200	25	
14	Do	70	13	do	unas	650	26	bid
15	Do	71	1	do	dust	50	18	
22	Allakolla	78	46	do	bro pek	2990	48	
23	Do	79	18	ch	pekoe	1890	33	
24	Do	80	12	ch	pek sou	1200	28	
25	Do	81	2	hf-ch	dust	140	17	bid
26	T, in estate mark	82	20	do	unas	960	23	
27	S, in estate mark	83	5	ch	dust	600	17	
28	R N	84	2	do	pek sou	200	15	
29	H H	85	13	do	pek sou	975	19	
30	Do	86	2	do	pek fans	224	16	
31	R, in estate mark	87	1	do	bro pek No. 1	105	31	
32	Do	88	3	do	pek sou	270	22	
33	Do	89	1	do	pek sou No. 2	90	23	bid
34	Depedene	90	23	hf-ch	pekoe	1150	29	
35	Lyndhurst	91	31	ch	pekoe	2790	25	bid
36	C T M	92	4	do	bro mix	360	15	
37	Do	93	3	hf-ch	dust	210	18	
38	C	94	2	ch	dust	246	12	bid
39	Yahalatenne	95	17	hf-ch	bro pek	765	52	
40	Do	96	25	do	pekoe	825	30	bid
41	Do	97	23	do	pekoe sou	759	24	
42	Do	98	4	do	sou	132	17	
43	Do	99	1	do	dust	64	16	
44	Do	100	1	do	red leaf	33	9	
45	G A	1	3	do	red leaf	151	13	
46	Mount Pleasant	2	5	do	bro pek	210	38	
47	Do	3	2	do	pekoe	90	25	
48	Do	4	3	do	pek sou	135	24	
49	Do	5	2	do	pek sou	84	20	
50	Do	6	2	do	sou	86	18	
51	Do	7	1	do	congou	35	14	
52	Do	8	1	do	fans	42	20	
53	Liskilleen	9	10	ch	bro pek	1000	35	bid
54	Do	10	21	do	pekoe	2100	27	bid
55	Do	11	3	do	congou	300	15	
56	Do	12	3	hf-ch	dust	100	16	
57	K	13	3	ch				
			4	hf-ch	dust	525	18	bid
68	K	14	3	do	sou	135	17	
59	K	15	3	ch	bro tea	270	10	
60	G W	16	6	do	bro mix	570	14	
61	S B R	17	16	do	bro pek	1440	41	
62	Do	18	22	do	pekoe	1840	27	
63	Do	19	15	do	pek sou	1350	25	
64	S	20	11	do				
			1	hf-ch	pek sou	1205	15	bid
65	S	21	4	ch	bro tea	390	11	bid
66	Wawatenne	22	5	hf-ch	bro pek	250	25	bid
67	Do	23	2	do	pekoe	92	20	bid

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 24th Feb. the undermentioned lots of Tea (44,690 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	P B	1	3	ch	dust	450	11	
2	A O	2	11	do	pekoe	1088	25	bid
3	Do	4	1	do	bro mix	95	10	
4	Agra oya	5	6	do	bro pek	600	50	bid
5	Do	7	9	do	pekoe	900	32	bid
10	Maragalla	14	9	hf-ch	bro pek	405	38	bid
11	Do	15	18	do	pekoe	756	23	bid
12	Do	17	1	do	sou	46	16	
13	R B	18	23	ch	pekoe	2300	20	
14	Do	20	33	do	pek sou	3300	out	
15	Do	22	1	do	sou	80	10	
16	Do	23	4	do	bro mix	389	10	
17	A	24	8	do	or pek	745	38	
18	A	26	13	do	pek sou	1257	16	bid
19	A T P S, in estate mark	28	28	do	pek sou	2710	15	bi
22	D	32	6	hf-ch	unas	240	25	bid
23	D	33	2	do	bro mix	100	09	bid
24	E P	34	11	ch	pekoe	1067	out	
25	Nedanwala	36	10	hf-ch	bro pek	500	37	bid
26	Do	38	7	ch	pekoe	700	out	
27	Do	40	8	do	pek sou	720	23	
28	D K	42	11	ch	pekoe	1066	out	
29	Shannon	44	59	do	or pek	6315	36	
30	Do	46	126	do	pekoe	12460	22	bid
31	Do	48	30	do	pek sou	3000	20	bid
32	Do	50	8	do	bro tea	880	07	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 24th Feb. the undermentioned lots of Tea (58,651 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Doorooma-della	276	5	ch	pekoe	525	46	
2	Do	278	1	hf-ch	dust	36	21	
3	T E	279	5	do	pek sou	250	26	
4	Do	280	2	do	dust	140	23	
5	Do	284	1	do	bro mix	50	17	
6	Tamara-velly	282	26	do	bro pek	1300	49	
7	Do	284	24	do	pekoe	1200	32	
8	W, in estate mark	286	13	ch	bro pek	1365	49	
9	Do	288	23	do	pekoe	2660	30	
10	Do	290	9	do	pek sou	855	25	
11	Do	302	1	do	dust	140	18	
12	Mocha	303	16	do	bro pek	1760	80	
13	Do	305	29	do	pekoe	2900	57	
14	Do	307	12	do	pek sou	1080	41	
15	Albion	309	20	do	bro pek	2200	75	
16	Do	311	16	do	pekoe	1600	58	
17	Do	313	2	do	dust	170	25	
18	Sumtra Valle	314	14	do	bro pek	1540	55	bid
91	Do	316	14	do	pekoe	1400	out	
20	Do	318	15	do	pek sou	1400	27	bid
21	W P	320	5	do	sou	400	15	
22	Do	322	30	do	unas	2400	20	bid
23	Labugama	324	26	hf-ch	bro pek	1040	51	
24	Do	326	26	do	pekoe	1040	37	bid
25	Do	328	20	do	pekoe	800	35	bid
26	Do	330	11	do	pek sou	440	25	
27	Do	332	10	ch	bro mix	1000	20	
28	Do	334	3	hf-ch	congou	120	13	
29	Do	335	1	do	pk dust	70	24	
30	Glasgow	336	27	ch	bro pek	2430	77	
31	Do	338	28	do	pekoe	2800	56	
32	Do	340	3	do	dust	300	24	
37	Talagalla	348	17	do	or pek	1615	45	
38	Do	350	23	do	pekoe	2300	35	
39	Orange Field	11	6	do	bro pek	570	35	
40	Do	13	18	do	pekoe	1710	24	
48	Bollagalla	25	18	do	bro pek	1080	48	
49	Do	27	25	ch	pekoe	2125	27	bid
50	Do	29	27	do	pek sou	2430	23	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 24th Feb. the undermentioned lots of Tea (52,494 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	S	24	2	hf-ch	bro tea	98	15	
2	S	25	2	do	dust	164	19	
3	A	26	1	do	bro tea	51	16	
4	A	27	1	do	dust	90	18	
5	L	28	1	do	bro tea	52	14	
6	L	29	2	do	dust	168	18	
7	Hatdowa	30	2	do	bro pek	240	35	bid
8	Do	31	5	do	pekoe	500	29	
9	Do	32	6	do	pek sou	540	22	
10	Do	33	6	do	unas	600	15	bid
11	Do	34	1	do	dust	130	17	
12	Depedene	35	5	hf-ch	bro pek	250	50	bid
13	Do	36	9	do	pekoe	450	29	
14	Do	37	14	do	pek sou	700	25	
15	H D	38	33	do	bro sou	1650	20	
16	Do	39	2	do	bro mix	100	12	
17	Do	40	1	do	dust	80	18	
18	P G, in estate mark	41	16	ch	bro or pek	1600	51	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
19	Do	42	20	do	pekoe	1800	33	
20	Do	43	15	do	pek sou	1275	28	
21	Do	44	4	do	sou	340	21	
22	H J S	45	3	hf-ch	bro pek	150	51	
23	Do	46	2	do	pekoe	200	31	
24	Do	47	13	do	pek sou	650	27	
25	Do	48	2	do	pek fans	100	28	
26	Do	49	2	do	pek dust	100	18	
27	Narangoda	50	18	ch	pekoe	1980	38	
28	Do	51	32	do	pek sou	3200	25	
29	Do	52	3	hf-ch	dust	210	20	
30	O O, in estate mark	53	27	ch	pekoe	2700	22	bid
31	Do	54	10	do	pek sou	900	20	
32	Do	55	7	hf-ch	pek dust	525	20	
33	Yahalatenne	56	25	do	pekoe	825	30	
34	I P	57	16	ch	bro tea	1312	15	
35	R X	58	2	do	bro mix	240	13	bid
36	Do	59	3	do	dust	420	19	
37	D	60	1	box	bro pek	30	37	
38	S T	61	8	hf-ch	dust	560	14	
39	D Y K	62	2	ch	sou	130	19	
40	Do	63	3	hf-ch	dust	180	18	
41	Do	64	1	ch	red leaf	85	11	
44	V	67	12	ch	bro pek	1200	42	
45	V	68	10	do	or pek	1000	27	
46	V	69	4	do	pek sou	400	18	bid
47	V	70	1	do	dust	120	17	
48	V	71	1	do	bro tea	100	14	
49	V	72	1	do	fans	100	10	
50	R, in estate mark	73	1	do	pek sou	90	22	
51	Rosseneath	74	25	hf-ch	bro pek	1625	53	
52	,,	75	15	ch	pekoe	1575	33	
53	Do	76	13	do	pek sou	1365	26	bid
54	Allakolla	77	2	hf-ch	dust	140	18	
55	W	78	5	do	bro pek	250	out	
56	W	79	2	do	pekoe	92	out	
57	S B R	80	8	ch	bro pek	720	44	
58	Do	81	6	do	pekoe	480	27	
59	Do	82	10	do	pek sou	900	18	bid
60	W A H	83	2	do	dust	280	17	
61	Do	84	1	hf-ch	red leaf	120	08	
62	Kudagama	85	7	do	bro pek	336	53	
63	Do	86	17	do	pekoe	782	33	
64	Do	87	8	do	pek sou	384	25	
65	Do	88	1	do	congou	43	16	
66	Do	89	5	do	bro tea	270	22	
67	Do	90	2	do	unas	96	24	
68	Do	91	1	do	dust	54	19	
69	Salawe	92	25	do	bro pek	1350	45	
70	Do	93	24	do	pekoe	1152	30	
71	Do	94	28	do	pek sou	1288	25	

MESSRS. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room, on the 24th Feb. the undermentioned lots of Tea (81,091 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	M	180	3	hf-ch	dust	206	17	
2	M A H	182	5	ch	bro tea	400	12	
3	B C	184	12	do	pek sou	900	out	
4	L O	186	5	do	fans	400	12	
5	M A	188	3	hf-ch	pek sou	120	15	
6	B G	190	3	ch	bro tea	315	out	
7	M A H	192	3	do	red leaf	300	out	
8	T C	194	1	do	bro pek	100	36	
9	Do	196	1	do	pekoe	85	25	
10	Do	198	2	do	pek sou	200	21	
11	Do	200	1	do	bro tea	75	10	
12	G	202	13	do	pek sou	1170	22	
13	Kottlagalla	204	5	do	dust	805	17	
14	E, in estate mark	206	2	hf-ch	bro pek	130	18	bid
15	Do	208	2	do	pekoe	92	15	
16	Ouvahkellie	210	15	ch	bro pek	1800	74	
17	Do	212	16	do	pekoe	1600	47	bid
18	Glenorchy	214	4	hf-ch	bro pek	240	49	
19	Do	216	9	do	bro pek	450	54	
20	Do	218	10	do	pekoe	450	39	
21	G O	220	4	do	bro pek	240	49	
22	Do	222	8	do	pekoe	400	39	
23	Do	224	1	do	pek sou	50	28	
24	Do	226	2	do	pek sou	90	28	
25	Do	228	9	do	unas	450	24	
26	Do	230	2	do	dust	140	19	
27	D D S	232	5	ch	bro pek	500	35	bid
28	Do	234	3	do	pekoe	300	27	bid
29	Do	236	7	do	pek sou	630	25	
30	Do	238	2	do	sou	180	16	
31	Do	240	2	do	bro pek dust	240	22	
32	Do	242	1	do	pek fans	95	13	bid
33	Do	244	2	do	dust	245	12	
34	N P	246	5	do	fans No. 1	450	16	
35	Do	248	9	do	fans ,, 2	630	16	
36	V P	250	1	hf-ch	unas	56	28	
37	Amblakande	252	4	ch	bro or pek	440	46	
38	Do	254	9	do	pekoe	810	39	
39	Do	256	1	do	pek sou	90	23	
40	Patiagama	258	4	do	bro pek	440	51	
41	Do	260	10	do	pekoe	1000	34	bid
42	H, in estate mark	262	3	do	red leaf	300	10	bid
43	K	264	1	do	pek sou	100	22	
44	Maskeliya, B	266	6	do	bro pek	600	36	bid
45	Do	268	16	do	bro pek sou	1520	22	bid
46	Do	270	10	do	bro mix	1000	19	
47	M	272	13	do	unas	1170	19	bid
48	M	274	1	do	unas	84	16	
49	Uvakelle	276	23	do	bro pek	1265	54	
50	Do	278	29	do	pekoe	1450	32	
51	Do	280	3	do	dust	240	16	
52	Do	282	1	do	congou	50	20	
53	Middleton	284	22	do	bro pek	1320	72	
54	Do	286	9	ch	pekoe	900	57	
55	Palamcotta	288	2	hf-ch	dust	174	19	
56	Do	290	2	do	red leaf	194	14	
57	Pansalatenne	292	7	do	congou	700	19	
58	Do	294	1	hf-ch	dust	75	17	
59	R T	296	1	ch	red leaf	100	10	
60	Do	298	3	hf-ch	dust	228	19	
61	Putupaula	300	2	ch	bro mix	246	16	
62	B E R	302	6	do	bro pek	540	46	
63	Do	304	7	do	pekoe	560	25	
64	Do	306	18	do	pek sou	1620	16	bid
65	Do	308	2	do	dust	280	20	
66	Wewesse	310	34	hf-ch	bro pek	1700	60	
67	Do	312	23	do	pekoe	1150	44	
68	Do	314	21	do	pek sou	1050	35	
69	Do	316	1	do	sou	50	21	
70	Do	318	3	do	pek fans	177	30	
71	Doonevale	320	9	ch	bro pek	900	50	
72	Do	322	20	do	pekoe	1800	24	bid
73	Beausejour	324	8	do	pekoe	720	21	bid
74	Do	326	1	do	fans	110	20	
75	Do	328	1	do	bro tea	105	13	
76	Do	330	1	do	dust	151	17	
77	Yataderia	332	17	do	bro pek	1870	50	
78	Do	334	39	do	pekoe	3900	24	
79	Do	336	37	do	pek sou	3330	23	bid
80	Do	338	11	do	bro tea	1045	19	
81	B	340	16	do	bro pek	1600	45	
82	B	342	5	do	pekoe	450	29	bid
83	B	344	6	do	pek sou	540	25	
84	B	346	1	do	dust	150	18	
85	Pedro	348	12	do	bro pek	1320	73	
86	Do	350	13	do	or pek	1300	63	
87	Do	352	6	do	pek sou	570	45	
88	Do	354	1	hf-ch	dust	75	19	
89	Hauteville	356	8	ch	red leaf	800	11	
90	Kelvin	358	1	do	red leaf	150	20	
91	K G	360	13	do	bro pek	1300	45	
92	Do	362	6	do	pekoe	543	27	
93	Do	364	3	do	pek sou	270	24	
94	C C C	366	1	hf-ch	or pek	42	35	
95	N	368	35	do	sou	1700	27	
96	N	370	1	do	pekoe	75	30	
97	N	372	2	do	bro mix	100	11	
98	N	374	9	do	dust	810	17	
99	Sutton	376	11	ch	bro pek	1210	76	
100	Do	378	9	do	pekoe	900	63	
101	Do	380	4	do	pek sou	380	42	
102	M, in estate mark	382	12	hf-ch	dust	660	18	
106	Kirindi	390	10	ch	bro pek	950	49	
107	Do	392	13	do	pekoe	1040	31	
108	Do	394	7	do	pek sou	560	24	
109	Do	396	2	do	dust	140	20	
110	Do	398	1	hf-ch	red leaf	64	09	
111	T C O	400	3	ch	sou	270	11	
112	Do	402	4	do	dust	360	19	
113	L, in estate mark	404	1	do	pek sou	70	21	
114	Do	406	1	hf-ch	dust	46	18	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
115	A M B	408	16	do	bro tea	768	10
116	Do	410	12	do	unas	600	25
117	Havilland	412	31	do	bro pek	1705	57
118	Do	414	27	do	pekoe	1350	45
119	Do	416	33	do	pek sou	1485	33
120	Do	418	6	do	bro mix	270	13
121	Do	420	4	do	fans	260	23
122	S K	422	5	do	bro pek	260	34
123	E, in estate mark	424	5	ch			
			1	hf-ch	dust	675	15
124	M V N	426	1	ch	unas	87	17
125	H	428	15	do	pekoe	1500	24
126	Langdale	430	14	ch	bro pek	1400	58
127	Do	432	22	do	pekoe	1980	43
128	Do	434	18	do	pek sou	1440	28
129	Do	436	4	do	dust	464	21
130	Palmerston	438	8	hf-ch	bro pek	440	57
131	Do	440	10	ch	pekoe	1000	44
132	Do	442	5	do	pek sou	500	31
133	Polatagama	444	22	hf-ch	bro pek	1320	55
134	Do	446	39	do	pekoe	1950	44
135	Do	448	36	do	pek sou	1800	33

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 2nd March the undermentioned lots of Tea (24,723 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Woodend	1	1	ch	congou	80	10	
2	Do	2	1	do	dust	120	15	
3	A G C	3	7	hf-ch	bro pek	350	20	bid
4	Do	4	22	do	pek dust	1540	14	
5	Do	6	4	do	dust	280	14	
9	Do	7	1	ch	congou	90	10	
7	G C A	8	6	do	bro pek	600	41	bid
8	Do	10	9	do	pekoe	900	23	bid
9	Do	12	11	do	pek sou	1088	21	bid
10	Torrington	14	18	do	bro pek	1980	63	
11	Do	16	31	do	pekoe	3100	45	
12	Do	18	3	do	pek sou	300	33	
13	Nahalma	19	37	hf-ch	bro pek	2035	60	
14	Do	21	30	ch	pekoe	3000	38	
15	Do	23	11	do	pek sou	1100	28	
16	Do	25	2	do	dust	150	18	bid
17	P O	26	21	do	pekoe	2037	18	bid
18	N A	28	10	hf-ch	bro pek	500	35	bid
19	Do	30	7	ch	pekoe	700	18	bid
20	Elston	32	5	do	fans	500	16	
21	Do	34	3	do	dust	390	14	bid
22	Do	35	3	do	congou	300	08	bid
23	Mapitigama	36	1	do	dust	125	15	
24	Do	37	2	hf-ch	red leaf	180	08	
35	A E	38	7	do	dust	490	14	bid
26	M W	39	4	ch	pek sou	380		out
27	Do	40	14	do	dust	2198	14	bid
28	Do	42	1	do	fans	120	08	
29	A K A C, estate mark	43	17	hf-ch	sou	850	22	
30	Do	45	3	do	dust	240	17	bid

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, February 5th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 5th Feb. :—

Ex "Orient"—Maynetrees, 2b 107s; 2c 106s; 1c 1b 102s 6d; 1b 109s; 1b 104s 6d. Maousa Ella, 1b 115s; 3c 1b 113s; 1c 1t 108s; 1b 101c; 1c 1b 125s 6d; 1c 100s; 6d.

Ex "Oanfa"—Holbrook, 1b 118s; 3c 114s 6d; 4c 1b 110s 6d; 1b 103s; 2c 126s; 1c 101s; 1b 112s; 1b 113s.

Ex "Polyphemus"—Troup, 2c 112s 6d; 2c 1t 107s 6d; 1b 103s; 1c 122s; 1b 100s; 1b 111s.

Ex "Arcadia"—Middleton, Dimbula, 1b 120s; 4c 119s; 2c 110s 6d; 1b 104s 6d; 1c 127s, 1b 101s.

Ex "Karamania".—Kelburne, 4c 1t 1b 107s 6d; 4c 104s 6d; 1b 100s 1t 114s; 1b 109s; 1c 1b 89s.

Ex "Assaye"—North Matale, 3c 105s; 3c 1t 102s 6d; 1b 108s: 1b 105s; 1c 92s; 1b 104s; 1b 91s; 8b 88s; 2b 86s 6d; 1b 87s 6d; 1b 78s. Ouvah JB, 2c 1t 90s 6d; 5 bags 100s; 1 89s; 1 94s.

Ex "Goorkha"—Sherwood, 1c 109s; 3c 1t 108s 6d; 1c 1t 102s; 1t 117s; 2 bags 105s 6d; 4c 98s.

Ex "Clan Macarthur"—Mount Vernon (ACW), 1b 114s; 6c 113s; 5c 1t 108s; 1c 104s; 1c 119s.

Ex "Karamania"—Wannarajah, 1b 116s; 5c 1t 113s 6d; 5c 109s; 1t 103s; 1c 1t 120s 6d.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 12th Feb.:—

Ex "Pallas"—Logie, 5c 113s 6d; 1c 1t 114s; 5c 107s 6d; 6c 108s 6d; 2c 103s; 3c 1t 122s 6d.

Ex "Pak Ling"—Tillicoultry, 1c 120s; 5c 113s; 3c 110s; 1b 102s 6d; 1c 129s. Ormiston, 1b 108s; 1c 106s; 2c 104s; 1b 97s; 1b 111s. Coslanda, 1t 109s; 2c 106s 6d; 1c 101s; 1b 96s; 1t 118s. Arnhall; 1t 112s; 2c 107s; 1c 1b 102s 6d; 1b 99s; 1t 117s. Diyagama, 1b 120s; 2c 116s; 3c 111s 6d; 1b 104s; 1c 127s.

Ex "Karamania"—Ouvah, 2c 103s; 12c 100s; 3c 99s; 1b 98s; 1b 107s 6d.

Ex "Pak Ling"—Roehampton, 1b 117s; 1c 107s; 2c 1b 104s 6d; 1b 99s; 1t 111s.

Ex "Arcadia"—PDM, 1t 115s; 6c 1t 111s; 1c 1t 105s; 1b 100s; 1c 116s; 1c 97s.

Ex "Karamania"—Kelburne, 1b 100s.

Ex "Pak Ling"—Lawrence, 1c 116s 6d; 2c 113s 6d; 2c 1b 107s 6d; 1b 101s; 1c 121s. Talawakellie, 1c 114s; 1c 1t 111s; 1c 1b 107s; 1b 101s; 1t 121s. Yapame, 1c 109s; 2c 107s; 1c 1t 106s 6d; 1b 100s; 1t 114s.

Ex "Ormuz"—Balmoral, 1b 117s; 7c 1t 113s 6d; 3c 1t 109s; 1c 102s; 2c 1t 123s 6d. Maousa Ella, 1b 118s; 5c 103s 6d; 2c 114s 6d; 3c 111s 6d; 1c 104s 6d; 2c 126s.

Ex "Chusan"—Caledonia, Dimbula, 1c 115s; 5c 1b 112s; 5c 108s; 1b 105s; 1c 1b 177s 6d; 1c 98s; 1b 104s; 1b 114s; 1b 115s.

Ex "Lancashire"—1b 107s; 5c 1t 105s 6d; 2c 1b 102s 6d; 1t 100s; 1c 109s; 1c 89s.

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, February 5th, 1892.

Ex "Oanfa"—Yattawatte, 70b 105s; 8b 71s; 1b 65s; 6b 85s.

Ex "Assaye"—Woodslee, 3b 65s; 16b 105s; 4b 76s; 1b 40s. Bulatwatte, 16b 110s; 2b 84s 6d; 1b 65s; 47b 105s; 7b 76s; 2b 40s. Palli, 40b 95s; 52b 96s; 4b 90s 6d.

Ex "Bohemia"—Palli, 15b 85s; 2b 90s.

Ex "Polyphemus"—Hylton, 36b 108s; 2b 58s 6d; 1b 61s; 5b 53s. Isabel, 35b 108s 6d.

Ex "Gleneagles"—Maynetrees, 17b 77s; 10b 62s 6d.

MINCING LANE, Feb. 12th

Ex "Goorkha"—Maria, 80b 100s; 25b 84s.

Ex "Karamania"—Dynevor, 41b 109s; 10b 104s; 13b 86s; 7b 53s; 2b 60s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Feb. 5th.

Ex "Port Denison"—Dryburgh, 1c 2s 4d; 1c 2s 3d.

"CEYLON OBSERVER" PRESS, COLOMBO.

NO. 9.] COLOMBO, APRIL 11, 1892. { PRICE :—12½ cents each ; 3 copies 30 cents ; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 23rd March the undermentioned lots of Tea (32,219 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	A S C	1	1	hf-ch	fans	50	15	
2	Do	2	2	do	dust	140	14	
3	Do	3	4	do	red leaf	200	10	
4	D E C	4	1	do	fans	50	15	
5	Do	5	4	do	red leaf	180	9	
6	G H S, in estate mark	6	1	ch	congou	100	15	
7	Do	7	20	do	pekoe	1700	33	
8	Do	9	17	do	bro pek	1615	53	
9	D	11	2	do	dust	320	14	
10	K	12	17	do	pekoe	1175	28	
11	K	14	2	do	dust	210	17	
18	B P	22	37	hf-ch	pekoe	2018	27	
19	O P	22	2	ch	dust	140	16	
20	Do	24	1	do	red leaf	98	5	
21	Ettapola	25	13	hf-ch	bro pek	715	45	bid
22	Do	27	22	do	pekoe	1210	28	bid
23	G, in estate mark	29	8	do	fans	960	12	
24	S	31	15	do	bro pek	1575	39	
25	S	33	22	do	pekoe	2156	27	
26	S	35	1	do	bro mix	110	5	
27	K G K	36	3	do	sou	330	16	
28	Do	37	1	do	red leaf	100	6	
31	Nahalma	40	32	hf-ch	bro pek	1824	55	
32	Do	42	25	ch	pekoe	2500	35	bid
33	Do	44	6	do	pek sou	600	28	
34	Do	46	2	do	congou	200	15	
35	Do	47	2	do	dust	150	16	
36	K E, in estate mark	48	12	do	pekoe	1140	27	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 23rd March the under mentioned lots of Tea (145,159 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	L B K	516	2	ch	sou	250	14	
2	Telissagalla	518	1	do	bro mix	110	13	
3	Do	520	1	do	dust	155	15	
4	Walahandduwa	522	6	do	bro pek	600	58	
5	Do	524	8	do	pekoe	760	33	
	Do	526	12	do	pek sou	1200	24	
6	S P A	528	18	do	unas	1980	27	
7	Do	530	3	do	red leaf	300	9	bid
8	S P V	532	2	do	bro pek	230	37	
9	Do	534	1	do	pekoe	95	28	
10	Do	536	2	do	pek sou	220	ou	
11	L G E	538	9	do	or pek	900	39	
12	Do	540	5	do	pekoe	500	26	
13	Do	542	2	hf-ch	dust	170	17	
14	St. Helier's	544	29	do	bro or pek	1450	57	
15	Do	546	26	ch	pekoe	2600	34	
16	Do	548	16	do	pek sou	1600	25	
17	Do	550	3	do	dust	375	19	
18	Kudaoya	552	20	hf-ch	pekoe	1000	38	
19	Do	554	10	do	do	200		
20	Do	556	20	do	pek sou	1000	23	bid
21	Do	558	10	do	do	200		
22	K H L	560	4	ch	red leaf	360	9	
23a			7			630	7	
24	B G, in estate mark	562	4	do	bro pek	400	39	bid
25	Do	564	5	do	pekoe	500	29	
26	Do	566	3	do	pek sou	300	24	
27	Do	568	3	do	fan	390	21	
28	Do	570	5	do	sou	500	9	bid
29	P	572	1	do	congou	83	9	
30	P	574	2	do	dust	320	15	
31	Penrhos	576	22	hf-ch	or pek	990	57	
32	Do	578	13	do	bro pek	715	66	
33	Do	580	24	do	pekoe	1200	40	
34	Do	582	50	do	pek sou	2000	31	
35	Donside	584	2	do	sou	140	12	
06	Do	586	1	ch	dust	140	14	
37	Do	588	1	hf-ch	red leaf	49	6	
38	J C D S	590	5	do	bro pek	300	51	
39	Do	592	11	do	pekoe	550	36	
40	Do	594	4	do	pek sou	180	25	
41	Mukeloya	596	16	do	bro pek	1040	49	
42	Do	598	10	do	pekoe	600	36	
43	Do	600	10	do	pek sou	600	28	
48	Nugagalla	610	17	hf-ch	bro pek	850	61	
49	Do	612	50	do	pekoe	2250	42	
50	Do	614	3	do	pek sou	150	20	
51	Do	616	3	do	dust	240	16	
52	S T O	618	7	do	dust	504	12	
53	Castlereagh	620	50	do	bro or pek	2500	62	bid
54	Do	622	75	do	pekoe	4125	45	bid
55	Yataderia	624	34	ch	bro pek	3750	47	bid
56	Do	626	40	do	pekoe	4200	27	bid
57	Warwick	628	26	hf-ch	bro pek	1170	61	bid
58	Do	630	56	do	pekoe	2240	40	bid
95	W	632	3	do	dust	180	16	
60	W	634	1	do	congou	40	41	
1	W	636	1	do	bro mix	40	30	
62	N G	638	2	do	bro pek	100	61	
63	Do	640	5	do	pekoe	250	16	
64	C H	642	3	do	sou	150	7	
65	Farnham	644	11	box	bro or pek No. 1	220	57	
66	Do	646	21	hf-ch	bro or pek	945	60	
67	Do	648	24	do	pekoe	960	42	
68	Do	650	28	do	pek sou	60	25	
69	Do	652	8	do	fan	80	21	
70	Do	654	2	do	dust	40	14	
71	Pansalatenne	656	8	ch	congou	800	16	
72	Do	658	2	hf-ch	dust	150	15	
73	G	660	1	ch	dust	150	14	
74	K C	662	4	do	dust	590	8	
75	Palmerston	664	13	do	bro pek	715	56	
76	Do	666	16	ch	pekoe	1600	49	
77	Do	668	9	do	pek sou	900	29	
82	Queensland	678	23	ch	flo pek	2300	76	
83	Do	780	18	do	pekoe	1710	49	
84	Do	682	6	do	pek sou	600	31	
85	Do	684	1	do	pek fans	130	16	
86	W T	686	15	hf-ch	bro pek	750	39	bid
87	Do	688	21	do	pekoe	1050	22	bid
88	Do	690	1	do	sou	45	16	
89	Do	692	1	do	dust	65	14	
90	Kelvin	694	1	do	congou	90	14	
91	Do	696	1	do	fans	110	14	
92	Do	698	1	do	dust	150	15	
93	D, in estate mark	700	10	ch	pekoe	1000	out	
94	Theberton	702	16	do	bro pek	1600	35	
95	Do	704	5	do	do No. 2	500	21	
96	Do	706	10	do	pekoe	1000	22	
97	Do	708	10	do	pek sou	1000	19	
98	Do	710	3	do	congou	300	12	
99	Do	712	1	do	pek dust	100	15	
100	Bandarapolla	714	17	ch	bro pek	1700	47	
101	,,	716	18	do	pekoe	1800	28	
102	,,	718	12	do	pek sou	1200	24	
103	,,	720	3	do	sou	300	7	bid
104	Middleton	722	45	hf-ch	bro pek	2700	61	
105	,,	724	14	ch	pekoe	1400	52	
106	,,	726	2	do	congou	200	15	
107	Dunkeld	728	20	do	bro pek	2200	65	
108	,,	730	43	hf-ch	or pek	1935	49	
109	,,	732	34	ch	pekoe	3230	31	bid
110	D K D	734	19	do	pek sou	1520	29	
111	Horagaskelle	736	6	hf-ch	bro pek	348	37	
112	,,	738	9	do	pekoe	504	24	
113	,,	740	22	do	pek sou	1232	19	
114	,,	742	2	do	congou	104	13	
115	,,	744	3	do	bro mix	222	8	
116	Midlothian	746	23	do	bro pek	1380	45	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
117	,,	748	21	ch	pekoe	2100	25	bid
118	,,	750	1	hf-ch	congou	50	14	
119	,,	752	1	ch	dust	120	16	
120	,,	754	1	hf-ch	red leaf	50	6	
121	Clarendon	756	29	do	bro pek	1740	56	bid
122	,,	758	30	ch	pekoe	3000	46	
123	,,	760	30	do	do	3000	45	
124	,,	762	2	do	dust	300	14	bid
125	Langdale	764	14	do	bro pek	1400	51	
126	,,	766	28	do	pekoe	2520	29	bid
127	Talgaswela	768	3	do	sou	270	17	
128	Wewessa	770	27	hf-ch	bro pek	1350	60	
129	,,	772	40	do	pekoe	2000	40	
132	,,	774	18	do	pek sou	900	27	bid
131	A F	776	5	ch	bro mix	525	5	bid
132	W A	778	3	do	pek sou	280	withd'n	
133	Harrington	780	22	do	or pek	2200	61	
134	,,	782	10	do	pekoe	1000	44	
135	,,	784	26	do	pek sou	2080	27	
136	,,	786	1	do	bro mix	100	9	
137	,,	788	3	do	dust	420	16	
138	A & F	790	1	do	mixed	98	12	
139	,,	792	9	do	bro tea	855	out	
140	Merisketiya	794	12	do	unas	1200	20	bid
141	,,	796	5	do	pek sou	450	28	
142	,,	798	2	do	pek fans	120	18	
143	B F B	800	2	hf-ch	unas	115	14	
144	,,	2	1	do	dust	87	14	
145	B	4	4	do	sou	380	out	
146	Weoya	6	25	hf-ch	bro pek	1500	45	bid
141	,,	8	50	do	pekoe	2500	30	
148	,,	10	20	do	pek sou	1000	27	
149	A	12	4	do	pekoe	200	19	
150	A	14	5	do	bro tea	225	5	
151	Alton	16	6	ch	bro tea	543	46	
152	Claremont	18	2	hf-ch	dust	56	13	
153	,,	20	1	do	bro tea	10	71	
154	Polatagama	22	41	do	bro pek	2460	50	bid
155	,,	24	73	do	pekoe	3650	39	
156	,,	26	73	do	pek sou	3650	32	
157	Abamalla	28	4	do	bro mix	200	15	
158	,,	30	8	do	dust	600	17	
159	Gracelyn	32	17	do				
			1	ch		pek mix 972	4	

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 30th March the undermentioned lots of Tea (45,286 lb.), which sold as under:—

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
1	P G	1	5	ch	dust	450	16	
2	Do	2	5	do	congou	450	13	
3	Nahalma	3	38	do	pekoe	3800	36	bid
4	Do	5	3	do	dust	225	17	
5	Citrus	6	5	hf-ch	bro pek	300	48	bid
6	Do	7	11	do	pekoe	598	29	
7	Do	9	6	do	pek sou	250	24	
8	Do	10	5	do	bro mix	325	27	
9	Do	11	3	do	congou	150	14	
10	Do	12	2	ch	fans	130	12	
11	Horana	13	4	hf-ch	bro pek	236	50	
12	Do	14	20	do	pekoe	1060	22	
18	Agraoya	24	9	do	pekoe	900	29	
19	Do	26	11	do	do	1088	24	
22	Harrow	32	13	hf-ch	bro pek	780	69	
23	Do	34	23	do	pekoe	2185	50	
24	H H	36	2	do	bro pek	120	51	
25	Do	37	1	do	congou	104	14	
26	Do	38	1	do	bro mix	82	15	
27	A G C	39	10	hf-ch	bro pek	500	out	
28	Do	44	11	do	pk dust	770	12	
29	K G	43	1	ch	pekoe	88	31	
30	K K	44	11	do	pekoe	1100	28	
31	Agraoya	46	12	do	bro pek	1200	52	
32	Do	48	34	do	pekoe	3400	28	bid
33	Do	50	2	do	pek sou	150	58	bid
38	Shannon	58	6	do	or pek	30	42	
39	Do	60	12	do	pekoe	1776	32	
40	Do	62	4	do	pek sou	392	38	
41	G	63	2	hf-ch	unas	95	71	
42	Pemberton	64	8	do	bro pek	320	42	
43	Do	65	7	do	pekoe	280	12	
44	Do	66	5	ch	pek sou	500	32	
45	Do	68	1	hf-ch	bro pek dust	75	14	
46	Shannon	69	7	ch	or pek	735	24	
47	Do	71	16	ch	pekoe	1568	14	
48	Do	73	4	do	pek sou	392	13	
49	Dikmukalana	74	1	hf-ch	dust	50	52	
50	V E	75	2	ch	bro pek	200	94	
51	Do	76	3	do	pekoe	270	27	
52	Do	77	2	do	pek sou	160	23	
53	K'Della	78	7	do	bro pek	700	43	
54	Do	80	8	do	pekoe	720	30	
55	Do	82	4	do	pek sou	320	23ber	

Mr. E. John put up for sale at the Chamber of Commerce Sale-room on the 30th March the undermentioned lots of Tea (52,840 lb.), which sold as under:—

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
1	B, in estate mak	119	3	hf-ch	congou	180	21	
2	M R	120	1	ch	dust	144	41	
3	L	121	5	hf-ch	dust	350	15	
4	L	122	2	do	congou	80	68	
5	L	123	4	do	red leaf	200	40	
6	L	124	2	ch	pek sou	200	19	
7	T K	125	13	hf-ch	dust	1105	11	bid
8	D E	126	13	do	bro mix	741	11	
9	Little Valley	128	7	ch	pek sou	560	24	
10	D K O	130	16	do	unas	1600	15	bid
11	Do	132	6	do	bro mix	605	6	bid
12	K	134	17	hf-ch	bro pek	850	58	
13	K	136	23	do	pekoe	920	41	
14	K	138	35	do	pek sou	1575	27	
15	K	140	3	do	sou	105	15	
22	Nahakettia	151	8	do	bro pek	800	62	
23	Do	153	15	do	pekoe	1500	45	
24	Do	155	3	do	sou	300	wi23	
25	Do	156	2	do	bro tea	200	thd'n.	
26	D K O	157	22	do	Ceylon blend	2200	14	bid
28	Tientsin	161	22	hf-ch	bro pek	1160	19	
29	Do	163	18	do	pekoe	1800	54	bid
30	Do	165	12	do	pek sou	1200	39	
31	Do	167	1	hf-ch	dust	70	17	
32	Eila	168	43	ch	bro pek	4300	56	
33	Do	170	61	do	pekoe	5490	30	bid
34	Do	172	10	do	do	900	22	
35	Do	174	48	do	pek sou	4320	23	bid
36	Do	176	6	do	do	540	12	bid
37	Do	178	1	do	fans	90	11	bid
38	Do	179	3	do	dust	420	15	
39	Coslanda	180	18	do	pekoe	1800	42	
40	Do	182	4	do	sou	400	19	
41	Do	183	3	do	bro tea	300	12	
42	Troup	184	35	hf-ch	bro pek	2100	74	
43	Do	186	37	ch	pekoe	3330	51	
44	Do	188	1	do	congou	90	19	
45	Dickapittiya	189	7	do	bro pek	700	60	
46	Do	191	3	do	pekoe	300	42	
47	Do	193	10	do	pek sou	1000	30	
48	Do	195	1	do	sou	90	19	
49	Agra Ouvah	196	32	hf-ch	bro pek	1600	79	
50	Do	198	39	do	pekoe	1755	56	
51	Do	200	33	do	pek sou	1485	44	
52	Do	202	9	do	do No. 2	405	25	
53	Albion	204	20	ch	bro pek	2100	74	bid
54	Do	206	17	do	pekoe	1615	54	bid
55	Do	208	12	do	pek sou	1140	34	bid
56	Do	210	2	hf-ch	dust	170	17	
61	Gonakelle	218	8	ch	bro or pek	880	62	
62	Do	220	4	do	pekoe	420	45	
63	Do	222	5	do	pek sou	550	31	
64	Do	224	1	do	fans	130	19	
67	Monteragalla	227	28	do	pekoe	3080	37	
68	Fernland	229	3	do	unas	330	24	

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 30th March the undermentioned lots of Tea (57,670 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	T, in estate mark	36	19	ch	sou	1786	24
2	Do	37	5	do	fans	540	18
3	Do	38	1	do	unas	100	27
4	Do	39	6	do	dust	744	17
5	Do	40	2	do	congou	144	12

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
6	T, in estate mark	41	1	hf-ch	unas	56		
7	Gona Adika	42	28	ch	pek sou	2240	24	
8	Do	43	3	hf-ch	dust	210	17	
9	Arslena	44	7	do	pek sou	350	27	
10	Do	45	28	do	unas	1400	38	
11	Roseneath	46	21	do	bro pek	1365	50	bid
12	A	47	16	ch	pekoe	1680	35	
13	Do	48	18	do	pek sou	1890	25	bid
14	St. Andrews	49	68	box	or pek	1360	62	
15	I N G	50	3	ch	red leaf	300	8	bid
16	Do	51		do	dust	200	16	
17	Do	52	2	do	bro mix	200	16	
18	R X	53	1	do	bro mix	120	16	
19	Do	54	2	do	dust	280	16	
20	C T M	55	5	do				
			1	hf-ch	bro mix	495	16	
21	Do	56	4	ch	dust	280	15	bid
22	D G	57	4	do	dust	440	16	bid
23	Do	58	5	do	fans	550	20	
24	Do	59	2	do	bro mix	176	10	
25	B F	60	2	do	dust	258	15	bid
26	Do	61	3	do	fans	349	20	
27	Do	62	2	do	bro mix	200	15	
28	W A	63	13	do	bro pek	1300	63	
29	Do	64	14	do	pekoe	1400	44	
30	Kuruwitty		1	box	golden tip No. 1	4		withd'n.
31	Do		1	do	do „ 2	4		
32	P G, in estate mark	65	25	ch	bro or pek	2500	51	
33	Do	66	34	do	pekoe	3060	36	
34	Do	67	23	do	pek sou	1955	26	
35	Do	68	6	do	sou	510	16	
36	H S, in estate mark	69	25	do	bro or pek	2500	52	
37	Do	70	34	do	pekoe	3060	35	
38	Do	71	23	do	pek sou	1955	26	
39	Do	72	6	do	sou	510	16	
40	Hiralouvah	73	2	hf-ch	bro pek dust	144	20	
41	Do	74	2	do	dust	140	16	
42	Do	75	2	do	bro mix	106	26	
43	Wewatenne	76	5	do	bro pek	250	out	
44	D A	77	4	ch	pekoe	370	21	bid
45	Malgolla	78	10	hf-ch	bro pek	550	45	
46	B	79	4	ch	bro pek	479	49	
47	B	80	3	do	pek sou	338	28	
48	C A, in estate mark	81	50	hf-ch	unas	2800	30	
49	Do	82	26	do	pek sou	1456	27	
50	S B R	83	24	ch	bro pek	2160	53	
51	Do	84	35	do	pekoe	2800	33	
52	Do	85	5	do	pek sou	5220	25	
57			13	hf-ch	bro pek	650	18	

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 30th March the undermentioned lots of Tea (106,830 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	E D K E, in estate mark	34	2	hf-ch	unas	100	14	
2	Do	36	6	do	red leaf	300	10	
3	T C O	38	5	ch	bro tea	560	20	
4	Do	40	3	do	dust	420	15	
5	California	42	1	hf-ch	pekoe	35	45	
6	Do	44	2	do	pek sou	113	23	
7	Do	46	1	do	sou	65	19	
8	Catherine Valley	48	1	box	bro pek	25	57	
9	Do	50	2	hf-ch	pekoe	92	27	
10	Do	52	6	do	pek sou	285	23	
11	Do	54	1	do	fans	45	20	
12	Do	56	1	do	congou	45	14	
13	Do	58	1	do	dust	65	16	
19	Ardooh	70	11	hf-ch	bro pek	605	74	
2	Do	72	10	do	pekoe	00	61	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
21	Ardoch	74	5	hf-ch	pek sou	475	40	
22	Pate Rajah	76	12	ch	bro pek	1200	44	
23	Do	78	12	do	pekoe	1200	29	
24	Do	80	1	do	sou	90	16	
25	Do	82	1	do	dust	120	16	
26	G, in estate mark	84	9	hf-ch	bro pek	450	21	
27	Do	86	11	do	pekoe	550	58	
28	Do	88	18	do	pek sou	900	30	
29	Do	90	1	ch	bro mix	70	24	
30	Do	92	1	hf-ch	dust	70	15	
31	Maha Uva	94	13	do	bro pek	780	18	
32	Do	96	13	do	pekoe	650	52	
33	Do	98	19	do	pekoe A	950	34	
34	Do	100	2	do	pek sou	100	23	
35	Alnoor	102	49	do	bro pek	2450	46	
36	Do	104	32	do	pekoe	1600	27	
37	Do	106	30	do	pek sou	1500	49	
38	Do	108	2	do	sou	100	83	
39	Do	110	4	do	dust	400	24	
40	Weddigodde	112	4	do	bro pek	200	32	
41	Do	114	14	do	pekoe	700	81	
42	Do	116	8	do	pek sou	400	26	
43	Anningkande	118	19	ch	bro pek	1900	42	
44	Do	120	25	do	pekoe	2500	28	
45	Do	122	6	do	pek sou	540	24	
46	Llandaff	124	30	do	pekoe	3000	33	bid
7	Do	126	9	do	pekoe No. 2	810	21	bid
49	P D M, in estate mark	130	1	do	dust	105	16	
50	Do	132	1	hf-ch	congou	58	16	
53	Courtlodge	138	29	do	bro pek	1682	83	
54	Do	140	23	do	pekoe	1104	65	
55	Do	142	23	do	pek sou	1104	47	
56	Do	144	1	ch	sou	84	21	
57	S B R	146	3	do	bro pek	270	45	
58	Do	148	4	do	pekoe	320	29	
59	Do	150	6	do	pek sou	540	23	
60	Ancoombra	152	4	do	dust	610	16	
61	Angroowella	154	2	hf-ch	dust	170	18	
62	Ancoombra	156	38	ch	bro pek	4092	57	
63	Do	158	26	do	pekoe	3010	38	
64	Do	160	17	hf-ch	sou	1020	25	
65	Chesterford	162	12	ch	bro pek	1200	64	
66	Do	164	20	do	pekoe	1900	40	
67	Do	166	20	do	pek sou	2000	25	
68	C	168	2	do	fans	300	16	
69	C	170	1	do	dust	150	15	
70		172	1	do	congou	83	out	
71	B W	174	3	do	bro pek	300	52	
72	Do	176	4	do	pekoe No. 1	340	37	
73	Do	178	2	do	pekoe „ 2	180	14	
74	Do	180	2	do	fans	160	22	
75	Do	182	6	do	red leaf	600	17	
75a	Do	183	3	do	dust	300	24	
76	Do	184	4	do	bro tea	400	22	
77	Do	186	10	do	dust	1050	19	
78	Bandarapolla	188	12	do	bro pek	1200	10 13	
79	Do	190	23	do	pekoe	2300	14	
80	Do	192	15	do	pek sou	1500	17	
81	L, in estate mark	194	7	do	bro tea	700	49 27	
82	C, in estate mark	196	6	do	bro tea	600	45	
83	Torwood	198	6	do	pek sou	510	27	bid
84	Yataderia	200	30	do	bro pek	3300	23	
85	Do	202	12	do	or pek	1200		
85	Do	203	1	do	do	100	9	bid
86	Do	204	43	do	pekoe	4515		
87	Do	206	17	do	pek sou	1615	out	
88	Castlereagh	208	19	hf-ch	bro or pek	1333	22	
89	Do	210	45	do	pekoe	2475	47	bid
94	Yahalakelle	220	2	ch	red leaf	200	33 40	
95	Do	222	1	do	dust	150	26	bid
96	P	224	5	do	dust	700	20	bid
97	P	226	7	do	fans	560	56	bid
89	Sea Field	228	20	hf-ch	bro pek	1040	40	bid
99	Do	230	30	do	pekoe	1500		
100	S P A	232	3	ch	red leaf	300	10	
101	A F	234	5	do	bro mix	525	15	
102	M, in estate mark	236	1	ch	bro pek	80	18 8	
103	Do	238	1	do	pekoe	84	30	
104	Do	240	1	hf-ch	bro pek sou	40	12	
105	Do	242	1	do	dust	45	7	
106	Ceylon, W	244	8	ch	pek dust	1200		

Lot No.	Mark	Box No.	Pgs.		Description	Weight lb	c.	
107	N, in estate mark	246	4	ch	unas	440	63	
108	Langdale	248	14	do	bro pek	1400	25	
109	B	250	4	do	bro pek	400	15	
110	B	252	8	do	bro pek sou	760	17	
111	K	254	1	do	pek sou	100	17	bid
112	K	256	1	do	dust	180		
113	O H	258	10	do	bro mix	900	24	bid
114	Patiagama	260	5	do	bro pek	550	51	
115	Do	262	17	do	pekoe	1700	30	
116	Do	264	1	do	pek sou	74	8	
117	Do	266	1	do	dust	150	13	
118	Yataderia	268	40	do	pekoe	2400	11	
119	Park	270	15	do	bro pek	1650	out	
120	Do	272	24	do	pekoe	2400	51	bid
121	Do	274	10	do	pek sou	1000	33	
122	Do	276	4	hf-ch	dust	320	16	
123	Atherfield	278	11	do	sou	550	16	
124	Do	280	3	ch	dust	420	26	
125	Udabage	282	12	hf-ch	dust	840	16	
126	C B	284	8	do	dust	640	8	
127	Do	286	1	do	red leaf	62	44	
128	Ellengo-wan	288	11	ch	bro pek	1100	28	
129	Do	290	10	do	pekoe	950	15	
130	Do	292	1	hf-ch	sou	55	51	bid
131	B G, in estate mark	294	4	ch	bro pek	400	39	
132	Do	296	3	do	pekoe	300	24	
133	M, in estate mark	298	4	do	sou	440	22	
134	P, in estate mark	300	1	do	dust	150	14	
135	R C	302	20	hf-ch	pek sou	1000	19	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 6th April the undermentioned lots of Tea (55,447 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Pittawella	91	28	hf-ch	bro pek	1260	47	bid
2	Do	92	19	do	pekoe	760	32	bid
3	Do	93	18	do	pek sou	792	27	bid
4	P	94	1	do	congou	50	15	
5	P	95	1	do	dust	60	15	
6	P	96	2	do	bro mix	92	out	
7	Kurulugalla	97	11	ch	bro pek	1100	37	bid
8	Do	98	18	do	pekoe	1800	27	
9	Do	99	14	do	pek sou	1260	21	
10	Do	100	4	do	sou	335	15	
11	Allakolla	1	48	hf-ch	bro pek	3120	57	
12	Do	2	32	ch	pekoe	3360	37	
13	Do	3	24	do	pek sou	2400	29	
14	Do	4	2	hf-ch	dust	180	15	
15	S, in estate mark	5	19	ch	bro tea	1822	8	bid
16	P	6	9	do	bro mix	900	out	
17	V	7	12	do	or pek	1200	25	
18	Forest Hill	8	12	do	bro pek	1320	51	
19	Do	9	19	do	pekoe	1900	30	
10	Do	10	2	do	dust	260	15	
11	Do	11	1	do	congou	100	14	
12	Mousa-kanda	12	9	do	bro pek	990	48	bid
23	Do	13	17	do	pekoe	1700	30	
24	Do	14	1	do	congou	100	14	
25	Do	15	1	do	dust	130	15	
26	R Y K	16	5	hf-ch	bro pek	250	40	
27	Do	17	2	do	pekoe	100	25	
28	Do	18	8	do	pek sou	400	17	
29	W Tenne	19	4	do	bro pek	200	47	
30	Do	20	4	do	pekoe	200	27	
31	Do	21	8	do	pek sou	400	24	
32	Do	22	7	do	sou	350	20	
43	Stockholm	33	23	hf-ch	bro pek	1265	71	bid
44	Do	34	39	do	pekoe	1950	49	bid
45	Do	35	26	do	pek sou	2340	33	
46	S M	36	3	do	fans	420	17	
47	Charlie Hill	37	2	do	bro or pek	103	46	bid
48	Do	38	3	do	bro pek	150	52	bid
49	Do	39	7	do	pekoe	350	35	bid
50	Do	40	8	do	pek sou	400	27	bid
51	Do	41	5	do	sou	213	21	
52	Do	42	1	do	unas	56	24	bid
53	Do	43	1	do	bro mix	50	13	
54	Do	44	2	do	dust	110	17	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
55	Narangoda	45	8	ch	pekoe	880	40	bid
56	Do	46	23	do	pek sou	2300	25	
57	Do	47	2	hf-ch	dust	140	14	
58	Roseneath	48	21	do	bro pek	1365	50	
59	Do	49	18	ch	pek sou	1890	26	
60	Ingeriya	50	6	hf-ch	bro pek	330	38	bid
61	Do	51	17	do	pekoe	850	23	bid
62	Do	52	16	do	pek sou	768	21	
63	Do	53	1	do	bro tea	66	15	
64	Do	54	2	do	bro mix	100	8	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, March 18th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 18th March.:—

Ex "Ameer"—Morar, 1c 114s; 3c 111s; 5c 1b 108s; 1c 103s; 1c 1b 120s; 1c 1b 96s 6d; 1t 94s; 1b 104s.

Ex "Moyune"—Ouvah, 2c 1t 103s; 11c 1b 100s; 1b 95s; 1c 110s.

Ex "Capella"—Ouvah, 5c 105s; 15c 101s; 1c 1b 96s 6d; 1c 112s; 1c 1b 108s 6d.

Ex "Ameer"—Needwood, 1c 1b 105s 6d; 1c 1t 101s 6d; 1b 96s; 1b 106s.

Ex "Gaekwar"—St. G, 2b 98s.

Ex "Ameer"—Caledonia, Dimboola, 1t 113s: 3c 1t 111s 6d; 6c 108s 6d; 1c 1b 103s 6d; 1c 1b 118s.

Ex "Scindia"—Deyanella, 2c 107s; 1t 96s; 1b 94s; 1b 100s.

Ex "Ningchow"—Diyagama, 1b 108s; 2c 109s 6d; 7c 105s; 1c 102s; 1c 1b 116s.

Ex "Scindia"—Mahauva, 1c 1b 97s; 1b 99s.

Ex "Ameer"—Logie, 3c 1b 109s 6d; 5c 105s 6d; 5c 1t 105s; 3c 100s 6d; 2c 1t 115s 6d.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, March 18th, 1892.

Ex "Ameer"—Eriagastenne, 22b 108s; 5b 94s.

Ex "Dictator"—Gangwarily, 10b 108s.

Ex "Agamemnon"—Wariagalla, 4b 93s.

Ex "Ameer"—Ross, 43b 108s; 5b 90s; 1b 58s; 3b 52s.

Ex "Capella"—Alloowiharie, 16b 96s.

Ex "Agamemnon"—A, 15b 101s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, March 18th. 1892.

Ex "Capella"—Amblamana, 1c 3s 1d; 1c 2s; 1c 1s 10d; 3c 1s 2d; 1c 3s 7d; 5c 2s 9d; 1c 2s 2d; 2c 2s; 1c 1s 7d; 1c 2s 3d.

Ex "Port Caroline"—Gallantenne, 1c 2s 1d; 2c 1s 9d.

Ex "Agamemnon"—Nellaoolla, 1c 2s 8d; 1c 1s 7d; 1c 1s 2d; 2c 1s 4d. Mt. Pleasant, 3c 1s 3d; 1c 1s 1d 2c 1s 5d.

CEYLON OBSERVER" PRESS, COLOMBO.

NO. 10.] COLOMBO, APRIL 21, 1892. { PRICE :—12½ cents each ; 3 copies 30 cents ; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 6th April the undermentioned lots of Tea (30,662 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	D	1	1	ch	pek sou	90	24	
2	D	2	2	do	bro mix	180	8	
3	D	3	2	do	dust	300	15	
4	Doragalla	4	5	do	pek sou	450	24	
5	Do	5	5	do	bro mix	450	8	
6	Dehiowita	6	28	do	bro pek	2940	50	bid
7	Do	8	49	do	pekoe	4900	29	bid
8	Do	10	18	do	pek sou	1710	24	
9	Do	12	1	do	bro tea	120	14	
10	Do	13	1	do	dust	160	16	
11	D	14	4	do	dust	600	16	
12	D	16	7	do	congou	700	14	
13	Nahalma	18	31	hf-ch	bro pek	1767	56	
14	Do	20	27	ch	pekoe	2700	33	
15	Do	22	7	do	pek sou	700	26	
16	Do	24	1	do	dust	75	16	
17	E E	25	22	do	pekoe	2200	25	bid
18	Agra Oya	27	8	do	bro pek	800	42	bid
29	Do	29	16	do	pekoe	1600	25	bid
10	A G C	31	10	hf-ch	fans	500	13	bid
11	Do	33	11	do	pek dust	770	14	
22	Comillah	35	10	do	bro pek	550	38	
23	Do	37	7	do	pekoe	350	24	
24	Do	38	5	do	pek sou	250	19	
25	Do	39	1	do	dust	80	14	
26	S V, in estate mark	40	24	do	dust	1680	12	
27	Do	42	3	do	bro mix	120	10	
28	M L C	43	62	do	pek sou	3100	24	
29	Do	45	6	do	red leaf	300	5	
30	Do	46	4	do	sou	200	15	
31	Do	47	4	do	dust	200	16	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 6th April the undermentioned lots of Tea (78,575 lb.), which sold as under :—

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
		230	3	ch	dust	375	15	
2	Do	231	2	do	red leaf	200	15	
3	W, in estate mark	232	15	do	bro pek	1575	54	
4	Do	234	15	do	pekoe	1425	29	
5	Do	236	17	do	pekoe	1700	28	
6	Do	238	12	do	pek sou	1140	25	
7	Do	240	3	do	fans	315	18	
8	Do	241	3	do	dust	450	15	
9	Tombagalla	242	12	do	pekoe	1200	42	
10	Do	244	1	do	dust	144	16	
11	Kandenewera	245	18	do	bro pek	1800	58	
12	Do	247	46	do	pekoe	4600	34	bid
13	Do	249	20	do	pek sou	2000	29	
14	M R	251	2	do	dust	271	15	
15	C	252	1	do	unas	98	30	
16	P T E	253	2	do	dust	297	15	
17	Mocha	254	24	ch	bro pek	2400	67	
18	Do	256	33	do	pekoe	3135	50	
19	Do	258	17	do	pek sou	1530	36	
20	Talagalla	260	27	do	or pek	2565	41	
21	Do	262	15	do	bro pek	1740	51	bid
22	Do	264	25	do	pekoe	2375	33	
23	El Teb	266	12	hf-ch	or pek	720	44	
24	Do	268	13	do	pekoe	780	26	
25	Great Valley	270	13	ch	bro pek	1430	61	
26	Do	272	15	do	pekoe	1500	40	
27	Do	274	15	do	pek sou	1425	30	
28	Do	276	4	hf-ch	dust	280	17	
29	Maddoltenne	277	14	ch	bro pek	1470	51	
30	Do	279	12	do	pek sou	1200	24	
31	Orange Field, P N R	281	8	do	bro pek	800	25	bid
32	Do	283	10	do	pekoe	950	22	
33	Do	285	9	do	bro tea	810	8	
34	Do	287	3	do	dust	360	13	
35	Ayr	288	23	hf-ch	bro pek	1150	61	
36	Do	290	43	do	pekoe	1806	37	
37	Do	302	36	do	pek sou	1584	26	
38	Do	304	6	do	congou	258	15	
39	Do	305	4	do	fans	200	17	
40	Do	306	1	do	bro pek dust	71	18	
41	Do	307	1	do	pek dust	71	15	
42	T K	308	13	do	dust	1105	14	

MESSRS. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room, on the 6th April the undermentioned lots of Tea (153,577 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	H & H	304	5	ch	bro mix	500	15
2	Horagas kelle	306	2	hf-ch	pek sou	112	17
3	Lesmoir	308	1	ch	dust	150	15
4	Do	310	1	hf-ch	red leaf	45	11
5	Eadella	312	2	ch	dust	298	14
6	Do	314	4	do	red leaf	288	9
7	Langdale	316	26	do	bro pek	2860	49
8	Do	318	46	do	pekoe	4600	31
9	Do	320	16	do	pek sou	1600	25
10	Do	322	4	do	dust	504	81
11	Farm	324	9	do	bro pek	900	53
12	Do	326	17	do	pekoe	1380	32
13	Do	328	26	do	pek sou	2210	27
14	Do	330	1	do	sou	100	15
15	Do	332	1	do	dust	150	15
16	Do	334	1	hf-ch	red leaf	40	6
17	Bismark	336	22	ch			
			1	hf-ch	bro pek	2700	48
18	Do	338	35	ch	pekoe	3500	35
19	Mahatenne	340	5	hf-ch	or pek	300	49
20	Do	342	7	do	pekoe	420	31
21	S G K C, Ceylon	344	1	ch	bro pek	105	36
22	Do	346	2	do	pekoe	190	29
23	Do	348	2	do	bro tea	180	10
24	Ellekande	350	12	hf-ch	bro pek	660	55
25	Do	352	17	do	pekoe	765	28
26	Do	354	43	do	pek sou	1720	21
27	Do	356	9	do	bro mix	495	13
28	Do	358	2	do	dust	160	15
29	Do	360	22	do	red leaf	880	9
30	Monrovia	362	12	do	bro pek	609	38
31	Do	364	11	ch	pekoe	1100	23
32	Do	366	5	do	pek sou	500	18
33	Do	368	2	do	bro mix	200	12
34	E K	370	2	do	bro pek	95	32
35	Do	372	2	ch			
			1	hf-ch	pekoe	253	23
36	Do	374	1	ch	pek sou	84	13

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
37	P L E	376	3	do	bro pek	305	39	
38	Do	378	6	do	pekoe	580	31	
39	Do	380	2	do	pek sou	180	22	
40	Do	382	1	do	bro tea	90	13	
41	Do	384	1	do	fans	100	17	
42	B D M	368	1	box	bro pek	16	53	
43	Do	388	1	do	pekoe	18	91	
43a	Do	389	1	do	pekoe	36	19	
44	Do	390	2	do	bro mix	79	27	
54	Dunbar	392	39	ch	bro pek	3900	62	
46	Do	394	32	do	pekoe	280	40	
47	Halpatenne	396	7	do	bro pek	660	683	
48	Do	398	4	do	pekoe	400	26	
49	Do	400	9	do	pek sou	820	22	
50	H T	402	8	do	pek dust	960	10	
51	Wewesse	404	28	hf-ch	bro pek	1400	60	
52	Do	406	36	do	pekoe	1800	37	bid
53	Do	408	33	do	pek sou	1650	26	bid
54	Do	410	1	do	sou	50	15	
55	Aigburth	412	40	ch	bro pek	3800	55	
56	Do	414	31	do	pekoe	2790	29	
57	Do	416	24	do	pek sou	2160	25	
58	Yataderia	418	29	do	bro pek	3190	42	bid
59	Do	420	42	do	pekoe	4410	27	
60	Do	422	18	do	pek sou	1710	23	
61	Do	424	8	do	bro tea	880	15	
62	Clyde	426	13	do	bro pek	1235	55	
63	Do	428	25	do	pekoe	2250	32	
64	Do	430	2	do	congou	180	16	
65	Do	432	1	do	dust	110	15	
66	R, in estate mark	434	10	ch				
			1	hf-ch	dust	1460	16	
67	Becherton	436	11	ch	bro pek	1100	46	
68	Do	438	19	do	pekoe	1900	out	
69	Polatagama	440	36	hf-ch	bro pek	2160	58	
70	Do	442	65	do	pekoe	3250	38	
71	Do	444	50	do	pek sou	2500	36	
72	T	446	7	do	dust	504	7	
73	Bismark	448	42	ch	pek sou	4200	26	
74	Do	450	2	do	dust	280	16	
75	W W	452	2	hf-ch	bro pek	84	45	
76	Do	454	1	do	bro or pek	60	47	
77	Do	456	3	do	pekoe	174	31	
78	Do	458	5	do	pek sou	232	32	
79	Do	460	1	do	dust	76	14	
80	St. Leonard's	462	4	ch	bro mix	360	14	
81	Ancoombra	464	3	do	dust	480	16	
82	Do	466	4	do	red leaf	372	10	
83	Middleton	468	36	hf-ch	bro pek	2160	69	
84	Do	470	11	ch	pekoe	1100	49	
85	Do	472	16	do	pek sou	1520	33	
86	Ederapolla	474	36	hf-ch	bro pek	1800	53	
87	Do	476	20	ch	pekoe	1600	53	
88	Do	478	12	do	pek sou	960	26	
89	Do	480	3	hf-ch	bro tea	150	20	
90	Volley Field	482	1	ch	bro pek	90	53	
91	Do	484	1	do			30	
			1	hf-ch	pekoe	135		
92	Do	486	4	ch	pek sou	320	20	
93	Do	489	1	do	bro mix	85	6	
94	Hunugalla	490	6	do	bro pek	630	43	
95	Do	492	6	do	pekoe	600	24	
96	Do	494	6	do	pek sou	600	21	
97	Do	496	1	do	dust	150	15	
98	Do	498	1	do	mix	100	12	
99	Talgaswela	500	11	do	pek sou	880	26	
100	Do	502	2	do	fans	260	17	
101	Do	504	1	do	dust	140	15	
102	Weoya	506	25	hf-ch	bro pek	1500	46	bid
106	X X X	514	1	do	dust	80	14	
107	Llandaff	516	30	ch	pekoe	3000	35	
108	St. Helier's	518	40	hf-ch	bro or pek	2000	49	
109	Do	520	30	ch	pekoe	3000	31	
110	Do	522	15	do	pek sou	1500	24	
111	C	524	1	do	congou	83	12	
112	O H	526	10	do	bro mix	900	10	
113	Bandaraopolla	528	17	do	bro pek	1700	40	bid
114	Do	530	21	do	pekoe	2100	23	bid
115	Do	532	20	do	pek sou	2000	22	
116	Do	534	3	do	dust	420	15	
117	Haranagalla	536	45	do	bro pek	4725	53	
118	Do	538	14	do	pekoe	1190	35	
120	H T A	542	8	ch	bro pek	720	49	
121	Do	544	8	do	pekoe	680	29	
122	Do	546	8	do	pek sou	720	24	
123	Do	548	1	do	pek fan	90	17	
124	Sinnapittia	550	10	do	red leaf	800	7	
125	Castlereagh	552	15	hf-ch	bro or pek	1050	53	
126	Do	554	30	do	pekoe	1650	36	
130	N M	562	3	ch	bro mix	110	8	
131	Do	564	1	do	do	330	8	bid
132	C R D	566	3	ch	red leaf	300	7	bid
133	Do	568	4	hf-ch	dust	232	16	
134	Palmerston	570	7	do	bro pek	385	60	
135	Do	572	9	ch	pekoe	900	49	
136	Do	574	6	do	pek sou	600	27	
137	Do	576	7	hf-ch	dust	490	19	
138	N C	578	23	ch	pekoe	2300	27	
139	Midlothian	580	21	do	pekoe	2100	25	
140	T B, in estate mark	582	8	do	sou	680	15	
141	Macaldenia	584	27	hf ch	bro pek	1620	66	
142	M caeld nia	586	23	do	pekoe	1265	46	
143	Do	588	18	ch	pek sou	1890	38	
144	Do	590	4	do	sou	400	31	
145	Do	592	1	do	dust	74	19	
146	Do	594	2	do	fans	194	24	

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 13th April the under mentioned lots of Tea (100,379 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Madde	309	1	ch	red leaf	92	5	
2	Do	310	6	hf-ch	dust	540	11	
3	Do	311	2	ch	pekoe	200	24	
			1	box	pekoe	17	22	
4	Do	312	2	ch	bro pek	220	34	
5	T	313	2	do	bro pek sou	200	16	
6	Mayfair	314	5	do	unas	475	22	
7	Do	316	7	do	bro mix	700	10	
8	Ardlaw	318	18	hf-ch	bro or pek	1170	48	
9	Do	320	21	ch	bro pek	2184	65	
10	Do	322	18	do	or pek	1620	41	bid
11	Fassifern	324	20	do	bro pek	2100	62	bid
12	Do	326	30	do	pekoe	2850	42	bid
13	Do	328	1	do	dust	150	15	bid
14	O	329	3	do	fans	390	18	
15	R A W, in estate mark	330	2	do	sou	170	14	
16	N	331	2	do	bro mix	180	18	
17	Logan	332	33	hf-ch	bro pek	1650	55	
18	Do	334	29	do	pekoe	1305	32	bid
19	Do	336	40	do	pek sou	1800	31	
20	Do	338	10	do	sou	450	22	
21	Do	340	4	do	dust	240	15	
22	Kandenewera	341	13	ch	bro pek	1300	60	
23	Do	343	28	do	pekoe	2800	36	
24	Do	345	13	do	pek sou	1300	31	
25	Great Valley	347	19	do	bro pek	2090	61	
26	Do	449	25	do	pekoe	2500	37	
27	Do	10	16	do	pek sou	1520	32	
28	Do	12	4	hf-ch	dust	280	18	
29	Tientsin	13	18	do	bro pek	900	84	bid
30	Do	15	19	ch	pekoe	1900	56	
31	Do	17	10	do	pek sou	1000	31	bid
32	Do	19	1	do	sou	110	15	bid
33	Do	20	2	hf-ch	dust	140	18	
34	Agra Ouvah	21	51	box	bro or pek	510	83	bid
35	Do	23	33	hf-ch	bro pek	1650	79	bid
36	Do	25	34	do	pekoe	1530	65	bid
37	Do	27	26	do	pek sou	1170	34	bid
38	Do	29	7	do	do No. 2	315	28	
39	A O	31	3	ch	fans	420	19	
40	L E	32	1	do	dust	140	14	
41	Do	33	1	hf-ch	do	84	14	
42	W--T	34	61	ch	bro pek	6100	56	bid
43	Do	36	19	do	pekoe	1710	32	bid
48	Ottery and Stamford Hill	45	14	do	bro mix	1568	out	
49	Bittacy	48	23	hf-ch	bro pek	1265	66	
50	Do	50	38	do	pekoe	2090	38	bid
51	Troup	52	24	do	bro pek	2040	72	
52	Do	54	34	ch	pekoe	3060	41	bid
53	Do	56	1	do	dust	130	16	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
54	B, in estate mark	57	3	hf-ch	congou	150	withd'n.	
55	Do	58	1	do	dust	80	14	
56	S	59	2	ch	bro pek	220	42	
57	Glasgow	60	40	do	bro pek	3600	77	
58	Do	62	40	do	pekoe	4000	50	bid
59	Do	64	14	do	pek sou	1400	37	
65	Albion	73	30	do	bro pek	3150	74	
66	Do	75	24	do	pekoe	2280	50	
67	Do	77	14	do	pek sou	1400	35	
68	Do	79	3	hf-ch	dust	255	22	
69	Labugama	80	17	do	bro pek	850	52	
70	Do	82	25	do	pekoe	1110	31	
71	Do	84	9	ch	pek sou	900	30	
73	Do	86	2	hf-ch	pek dust	135	18	
73	D P	87	2	ch	bro pek	194	45	
78	Lawrence	105	17	ch	sou	1955	12	bid

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 13th April the undermentioned lots of Tea (77,145 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pgs		Description	Weight lb	c.	
1	R T, in estate mark	5	1	hf-ch	bro mix	40	7	
			1	do	pek fans	40	14	
2	Do	56	1	do	fans	60	14	
3	Do	57	10	do	dust	700	13	
4	Y	58	2	do	unas	100	18	
5	K P W	59	1	ch	unas	77	12	
6	M V	60	16	do	fans	1920	20	
7	Do	61	5	do	bro mix	450	12	
8	Do	62	13	hf-ch	dust	1040	12	
9	Kuruwitty	63	16	do	pek sou	768	30	
10	Do	64	9	do	sou	414	25	
11	Do	65	7	do	bro mix	378	18	
12	Do	66	1	do	congou	48	14	
13	Do	67	1	do	dust	88	15	
14	Do	68	2	do	red leaf	120	9	
15	T, in estate mark	69	34	do	bro pek	1972	47	
16	Do	70	30	do	pekoe	1440	31	
17	Do	71	24	do	pek sou	1104	29	
18	Hatdowa	72	6	ch	bro pek	660	35	bid
19	Do	73	5	do	pekoe	500	27	bid
20	Do	74	8	do	pek sou	800	24	
21	Do	75	6	do	bro tea	540	14	
22	Depedene	76	18	hf-ch	bro pek	900	46	bid
23	Do	77	23	do	pekoe	1150	29	bid
24	Do	78	44	do	pek sou	2200	26	
25	H D	79	75	do	bro sou	3750	23	
26	Do	80	2	do	dust	160	14	
27	Do	81	2	do	bro mix	160	13	
28	Naseby	82	12	do	bro pek	600	83	
29	Do	83	11	do	pek	1232	68	
30	Do	84	3	do	bro tea	219	withd'n.	
34	A	88	1	do	pekoe	100	out	
35	A	89	2	do	pek sou	200	out	
36	Abbotsford	90	6	ch	bro mix	540	19	
37	Do	91	10	hf-ch	pek dust	600	19	
38	Do	92	11	ch			16	
			5	hf-ch	dust	1510		
39	Ingeriya	93	17	do	pekoe	850	26	
40	Kurulu-galla	94	11	ch	bro pek	1100	38	bid
41	S	95	2	do				
			1	hf-ch	bro pek	280	45	
42	S	96	1	ch	pekoe	100	36	
43	S	97	1	do				
			1	hf-ch	pek sou	155	26	
44	Killin	98	21	do	bro pek	1050	40	
45	Do	99	43	do	pekoe	2150	30	
46	Do	100	21	do	pek sou	1050	26	
50	W	4	2	ch				
			1	hf-ch	sou	260	22	
51	W	5	1	do	dust	69	13	
52	W	6	1	ch	red leaf	110	12	
53	St. Andrews	7	16	hf-ch	or pek	1056	65	bid
54	Do	8	21	do	bro pek	1344	40	bid
55	Do	9	63	do	pekoe	3780	33	bid
56	Mousagalla	10	13	ch	bro pek	1365	53	
57	Do	11	5	do	pekoe	500	35	bid
58	Do	12	10	do	pek sou	1000	31	
59	Aadueven	13	21	do	bro pek	2100	64	
60	Do	14	31	do	pekoe	279	39	
61	Do	15	17	do	pek sou	10	30	
62	M O K K	16	9	do	dust	530	15	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
63	D P O	17	6	hf-ch	sou	270	18	
64	T N	18	5	do	sou	345	15	bid
65	M A H	19	8	ch	congou	720	14	
66	Do	20	1	do	red leaf	100	8	
67	Do	21	1	do	dust	130	16	
68	C F	22	12	do	bro or pek	1200	55	bid
69	W A	23	6	do	or pek	600	50	bid
70	S B R	24	17	do	bro pek	1530	52	
71	Do	25	26	do	pekoe	2080	30	
72	Do	26	24	do	pek sou	2160	26	
73	H S, in estate mark	27	13	do	bro pek	1300	52	
74	Do	28	15	do	pekoe	1350	32	
75	Do	29	14	do	pek sou	1190	25	
76	Do	30	6	do	sou	510	18	
77	Lyndhurst	31	9	do	bro pek	990	30	bid
78	Do	32	30	do	pekoe	2835	23	bid
79	Do	33	34	do	pek sou	3086	18	bid
80	Do	34	4	do	dust	500	14	bid
81	Do	35	4	do	red leaf	350	5	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 13th April the undermentioned lots of Tea (156,987 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	C	596	12	ch	pekoe	1264	48	
2	C	598	7	do	bro pek	723	30	
3	C	600	8	do	pek sou	804	26	
4	C	602	1	do	dust	121	16	
5	Poyston	604	2	do	dust	284	15	
6	R	606	7	do	dust	980	14	
7	Silver Valley	612	8	hf-ch	unas	400	26	
8	Do	614	1	do	congou	44	10	
9	Do	616	1	do	red leaf	54	7	
10	Midlothian	618	26	do	bro pek	1560	41	
11	Do	620	28	ch	pekoe	2800	26	
12	Do	622	1	hf-ch	congou	50	14	
13	Do	624	1	do	red leaf	50	10	
14	Do	626	2	do	dust	180	14	
15	Do	628	1	ch	bro mix	95	12	
16	Court Lodge	630	28	hf-ch	bro pek	1624	68	bid
17	Do	632	25	ch	pekoe	1250	64	
18	Do	634	25	do	pek sou	1250	43	
19	Do	636	2	do	sou	168	31	
20	Mousakelle	638	30	do	bro pek	3360	58	
21	Do	640	33	do	pekoe	3600	37	
22	Do	642	3	do	congou	320	15	
23	Do	644	2	do	dust	340	17	
24	Farnham	646	18	hf-ch	bro or pek	900	62	
25	Do	648	31	do	pekoe	1395	38	
26	Do	650	48	do	pek sou	1600	36	
27	Do	652	9	do	sou	360	23	
28	Do	654	3	do	fans	180	22	
29	Deaculla	656	26	do	or pek	1560	52	bid
30	Do	658	41	do				
			17	ch	pekoe	4160	29	bid
31	Do	660	1	hf-ch	congou	50	14	
32	Do	662	3	do	dust	210	14	
33	Columbia	664	24	do	bro pek	1440	58	
34	Do	666	23	do	pekoe	1150	55	
35	Do	668	2	do	pek sou	100		
36	Do	670	2	do	pek dust	140		
37	N, in estate mark	672	10	do	dust	860	15	
38	S B R	674	12	ch	bro pek	1080	45	
39	Do	676	12	do	pekoe	960	30	
40	Do	678	16	do	pek sou	1440	26	
41	C G	780	11	do	fan	1100	20	
42	Do	682	11	do	dust	1036	13	
43	Do	684	2	do	bro mix	200	6	
44	Do	686	2	do	unas	190	28	
45	L W	688	1	do	congou	100	14	
46	Do	690	2	hf-ch	dust	140	12	
47	Do	692	1	box	red leaf	24	10	
48	B & D	694	3	ch	bro mix	390	5	
49	Do	696	2	do	dust	326	13	
50	Ancoombra	698	1	do	dust	160	14	
51	Melrose	700	16	do	bro pek	1920	39	bid
52	Do	702	18	do	pekoe	1980	28	bid
53	Do	704	7	do	pek sou	770	25	
54	Park	706	8	do	bro pek	880	40	bid
55	T C O	708	7	do	bro pek	784	35	
56	Do	710	4	do	pek sou	412	23	
57	Do	712	11	do	bro tea	1300	18	
58	Do	714	2	do	dust	280	15	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
59	Havilland	716	24	hf-ch	bro pek	1320	43	bid
60	Do	718	24	do	pekoe	1200	35	
61	Do	720	35	do	pek sou	1575	30	
62	Shrubs Hill	722	38	ch	bro pek	3990	56	
63	Do	724	53	do	pekoe	5300	32	bid
64	Do	726	36	do	pek sou	3600	31	
65	Dunkeld	728	22	do	bro pek	2310	63	
66	Do	730	33	hf-ch	or pek	1650	56	
67	Do	732	23	ch	pekoe	2185	37	
68	Chesterford	734	12	do	bor pek	1200	65	
69	Do	736	18	do	pekoe	1710	30	b d
70	Do	738	12	do	pek sou	1200	27	
71	A P K	740	4	do	congou	360	18	
72	Do	742	4	do	dust	560	14	
73	Abbotsleigh	744	1	do	congou	120	16	
74	Beauséjour	746	7	do	bro pek	700	41	bid
75	Do	748	9	do	pekoe	810	30	
76	Doonevale	750	13	do	bro pek	1300	49	
77	Do	752	39	do	pekoe	3510	25	
78	Dromoland	754	9	hf-ch	or pek	450	45	bid
79	I G	756	3	ch	pek sou	270	24	
80	Agars Land	758	26	do	bro pek	1300	66	
81	Do	760	28	do	bro pek	1400	63	
82	Do	762	27	do	pekoe	1330	49	
83	H & H	764	5	do	bro tea	500	17	
86	Debatgama	770	2	ch	congou	180	14	
87	Do	772	1	do	fans	110	16	
88	Do	774	1	do	dust	120	13	
89	Wewessa	776	31	hf-ch	bro pek	1500	60	
90	Do	778	18	do	pekoe	900	40	
91	Do	780	21	do	pek sou	1050	32	
92	Do	782	2	do	sou	100	16	
93	Keenagaha Ella	784	1	ch	sou	100	14	
94	Do	786	2	do	fans	240	17	
95	Do	788	1	do	or pek fans	130	20	
96	Do	790	1	do	dust	175	13	
97	Do	792	1	do	unas	95	20	
98	Claremont	794	1	do	dust	160	14	
102	Yataderia	2	37	ch	bro pek	4070	45	
103	Do	4	18	do	or pek	1800	30	bid
104	Do	6	49	do	pekoe	5145	28	
105	Do	8	17	do	pek sou	1615	25	
106	Pansalatenne	10	10	do	congou	1000	18	
107	Do	12	2	hf-ch	dust	150	13	
198	Kelanneiya	14	52	ch	bro pek	4420	52	
109	Do	16	51	do	pekoe	5100	34	
110	Do	18	3	do	dust	345	13	
111	Do	20	3	do	congou	300	18	
117	Atherfield	32	7	do	sou	700	22	
118	Do	34	2	do	dust	280	13	
119	Stansfield	36	5	do	bro pek	500	49	
120	Do	38	4	do	pekoe	400	36	
121	Do	40	3	do	pek sou	300	24	
125	G O	48	22	do	pekee	2310	33	
126	Do	50	1	do	pek sou	100	22	
127	Do	52	2	box	dust	60	15	
128	Chalmers	54	26	ch	bro pek	2080	39	bid
129	Do	56	22	do	pekoe	1540	33	
132	Do	58	15	do	pek sou	900	26	
131	Do	60	2	do	dust	240	14	
132	Do	62	3	do	bro mix	210	14	
133	G	64	2	do	bro pek	175	40	
134	G	66	5	do	pekoe	525	27	
135	G	68	2	do	bro tea	130	5	
136	Becherton	70	19	do	pekoe	1900	30	
137	Castlereagh	72	30	hf-ch	pekoe	1650	30	bid
138	B B B B, estate mark	74	2	ch	bro mix	180	13	
139	Langdale	76	19	do	bro pek	2090	46	bid
140	Do	78	14	do	pekoe	1400	29	bid
141	Do	80	10	do	pek sou	1000	27	
142	Do	82	4	do	bro mix	433	17	
143	Do	84	2	do	dust	280	12	
144	Portmore	86	3	do	fans	255	16	
145	W W	88	7	do	bro pek	717	30	
146	Palmerston	90	11	hf-ch	bro pek	605	56	
147	Do	92	14	ch	pekoe	1400	49	
148	Do	94	12	do	pek sou	1200	32	
149	St. Helie	96	35	hf-ch	bro or pek	1750	57	
150	Do	98	28	ch	pekoe	2800	33	
151	Do	100	13	do	pek sou	1300	27	
152	H, in estate mark	102	2	do	pekee	175	29	
153	Do	104	1	do	pek sou	97	22	
154	D	106	1	hf-ch	or pek	41	28	

CEYLON COFFEE SALES IN LONDON

(From Our Commercial Correspondent.)

MINCING LANE, March 25th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 25th Feb.:—

Ex "Legislator"—Kalupahani, 1b 103s 6d; 1c 101s; 1b 104s.

Ex "Ningchow"—Elbedde, 1b 113s; 3c 109s 6d; 5c 104s 6d; 1c 1b 104s 6d; 1b 98s; 1b 1c 118s: 1c 105s.

Ex "City of Oxford"—Ouvah, 1t 2c 99s 6d; 7c 96s 6d.

Ex "Capella"—Bogawantalawa, 1t 2c 108s 6d; 7c 104s; 1b 98s; 1c 115s.

Ex "Legislator"—Braemore, 1b 1c 105s 6d; 1b 97s; 1t 105s; 1b 97s; 1b 95s; 1b 96s.

Ex "Oruba"—Meddecombra" 1t 115s; 5c 1t 108s; 5c 105s; 1c 101s; 1c 1b 118s.

Ex "Yorkshire"—Meddecombra, 1c 115s; 8c 107s; 4c 1t 104s; 1c 100s; 2c 107s 6d.

Ex "Ningchow"—Meddecombra, 1b 110s; 5c 106s; 5c 103s 6d; 1c 1b 100s 6d; 1c 1b 116s 6d.

Ex "Legislator"—Meddecombra. 3c 106s; 1c 1b 100s 6d; 1c 1b 117s.

Ex "Capella"—Denagama, 1t 106s; 1t 100s; 1b 111s; 1c 115s; 2c 1b 109s; 3c 1b 106s; 1b 99s 6d; 1c 119s.

Ex "Ameer"—Theresia, 1c 109s; 2c 1t 106s; 1c 99s 6d; 1t 118s.

Ex "Capella"—Warleigh, 1c 1b 112s 6d; 1c 104s; 1b 113s 6d.

Ex "Legislator"—Bambrakelly, 3c 1t 107s; 1c 101s 6d; 1c 119s. Melton, 1c 106s 6d; 1c 1b 105s; 1t 100s; 1b 114s; 1c 1t 106s; 1c 1b 104s; 1t 100s 6d; 1t 113s. Talawakelle, 3c 105s; 1t 90s 6d; 1t 110s.

Ex "Jelunga"—Sarnia, 1c 1b 100s; 1c 1b 97s 6d; 1b 95s; 1b 104s. Invery, 3c 1t 108s 6d; 3c 1t 103s; 1c 1t 100s 6d; 1c 115s. Drayton, 1c 109s; 2c 103s; 1t 98s; 1b 119s; 1b 89s; 1b 102s; 3b 89s.

Ex "Legislator"—Ouvah, 1c 101s; 3c 1t 100s; 1t 95s 1b 105s. Newton, 2c 1t 107s 6d; 8c 103s; 1c 98s; 1c 116s; 1c 112s; 1c 89s 6d; 2b 102s.

Ex "Austral"—Wannarajah, 3c 106s; 4c 102s; 3c 1t 98s 6d; 1c 1b 110s 6d. Manickwatte, 3c 110s; 3c 105s; 3c 99s 6d; 1c 117s.

Ex "Legislator"—Middleton, 2c 102s; 1c 1b 103s; 1b 95; 1t 106s; 4c 103s; 1c 95s; 1c 106s. Elkadua, 1t 99s; 1b 96s. Watiagalla, 1b 99s; 1t 97s 6d; 1c 94s 6d; 1b 92s; 1b 100s.

Ex "Ningchaw"—Norwood, 1b 111s; 1c 1b 117s; 4c 103s; 1c 98s 6d; 1c 113s 6d.

Ex "Legislator"—St. George, 1c 1t 2b 116s 6d; 2t 1b 114s.

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, March 25th, 1892.

Ex "Ameer"—Goonambil, 28b 108s; 15b 91s 6d.

Ex "Legislator"—Dynevor, 26b 108s; 16b 97s 6d; 6b 79s 6d; 1b 69s; 16b 100s; 3b 87s.

Ex "Jelunga"—32b 100s; 9b 86s 6d.

Ex "Ameer"—Arduthie" 37b 109s; 16b 90s 6d; 3b 62s 6d; 2b 75s.

Ex "Moyune"—Palli, 20b 92s 6d; 20b 92s; 24b 91s; 7b 92s 6d. Amba, 5b 90s; 7b 92s 6d; 1b 76s; 6b 54s 6d.

Ex "Merkara"—Palli, 1b 63s.

Ex "Legislator"—Armagh, 9b 100s; 2b 95s; 1b 91s; 1b 73s; 3b 56s; 2b 59s.

"CEYLON OBSERVER" PRESS, COLOMBO.

NO. 11.] COLOMBO, MAY 5, 1892. PRICE:—12½ cents each; 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 13th April the undermentioned lots of Tea (40,404 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Glanrhos	1	13	ch	bro pek	1235	51	
2	Do	3	15	do	pekoe	1275	30	
3	Do	5	12	do	pek sou	1020	29	
4	Do	7	1	do	fans	92	16	
5	Wewatenne	8	3	hf-ch	bro pek	150	out	
6	Do	9	2	do	pekoe	94	19	
7	A K C A, in estate mark	10	49	do	bro pek	2450	50	bid
8	Do	12	43	do	pekoe	2150	30	
9	Do	14	12	do	sou	600	28	
10	Do	16	2	do	dust	160	15	
16	Bogahagoda-watte	26	3	do	bro pek	225	55	
17	Do	27	5	do	pekoe No. 1	350	52	
18	Do	28	6	do	do , 2	390	27	
19	Do	29	2	do	pek sou	120	20	
20	Do	30	1	do	fans	72	15	
21	Do	31	1	do	dust	76	16	
22	H B, in estate mark	32	22	ch	pekoe	2200	26	bid
23	Harrow	34	15	hf-ch	bro pek	900	66	
24	Do	36	21	do	pekoe	2100	38	
25	Do	38	2	do	bro tea	180	15	
26	H H	39	3	ch	congou	279	18	
27	A G C	40	8	hf-ch	pek dust	560	13	
28	Elston	42	2	ch	bro mix	300	12	
29	Do	43	4	do	dust	520	14	
35	W S I S	54	1	do	bro pek	80	48	
36	Do	55	1	do				
			1	hf-ch	pekoe	139	26	
37	Do	56	2	ch	pek sou	164	24	
38	A F L	57	4	hf-ch	pek fans	320	15	
39	Do	58	3	do	sou	165	14	
40	Shannon	59	11	do	pekoe	1078	31	bid
41	Do	61	15	do	do	470	31	bid
42	Sumara	62	4	do	bro pek	1220	36	
43	Do	63	11	do	pekoe	495	25	
44	Do	64	6	do	pek sou	270	24	
45	Do	65	1	do	bro tea	50	15	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 27th April the undermentioned lots of Tea (123,952 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	G T	110	10	ch	congou	1050	18	
2	Do	112	11	hf-ch	dust	1045	13	
3	Faithlie	114	1	ch	pekoe	100	38	
4	Do	115	2	do	sou	180	15	
5	Do	116	2	do	red leaf	170	12	
6	Do	117	8	hf-ch	dust	600	19	
7	W—T	118	19	ch	pekoe	1710	40	
8	Do	120	20	do	pek sou	1800	32	
9	L	122	4	do	red leaf	390	8	
10	L	124	9	do				
			1	hf-ch	dust	1610	12	
11	W, in estate mark	126	19	ch	bro pek	1995	48	
12	Do	128	35	do	pekoe	3500	,	bid
13	Do	130	11	do	pek sou	1045	21	
14	Do	132	1	do	fans	105	10	
15	Do	134	3	do	dust	450	14	
16	K	136	14	hf-ch	bro pek	700	53	bid
17	K	138	8	ch	pekoe	680	34	
18	K	140	16	do	pek sou	1440	24	
19	K	142	1	do	sou	90	15	
20	K	143	1	do	dust	150	14	
21	G K W	144	8	hf-ch	dust	640	14	
22	Mocha	145	22	ch	bro pek	2200	64	bid
23	Do	147	30	do	pekoe	2850	58	
24	Do	149	17	do	pek sou	1530	38	
25	Do	151	4	do	sou	340	24	
26	Do	152	3	do	dust	390	15	
27	N, in estate mark	153	9	do	bro tea	810	9	
28	Anchor, in estate mark	155	17	do	pek sou	1700	31	
29	Do	157	18	hf-ch	sou	1080	22	
30	Do	159	9	do	bro mix	495	10	
31	Do	160	10	do	dust	750	14	
32	G	161	6	hf-ch	bro tea	300	8	
33	Galkande-watte	162	35	ch	bro pek	3500	58	
34	Do	164	52	do	pekoe	4680	36	
35	Do	166	31	do	pek sou	2790	26	
36	Madool-tenne	168	18	do	bro pek	1890	50	bid
37	Do	170	13	do	pekoe	1300	28	bid
38	Do	172	13	do	pek sou	1300	22	
39	Ardlaw	174	13	do	or pek	1248	65	
40	Do	176	18	do	or pek	1620	32	bid
41	Do	178	13	do	pekoe	1170	30	bid
42	Do	180	2	hf-ch	dust	170	17	
43	A, in estate mark	181	4	ch	bro mix	500	22	
44	Orange Field P N R	183	10	do	bro pek	900	45	
45	Do	185	19	do	pekoe	1710	27	
46	Do	187	1	do	pek dust	125	16	
47	B. in estate mark	188	3	hf-ch	congou	150	19	
48	Ivies	189	16	ch	bro pek	1600	38	bid
49	Do	191	28	do	pekoe	2520	25	
50	Do	193	15	do	pek sou	1200	22	
51	Do	195	1	do	dust	130	12	
52	Mahagalla	196	40	hf-ch	or pek	2400	64	
53	Do	198	36	ch	pekoe	3600	39	bid
54	Do	200	13	do	pek sou	1300	27	
55	Do	202	2	hf-ch	dust	160	15	
56	A M H	203	2	ch				
			1	hf-ch	unas	233	23	
57	Walton	204	28	do	bro pek	1400	45	
58	Do	206	35	do	pekoe	1575	35	
59	Do	208	36	do	pek sou	1656	28	
60	Do	210	3	do	congou	126	16	
62	Do	211	1	do	dust	43	14	
62	Gonakelle	212	6	ch	bro pek	720	55	bid
63	Do	214	6	do	pekoe	690	41	bid
64	Do	216	4	do	pek sou	480	31	
65	Do	218	1	do	pek fans	150	21	
66	Cruden	219	36	do	flowery or pek	3600	60	bid
67	Do	221	44	do	do pek	4400	56	
68	Do	223	10	do	do pek sou	1000	32	
69	Do	225	10	do	sou	1000	22	
70	Hetherby	227	1	do				
			1	hf-ch	dust	240	14	
71	Dickapittiya	228	7	ch	bro pek	700	58	
72	Do	230	4	do	pekoe	400	40	
73	Do	232	16	do	pek sou	1600	30	
74	Do	234	3	do	sou	270	20	
75	Tarf	235	19	do	pek sou	1710	31	
76	Do	237	4	do	dust	560	16	
77	Y S	238	3	do	red leaf	240	8	
78	Little Val-ley	239	3	ch	pek sou	300	21	
79	Do	240	2	do	bro mix	200	8	
80	Do	241	2	do	dust	300	13	
81	Troup	242	31	hf-ch	bro pek	1860	81	
82	Do	244	27	ch	pekoe	2565	50	
83	Do	246	1	do	congou	95	17	
84	Albion	247	22	do	bro pek	2420	76	
85	Do	249	17	do	pekoe	1615	52	
86	L D G	251	9	do	bro pek	900	36	
87	Do	253	9	do	pekoe	900	24	
88	Do	255	9	do	pek sou	900	20	
89	Do	257	5	do	dust	500	14	
90	Talagalla	258	14	do	bro pek	1624	50	bid
91	Do	260	21	do	or pek	1995	50	
92	Do	262	22	do	pekoe	2090	33	
93	Do	264	15	do	pek sou	1784	25	
94	Do	266	2	do	dust	320	13	
95	S	267	1	do	pekoe	82	32	
96	S	268	1	do	pek sou	93	23	

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
97	S	269	1	do	dust	143	14	
98	Agra Ouvah	270	26	hf-ch	bro pek	1300	80	
99	Do	272	24	do	do	1200	79	
100	Do	274	28	do	pekoe	1260	63	
101	Do	276	24	do	do	1080	62	
102	Do	278	23	do	pek sou	1035	51	
103	Do	280	20	do	do	900	50	
104	Do	282	18	do	do No. 2	540	30	
105	L, in estate mark	284	1	do	red leaf	50	7	
106	Do	285	2	do	congou	90	12	
107	Do	286	1	do	pek dust	70	13	
108	Dickapittia	287	14	ch	bro pek	1400	62	
209	Do	289	9	do	pekoe	900	40	
110	Do	301	23	do	pek sou	2300	32	
111	Do	303	5	do	sou	450	25	

Messrs. SOMERVILLE & Co put up for sale at the Chamber of Commerce Sale-room on the 27th April the undermentioned lots of Tea (80,029 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	G N O	36	2	ch	dust	270	12	bid
2	Do	37	1	do	fans	115	21	
3	Do	38	1	do	bro mix	100	9	
4	M D	39	3	do	dust	360	17	
5	Do	40	2	do	bro mix	190	10	
6	S D	41	1	do				
			1	hf-ch	pekoe	150	23	
7	S D	42	2	do	pek sou	215	14	
8	S, in estate mark	43	12	ch	pek fans	1560	24	
9	Wandaie	44	3	do	bro pek	320	35	
10	Do	45	7	do	pekoe	630	25	
11	Do	46	3	do	pek sou	300	17	
12	Ingeriya	47	3	hf-ch	bro pek	156	48	
13	Do	48	6	do	pekoe	300	28	
14	Do	49	13	do	pek sou	624	22	
15	Do	50	1	do	bro tea	62	16	
16	Do	51	1	do	dust	80	13	
17	Roseneath	52	22	do	bro pek	1430	57	
18	Do	53	19	ch	pekoe	1995	32	
19	Do	54	14	do	pek sou	1470	24	bid
20	Kuruwitty	55	7	hf-ch	bro pek	364	55	
21	Do	56	4	do	pekoe	200	35	
22	Do	57	7	do	bro sou	336	23	
23	Do	58	8	do	sou	368	23	
24	Do	59	11	do	bro mix	594	22	
25	Do	60	1	do	dust	84	14	
26	Yarrow	61	14	do	bro pek	893	47	bid
27	Do	62	32	do	pekoe	1920	29	bid
28	Do	63	12	do	pek sou	616	22	
29	W A	64	21	ch	bro pek	2205	37	
30	Do	65	8	do	bro mix	800	18	
31	Do	66	1	do	do	105	16	
32	Arslena	67	52	do	bro pek	2600	57	
33	Do	68	41	do	pekoe	2050	41	
34	Do	69	18	do	pek sou	9 0	30	
35	Coneygar	70	13	hf-ch	bro pek	715	57	
36	Do	71	12	do	pekoe	1080	44	
37	Do	72	5	hf-ch	pek sou	475	29	
38	Do	73	1	do	dust	80	15	
39	H J S	74	2	do	bro pek	100	52	
40	Do	75	1	ch	pekoe	100	30	
41	Do	76	8	do	pek sou	800	26	
42	Do	77	1	do	sou	100	17	
43	Do	78	1	do	red leaf	90	8	
44	Do	79	2	hf-ch	pek fans	100	21	
45	Do	80	2	do	pk dust	100	14	
46	Do	81	1	do	dust	60	12	
48	Do	82	1	do	congou	50	12	
48	Mousakan-de	83	1	ch	dust	830	15	
49	G W	84	10	do	bro mix	900	18	
50	Do	85	7	do	dust	140	19	
51	Morning-side	86	14	hf-ch	bro pek	770	45	
52	Do	87	12	do	pekoe	660	28	
53	Do	88	1	do	sou	55	15	
54	Do	89	1	do	bro tea	55	10	
55	Forest Hill	90	28	ch	bro pek	3080	45	bid
56	Do	91	37	do	pekoe	3700	29	
57	Do	92	3	do	dust	390	13	bid
58	Do	93	2	do	congou	200	15	
59	S B R	94	30	do	bro pek	2700	53	
60	Do	95	36	do	pekoe	2880	30	
61	Do	96	52	do	pek sou	4680	22	bid
62	Do	7	1	do	dust	140	16	
63	Coodagama	98	15	do	bro pek	1500	52	
64	Do	99	7	do	pekoe	630	35	
65	Do	100	8	do	pek sou	680	26	
66	Coodagama	1	6	do	bro pek	600	43	bid
67	Do	2	5	do	pekoe	450	30	
68	Do	3	5	do	pek sou	425	24	bid
69	Kuruwitty	4	1	hf-ch	congou	44	14	
70	D G	5	4	ch	dust	440	11	
71	R X	6	4	do	bro mix	480	87	
72	Do	7	3	do	dust	420	17	
73	I N G, in estate mark	8	4	do	red leaf	400	10	
74	Do	9	1	do	bro mix	100	14	
75	Do	10	3	do	dust	300	13	bid
76	C T M	11	7	hf-ch	dust	490	14	bid
77	Do	12	4	do	bro mix	360	18	
78	Y B	13	1	do	sou	140	12	bid
79	Do	14	1	ch	pek dust	140	13	bid
80	C	15	2	do	dust	300	13	bid
81	E C	16	3	hf-ch	dust	252	13	bid
82	D B G	17	2	ch	bro mix	220	14	
83	Do	18	2	do	fans	220	18	bid
84	Do	19	4	do	sou	420	20	
85	Do	20	4	hf-ch	dust	320	13	bid
86	H W A	21	6	ch	bro pek	660	40	
87	T, in estate mark	22	14	do	pek sou	1288	24	
88	V	23	14	do	bro pek	1405	38	bid
89	V	24	9	do	or pek	900	25	
90	V	25	3	do	pekoe	300	23	
91	V	26	4	do	sou	400	18	
92	Rondura	27	27	do	bro pek	3240		
93	Do	28	26	do	pekoe	2600		
94	Do	29	8	do	pek sou	800		withd'n.
95	Do	30	5	do	pek fans	650		
96	Do	31	1	do	dust	160		
97	Depedene	32	28	hf-ch	bro pek	1400	47	
98	Do	33	27	do	pekoe	1350	29	
99	Do	34	33	do	pek sou	1600	23	
100	H D	35	60		bro sou	3000	17	bid
101	Do	101	7		bro mix	350	12	
102	Do	103	5		dust	400	13	bid
103	P N E	105	18		bro pek	900	45	bid

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 27th April the undermentioned lots of Tea (246,620 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
1	Ismalle	108	1	hf-ch	bro mix	50	10
2	Do	110	3	ch	dust	396	13
3	S M, in estate mark	112	7	do	bro mix	700	12
4	Bon Accord	114	3	hf-ch	dust	240	14
5	Do	116	1	do	congou	50	15
6	N, in estate mark	118	12	do	dust	900	21
7	Ellakande	120	15	do	u as	750	28
8	Do	122	11	do	red leaf	495	10
9	M, in estate mark	124	5	do	pek sou	275	27
10	Radella	126	32	ch	bro pek	3200	69
11	Do	128	37	do	pekoe	3330	46
12	Do	130	28	do	pek sou	2520	30
13	Harangalla	132	23	do	bro pek	2415	52
14	Do	134	22	do	pekoe	1870	38
15	Do	136	22	do	pek sou	1980	25
16	Ardoch	138	14	hf-ch	bro pek	770	67
17	Do	140	11	ch	pekoe	990	51
18	Do	142	5	do	pek sou	475	31
19	Do	144	1	do	dust	80	16
20	Gracelyn	146	10	hf-ch	bro pek	550	67
21	Do	148	14	do	pek mix	1295	47
22	Do	150	1	ch	dust	80	18
23	Alnoor	152	23	hf-ch	bro pek	1150	54
24	Do	154	18	do	pekoe	900	32
25	Do	156	25	do	pek sou	1250	27
26	Ugieside	158	6	ch	bro pek	600	43
27	Do	160	13	do	pekoe	1170	23
28	Do	162	2	do	pek sou	180	22
29	Do	164	4	do	bro mix	480	12
30	Do	166	8	do	sou	680	15
31	Bismark	168	10	do	bro pek	1200	57
32	Do	170	15	do	pekoe	1500	41
33	Do	172	19	do	pek sou	1900	27
34	P D M	174	1	hf-ch	sou	43	22

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
35	Farnham	176	23	do	bro pek	1150	65	
36	Do	178	29	do	pekoe	1160	39	
37	Do	180	37	do	pek sou	1665	29	
38	Do	182	12	do	sou	480	22	
39	Do	184	3	do	bro tea	150	16	
40	Do	186	5	do	fans	300	22	
41	Do	188	2	do	dust	150	12	
42	K W D	190	1	ch	bro tea	90	18	
43	Do	192	2	hf-ch	dust	120	12	
44	Do	194	7	ch	red leaf	520	8	
45	Ederapolla	196	31	hf-ch	bro pek	1550	53	
46	Do	198	16	ch	pekoe	1280	35	
47	Do	200	22	do	pek sou	1760	26	
48	Do	202	2	do	pek fans	200	20	
49	B	204	30	do	bro pek	3000	49	bid
50	B	206	10	do	pekoe	900	out	
51	B	208	19	do	pek sou	1710	28	
52	Bandarapolla	210	15	do	bro pek	1500	48	
53	Do	212	20	do	pekoe	2000	29	
54	Do	214	18	do	pek sou	1800	24	
55	Nugagalla	216	1	hf-ch	bro pek	50	61	bid
56	Do	218	25	do	bro pek	1250	61	bid
57	Do	220	72	do	pekoe	3600	36	bid
58	Do	222	10	do	pek sou	500	25	
59	Do	224	5	do	dust	400	17	
60	Penrhos	226	1	box	golden tips	8	R15·00	bid
61	Do	228	4	hf-ch	pek fans	220	33	
62	Do	230	8	do	sou	360	25	
63	Do	232	3	do	bro tea	150	19	
64	Do	234	8	do	dust	560	21	
65	F B	236	41	ch	unas	2501	37	
66	Yarrow	238	14	hf-ch	bro pek	893	48	bid
67	Do	240	32	do	pekoe	1920	30	bid
68	Do	242	11	do	pek sou	616	21	bid
69	Chesterford	244	18	ch	pekoe	1710	33	
70	Hakurugalla	246	12	do	bro pek	1200	49	
71	Do	248	30	do	pekoe	2700	29	
72	Do	250	2	do	pek sou	180	19	
73	Do	252	1	do	dust	150	13	
74	Polatagama	254	47	hf-ch	bro pek	2820	54	
75	Do	256	89	do	pekoe	4450	33	bid
76	Do	258	60	do	pek sou	3000	27	bid
77	Weoya	260	24	do	bro pek	1440	51	
78	Do	262	46	do	pekoe	2300	35	
79	Do	264	36	do	pek sou	1800	27	
80	Do	266	18	do	sou	900	22	
81	Do	268	4	do	pek dust	260	15	
85	L, in estate mark	276	1	do	pekoe	40	35	
86	Do	278	2	do	pek sou	72	20	
87	Do	280	1	do	dust	50	12	
88	P D A Ceylon, in estate mark	282	8	ch	unas	793	24	
89	Farm	284	9	do	bro pek	900	56	
90	Do	2 6	12	do	pekoe	900	35	
91	Do	288	27	do	pek sou	2160	26	
92	Do	290	2	do	sou	180	15	
93	Do	292	1	do	dust	150	13	
94	Deniyaya	294	7	do	bro pek	700	out	
95	Do	296	11	do	pekoe	1080	out	
96	Do	298	4	do	pek sou	385	out	
97	Do	300	4	do	sou	370	out	
89	Mukeloya	302	15	hf-ch	bro pek	975	59	
99	Do	304	27	do	pekoe	1620	40	
100	Do	306	20	do	pek sou	1200	31	
101	Do	308	1	do	dust	80	14	
102	S	310	18	ch	sou	1800	13	
103	S	312	3	do	dust	342	13	
104	Harrington	314	33	do	or pek	3300	61	
105	Do	316	26	do	pekoe	2600	42	
106	Queensland	318	30	do	flowery pek	3000	76	
107	Do	320	31	do	pekoe	2945	40	bid
108	Do	322	18	do	pek sou	1800	32	
109	Do	324	2	do	unas	180	22	
110	Do	326	2	do	pek fans	260	18	
111	P	328	19	do				
			1	hf-ch	pek sou	1950	19	bid
112	Wewesse	330	26	do	bro pek	1300	68	
113	Do	332	29	do	pekoe	1450	42	
114	Do	934	18	do	pek sou	900	33	
115	Yahalakelle	336	1	ch	dust	150	13	
119	Palmerston	344	8	hf-ch	bro pek	440	67	
120	Do	346	11	ch	pekoe	1100	49	
121	Do	348	7	do	pek sou	700	36	

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
122	Havilland	350	26	hf-ch	bro pek	1540	54	
123	Do	352	30	do	pekoe	1300	32	bid
124	Do	354	7	do	pek sou	1350	28	
125	Do	356	6	do	bro mix	315	22	
126	Do	358	6	do	fans	420	22	
127	L, in estate mark	360	1	ch	pek sou	95	31	
128	M, in estate mark	362	1	do	pekoe	100	32	
129	Do	364	1	hf-ch	dust	65	22	
130	Glendon	366	5	ch	pek sou	500	22	
131	G	368	6	do	pek sou	600	23	
132	G	370	2	do	dust	320	13	
133	G	372	1	do	dust	160	13	
134	Beragalla	374	13	do	unas	1300	25	
135	G D	376	2	hf-ch	bro pek dust	144	17	
136	R B, in estate mark	378	5	do	dust	406	16	
137	Kakiriskande	380	4	do	bro pek	200	53	
138	Do	382	12	do	pekoe	600	27	
139	Do	384	3	do	congou	141	16	
140	Do	386	2	do	dust	97	14	
41		388	20	ch	pekoe	2100	25	
142	YY	390	4	do	bro tea	420	14	
43	Alton	392	4	hf-ch	bro tea A	180	12	
144	Do	394	3	do	pekoe A	150	20	
154	Do	396	7	ch	bro tea	630	13	
146	W	398	4	hf-ch	dust	260	19	
147	W	400	3	do	congou	135	16	
149	Kirrimettia	404	3	ch	dust	458	15	
150	Castlereagh	406	24	hf-ch	bro or pek	1630	61	
151	Do	408	58	do	pekoe	3190	40	
152	S S	410	6	ch	congou	600	15	
153	Do	412	4	hf-ch	dust	300	14	
154	Malvern	414	1	ch	dust	150	16	
155	Do	416	1	hf-ch	red leaf	40	11	
156	Anningkande	418	14	ch	pek sou	1260	22	
157	Do	420	6	do	pek fan	660	20	
158	Do	422	4	do	fans	440	16	
159	Do	424	5	do	sou	450	15	
160	Yataderia	426	31	do	bro pek	3410	45	
161	Do	428	47	do	pekoe	4935	31	
162	Do	430	15	do	pek sou	1425	26	
163	Holmwood	432	33	do	bro pek	3630	76	
164	Do	434	21	do	pekoe	2100	59	
165	Do	436	15	do	pek sou	1500	43	
166	Do	438	4	hf-ch	dust	300	18	
167	H T A	440	7	ch	bro pek	630	42	
168	Do	442	7	do	pekoe	595	25	
169	Do	444	9	do	pek sou	810	19	
170	Do	446	2	do	fans	180	17	
171	Laxapanagalla	448	6	hf-ch	pek sou	300	23	
172	Do	450	5	do	pek dust	300	13	
173	N W D	452	4	do	bro pek	443	56	
174	Do	454	9	do	pekoe	854	28	
175	Do	456	1	do	bro mix	97	10	
176	Do	458	1	do	dust	125	17	
177	N	460	7	ch	dust	1050	17	
178	N	462	19	do	unas	1710	27	
183	A M B	472	15	do	unas	1500	25	
184	P T C	474	11	do	bro tea	935	28	
185	Do	476	7	do	bro pek fans	770	22	
186	Ardoch	478	19	hf-ch	bro pek	1045	69	
187	Do	480	16	ch	pekoe	1440	52	
188	Do	482	6	do	pek sou	570	32	
189	Do	484	2	hf-ch	dust	160	17	
190	Radella	486	10	ch	bro pek	1000	71	
191	Do	488	13	do	pekoe	1170	48	
192	Do	490	10	do	pek sou	900	32	
193	Do	492	8	do	dust	1040	16	
194	Freds Ruhe	494	5	do	bro pek	483	49	
195	Do	496	11	do				
			1	hf-ch	pekoe	1143	28	
196	Do	498	10	ch				
			1	hf-ch	pek sou	1050	23	
197	W A	500	3	ch	bro pek	301	47	
198	Do	502	7	do	pekoe	697	27	
199	Do	504	6	ch				
			1	hf-ch	pek sou	643	20	
200	Do	506	9	ch	bro tea	992	14	
201	Do	508	4	do	unas	414	13	
202	Do	510	1	do	dust	100	12	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	e.	
206	Moorovia	512	14 hf-ch	bro pek	725	50	
204	Do	514	20 ch 3 hf-ch	pekoe	2155	22	
205	Do	516	9 ch 1 hf-ch	pek sou	950	23	
206	Do	518	8 ch	bro mix	800	15	
207	Do	520	1 do	pek dust	150	13	
212	Lankapura, W	530	13 ch	bro pek	1300	69	
213	Do	532	32 do	pekoe	3040	42	
214	Do	534	15 do	pek sou	1350	29	
215	Do	536	2 hf-ch	pek fans	210	22	
216	B B	538	16 ch	bro pek sou	1520	20	
217	B	540	13 do	bro pek	1300	32	bid
218	Bloomfield	542	29 do	flowery pek	2900	76	bid
219	Do	544	20 do	pekoe	2000	50	bid
220	Do	546	2 do	pek fans	250	25	
221	Do	548	1 do	unas	123	30	
222	D A	550	3 hf-ch	sou	150	15	
223	Do	552	4 do	dust	280	13	
224	Horagoda	554	18 ch	bro pek	1710	47	
225	Do	556	39 do	pekoe	3510	30	
226	Do	558	5 do	pek sou	475	25	
227	Do	560	2 do	sou	184	14	
228	Do	562	2 do	dust	280	15	
229	Do	564	1 do	redleaf	83	19	
230	S B, in estate mark	566	3 49do	red leaf	222	8	
231	Uvakelle	568	do	bro pek	2695	65	
232	Do	570	62 hf-ch	pekoe	3100	38	
233	Do	572	3 ch	congou	150	17	
234	Do	574	5 do	dust	400	19	
237	Ancoombra	580	1 do	dust	160	17	
38	Angroo-wella	582	2 hf-ch	dust	160	15	
239	Thebrton	584	37 do	bro pek	1850	42	
240	Do	586	23 do	pekoe	1150	32	
241	Do	588	22 do	pek sou	1100	23	
242	Do	590	8 do	bro pek sou	400	19	
243	Do	592	4 do	pek dust	200	14	
244	Do	594	1 do	congou	50	14	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 1st, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 1st April:—

Ex "Golconda"—Bridwell, 1c 108s 6d; 4c 1b 102s 6d; 1l 98s; 1c 117s.

Ex "Bengal"—Darrawella, 1c 101s; 1c 1t 100s 6d; 1b 93s; 1b 109s.

Ex "Austral"—Derryclare, 2c 106s; 5c 101s; 3c 1t 99s; 1c 113s 6d.

Ex "Golconda"—Venture, 1b 110s; 2c 108s 6d; 3c 1b 104s; 1b 98s; 1t 113s 6d. Dunsinane, 1c 110s; 4c 108s; 9c 104s; 1c 1b 99s; 1c 1b 114s.

Ex "Teucer"—Udahena, 2c 104s; 5c 97s 6d; 1b 92s. Meeriabedde, 1b 1b 104s; 5c 101s; 6c 97s; 1t 95s; 1c 1b 108s 6d.

Ex "Golconda"—Dimboola, 1c 104s; 2c 100s; 1t 97s; 1b 109s.

Marks and prices of CEYLON COFFEEs old in Mincing Lane up to 8th April:—

Ex Scindia"—Balmoral, 3c 1t 106s 6d; 5c 105s; 2c 1t 101s6d; 1c 1t 115s 6d. Mousaella, 3c 1b 106s 6d; 2c 104s; 1c 1b 100s; 1c 1b 106s 6d.

Ex Teucer"—Wiharagalla, 1c 109s; 3c 108s; 1b 95s; 1c 113s. Gowerakellie, 1c 102s; 1b 102s.

Ex "Legislator"—Rangbodde, 1t 101s; 1c 95s; 1b 95s; 1b103s.

Ex "Cheshire"—Berat, 1c 1t 104s; 2c 1b 101s; 1b 95s; 1c 113s; 1b 90s.

Ex "Golconda"—Holbrook, 1b 108s; 2c 1t 102s; 7c 101s; 1c 99s 6d; 2c 109s 6d; 1b 98s; 2c 85s 6d; 2c 1b 92s 6d; 1b 96s 6d; 1b 2t 73s 6d.

Ex "City of Cambridge"—Logie, 1t 4c 104s; 2c 1b 100s; 1c 109s; 1b 90s.

Ex "Cheshire"—Milnathat, 12c 1b 99s; 8c1c 93s; 2c 86s; 1c 1t 93s 6d; 2c 81s; 7b 91s.

Ex "Ningchow"—Diyagama, 1b 87s.

Ex "Golconda"—Theresia, 1t 104s; 2c 1b 101s 6d; 1t 96s; 1t 108s; 1b 85c; 1 82s; 1b 106s; 1b 102s.

Ex "Myra"—Newton, 1c 99s 6d; 1b 94s; 1b 99s; 1b 96s; 1b 100s.

Ex "Port Douglas"—Pittarat Malle. 8c 1b 49s 6d; 1c 46; 1b 49s 6d.

Ex "Cheshire"—Dimbula, 2c 105s; 2c 1t 102s 6d; 1c 1b97s 6d;1c 109s; 4c 99s; 3c 96s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 15th April:—

Ex "Mira"—Ardallie, 11c 95s 6d; 3c 109s.

Ex "Nubia"—Dunsinane, 1t 97s; 1b 94s. Wattegodde, 2c 1t 103s; 4c 1t 100s; 1c 94s 6d; 1c 107s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 1st, 1892.

Ex "Ameer"—Gangaroowa, 47b 108s; 4b 85s; 1b 83s.
Ex "Legislator"—Gangaroowa, 29b 108s 6d; 5b 90s.
Ex "Jelunga"—(KA), 4b 98s; 2b 60s.
Ex "Teucer"—Nartakande, 9b 103s 6d.

MINCING LANE, April 8th, 1892.

Ex "Teucer"—Rajawelle, 24b 102s; 6b 100s; 1b 1895 5b 80s.

Ex "Golconda"—Woodslee, 11b 106s; 2b 85s; 1b 62s 7b 54s; 1b 45s; 7b 41s. Ingurugalle, 14b 106s; 2b 85s; 1b 62s. Rock Hill, 29b 96s; 19b 57s; 4b 39s 6ds; 2b 54s.

Ex "Agamemnon"—Maria, 1b 60s.

Ex "Cheshire"—Eriagastenne, 10b 109s 6d; 3b 99s; 24b 60s.

Ex "Teucer"—Warriapolla, 55b 108s; 71b 108s 6d; 14b 108s 6d; 1b 89s; 19b 83s; 3b 90s; 5b 50s 6d.

Ex "Golconda"—Suduganga, 56b 108s; 7b 98s; 11b 83s; 6b 50s 6d.

Ex "Land Carriage"—CC, 2b 92s.

MINCING LANE, April 15th, 1892.

Ex "Golconda"—Hylton, 20b 106s; 20b 110s; 3b 73s; 2b 51s 6d.

Ex "Cheshire"—Pieces, 4b 65s; 2b 75s.

Ex "Mira"—Hunasgeria, 2b 93s; 2b 56s 6d; 15b 103s 6d; 1b 60s.

Ex "Teucer"—Kepitigalla, 1b 50s.

Ex "Cheshire"—Kepitigalla, 24b 57s 6d.

Ex "Port Douglas"—London, 35b 103s; 12b 87s; 18b 75s; 2b 58s; 3b 69s

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 1st. 1892.

Ex "Jelunga"—(KG), 1c 1s 7d; 4c 1s 2d; 8c 1s 5d; 1c 1s 6d; 1c 1s 6d.

Ex "Glenavon"—Tanakelle, 2c 1t 1s 7d; 2c 1s 9d; 6c 1s 8d; 2c 1s 8d; 7c 1s 2d; 1c 1s 7d; 1c 1s id; 4c 2s 2d.

Ex "Tigre"—(A&C), 3c 2s 3d; 8c 2s 2d; 5c 6d.

Ex "Teucer"—(A&C), 2c 2s 2d; 3c 6d.

"CEYLON OBSERVER" PRESS, COLOMBO.

NO. 12.] COLOMBO, MAY 18, 1892. {PRICE :—12½ cents each ; 3 copies 30 cents ; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 27th April the undermentioned lots of Tea (57,898 lb.) which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Dehiowita	1	15	ch	pek sou	1425	25	
2	Do	3	37	do	pekoe	3790	33	
3	Do	5	22	do	bro pek	2310	55	
4	Elan	7	16	hf-ch	dust	1120	13	bid
5	Do	9	9	do	congou	405	14	
6	Shannon	10	26	ch	pekoe	2548	30	
7	E K, in estate mark	12	22	do	pekoe	2200	25	bid
8	P	14	9	do	dust	1350	16	bid
9	Nahalma	13	51	hf-ch	bro pek	2907	52	
10	Do	18	46	ch	pekoe	4600	31	
11	Do	20	12	do	pek sou	1200	24	
12	Do	22	3	do	dust	225	15	
13	A K A C, in estate mark	23	49	hf-ch	bro pek	2450	51	
14	Agraoya	25	9	ch	bro pek	900	49	bid
15	Do	27	32	do	pekoe	3200	26	bid
16	Do	29	1	do	pek sou	100	withd'n.	
17	Do	30	1	do	bro mix	100	withd'n.	
18	B U S	31	1	do	congou	100	14	
19	Nahlma	32	25	hf-ch	bro pek	1425	54	
20	Do	34	25	do	pekoe	2500	31	
21	Do	36	5	do	pek sou	500	26	
22	Do	38	1	do	dust	75	15	
23	F & R	39	13	do	sou	650	19	
24	Do	41	7	do	red fans	441	15	
25	Do	42	1	do	dust	63	13	
26	K'Della	43	10	do	bro pek	500	43	bid
27	Do	45	12	do	pekoe	540	29	bid
28	Do	47	2	do	pek sou	160	23	
29	Patalpaana	48	4	ch				
			1½	hf-ch	bro pek	457	40	
30	Do	49	7	do	pek sou	350	24	
31	Do	50	1	do	sou	197	16	
32	Do	52	1	do	congou	50	14	
34	Ambragalla	54	49	ch	bro pek	4900	51	bid
36	Do	56	43	do	pekoe	4300	31	bid
37	Do	58	25	do	pek sou	2500	25	
37	M, in estate mark	60	43	do	bro pek	4300	35	bid
38	Do	62	25	do	pekoe	2500	25	bid

Messrs. A. H. THOMSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 4th May tho undermentioned lots of Tea (36,000 lb.), which sold as under :—

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
1	B G	1	4	ch	sou	380	21	
2	Do	2	4	do	dust	600	12	
3	K	4	10	hf-ch	bro pek	500	46	
4	K	6	12	do	pekoe	540	31	
5	K	8	16	do	dust	1120	withd'n.	
6	D A	10	9	ch				
			1	hf-ch	bro pek	957	38	
7	W O	12	1	do	pek sou	100	14	
8	Do	13	1	do	bro mix	100	7	
9	Comillah	14	16	do	bro pek	800	38	bid
10	Do	16	16	do	pekoe	880	26	
11	Do	18	12	do	pek sou	600	22	
12	Do	20	2	do	dust	160	13	
13	P	21	9	ch	dust	1350	12	bid
14	A G C	23	10	do	pek dust	700	withd'n.	
15	Ambragalla	25	49	do	bro pek	4900	47	bid
16	Do	27	43	do	pekoe	4300	30	bid
17	Engurukande	29	35	do	bro pek	4300	35	bid
18	D P	31	4	do	pekoe	400	25	bid
19	R S	32	7	hf-ch	fans	441	13	bid
20	Do	33	9	do	bro mix	450	12	bid
21	A D A	34	11	do	bro mix	583	9	
22	Saidewatte	36	17	ch	bro pek	1700	45	bid
26	Do	38	13	do	pekoe	1170	34	bid
24	Do	40	6	do	pek sou	510	25	bid
25	Weyawella	42	16	ch	bro pek	1600	46	
26	Saidewatte	44	26	ch	bro pek	3060	46	bid
27	Do	46	12	do	pekoe	1080	31	bid
28	Kirimettia	48	7	do				
			1	hf-ch	bro pek	742	42	
29	Do	50	6	ch				
			11	hf-ch	pekoe	1128	28	
30	Do	52	2	do	pek sou	100	20	
31	Do	53	2	ch	dust	200	15	
32	Do	54	1	do	red leaf	75	11	

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 4th May the undermentioned lots of Tea (82,340 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Denegama	305	1	hf-ch	red leaf	50	14	
2	Do	306	1	do	dust	72	15	
3	Do	307	3	lead packet	bro pek	25½	out	
		57	1	do	pekoe	8		
		58	4	do	dust	40½		
4	D	308	21	hf-ch	pek sou	992	24	
5	H	310	6	ch	pek sou	563	23	
6	Dickoya	312	6	do	bro mix	605	8	
7	K V, in estate mark	314	2	do				
			14	hf-ch	dust	1420	withd'n	
8	Coslanda	315	37	ch	or pek	3700	45	
9	Do	317	7	do	sou	700	21	
10	Ivies	319	16	do	bro pek	1600	42	
11	Mahagalla	321	36	do	pekoe	3600	44	
12	O	323	1	do	bro pek	98	35	
13	S	324	2	do	pekoe	190	30	
14	S	325	1	hf-ch	sou	50	15	
15	S	326	1	do	bro mix	82	16	
16	Y D	327	8	ch	bro tea	880	15	
17	E K	329	2	do	pekoe	200	23	
18	Kande-newera	330	24	do	bro pek	2400	66	
19	Do	332	37	do	pekoe	3700	41	
20	Do	334	17	do	pek sou	1700	30	
21	Gonakelle	336	6	do	bro pek	720	58	
22	Do	338	6	do	pekoe	690	46	
23	Do	340	4	do	pek sou	480	35	
24	Do	342	1	do	pek fans	150	18	
25	Polgaha-kanda	343	14	do	sou	1120	22	
31	Mapitigama	14	2	do	bro pek	200	44	
32	Do	16	8	do	pekoe	720	25	
33	Great Val-ley	17	10	hf-ch	bro or pek	600	80	
34	Do	19	28	ch	bro pek	3080	60	
35	Do	21	45	do	pekoe	4500	41	
36	Do	23	14	do	pek sou	1330	28	
37	Do	25	4	do	congou	380	19	
38	Do	26	4	hf-ch	dust	320	19	
39	Talagalla	29	17	ch	bro pek	1938	54	
40	Do	31	24	do	or pek	2160	55	
41	Do	33	20	do	pekoe	1700	35	
42	Mocha	35	3	do	bulked tea	264	42	
43	Agra Ouvah	36	18	hf-ch	bro pek	900	75	bid
44	Do	38	23	do	pekoe	1035	55	bid
45	Do	40	20	do	pek sou	900	40	bid
46	A O	42	3	do	pek fans	210	16	
47	Do	43	2	do	pek dust	166	16	
48	G D	44	4	ch	dust	576	5	
49	Callander	45	50	hf-ch	bro pek	2800	58	bid
50	Do	47	21	do	pekoe	1092	41	bid
51	Do	49	10	do	pek sou	508	35	
52	Do	51	1	do	bro flowery pek	56	30	
53	Do	52	3	do	dust	180	18	
54	Glasgow	53	23	ch	bro pek	2070	72	
55	Do	55	24	do	pekoe	2400	51	
56	Albion	59	19	ch	bro pek	2090	76	
57	Do	61	14	do	pekoe	1400	56	
58	Do	63	12	do	pek sou	1260	35	
59	Do	65	5	hf-ch	dust	425	16	

Lot No.	Mark	Box No.	Pkgs.	Description	Weight lb.	c.
60	Walton	66	19 do	bro pek	1121	41
61	Do	68	29 do	pekoe	1450	30
62	Do	70	3 do	sou	87	17
63	Do	71	1 do	dust	43	13

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 4th May the undermentioned lots of Tea (63,285 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	S	36	3 hf-ch	bro tea	168	13	
2	S	37	3 do	dust	261	16	
3	A	38	3 do	dust	261	16	
4	A	39	2 do	bro tea	114	12	
5	Hiralouvah	40	1 do	bro pek	62	34	
6	Do	41	3 do	bro pek dust	216	20	
7	Do	42	4 do	fans	233	25	
8	Do	43	5 do	bro mix	291	18	
9	Do	44	5 do	dust	355	16	
10	Coodagama	45	6 ch	bro pek	600	43	bid
11	Do	46	5 do	pek sou	425	23	bid
12	T N C	47	15 do	pek sou	1200	25	
13	Do	48	5 do	dust	700	17	bid
14	Depedene	49	18 hf-ch	bro pek	900	40	bid
15	St. Andrews	50	12 ch	or pek	1200	57	bid
16	Do	51	45 box	or pek	900	50	bid
17	Do	52	14 ch	bro pek	1260	38	bid
18	Do	53	55 hf-ch	pekoe	3300	36	bid
19	H A	54	6 ch	bro pek	600	37	
20	Do	55	3 do 1 hf-ch	pekoe	350	26	
21	Do	56	4 do	dust	306	15	
22	Chertsey	57	9 do	bro pek	450	46	
23	Do	58	11 do	pekoe	550	31	
24	Do	59	10 do	pek sou	500	28	
25	Do	60	1 do	congou	53	12	
26	Do	61	1 do	red leaf	52	10	
27	Do	62	3 do	dust	184	15	
28	S	63	38 ch	bro tea	3644	8	bid
29	Madda-kelle	64	12 do	bro pek	1200	53	
30	Do	65	12 do	pekoe	1080	41	
31	Do	66	12 do	pek sou	1080	29	
32	G L	67	2 do	dust	200	12	bid
33	Do	68	6 do	congou	480	13	
34	H	69	2 do	bro tea	240	19	
35	H	70	2 do	dust	140	14	
36	H	71	2 do	bro mix	112	18	
37	D	72	4 hf-ch	unas	156	17	
38	L	73	4 do	bro tea	216	13	
39	L	74	4 do	dust	360	15	
40	P	75	9 ch	bro mix	900	5	bid
41	Diyagama	76	9 do	pekoe	874	45	
42	Do	77	3 do	pek sou	286	12	
43	Do	78	1 do	dust	100	13	
44	Do	79	1 do	bro mix	77	15	
45	Hatdowa	80	3 do	bro pek	330	49	
46	Do	81	4 do	pekoe	400	31	
47	Do	82	6 do	pek sou	600	24	
48	Do	83	1 do	red leaf	90	7	
49	Do	84	1 do	dust	140	13	
50	Do	85	10 do	bro tea	900	17	
51	Forest Hill	86	28 do	bro pek	3080	54	
52	R B R	87	52 do	pek sou	4680	23	bid
53	Ingeriya	88	2 hf-ch	bro pek	110	48	
54	Do	89	5 do	pekoe	250	29	
55	Do	90	9 do	pek sou	432	22	
56	Do	91	7 do	unas	350	23	
57	Do	92	2 do	bro tea	120	16	
58	Do	93	4 do	bro mix	200	13	
59	Devondale	94	20 ch	bro pek	2100	74	bid
60	Do	95	13 do	pekoek	1235	52	
61	Do	96	11 hf-ch	pek sou	517	41	bid
62	M	97	3 do	pek sou	117	16	
63	Forest Hill	98	14 ch	pek sou	1400	26	
64	F	99	2 hf-ch	sou	92	15	
65	W T	100	5 do	pekoe	250	25	
66	Lyndhurst	1	7 ch	bro pek	700	43	bid
67	Do	2	13 do	pekoe	1170	27	
68	Do	3	41 do	pek sou	1260	21	
69	Narangoda	4	8 do	pekoe	880	40	
70	Do	5	6 do	do	990	38	
71	Do	6	21 do	pek sou	2100	24	
72	Do	7	1 do	sou	95	14	
73	Do	8	2 hf-ch	dust	140	15	
77	Blairlogie	12	49 do	bro pek	2695	60	bid
78	Do	13	16 ch	pekoe	1200	40	bid

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 4th May the under mentioned lots of Tea (23797 lb.) which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description	Weight lb.	c.	
1	H & H	602	6 ch	bro tea	570	17	
2	R T	604	1 do	congou	95	15	
3	Do	606	1 do	red leaf	100	10	
4	Do	608	2 hf-ch	fans	140	17	
5	Do	610	2 do	dust	166	12	
6	P, in estate mark,	612	2 do	dust	300	12	
7	Do	614	1 hf-ch	congou	65	8	
8	P U Co., Ltd. in estate mark, Goorook-oya	616	2 do	bro mix	160	11	
9	Do	618	2 do	red leaf	170	9	
10	L G E	620	21 ch	or pek	2100	40	
11	Do	622	22 do	bro pek No. 1	2200	22	bid
12	Do	624	5 hf-ch	dust	425	13	
13	Hunugalla	626	5 ch	bro pek	525	44	
14	Do	628	13 do	pekoe	1300	28	
15	Do	630	6 do	pek sou	600	22	
16	Court Lodge	632	36 hf-ch	bro pk	2160	67	bid
17	Do	634	27 do	pekoee	1350	62	
18	Do	636	72 do	pek sou	1350	46	
19	Do	638	2 do	sou	176	30	
20	T C O	640	11 do	bro pek	1232	25	
21	Do	642	8 do	pek sou	800	15	
22	Bismark	644	9 do	bro pek	1080	50	bid
23	Do	646	13 do	pekoe	1300	41	
24	Do	648	15 do	pek sou	1500	27	
25	Do	650	1 do	dust	140	18	
26	Hautville	652	2 do	sou	180	23	
27	G L, in estate mark	654	1 do	bro	87	13	
28	Do	656	2 do	bro mix	216	12	
29	Do	658	2 do	dust	070	15	
30	Kelvin	660	1 do	congou	90	15	
31	Do	662	2 do	dust	360	14	
32	Pantiya	664	1 do	dust	130	16	
33	W T	666	12 hf-ch	bro pek	600	48	
34	Do	668	18 do	pekoe	900	30	
39	Langdale	678	25 ch	bro pek	2500	59	
40	Do	680	20 do	pekoe	1800	37	
41	Do	682	7 do	pek sou	630	27	
42	Do	684	1 do	dust	118	17	
43	Columbia	686	24 hf-ch	bro pek	1440	55	bid
44	Do	688	17 do	pekoe	850	50	
45	Do	690	2 do	pek sou	100	35	
46	Do	692	2 do	pek dust	140	18	
47	Maha Uva	694	20 do	bro pek	1200	60	
48	Do	696	25 do	pekoe	1375	51	
49	Do	698	33 do	pekoe A	1980	30	
50	Berragalla	700	20 ch	unas	2000	27	
51	Penrhos	702	32 hf-ch	bro pek	1440	69	
52	Do	704	39 do	or pek	1950	60	
53	Do	706	40 do	pekoe	2400	39	
54	Do	708	62 do	pek sou	3410	31	
55	G B	710	7 ch	unas	577	19	
56	G G	712	1 do	red leaf	100	9	
57	Bandara-polla	714	12 do	bro pek	1200	49	
58	Do	716	12 do	pekoe	1200	27	bid
59	Do	718	12 do	pek sou	1200	23	
60	Do	720	4 do	dust	560	14	
61	M	722	1 do 1 hf-ch	unas	127	22	
62	Dunkeld	724	27 ch	bro pek	2970	66	
63	Do	726	39 hf-ch	or pek	1950	57	
64	Do	728	22 ch	pekoe	1980	36	
65	F B	730	4 ch	bro pek	380	R1	00
66	Do	732	11 do	pekoe	880	68	
67	Do	734	7 do	pek sou	455	45	
68	Do	736	33 do	unas	1980	47	
69	Chalmers	738	32 hf-ch	bor pek	2240	47	
70	Do	740	24 do	pekoe	1400	38	
71	Do	742	20 do	pek sou	1000	28	
72	Do	744	3 do	bro mix	210	18	
73	Do	746	1 ch	dust	120	13	
74	Yataderia	748	32 do	bro pek	3520	46	
75	Do	750	40 do	pekoe	4200	28	bid
76	Pedro	752	12 do	bro pek	1140	89	
77	Do	754	20 do	pekoe	1600	67	
78	Do	756	15 do	pek sou	975	50	
79	Chester-ford	758	16 do	bro pek	1600	58	bid

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
80	Chesterferd	760	18	ch	pekoe	1710	32	bid
81	Do	762	16	do	pek sou	1600	62	bid
82	St. Helier's	764	40	hf-ch	bro or pek	2400	55	
83	Do	766	36	ch	pekoe	3600	35	
84	Do	768	17	do	pek sou	1700	28	
85	Shannon	770	11	do	or pek	1155	42	bid
86	Do	772	24	do	pekoe	2352	29	
87	Do	774	7	do	pek sou	686	22	
88	Do	776	3	do	bro tea	330	10	
89	W A T	778	12	do	or pek	1260	42	bid
90	Do	780	21	do	pekoe	2058	27	bid
91	Do	782	5	do	pek sou	490	23	
92	Northcove	784	26	hf-ch	bro pek	1300	72	
93	Do	786	24	ch	pekoe	2400	46	
94	Do	788	12	do	pek sou	1080	25	
95	Do	790	4	hf-ch	bro tea	225	25	
96	Do	792	3	ch	red leaf	240	6	
97	Do	794	11	hf-ch	dust	880	14	
98	Atherfield	796	3	ch	sou	300	20	
99	Do	798	3	do	dust	420	13	
100	S—N	800	10	do	bro tea	850	8	
102	Yataderia	4	38	do	bro pek	4180	45	
103	Do	6	39	do	pekoe	4095	26	bid
104	Do	8	13	do	pek sou	1235	24	bid
105	Malvern	10	1	do	pekoe	102	35	
106	A P K	12	6	do	congou	540	20	
107	Do	14	4	do	dust	560	16	
108	Clyde	16	15	do	bro pek	1425	54	
109	Do	18	30	do	pekoe	2550	33	
110	Do	20	2	do	dust	280	15	
111	S S S	22	16	do	bro tea	2560	16	
112	R, in estate mark	24	8	hf-ch	dust	1120	15	
113	Do	26	4	do	unas	412	13	
114	Do	28	5	do	sou	455	20	
115	Do	30	1	do	bro mix	50	11	
116	K C	32	2	ch	bro pek dust	340	14	
117	Do	34	7	do	bro pek sou	910	14	
118	Battagalla	36	4	do	or pek	468	50	
119	Do	38	1	do	bro pek	128	42	
120	Do	40	10	do	pekoe	1040	33	
121	Allagalla	42	6	do	bro pek	654	48	
122	Do	44	4	do	pekoe	356	34	
123	Nugagalla	46	72	hf-ch	pekoe	3600	39	
124	Dunbar	48	46	ch	bro pek	4600	62	
125	Do	50	38	do	pekoe	3420	42	
126	Polatagama	52	42	hf-ch	bro pek	2520	48	bid
127	Do	54	62	do	pekoe	3100	36	
128	Do	56	59	do	pek sou	2950	27	
129	Patiagama	58	7	ch	bro pek	770	51	
130	Do	60	20	do	pekoe	2000	32	
131	Do	62	1	do	dust	150	14	
132	C	64	20	do	bro pek	2000	42	bid
133	Do	66	16	do	pekoe	1440	27	
134	Do	68	16	do	pek sou	1440	24	
135	Do	70	2	do	pek fans	200	18	
137	C	74	2	do	fans	300	16	
138	Lankapura M	76	42	hf-ch	bro pek	2313	63	
139	Do	78	105	ch	pekoe	11570	36	
140	Do	80	41	do	pek sou	4100	28	
141	Do	82	5	do	bro pek fans	596	49	
142	Do	84	7	hf-ch	fans	521	3	
143	Do	86	4	do	dust	318	14	
144	M	88	13	ch	unas	1170	16	
145	Lankapura W	90	17	do	bro pek	1700	74	
146	Do	92	47	do	pekoe	4465	47	
147	Do	94	42	do	pek sou	3780	32	
148	Alnoor	96	35	hf-ch	bro pek	1750	54	
149	Do	98	30	do	pekoe	1500	31	
150	Do	100	30	do	pek sou	4750	25	
151	B G, in estate mark	102	9	ch	bro pek	1008	41	
152	Do	104	10	do	pekoe	1000	27	
153	Do	106	14	do	pek sou	1400	22	
154	Do	108	2	do	dust	290	13	
155	Do	110	3	do	ans	405	18	
156	Haran-galla	112	38	do	bro pek	3800	56	
157	Do	114	18	do	pekoe	1530	34	
158	Do	116	5	do	pek sou	450	26	
159	Deaculla	118	34	hf-ch	or pek	2040	53	
160	Do	120	89	do	pekoe	1340	38	
161	Do	122	4	do	congou	200	17	
162	Do	124	3	do	dust	210	13	
163	Do	126	1	do	red leaf	50	9	
164	Ederapolla	128	44	do	bro or pek	2200	47	bid
165	Do	130	24	ch	pekoe	1920	29	bid
166	Do	132	18	do	pek sou	1440	25	
167	Ederapolla	134	3	ch	fans	300	18	
168	Do	136	3	do	bro mix	240	9	
169	Do	138	2	do	pek dust	150	14	
170	Yarrow	140	32	hf-ch	pekoe	1920	30	
171	Do	142	11	do	pek sou	616	23	
172	E H	144	1	ch				
			1	hf-ch	sou	150	16	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 11th May the undermentioned lots of Tea (59,500 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	H H H	14	1	ch	bro mix	102	16	
2	Do	15	1	hf-ch	dust	72	14	
3	Tavalam-tenne	16	10	ch	bro pek	1000	60	
4	Do	17	12	do	pekoe	1200	36	
5	Do	18	1	do	dust	150	15	
6	Do	19	1	do	congou	100	17	
7	Roseneath	20	25	hf-ch	bro pek	1625	48	bid
8	Do	21	18	ch	pekoe	1890	31	bid
9	Do	22	15	do	pek sou	1575	23	
10	Do	23	3	do	red leaf	345	9	
11	Allakolla	24	50	hf-ch	bro pek	3250	50	bid
12	Do	25	49	ch	pekoe	4900	33	bid
13	Do	26	27	do	pek sou	2700	24	bid
14	Do	27	1	do	dust	125	16	
15	Rondura	28	27	do	bro pek	3240	48	
16	Do	29	26	do	pekoe	2600	31	
17	Do	30	8	do	pek sou	800	23	bid
18	Do	31	5	do	pek fans	650	22	
19	Do	32	1	do	dust	160	14	
20	Kuruwitty	33	7	hf-ch	bro pek	350	51	
21	Do	34	3	do	pekoe	138	35	
22	Do	35	10	do	pek sou	450	25	
23	Do	36	56	do	unas	2576	22	
24	Do	37	1	do	congou	50	13	
25	Do	38	2	do	dust	158	15	
26	Do	39	1	do	red leaf	52	10	
27	R X	40	2	ch	bro mix	240	18	
28	Do	41	2	do	dust	280	15	
29	I P	42	8	do	bro tea	680	13	
30	D B G	43	6	do	pek sou	570	26	
31	Do	44	2	do	fans	220	19	
32	Do	45	1	do	sou	110	18	
33	C	46	1	do	dust	150	14	
34	C	47	1	do	congou	70	out	
35	S	48	1	do	pekoe	100	25	
36	D	49	18	hf-ch	bro pek	900	40	
37	A	50	8	ch	bro pek	600	43	
38	A	51	5	do	pek sou	425	22	bid
42	E B M	55	7	hf-ch	bro pek	420	48	bid
38	Do	56	11	do	pekoe	605	37	
43	Do	57	10	do	pek sou	550	25	
44	Do	58	1	do	bro tea	65	14	
45	Do	59	1	do	dust	73	14	
46	Do	60	3	do	fans	180	20	
47	Goonambil	61	12	do	bro pek	720	53	
48	Do	62	18	do	pekoe	990	42	
46	Do	63	17	do	pek sou	935	27	
50	W T	64	5	do	pekoe	250	22	
51	S	65	7	ch	bro tea	658	8	bid
52	Forest Hill	66	13	do	bro pek	1430	50	
53	Do	67	16	do	pekoe	1600	32	
54	Do	68	1	do	congou	100	14	
55	Do	69	1	do	dust	130	14	
56	S B R	70	23	do	bro pek	2070	44	
57	Do	71	23	do	pekoe	2030	28	
58	Do	72	31	do	pek sou	2790	23	
59	Do	73	4	do	dust	560	17	
60	S	76	7	do	bro tea	658	8	bid
63	Mousakan-de	77	14	ch	bro pek	1540	53	
64	Do	78	18	do	pekoe	1800	35	
65	Do	79	13	do	pek sou	1300	25	
66	Do	80	1	do	congou	100	14	
67	Do	81	2	do	dust	280	14	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 11th May the under mentioned lots of Tea (156,369 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	G	146	3	ch	dust	420	15
2	G	148	5	do	bro tea	560	21

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
3	Catherine Valley	150	1	hf-ch	bro pek	30	49	
4	Do	152	1	do	pekoe	44	33	
5	Do	154	2	do	pek sou	100	24	
6	Do	156	2	do	sou	85	20	
7	Do	158	1	do	fans	55	19	
8	W, in estate mark	160	36	ch	bro pek	3780	52	
9	Do	162	74	do	pekoe	7400	30	
10	Do	164	13	do	pek sou	1235	24	
11	Do	166	2	do	dust	300	16	
12	Do	168	1	do	fans	100	9	
13	Midlothian	170	28	hf-ch	bro pek	1680	63	
14	Do	172	32	ch	pekoe	2880	44	
15	Kirindi	174	12	do	bro pek	1080	56	
16	Do	176	19	do	pekoe	1710	44	
17	Do	178	14	do	pek sou	1120	28	
18	Do	180	2	hf-ch	dust	140	16	
19	Nahaveena	182	62	do	bro pek	3100	59	
20	Do	184	24	do	pekoe	200	39	
21	Do	186	40	do	pek sou	2000	31	
22	Do	188	4	do	dust	336	20	
23	Mukella	190	30	ch	bro pek	2550	65	
24	Do	192	27	do	pekoe	2700	44	
25	Farnham	194	20	hf-ch	bro or pek	1000	63	
26	Do	196	60	do	pekoe	2400	43	
27	Do	198	22	do	pek sou	990	29	
28	St. Leonard's	200	1	ch	sou	100	16	
29	Do	202	1	do	dust	135	13	
30	Ancoombra	204	2	do	dust	300	17	
31	A T W	206	1	hf-ch	bro pek	30	50	
32	Do	208	2	do	pekoe	89	31	
33	Do	210	3	do	pek nos	142	22	
34	Do	212	1	do	dust	85	8	
35	S K	214	6	do	congou	330	19	
36	Do	216	3	do	pek fans	210	22	
37	Do	218	4	do	dust	320	18	
38	A	220	1	do	pekoe	35	13	
39	Bandarapolla	222	19	ch	bro pek	1900	49	
40	Do	224	26	do	pekoe	2600	28	
41	Do	226	12	do	pek sou	1200	23	
42	Kottiagalla	228	4	do	dust	541	6	
43	Langdale	230	25	do	bro pek	2500	60	
44	Do	232	15	do	pekoe	1350	38	
45	Do	234	8	do	pek sou	720	27	
46	Do	236	2	do	dust	240	16	
47	Do	238	1	do	bro pek fans	110	24	
48	D Y K	240	1	do	red leaf	84	8	
49	Donside	242	2	do	sou	180	16	
50	Do	244	1	do	dust	135	15	
51	B & C	246	6	hf-ch	bro pek	330	26	
52	Do	248	6	do	sou	330	17	
53	N	250	9	do	sou	450	24	
54	N	252	2	do	dust	180	16	
59	G L, in estate mark	262	8	do	pek sou	640	23	
60	Kelvin	264	1	do	fans	130	20	
61	Y	266	23	do	pekoe	2415	22	bid
62	Y	268	5	do	bro tea	525	15	
63	Beauséjour	270	6	do	bro pek	600	47	
64	Do	272	29	do	do	2610		id
65	Doonevale	274	9	do	bro pek	900	47	
66	Do	276	8	do	pekoe	720	24	bid
67	M G	278	12	hf-ch	bro pek	502	54	
68	Do	280	22	do	pekoe	880	32	
69	Do	282	21	do	pek sou	840	25	
70	Doombagastalawa	284	3	ch	bro tea	378	17	
71	Do	286	1	do	red leaf	100	10	
72	Hope	288	3	do	bro mix	378	8	bid
73	Do	290	2	do	dust	252	10	
74	V O	292	8	do	bro tea	880	9	bid
75	Do	294	1	do	dust	120	13	
76	Castlereagh	296	41	hf-ch	bro or pek	2870	64	
77	Do	298	46	ch	pekoe	4600	41	
78	W A T	300	17	do	or pek	1785	35	bid
79	Do	302	26	do	pekoe	2470	25	bid
80	Do	304	4	do	pek sou	380	20	
81	Lankapura, M	306	8	box	pekoe No. 1	40	85	
82	B	308	13	ch	bro pek	1300	32	
83	Lankapura, W	310	7	hf-ch	pek fans	490		
84	Do	312	2	do	pek dust	170	24	
85	Do	314	1	do	red leaf	53	20	
86	W	316	2	ch	bro pek	200	94	
87	Do	318	3	do			26	
			1	hf-ch	pekoe	330	91	
88	Do	320	2	do	pek sou	128	1	
89	Yataderia	322	28	ch	bro pek	3080	46	
90	Do	324	13	do	bro or pek	1430	56	
91	Do	326	12	do	or pek	1260	38	
92	Do	328	42	do	pekoe	4410	30	
93	Do	330	12	do	pek sou	1140	25	
94	Do	332	1	do	bro tea	105	14	
95	Harangalla	334	27	do	bro pek	2700	56	
96	Shrubs Hill	336	46	do	bro pek	4830	62	
97	Do	338	43	do	pekoe	4300	37	
89	Do	340	28	do	pek sou	2800	27	
99	Do	342	8	hf-ch	dust	600	17	
105	California	354	3	box	bro pek	36	51	
106	Do	356	1	hf-ch	pekoe	38	32	
107	Do	358	3	do	pek sou	204	24	
108	Do	360	1	do	sou	61	20	
109	H C, in estate mark	362	3	ch	bro pek	243	22	
110	Do	364	1	hf-ch	pekoe	48	27	
111	Chesterford	366	16	ch	bro pek	1600	59	
112	Do	368	19	do	pekoe	1710	30	
113	Do	370	16	do	pek sou	1600	25	
114	Polatagama	372	42	hf-ch	bro pek	2520	50	
116	Tellisagalla	376	1	do	dust	140	13	
117	Talgaswela	378	40	ch	pek sou	3200	27	
118	Do	380	9	do	sou	720	22	
119	Do	382	1	do	dust	150	13	
120	Do	384	1	do	fans	130	15	
121	C L	386	10	do	u-as	990	37	
122	Bismark	388	9	do	bro pek	1080	52	bid
123	Anningkande	390	18	do	bro pek	1980	40	bid
124	Do	392	1	do	pek sou	90	25	
125	Do	394	3	do	bro tea	315	17	
126	Do	396	2	do	pek fans	240	18	
127	Do	398	4	do	fans	470	18	
128	Do	400	2	do	red leaf	200	14	
130	Middleton	404	27	hf-ch	pek sou	1404	32	
131	Do	406	9	do	dust	765	19	
132	Ellagalla	408	1	ch	red leaf	92	8	
133	Broughton	410	2	hf-ch	sou	100	16	
134	K B W	412	12	ch	bro pek sou	1042	13	bid
135	W W—O, in estate mark	414	2	do	bro pek	200	29	
136	Palamcotta	416	2	hf-ch	dust	174	14	
137	Do	418	1	ch	red leaf	100	10	
138	P C	420	7	do	bro pek	630	27	
139	Do	422	16	do	pek sou	1440	15	
140	Do	424	7	do	pek dust	980	16	
141	Horagaskelle	426	7	hf-ch	bro pek	416	40	
142	Do	428	8	do	pekoe	456	29	
143	Do	430	12	do	pek sou	696	24	
144	Do	432	2	do	congou	112	12	
154	Bismark	434	9	ch	bro pek	990	50	
146	Do	436	12	do	pekoe	1200	38	
147	Do	438	15	do	pek sou	1500	26	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, April 22nd, 1892.

Marks and pric of CEYLON COFFEE sold in Mincing Lane up to 22nd April:—

Ex "Oopack"—Denegama, 1t 99s; 1t 91s; 1b 100s; 1c 103s; 2c 1b 99s; 1b 92s; 1t 1b 111s. Queensberry, 1b 108s; 1c 1t 93s 6d; 3c 1t 99s; 1t 92s; 1c 111s.

Ex "Pindari"—Aldie, 1c 1b 101s 6d; 11c 98s 6d; 2c 94s; 1b 101s; 1c 1b 100s.

Ex "Nubia"—Haldummulla, 1b 107s; 1c 1b 103s; 1c 98s; 1b 92s; 1b 100s. Ravenswood, 1c 1t 92s 6d; 1b 87s.

Ex "Oopack"—Pingarawa, 2c 100s; 6c 1t 97s 6d; 1c 1b 90s; 2t 1b 102s;. Fordyce, 1c 106s; 3c 102s 6d; 1b 94s 6d; 1t 1b 112s 6d. Kew, 1b 104s; 1c 1t 103s; 1b 94s 6d; 1b 100s; 1b 106s.

Ex "Mira"—Rahanwatte, 1c 106s; 3c 1b 103s 6d; 1c 1b 97s; 1t 107s. Adam's Peak, 4c 1b 106s; 5c 100s; 1t 1b 99s 6d; 2c 2b 97s 6d; 1c 1t 114s 6d.

Ex "Nubia"—Portree, 1c 97s; 1b 99s.

Ex "Oopack"—Glassaugh, 3c 97s; 1b 88s; 2b 100s; 1b 89s. 1b 98s; 1c 1t 94s 6d; 3c 94s; 1t 98s; 1c 103s.

"CEYLON OBSERVER" PRESS, COLOMBO.

NO. 13.] COLOMBO, MAY 28, 1892. { PRICE :—12½ cents each ; 3 copies 30 cents ; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 11th May the undermentioned lots of Tea (34,154 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pgs.	Description	Weight lb.	c.	
1	Wewatenne	1	4	hf-ch bro pek	200	26	
2	Do	2	2	do pekoe	96	18	
3	M L C	3	62	do pek sou	3100	27	
4	R S	5	4	ch pekoe	400	24	
5	Do	6	7	hf-ch fans	441	10	bid
6	Do	7	9	do bro mix	450	13	
7	Do	8	11	do do	580	9	
8	G, Ceylon	10	12	do pekoesou	600	33	
9	Do	12	8	do pekoe	400	24	
10	A K C A, in estate mark	14	41	do bro pek	2050	54	
11	Do	16	55	do pekoe	2750	35	
12	Do	18	15	do pek sou	750	25	
13	Do	20	2	do fans	160	21	
14	Do	21	1	do dust	80	16	
15	Bogahagoda-watte	22	4	do bro pek	200	50	
16	Do	23	3	do pekoe	210	29	
17	Do	24	5	do pek sou	325	25	
18	Do	25	3	do fans	210	18	
19	Do	26	1	do dust	81	17	
20	Comillah	27	16	do bro pek	880	40	
25	Pemberton	36	3	hf-ch bro pek	150	43	
26	Do	37	4	do pekoe	180	31	
27	Do	38	3	ch pek sou	300	24	
28	Horana	39	3	hf-ch bro pek	168	36	
29	Do	40	6	do pekoe	300	27	bid
30	Do	41	7	do pek sou	315	21	
31	Do	42	2	do bro pek sou	86	16	
32	Do	43	1	do dust	71	14	bid
33	Nahalma	44	41	do bro pek	2337	51	
34	Do	46	35	ch pekoe	3500	34	
35	Do	48	6	do pek sou	600	26	
36	Do	50	2	do dust	150	17	
41	M F	57	19	ch pek fans	2280	19	
42	Do	59	21	do pek sou	2100	24	
43	N	61	31	hf-ch bro pek	1705	51	
44	N	63	39	do pekoe	1889	36	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 11th May the undermentioned lots of Tea (94,725 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.	
1	T E	72	1	ch red leaf	100	16	
2	Do	73	2	do bro mix	225	15	
3	Whyddon	74	3	do dust	450	18	
4	Do	75	4	do pek fans	488	29	
5	Do	76	15	do pek sou	1500	33	
6	Do	78	20	do pekoe	2000	44	
7	Do	80	18	do bro pek	2016	53	
8	Ella	82	47	do bro pek	4700	33	bid
9	Do	84	68	do pekoe	6120	25	
10	Do	86	62	do pek sou	5580	23	
11	Do	88	6	do fans	540	18	
12	Do	90	10	do dust	1400	15	
13	Mocha	101	25	do bro pek	2500	67	bid
14	Do	103	31	do pekoe	2945	55	
15	Do	105	12	do pek sou	1080	38	
16	Tientsin	107	27	hf-ch bro pek	1350	81	bid
17	Do	109	24	ch pekoe	2400	54	bid
18	Do	111	12	do pek sou	1200	38	
19	Do	113	1	do sou	100	19	
20	Do	114	3	hf-ch dust	210	18	
21	Ardlaw	116	22	do bro or pek	1430	73	bid
22	Do	117	40	ch bro pek	3840	63	
23	Do	119	17	do or pek	1785	44	
24	Do	121	10	do pekoe	1000	40	
25	O, in estate mark	123	3	do pekoe	345	31	
26	Do	124	2	do bro mix	260	18	
27	Do	125	2	do dust		17	
			1	hf-ch	395	23	
28	A	126	4	ch pek sou	376		
29	L, in estate mark	127	1	hf-ch red leaf	50	9	
30	Do	128	1	do congou	45	14	
31	Bittacy	129	14	do bro pek	770	56	bid
32	Do	131	39	do pekoe	2145	35	bid
33	Labugama	133	12	do bro pek	576	41	
34	Do	135	14	do pekoe	630	29	
35	Do	137	10	ch pek sou	1000	22	
36	Do	139	1	hf-ch bro mix	50	8	
37	Do	140	2	do pek dust	125	17	
38	B, in estate mark	141	2	do congou	110	15	
39	Do	142	2	do dust	60	17	
40	Troup	143	32	do bro pek	1920	64	
41	Do	145	28	ch pekoe	2660	49	
42	Do	147	1	do dust	130	15	
43	Do	148	1	do red leaf	90	11	
44	L	149	18	do pek fans	2700	23	
49	Fassifern	158	24	ch bro pek	2520	57	bid
50	Do	160	24	do pekoe	2280	41	bid
51	Do	162	1	do pekoe	95	41	
52	Do	163	2	do pek sou	200	25	
53	Do	164	1	do dust	128	15	
54	Agra Ouvah	165	24	hf-ch bro pek	1200	78	bid
55	Do	167	29	do pekoe	1305	50	bid
56	Do	169	22	do pekoe	990	50	bid
57	Do	171	25	do pek sou	1125	35	bid
58	Do	173	9	do pek sou No. 2	405	29	
59	A P	175	5	ch dust	720	9	
60	Bowhill	176	6	do pek sou	600	19	bid
61	Do	178	4	do sou	400	25	bid
62	Albion	180	30	do bro pek	3150	70	bid
63	Do	182	24	ch pekoe	2400	52	
64	Do	184	20	hf-ch pek sou	1100	35	
65	Do	186	4	do dust	340	18	
66	Ayr	187	26	do bro pek	1300	65	
67	Do	189	40	do pekoe	1680	35	bid
68	Do	191	41	do pek sou	1804	27	
69	Do	193	5	do congou	215	19	
70	Do	194	5	do fans	240	21	
71	Do	195	1	do pek dust	71	17	
72	Do	196	1	do bro pk dust	71	19	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 18th May the undermentioned lots of Tea (42,616 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs	Description.	Weight lb.	c.	
1	D E C	1	5	hf-ch fans	240	16	
2	Do	2	2	do pek dust	100	14	
3	Do	3	5	do red leaf	240	9	
4	A S C	4	10	do pek sou	500	24	
5	Do	6	3	do fans	150	20	
6	Do	7	2	do pek dust	120	14	
7	Do	8	5	do red leaf	250	14	
8	C A W	9	5	do bro pek	250	46	
9	Do	10	5	do pekoe	250	30	
10	Do	11	14	do pek sou	700	26	
11	Do	13	1	do dust	62	14	
12	Do	14	3	do fans	170	16	
13	F H A F N C, in estate mark	15	8	do bro pek	840	53	bid
14	Do	17	11	do pekoe	605	38	bid
15	Do	19	1	do dust	80	14	
16	Do	20	1	do congou	50	15	bid
17	Nahalma	21	58	do bro pek	3306	53	
18	Do	23	52	ch pekoe	5200	38	
19	Do	25	8	do pek sou	800	26	
20	Do	27	2	do dust	150	18	
24	D	34	2	do dust	300	16	
25	D	35	4	do congou	400	20	
26	A G C	36	2	do bro or pek	155	31	bid
27	Do	37	2	do or pek	200	26	bid
28	Do	38	5	do pekoe	480	22	
29	Do	39	10	do pek dust	700	15	
30	Elston	41	6	ch bro mix	600	19	
31	G	43	10	hf-ch bro pek	500	40	bid
32	G	45	6	do pekoe	300	27	bid
33	G	46	4	do pek sou	200	20	
40	L A	55	19	ch bro pek	2240	42	bid
41	Do	57	19	do pekoe	1900	37	bid

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
42	P	59	4	hf-ch	pekoe	389	16	bid
43	B G A	60	13	do	bro pek	1612	30	bid
49	M M	69	1	do	bro tea	83	8	
50	Willesden	70	7	ch	bro pek	766	30	bid
51	Do	72	4	do	pekoe	403	24	bid

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 18th May the undermentioned lots of Tea (56,484 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	H Y	197	1	ch	bro mix	130	14	
2	Do	198	1	do	dust	160	15	
3	Lawrence Factory	199	21	do	sou	2310	14	
4	D E	201	12	hf-ch	bro mix	672	19	
5	S Q	203	15	ch	unas	1275	21	
6	Tarf	205	14	do	pek sou	1260	33	
7	Do	207	3	do	dust	360	15	
8	N	208	3	do	bro mix	300	22	
9	Kandenewera	209	21	do	bro pek	2100	66	
10	Do	211	33	do	pekoe	3300	51	
11	Do	213	14	do	pek sou	1400	32	bid
12	W—T	215	54	do	bro pek	5400	51	bid
13	Do	217	14	do	pekoe	1260	39	
14	Do	219	35	do	pek sou	3150	30	
15	Do	221	3	do	dust	450	24	
16	Orange Field P N R	223	14	ch	pekoe	1260	20	bid
17	Do	225	18	do	bro mix	1800	13	
18	Do	227	3	do	pek dust	420	11	
19	Madooltenne	228	12	do	bro pek	1260	54	
20	Do	230	13	do	pekoe	1300	29	bid
21	Do	232	12	do	pek sou	1200	28	
22	A M H	234	18	do				
			1	hf-ch	pekoe	1552	28	bid
23	Dickoya]	236	4	ch	or pek	320	59	
24	Do	238	5	do	bro pek	550	50	bid
25	Do	240	5	do	pek sou	450	25	
26	Do	242	8	do	unas	800	28	bid
27	Do	244	4	do	bro mix	407	13	
28	Do	246	6	do	dust	900	13	
29	F T	248	5	do	pekoe	575	32	
30	Warleigh	250	2	do	bro pek	220	53	bid
31	Do	251	2	do	pek sou	200	22	bid
32	Do	252	3	do	unas	300	26	
33	Do	253	3	do	bro mix	302	9	
34	Do	254	7	do	dust	1010	13	
35	Talagalla	256	22	ch	or pek	1980	48	
36	Do	258	15	do	bro pek	1740	49	bid
37	Do	260	20	do	pekoe	1800	34	
38	Do	262	2	do	dust	290	14	
39	C W	263	3	hf-ch	bro pek	168	46	bid
40	Do	264	5	do	pekoe	250	26	bid
41	Agra Ouvah	266	23	do	bro pek	1150	76	
42	Do	268	24	do	bro pek	1200	75	
43	Do	270	23	do	pekoe	1035	48	
44	Do	272	21	do	pek sou	945	37	
45	A O	274	2	do	pek fans	140	25	
46	Do	275	1	do	pek dust	88	16	
50	Tientsin	281	27	do	bro pek	1350	81	bid
51	Do	283	24	ch	pekoe	2400	50	bid

Messrs. SOMERVILLE & Co put up for sale at the Chamber of Commerce Sale-room on the 18th May the undermentioned lots of Tea (83,134 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	O U C	82	10	ch	bro mix	800	13	
2	Do	83	6	hf-ch	dust	420	13	bid
3	M D	84	1	ch	bro tea	95	withd'n.	
4	Do	85	2	do	dust	240	13	
5	B B B	86	7	do	pek sou	700	22	
6	Do	87	4	do	dust	600	18	
7	Do	88	1	do	bro mix	95	13	
8	W	89	2	do				
			1	hf-ch	sou	250	19	bid
9	W	90	1	do	dust	88	13	
10	W	91	1	do				
			1	hf-ch	red leaf	162	13	
11	S R R	92	6	ch	bro pek	540	40	
12	Do	93	7	do	pekoe	630	29	
13	Do	94	9	do	pek sou	810	24	
14	R E	95	4	do	bro pek	320	46	
15	Do	96	8	do	pekoe	720	29	
16	Do	97	4	hf-ch	pek sou	340	21	
17	Do	98	1	do	dust	100	13	
18	H S, in estate mark	99	18	do	bro or pek	1800	48	bid
19	Do	100	19	do	pekoe	1710	39	bid
20	Do	1	16	do	pek sou	1360	27	
21	Do	2	6	do	sou	510	20	
22	P G, in estate mark	3	41	do	bro or pek	4100	54	
23	Do	4	45	do	pekoe	4050	35	
24	Do	5	39	do	pek sou	3315	28	
25	Do	6	16	do	sou	1360	23	
26	Coneygar	7	12	hf-ch	bro pek	675	57	
27	Do	8	10	ch	pekoe	900	40	bid
28	Do	9	3	do	pek sou	285	28	
29	Do	10	2	hf-ch	dust	160	15	
30	Arslena	11	50	do	bro pek	2500	55	bid
31	Do	12	46	do	pekoe	2300	40	
32	Do	13	11	do	pek sou	550	28	
33	Moussagalla	14	21	ch				
			1	hf-ch	bro pek	2160	58	
34	Do	15	6	ch				
			1	hf-ch	pekoe	655	42	
35	Do	16	13	ch				
			1	hf-ch	pek sou	1360	28	
36	Kudaganga	17	8	do	bro pek	424	57	
37	Do	18	12	do	pekoe	600	35	
38	Do	19	5	do	pek sou	245	29	
39	Do	20	1	do	congou	44	15	
40	Do	21	2	do	bro tea	116	19	
41	Naseby	22	10	do	bro pek	500	81	
42	Do	22a	12	ch	pekoe	1344	56	
43	G W	23	9	do	bro mix	810	18	
44	Do	24	7	do	dust	840	26	
45	Depedene	25	20	hf-ch	bro pek	1000	40	bid
46	Do	26	29	do	pekoe	1450	34	
47	Do	27	37	do	pek sou	1850	29	
48	H D	28	34	do	bro sou	1700	24	
52	Aadneven	32	14	ch	bro pek	1400	59	
53	Do	33	25	do	pekoe	2250	48	
54	Do	34	11	do	pek sou	990	28	
55	R—T, in estate mark	35	4	hf-ch	dust	280	17	
56	Galata	36	1	do	bro tea	100	18	
57	Do	37	3	do	dust	252	17	
58	P, in estate mark	38	2	do	congou	200	13	
59	Do	39	8	do	dust	600	8	bid
60	Denmark Hill	40	1	hf-ch	pek fans	90	15	
61	Do	41	1	ch	sou	85	14	
62	Kurulugalla	42	10	do	bro pek	1000	51	
63	Do	43	21	do	pekoe	2100	32	
64	Do	44	15	do	pek sou	1350	27	
65	Do	45	16	do	sou	1440	21	
66	Liskileen	46	24	do	bro pek	2400	42	
67	Do	47	18	do	pekoe	1800	29	
68	C A, in estate mark	48	28	hf-ch	unas	1400	28	
70	Ingeriya	50	3	hf-ch	bro pek	165	50	
71	Do	51	6	do	pekoe	300	32	
72	Do	52	8	do	pek sou	384	25	bid
73	Do	53	1	do	pek dust	66	15	
74	Do	54	1	do	bro tea	60	10	bid
75	Do	55	4	do	bro mix	200	13	
76	Pittawella	56	21	do	bro pek	1155	47	bid
77	Do	57	18	do	pekoe	900	34	bid
78	Do	58	23	do	pek sou	1196	27	
79	T, in estate mark	59	15	ch	bro pek	1620	48	
80	Do	60	17	do	pekoe	1666	30	bid
81	Do	61	24	do	pek sou	2256	26	
82	B S	62	13	do	bro pek	1300	31	bid
83	M A H	63	6	do	congou	540	17	

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 18th May the undermentioned lots of Tea (240,687 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.
1	M K	440	2	hf-ch	unas	75	23
2	W	442	12	ch	pek sou	980	28
3	Chrystlers Farm	444	15	do	sou	1425	28

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
4	Bismark	446	5	ch	bro pek	550	47	
5	Do	448	10	do	pekoe	1000	35	
6	Do	450	10	do	pek sou	1000	28	
7	K H, in estate mark	452	2	hf-ch	bro pek	110	34	
8	Do	454	2	do	pekoe	170	27	
9	Do	456	1	do	pek sou	85	19	
10	E H	458	2	do	bro pek	120	34	
11	Do	460	5	do	pekoe	300	24	
12	Gleudon	462	9	ch	pek sou	900	28	
13	G	464	2	do	dust	300	11	
14	W W	466	3	do	pek sou	240	25	
15	Do	468	2	do	pek dust	300	16	
16	Harangalla	470	14	do	bro pek	1400	55	
17	Do	472	18	do	pekoe	1530	37	
18	Do	474	13	do	pek sou	1170	30	
19	Killin	476	21	hf-ch	bro pek	1050	45	
20	Do	478	27	do	pekoe	1350	32	
21	Do	480	22	do	pek sou	1100	28	
22	Ederapolla	482	41	do	bro or pek	2050	54	
23	Do	484	23	ch	pekoe	1840	34	
24	Do	486	19	do	pek sou	1520	27	
25	Anamallay	488	3	hf-ch	bro or pek	150	45	
26	Do	490	3	ch	pekoe	240	34	
27	Do	492	3	do	pek sou	240	25	
28	E D P	494	2	ch	congou	180	15	
29	Do	496	2	do	fans	200	18	
30	Do	498	2	hf-ch	pek dust	140	15	
31	Arloch	500	21	do	bro pek	1260	68	
32	Do	502	18	ch	pekoe	1620	51	
53	Do	504	2	do	pek sou	190	28	
34	Do	506	3	hf-ch	dust	240	19	
35	Do	508	2	do	fans	140	23	
36	Tellisagalla	510	1	ch	bro mix	110	12	
37	G A	512	20	do	pek sou	2000	28	
38	Queensland	514	38	do	flowery pek	3800	62	bid
39	Do	516	29	do	pekoe	2400	45	
40	Do	518	2	do	pek fans	260	24	
41	Craighaed	520	28	do	or pek	2800	63	
42	Do	522	43	do	pekoe	4085	41	
43	Do	524	15	do	pek sou	1425	29	
44	M V	526	2	do	fans	320	17	
45	Aigburth	528	65	ch	bro pek	6175	56	
46	Do	530	58	do	pekoe	5220	36	
47	Do	532	26	do	pek sou	2340	28	
48	Do	534	5	do	dust	750	20	
49	B R, in estate mark	536	6	do	bro mix	630	12	
50	K G	538	3	hf-ch	pekoe	150	25	
51	Pedro	540	11	ch	bro pek	1045	99	
52	Do	542	24	do	pekoe	1920	75	
53	Do	544	24	do	pek sou	1560	52	
54	Do	546	2	do	dust	240	21	
55	M G	548	10	hf-ch	bro pek	495	47	bid
56	Do	550	9	do	pekoe	376	35	
57	Do	552	5	do	pek sou	615	27	
58	Do	554	2	do	sou	60	19	
59	Do	556	1	do	dust	43	14	
60	Beauséjour	558	4	ch	bro pek	400	44	
61	Do	560	11	do	pekoe	990	28	
62	C, in estate mark	562	5	do	bro tea	500	13	
63	Doonevale	564	5	do	bro pek	500	44	
64	Do	566	40	do	pekoe	3600	30	
65	L, in estate mark	568	5	do	bro tea	500	13	
66	N W D	570	3	do	bro pek	304	45	
67	Do	572	5	do	pekoe	495	26	
68	S S S	574	6	do	congou	660	19	
69	Do	576	8	do	dust	1280	17	
70	Yoxford	578	4	hf-ch	dust	320	15	
71	Yatateria	580	32	ch	bro pek	3520	46	
72	Do	582	12	do	bro or pek	1320	56	
73	Do	584	44	do	pekoe	4620	32	
74	Do	586	12	do	pek sou	1140	27	
75	Chesterford	588	17	do	bro pek	1700	62	
76	Do	590	17	do	pekoe	1615	30	
77	Do	592	16	do	pek sou	1600	27	
78	Chalmers	594	5	do	or pek	500	26	bid
79	Do	596	21	do	bro pek	1680	63	
80	Do	598	18	do	pekoe	1260	44	
81	Do	600	14	hf-ch	bro pek sou	840	29	
82	Do	602	1	ch	dust	120	15	
83	Do	604	2	do	bro mix	140	14	
84	Anningkande	606	18	do	bro pek	1980	31	bid
85	Do	608	25	do	pekoe	2500	27	bid
86	Do	610	21	do	pek sou	1890	23	bid
87	Do	612	8	do	sou	720	22	
88	Do	614	2	hf-ch	bro tea	210	19	
89	Do	616	4	do	pek fan	460	18	
90	Do	618	1	do	fans	120	16	
91	Do	620	1	do				
			2	hf-ch	dust	300	15	
92	Atherfield	622	10	do	sou	1000	25	
93	Do	624	2	do	bro mix	180	13	
94	Do	626	3	do	dus	420	14	
95	Ancoombra	628	1	do	dust	150	18	
98	Mahagastota	634	9	ch	bro pek	900	59	
99	Do	636	8	do	pekoe	720	40	
100	Do	638	8	do	pek sou	640	29	
101	Do	640	4	do	bro tea	540	27	
102	Do	642	6	do	red leaf	470	22	
103	Do	644	4	do	dust	325	15	
104	Caskieben	646	39	do	flowery pek	3900	66	
105	Do	648	30	do	pekoe	2550	46	
106	Do	650	4	do	unas	400	44	
107	Do	652	1	do	pek fans	130	23	
108	Bloomfield	654	34	do	flowery pek	3400	76	
109	Do	656	27	do	pekoe	2700	45	bid
110	Do	658	2	do	pek fans	230	25	
111	B	660	17	do	bro pek	1700	30	bid
112	Galloola	662	1	hf-ch	pek sou	49	25	
113	Bandarapolla	664	24	ch	bro pek	2400	48	
114	Do	666	27	do	pekoe	2700	30	
115	Do	668	20	do	pek sou	2000	27	
116	Do	670	4	do	dust	560	15	
117	Aberdeen, in estate mark	672	24	hf-ch	pek sou	1200	27	bid
118	Do	674	26	do	do	1300	27	bid
119	Do	676	30	do	do	1500	27	bid
120	Do	678	10	do	pek fans	500	20	
121	D W	680	7	ch	pek fans	760	14	
122	M V	682	1	hf-ch	bro pek	50	47	
123	Do	684	1	do	pekoe	50	36	
124	L G E	686	1	do	sou	50	14	
125	A K, in estate mark	688	17	ch	bro or pek	1870	33	
126	Do	690	28	do	pekoe	2520	27	
127	Do	692	5	do	pek sou	450	20	
128	V	694	5	hf-ch	pek fans	313	14	
129	D P	696	7	ch	bro mix	590	10	
130	Radella	698	14	do	bro pek	1400	73	
131	Do	700	17	do	pekoe	1530	48	
132	Do	702	12	do	pek sou	1080	34	
133	Hakurugalla	704	15	do	bro pek	1500	50	
134	Do	706	27	do	pekoe	2430	28	
135	Do	708	4	do	pek sou	360	22	
136	Do	710	2	hf-ch	dust	150	14	
137	K	712	2	ch	pek sou	200	20	
138	K	714	1	do	dust	170	10	
139	Melrose	716	19	do	bro pek	2280	49	
140	Do	718	26	do	pekoe	2860	34	
141	Do	720	11	do	pek sou	1210	28	
142	Do	722	18	do	pek sou	1008	28	
143	Do	724	1	do	congou	85	15	
144	Do	726	4	hf-ch	do	200	15	
154	W A T	728	7	ch	or pek	735	47	
146	Do	730	13	do	pekoe	1235	31	
147	Do	732	2	do	pek sou	190	23	
148	Do	734	2	do	bro tea	240	11	
149	M K E	736	22	do	pekoe	2200	25	
154	Walahanduwa	746	10	ch	bro pek	1000	60	
155	Do	748	12	do	pekoe	1140	37	
156	Do	750	15	do	pek sou	1500	28	
157	S P A	752	10	do	unas	1100	25	
158	Do	754	2	hf-ch	dust	180	17	
159	Do	756	4	do	red leaf	240	15	
160	S P V	758	7	ch	bro pek	490	46	
161	Do	760	6	do	pekoe	570	27	
162	Do	762	11	do	pek sou	1100	25	
163	Galdola	764	4	hf-ch	unas	240	25	
164	Do	766	1	box	red leaf	10	13	
165	Deniyaya	768	7	ch	bro pek	700	39	
166	Do	770	11	do	pekoe	1030	27	
167	Do	772	4	do	pek sou	385	25	
168	Do	774	4	do	sou	370	18	
169	Torwood	776	8	hf-ch	fans	480	21	
170	Do	778	8	do	dust	480	17	
171	Wewesse	780	47	do	bro pek	2350	62	
172	Do	782	26	do	pekoe	1300	45	
173	Do	784	25	do	pek sou	1250	30	
174	Hunugalla	786	5	ch	bro pek	525	39	
175	Do	788	8	do	pekoe	800	25	
176	Do	790	6	do	pek sou	600	22	

Lot No.	Mark	Box No.	Pkgs.	Description.	Weight lb.	c.
177	Do	792	1 do	dust	122	14
178	S C K, Ceylon, in estate mark	794	1 do	bro mix	100	10
279	Weddegodde	796	22 hf-ch	pekoe	1100	25
180	H & H	798	4 ch	bro tea	380	20
181	Agars Land	800	69 hf-ch	bro pek	3450	59
182	Do	2	35 do	pekoe	1750	47
183	Do	4	24 do	pek sou	1080	31
184	Horagoda	6	15 ch	pekoe	1275	28
185	Iddagodda	8	13 do	bro pek	1300	52
186	Do	10	10 do	pekoe	900	30
187	Do	12	4 do	pek sou	340	24
188	Do	14	5 do	bro pek sou	400	20
189	Do	16	1 do	dust	140	16
190	O D	18	4 do	pek sou	300	19
191	Palmerston	22	14 hf-ch	bro pek	770	72
192	Do	24	22 ch	pekoe	2200	57
193	Do	26	13 do	pek sou	1300	36
198	Wollyfield	36	2 ch 1 hf-ch	bro pek	220	37
199	Do	38	4 ch	pek sou	340	20
200	St. Helier's	40	28 hf-ch	bro or pek	1680	63
201	Do	42	23 ch	pekoe	2600	41
202	Do	44	28 do	pek sou	1540	28
207	H T A	54	7 do	bro pek	630	49
208	Do	56	8 do	pekoe	680	30
209	Do	58	9 do	pek sou	810	22
210	Do	60	2 do	pek fans	200	18
211	Do	62	1 do	red leaf	95	8
115	Alncor	70	33 hf-ch	bro pek	1650	45
216	Do	72	24 do	pekoe	1200	29
217	Do	74	36 do	pek sou	1800	26
218	P, in estate mark	76	2 ch	dust	300	13

Messrs. A. H. THOMSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 25th May the undermentioned lots of Tea (32,890 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.	Description	Weight lb.	c.	
1	Citrus	1	8 hf-ch	bro pek	462	45	
2	Do	2	24 do	pekoe	1320	30	
3	Do	4	12 do	pek sou	597	25	
4	Do	6	4 do	congou	200	15	
5	Do	7	4 do	fans	280	15	
6	Do	8	1 do	red leaf	50	10	
7	Wewatenne	9	6 do	bro pek	300	out	
8	Do	10	3 do	pekoe	133	18	
9	Agraoya	11	28 ch	bro pek	2800	48	
10	Do	13	44 do	pekoe	4400	30	
11	Do	15	1 do	bro mix	100	8	
12	Nahalma	16	38 hf ch	bro pek	2166		
13	Do	18	32 ch	pekoe	3200		
14	Do	20	4 do	pek sou	400		withd'n
15	Do	21	3 do	congou	300		
16	Do	22	1 do	dust	75		
17	Gampolawatte	23	10 hf-ch	bro pek	500	41	bid
18	T B	25	14 ch	dust	2100	13	
19	Sumana	27	10 hf-ch	or pek	550	35	bid
20	Do	29	4 do	pek sou	180	24	
21	S B M, in estate mark	30	7 ch	bro mix	595	10	bid
22	Do	32	3 do	do	240	10	bid
23	S dust, in estate mark	33	7 do	dust	560	16	
24	New Cornwall	35	8 hf-ch	bro pek	480	44	bid
25	Do	36	11 do	pekoe	605	30	bid
26	Do	38	1 do	congou	50	15	bid
27	Harrow	39	5 do	bro or pek	300	55	bid
28	Do	40	15 do	bro pek	900	51	bid
29	Do	42	22 ch	pekoe	2200	42	
30	P	44	4 do	pek sou	389	15	bid
31	P	45	7 do	dust	1050	15	
32	H H	47	3 do	congou	300	22	
33	Do	48	2 do	bro mix	180	15	
34	W R	49	2 do	pek sou	162	12	bid
36	Woodend	51	1 do	congou	80	14	
37	A G C	52	2 do	bro or pek	155	25	bid
38	A B	53	11 do 1 hf-ch	unas	1150	27	bid
39	A S	55	2 do	bro pek	106	35	
40	Do	56	3 hf-ch	pekoe	135	26	bid
41	Do	57	5 do	pek sou	240	20	
42	Do	58	1 do	bro mix	95	15	
43	Ettapolla	59	14 do	bro pek	770	41	bid
44	Do	61	32 do	pekoe	1760	23	bid
45	L, in estate mark	64	1 ch	or pek	71	out	
47	Do	65	1 do	fans	100	12	

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 29th 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 29th April:—

Ex "Cuzco"—Ingestre, 2c 106s 6d; 2c 103s 6d; 1c 97s; 2t 119s 6d.

Ex "Oopack"—Roehampton, 1t 94s; 1c 1b 93s; 1b 81s; 1b 99s. Kelburne, 2c 1b 101s; 3c 96s 6d; 1t 105s.

Ex "Ganges"—Pittarat Malle, 2b 1c 96s 6d; 5c 94s 6d; 1c 88s; 1b 99s.

Ex "Coromandel"—Aldourie, 1c 101s; 9c 99s; 2c 95s; 2b 1c 106s 6d.

Ex "Nubia"—Bogawantalawa, 1b 105s; 1b 4c 103s; 1t 97s; 1b 109s.

Ex "Dorunda"—Blair Athol, 1t 103s; 1c 1b 97s; 1b 90s; 1b 106s; 1b 82s.

Ex "Teucer"—Newton, 1b 105s; 1c 1b 102s 6d; 1b 89s; 1b 108s; 1b 78s.

Ex "Manora"—Meddecombra, 1t 106s; 2c 103s; 1t 1b 99s; 1b 113s; 0b 83s; 1b 103s.

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 29th, 1892.

Ex "Oopack"—Glenury, 8b 103s; 1c 85s; 1b 64s; 1b 88s; 2b 56s; 1b 41s; 1b 53s; 1b 46s.

Ex "Oheshire"—Goonambil, 9b 103s; 3b 85s.

Ex "Oopack"—Lower Haloya, 3b 107s; 11b 98s 6d; 2b 65s 6d; 1b 46s.

Ex "Gleneagles"—Maynetrees, 8b 105s; 2b 86s; 1b 59s.

Ex "Cuzco"—Lesmoir, 1b 59s.

Ex "Mira"—(RA), 11b 100s.

Ex "Jelunga"—(RA), 2b 56s.

Ex "Oopack"—Palli, 9b 78s 6d; 1b 89s; 71b 45s 6d; 6b 49s. Amba, 39b 75s; 1b 89s; 5b 48s 6d; 37b 80s 26b 70s.

Ex "Pindari"—Arduthie, 25b 94s; 27b 69s.

Ex "Coromandel"—Beredewelle, 15b 105s; 4b 70s; 1b 67s.

Ex "Oheshire"—GH, 2b 54s; 2b 57s.

Ex "Mira"—F, 5b 81s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 29th. 1892.

Ex "Pindari"—Gallenoenne, 1c 3s 8d; 3c 2s 11d; 2c 3s 2d; 2c 1s 11d; 2c 1s 9d; 2c 1s 1d.

Ex "Nubia"—(OBEC), 5c 2s 3d; 2c 2s 4d; 3c 1s 8d.

Ex "Dorunda"—Malabar, 11c 1s 9d; 11c 1s 4d; 6c 1s 6d.

Ex "Capella"—Katocloya, 2c 1s 8d; 4c 1s.

Ex "Mira"—Galaha, 2c 3s 2d; 3c 2s 6d; 2c 1s 8d; 2c 1s 6d; 2c 1s 9d. Cottaganga, 1c 1s 9d; 2c 1s 6d; 3c 1s 2d; 2c 1s 1d. New Peacock, 2c 1s 7d; 2c 1s 8d; 2c 1s 7d; 1c 1s 8d.

Ex "India"—Delpotonoya, 2c 2s 10d; 5c 2s; 7c 1s 9d; 3c 1s; 1c 1s 1d.

Ex "Coromandell"—Tunisgalla, 5c 1s 6d; 1c 1s 1d; 1c 1s.

Ex "Annie Barrow"—MK&Co., 2c 1s 4d; 2c 1s 5d 4c 1s 4d.

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COLOMBO SALES OF TEA.

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 25th May the undermentioned lots of Tea (92,898 lb.), which sold as under :—

Lot No	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	M R	285	2	ch	dust	267	15	
2	P T E	286	2	do	dust	273	15	
3	Do	287	1	hf-ch	red leaf	38	8	
4	D M D	288	24	do	bro pek	1392	out	
5	Do	290	41	do	pekoe	2050	33	
6	Do	302	2	do	do	68	17	
7	Do	303	2	do	dust	170	14	
8	Albion	304	18	ch	bro pek	1890	72	
9	Do	306	17	do	pekoe	1615	52	
11	Dickoya	309	8	ch	unas	800	22	bid
12	Talagalla	311	15	do	bro pek	1740	48	bid
13	Saumarez	313	7	do	bro pek	700	45	bid
14	Do	315	16	do	pekoe	1440	38	
15	Do	317	13	do	pek sou	1235	25	
16	Do	319	10	do	bro mix	1400	10	
17	Ella	321	17	do	bro pek	1700	out	
18	Do	323	18	do	pekoe	1620	35	
19	Do	325	50	do	pek sou	4500	25	
20	Great Valley	327	23	hf-ch	bro or pek	1380	76	bid
21	Do	329	17	ch	or pek	1785	64	
22	Do	331	52	do	pek sou	5200	50	
23	Do	333	12	do	pek sou	1140	34	
24	Do	335	2	do	congou	190	20	
25	Do	336	4	hf-ch	dust	320	20	
26	Allington	337	15	do	bro pek	820	45	
27	Do	339	12	ch	pekoe	1020	27	
28	Do	341	6	do	pek sou	510	24	
29	Do	343	1	hf-ch	dust	80	15	
30	Do	344	2	ch	bro mix	160	10	
31	Galkandawatte	345	33	do	bro pek	3300	64	
32	Do	347	58	do	pekoe	5220	50	
33	Do	349	24	do	pek sou	2160	32	
34	Mocha	10	30	do	bro pek	3000	74	
35	Do	12	26	do	pekoe	2600	56	
36	Do	14	16	do	pek sou	1440	43	
37	C W	16	3	hf-ch	bro pek	168	40	
38	Glasgow	17	35	ch	bro pek	3150	78	
39	Do	19	36	do	pekoe	3600	55	
40	A	21	1	hf-ch	pekoe	63	25	
41	Mahagalla	22	47	do	or pek	2820	60	bid
42	Do	24	38	ch	pekoe	3800	42	bid
43	Do	26	14	do	pek sou	1400	35	
44	Do	28	1	hf-ch	dust	85	13	
45	Cruden	29	9	ch	sou	900	17	bid
46	Troup	31	40	hf-ch	bro pek	2400	65	bid
47	Do	33	42	ch	pekoe	3990	50	
48	Do	35	2	hf-ch	congou	100	22	
49	Ardlaw	36	13	ch	pekoe	1365	39	bid
50	O	38	5	do	bro tea	550	26	
51	O	39	2	do	dust	250	16	
57	Agra Ouvah	49	25	hf-ch	bro pek	1250	69	bid
58	Do	51	30	do	pekoe	1850	52	bid
59	Do	53	23	do	pek sou	1035	36	bid
60	Do	55	9	do	do No. 2	405	29	bid
61	A O	57	1	do	pek fans	73	20	
62	Do	58	1	do	dust	86	16	
63	Callander	59	47	do	bro pek	2632	62	bid
64	Do	61	17	do	pekoe	952	40	bid
65	Do	63	9	do	pek sou	486	29	bid
66	Do	65	2	do	dust	120	18	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 25th May the undermentioned lots of Tea (64,359 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Eilandhu	64	8	ch	bro pek sou	800	14
2	Do	65	5	hf-ch	dust	450	13
3	S, in estate mark	66	14	ch	sou	1400	25
4	Do	67	22	hf-ch	fans	1210	18
5	Do	68	19	ch	dust	1425	17
6	R B	69	11	do	bro pek	990	38	bid
7	Do	70	8	do	pekoe	720	22	bid
8	Do	71	4	do	pek sou	360	14	bid
9	Roudura	72	4	do	bro pek	480	42	
10	Do	73	3	do	pekoe	300	27	
11	Do	74	3	do	pek sou	300	24	
12	Yarrow	75	26	hf-ch	bro pek	1664	49	bid
13	Do	76	41	do	pekoe	2460	34	
14	Do	77	7	do	pek sou	392	25	
15	O C	78	6	do	dust	420	12	bid
16	H S, in estate mark	79	19	ch	pekoe	1710	31	
17	P, in estate mark	80	8	hf-ch	dust	600	12	
18	T, in estate mark	81	17	ch	pekoe	1666	30	
19	Arslena	82	50	hf-ch	bro pek	2500	54	bid
20	S B	83	5	ch	bro tea	476	12	
21	W G	84	1	do	congou	100	15	
22	Do	85	2	do	sou	180	16	
23	Do	86	5	do	bro mix	475	10	
24	Do	87	13	do	dust	1910	13	bid
25	S B R	88	13	do	bro pek	1170	47	
26	Do	89	14	do	pekoe	1260	28	
27	Do	90	20	do	pek sou	1800	25	
28	W T	91	5	hf-ch	pekoe	250	23	
29	Y D	92	1	ch	pekoe	100	23	
30	Y B	93	1	ch	sou	140	12	
31	Do	94	1	do	pek dust	140	15	
32	C	95	1	do	congou	70	11	
33	I N G	96	1	do	bro mix	100	17	
34	Do	97	2	do	dust	200	15	
35	D G	98	8	do	fans	880	23	
36	Do	99	4	do	bro mix	320	23	
37	Do	100	7	do	dust	770	14	
38	B F	1	3	do	dust	384	17	
39	Do	2	2	do	sou	200	24	
40	S, in estate mark	3	1	hf-ch	pekoe	45	24	
41	S	4	6	ch	bro mix	540	6	bid
42	Roseneath	5	22	hf-ch	bro pek	1430	51	
43	Do	6	17	ch	pekoe	1785	34	
44	Do	7	13	do	pek sou	1365	25	
45	Charlie Hill	8	5	hf-ch	bro pek	270	48	bid
46	Do	9	6	do	pekoe	300	32	bid
47	Do	10	12	do	pek sou	600	26	
48	Do	11	6	do	sou	300	20	
49	Do	12	1	do	fans	70	20	
60	Coodagama	23	27	do	bro pek	2700	50	
61	Do	24	8	do	pekoe	760	31	
62	Do	25	10	do	pek sou	850	26	
63	Do	26	3	do	fans	375	16	
64	Do	27	4	hf-ch	unas	200	18	
65	R V K	29	4	do	bro pek	200	30	bid
66	Do	20	2	do	pekoe	100	22	
67	Do	31	4	do	pek sou	200	17	
68	W A T	32	1	ch	bro pek	90	22	
69	Do	33	4	do	pekoe	330	21	
70	Do	34	1	hf-ch	pek sou	50	15	
71	Do	35	3	ch	dust	480	9	bid
72	H	36	3	do	pekoe	398	26	
73	H	37	1	do	red leaf	90	13	
74	Lyndhurst	38	14	do	bro pek	1400	42	bid
75	Do	39	22	do	pekoe	1980	30	
76	Do	40	23	do	pek sou	2070	25	
77	Do	41	2	do	sou	180	18	
78	Kuruwitty	42	6	hf-ch	bro pek	300	48	
79	Do	43	2	do	pekoe	94	34	
80	Do	44	17	do	pek sou	748	26	
81	Do	45	18	do	sou	792	24	
82	Do	46	11	do	bro mix	528	18	
83	Do	47	2	do	dust	148	14	
84	Do	48	16	do	unas	736	17	
85	R	49	2	ch	dust	280	13	
86	R	50	5	do	fans	450	15	
87	R	51	8	do	bro mix	720	9	
88	R B	52	1	do	bro pek	90	35	bid
89	Do	53	5	do	pekoe	450	27	bid
90	Do	54	15	do	pek sou	1350	24	
91	Vincit	55	14	do	bro pek	1470	44	
92	Do	56	5	do	pekoe	500	28	
93	Do	57	11	do	pek sou	1100	24	

Messrs. Forbes & Walker put up for sale at the Chamber of Commerce Sale-room on the 25th May the under mentioned lots of Tea (210,064 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Ernan	84	2	hf-ch	bro mix	96	19	
2	Do	86	3	ch	dust	396	12	
3	Poyston	88	1	do	dust	128	12	
4	P T C	90	5	do	bro tea	425	29	
5	Do	92	9	do	bro pek fans	990	28	
6	G	94	1	do	bro pek	90	25	
7	Kottiagalla	96	8	do	bro pek	1605	39	
8	Do	98	15	do	pekoe	1500	28	
9	Do	100	8	do	pek sou	800	26	
10	Do	102	3	do	dust	447	5	
11	G	104	7	do	bro pek	784	24	bid
12	G	106	7	do	pek sou	700	15	
13	Pate Rajah	108	4	do	bro pek	380	47	
14	Do	110	4	do	pekoe	360	29	
15	C H	112	7	do	unas	630	18	
16	Do	114	7	do	red leaf	630	8	
17	Do	116	63	do	dust	5040	14	bid
18	Dunbar	118	12	do	bro pek	1200	71	
19	Do	120	24	do	pekoe	2160	51	
20	Harrington	122	33	do	or pek	3300	66	bid
21	Do	124	24	do	pekoe	2400	50	
22	Do	126	12	do	pek sou	1200	33	
23	Weoya	128	39	hf-ch	bro pek	2340	51	
24	Do	130	45	do	pekoe	2250	36	
25	Do	132	39	do	pek sou	1950	29	
26	Do	134	2	do	pek fans	120	21	
27	G, in estate mark	136	10	hf-ch	bro pek	500	44	
28	Do	138	11	do	pekoe	545	29	
29	Do	140	23	do	pek sou	1150	26	
30	K, in estate mark	142	7	do	bro mix	400	11	
31	Tappanawa	144	1	ch	or pek	112	out	
32	Do	146	5	do	bro pek	550	out	
33	Do	148	2	do				
			1	hf-ch	pekoe	220	28	
34	Do	150	1	ch	pek sou	100	21	
35	Do	152	1	do	or pek fans	130	22	
36	Do	154	4	do	bro mix	400	8	
37	Kanangama	156	13	do	bro or pek	1430	54	
38	Do	158	13	do	bro pek	1365	43	
39	Do	160	30	do	pekoe	3000	31	
40	Do	162	13	do	pek sou	1235	27	
41	Polatagama	164	35	hf-ch	bro pek	2100	64	
42	Do	166	63	do	pekoe	3150	46	
43	Do	168	56	do	pek sou	2800	30	
44	A K, in estate mark	170	10	ch	bro or pek	1100	43	
45	Do	172	18	do	pekoe	1620	28	
46	Do	174	3	do	pek sou	270	24	
47	C, in estate mark	176	20	do	bro pek	2000	49	
48	Do	178	32	do	pekoe	2880	30	
49	Do	180	10	do	pek sou	900	27	
50	Do	182	1	do	dust	100	14	
51	Do	184	3	do	pek fans	300	18	
52	Bandarapolla	186	13	do	bro pek	1300	49	
53	Do	188	18	do	pekoe	1800	34	
54	Do	190	15	do	pek sou	1500	25	
55	Dunkeld	192	33	do	bro pek	3630	65	
56	Do	194	36	hf-ch	or pek	1800	59	
57	Do	196	33	ch	pekoe	2970	40	
58	D K D	198	14	do	pek sou	1120	31	
59	Do	200	18	hf-ch	dust	1170	22	
63	N, in estate mark	208	7	ch	unas	700	27	
64	Do	210	8	hf-ch	dust	688	16	
65	Fred's Ruhe	212	7	ch	bro pek	700	52	
66	Do	214	12	do	pekoe	1200	29	
67	Do	216	10	do				
			1	hf-ch	pek sou	1060	25	
68	W A	218	16	ch	unas	1600	22	
69	Do	220	3	do	red leaf	300	15	
70	Do	222	1	hf-ch	dust	90	14	
75	W W	232	1	ch	pekoe	81	23	
76	B	234	16	hf-ch	bro pek	952	35	bid
77	B	236	21	do	pekoe	1046	27	bid
78	Bandarapolla	238	17	ch	bro pek	1700	49	
79	Do	240	20	do	pekoe	2000	34	
80	Do	242	20	do	pek sou	2000	26	
1	Claremont	244	28	do	bro pek	2940	59	
82	Do	246	19	do	pekoe	1710	32	
83	Do	248	1	do	dust	150	19	
84	Yahalakelle	250	3	do	dust	450	14	
85	Waitalawa	252	13	hf-ch	bro pek	650	43	bid
86	Do	254	19	do	pekoe	950	37	
87	Pantiya	256	6	do	bro pek sou	480	19	
88	Kelvin	258	1	do	congou	100	14	
89	Do	260	1	do	dust	160	15	
90	P D M	262	4	do	sou	360	28	
91	Do	264	3	hf-ch	dust	225	15	
92	Pansalatenne	266	8	ch	congou	800	21	
93	Do	268	3	hf-ch	dust	225	15	
94	Castlereagh	270	19	do	bro or pek	1330	73	
95	Do	272	43	ch	pekoe	4300	50	
96	Yataderia	274	15	do	bro or pek	1650	56	
97	Do	276	34	do	bro pek	3740	49	
98	Do	278	12	do	or pek	1260	41	
99	Do	280	50	do	pekoe	5250	37	
100	Do	282	16	do	pek sou	1520	29	
101	Do	284	2	do	bro tea	210	14	
102	Carlaback	286	7	do	dust	1050	15	
103	Do	288	3	do	congou	330	24	
104	Do	290	2	do	red leaf	210	10	
105	Kirrimettia	292	2	do	dust	300	15	
106	Monaco	294	5	do	dust	950	14	
107	Morland	296	5	do	pek sou	484	24	
108	Do	298	1	do	bro tea	110	14	
110	A P K	302	6	do	congou	540	20	
111	Do	304	3	do	sou	285	25	
112	Do	306	3	do	dust	420	15	
113	N W D	308	1	do	bro pek	114	53	
114	Do	310	3	do	pekoe	291	27	
115	Do	312	1	do	dust	159	15	
116	V O	314	11	do	bro tea	1210	9	
117	Do	316	1	do	dust	130	14	
119	Waitalawa	320	1	do	dust	65	13	
120	Holmwood	322	29	do	bro pek	1595	67	bid
121	Do	„	29	do	do	1595	67	bid
122	Do	324	20	do	pekoe	1000	54	
123	Do	„	19	do	do	950	53	bid
124	Do	326	14	do	pek sou	700	34	bid
125	Do	„	14	do	do	700	34	bid
126	M G A	328	10	ch	bro pek	1100	32	bid
127	Aigburth	330	26	do	bro pek	2470	59	
128	Do	332	33	do	pekoe	2970	36	
129	Do	334	40	do	pek sou	3600	29	
130	G	336	11	hf-ch	bro pek	550	46	
131	G	338	10	ch	pekoe	1000	27	
132	St. Helier's	340	2	hf-ch	bro or pek	100	50	
133	Do	342	3	ch	pekoe	315	40	
134	Do	344	1	do	dust	77	17	
135	B P	346	21	hf-ch	pekoe	1050	24	bid
139	Monrovia	354	17	hf-ch	bro pek	850	46	
140	Do	356	10	ch	pekoe	1000	29	
141	Do	358	8	do	pek sou	800	24	
142	Do	360	1	do	unas	100	18	
143	H T A	362	7	do	bro pek	630	46	
148	A	372	3	do	dust	450	15	
149	G G	374	4	do	pek sou	300	18	
150	Do	376	2	do	pek fans	204	29	
151	Do	378	3	do	pek dust	432	9	bid
152	O O	380	25	do	bro pek	2500	58	bid
153	Do	382	6	do	pekoe	540	37	
154	Do	384	7	do	pek sou	630	30	
155	Do	386	2	do	sou	180	22	
156	Middleton	388	17	do	bro pek	1955	65	bid
157	Do	390	32	hf-ch	pekoe	1760	53	
159	Talgaswela	394	18	do	pek sou	1440	31	
160	Do	396	12	do	sou	960	29	
161	Do	398	1	do	dust	150	15	
162	W	400	36	hf-ch	bro pek	2160	61	
163	W	402	50	do	pekoe	2750	46	
164	W	404	4	do	dust	320	18	
165	W	406	1	do	congou	50	14	
166	Burnside	408	38	do	bro pek	1900	55	
167	Do	410	46	do	pekoe	2300	38	
168	Dunside	412	2	ch	sou	180	19	
169	Do	414	1	do	dust	150	14	
170	C B	416	5	hf-ch	dust	400	19	
171	Do	418	2	do	red leaf	120	19	
172	N	420	18	do	sou	900	29	
173	N	422	5	do	dust	450	15	
174	A P D	424	1	do	fans	61	44	bid
175	H D	426	4	do	bro pek	200	50	
176	Do	428	6	do	pekoe	300	30	
177	Do	430	4	do	pek sou	200	25	
178	Do	432	2	do	sou	120	20	

Lot No.	Mark	Box No.	Pgs.		Description	Weight lb.	c.	
179	R, in estate mark	434	12	ch	dust	1680	19	
180	Do	436	5	do	sou	450	23	
181	W W	438	3	do	pekoe	270	29	
182	Do	440	1	do	do	92	29	
183	Do	442	2	do	do	208	29	
184	Bismark	444	9	do	bro pek	990	48	
185	Do	446	13	do	pekoe	1300	35	
186	Do	448	12	do	pek sou	1200	28	
187	P F	450	5	ch	dust	648	16	
188	B F B	452	2	hf-ch	unas	93	19	
189	Do	454	3	do	dust	200	13	
190	Easdale	456	7	ch	bro pek	700	61	
191	Do	458	8	do	pekoe	720	48	
192	Do	460	7	do	pek sou	630	53	
193	Do	462	3	do	dust	390	16	
197	W A	464	13	do	bro pek	1430	54	bid
195	W G	466	1	do	bro pek	108	26	bid
196	Do	468	1	do	pekoe	88	27	bid
198	Do	470	1	hf-ch	pek sou	41	21	
198	Merisketiya	472	16	do	unas	800	18	bid
199	Do	474	2	do	pek fans	120	14	bid
200	K, in estate mark	476	14	ch	or pek	1365	48	
201	Macaldenia	478	11	do	bro pek	1210	65	bid
202	Do	480	7	do	pekoe	700	48	bid
203	Do	482	13	do	pek sou	1365	38	bid
204	Do	484	3	do	sou	300	27	
205	Do	486	3	do	dust	222	21	

MESSRS. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 1st June the undermentioned lots of Tea (189,283 lb.), which sold as under —

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
s1	S--V, in estate mark	488	5	hf-ch	dust	350	21	
2	Ugieside	490	4	ch	congou	452	19	
9	Chesterford	504	15	ch	bro pek	1500	58	
10	Do	506	18	do	pekoe	1710	34	
11	Do	508	17	do	pek sou	1700	28	
12	Maha Uva	510	37	do	bro pek	2220	56	
13	Do	512	25	do	pekoe	1500	40	
14	Do	514	27	do	pekoe a	1620	34	
15	Havilland	516	71	do	bro pek	3905	55	bid
16	Do	518	81	do	pekoe	4050	42	
17	Do	520	60	do	pek sou	2700	33	
18	Do	522	2	do	dust	140	16	
19	W, in estate mark	524	14	do	bro or pek	1960	24	
22	Farnham	530	30	do	bro or pek	1500	63	
23	Do	532	43	do	pekoe	1720	44	
24	Do	534	51	do	pek sou	2040	34	
25	Do	536	22	do	sou	990	30	
26	Do	538	5	do	fans	300	27	
27	Do	540	1	do	dust	75	15	
28	Comeaway	542	6	ch	bro mix	540	24	
29	Do	544	6	hf-ch	dust	420	24	
30	L L	546	3	ch	unas	185	23	
31	Kananga-ma	548	17	do	bro or pek	1870	52	
32	Do	550	13	do	bro pek	1365	48	
53	Do	552	42	do	pekoej	4200	34	
34	Do	554	12	do	pek sou	1140	26	
35	Ardoch	556	21	hf-ch	bro or pek	1260	66	
36	Do	558	3	do	bro pek	150	59	
37	Do	560	21	do	pekoe	1890	44	
38	Do	562	6	do	pek sou	570	33	
39	L G E	564	12	ch	or pek	1200	26	bid
40	Do	566	24	do	pekoe No. 1	2400	25	
41	Do	568	4	hf-ch	dust	340	16	
42	Nugagalla	570	27	do	bro pek	1350	59	
43	Do	572	75	do	pekoe	3750	40	
44	Do	574	9	do	pek sou	450	30	
45	Do	576	6	do	dust	480	22	
46	Harangalla	578	52	ch	bro pek	5200	58	
47	Do	580	16	do	pekoe	1360	35	bid
48	Do	582	4	do	pek sou	360	29	bid
49	Court Lodge	584	31	hf-ch	bro pek	1798	70	
50	Do	586	24	do	pekoe	1104	54	
51	Do	588	20	do	pek sou	1120	41	bid
52	Do	590	2	ch	sou	180	29	
53	Pedro	592	13	ch	bro pek	1235	83	bid
54	Do	594	16	do	pekoe	1280	64	bid
55	Do	596	18	do	pek sou	1170	46	bid
56	Do	598	1	do	dust	120	27	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
57	T P	600	1	ch	or pek	112	36	
58	Do	602	5	do	bro pek	550	31	bid
59	Langdale	604	29	do	bro pek	3190	58	
60	Do	606	24	do	pekoe	2160	44	
61	Do	608	19	do	pek sou	1710	36	
62	Do	610	3	do	dust	390	21	
63	C	612	10	do	bro pek	1080	51	
64	C	614	6	do	pekoe	632	34	
65	C	616	7	do	pek sou	742	29	
66	C	618	1	do	dust	123	21	
67	W A T	620	15	do	or pek	1575	46	bid
68	Do	622	29	do	pekoe	2755	33	bid
69	Do	624	5	do	pek sou	475	27	
70	Polatagama	626	40	hf-ch	bro pek	2400	49	bid
71	Do	628	71	do	pekoe	3550	39	bid
72	Do	630	66	do	pek sou	3300	34	
73	Anningkande	632	28	ch	bro pek	3080	38	
74	Do	634	25	do	pekoe	2500	31	
75	Do	636	25	do	pek sou	2250	25	
76	Do	638	5	do	congou	475	19	
77	Do	640	1	do	red leaf	100	13	
78	Do	642	4	do	dust	300	16	
79	Ellakande	644	13	hf-ch	bro pek	715	53	
80	Do	646	16	do	pekoe	800	4	
81	Do	648	21	do	pek sou	945		
82	A D A	650	21	do	pekoe	1050		
83	Court Lodge	652	30	hf-ch	bro pek	1800	73	
84	Do	654	24	do	pekoe	1200	59	
85	Do	656	25	do	pek sou	1250	48	
86	Do	658	3	do	sou	150	31	
87	W W	660	5	ch	dust	850	18	
88	Becherton	662	7	do	bro pek	700	50	
89	Do	664	19	do	pekoe	1900	33	
90	Doombagastalawa	666	40	do	bro pek	4000	50	bid
91	Do	668	70	do	pekoe	6650	34	bid
92	Do	670	2	do	bro tea	252	21	
93	Do	672	1	do	red leaf	100	10	
94	V O	674	5	do	bro tea	550	18	
95	Yataderia	676	21	do	bro pek	2310	45	bid
96	Do	678	15	do	bro or pek	1650	51	bid
97	Do	680	36	do	pekoe	3780	33	bid
98	Do	682	12	do	pek sou	1140	31	
99	Palmerston	684	6	hf-ch	bro pek	330	68	
100	Do	686	9	do	pekoe	900	53	
101	Do	688	7	do	pek sou	700	36	
102	Do	690	3	do	unas	300	35	
102	T C O	694	5	ch	dust	695	22	
104	Mutholiya	696	8	do				
			6	hf-ch	pekoe	1040	29	
105	Claremont	698	25	ch	bro pek	2625	52	bid
106	Do	700	20	do	pekoe	1800	34	
107	Do	702	1	do	dust	150	15	
108	Yahalakelle	704	3	do	red leaf	300	8	
109	Do	706	1	do	dust	150	13	
110	Wewesse	708	40	hf-ch	bro pek	2000	57	bi
111	Do	710	23	do	pekoe	1150	43	
112	Do	712	25	do	pek sou	1250	34	
113	Do	714	2	do	dust	100	21	
114	Keenagaha Ella	716	1	ch	sou	100	19	
115	Do	718	1	do	or pek fans	135	30	
116	Do	720	1	do	fans	125	23	
122	F	732	16	hf-ch	bro pek	952	30	bid
123	F	734	21	do	pekoe	1046	25	bid
124	L B K	736	13	ch	red leaf	1300	17	
125	Macaldenia	738	11	do	bro pek	1210	65	
126	Do	740	7	do	pekoe	700	50	
127	Do	742	13	do	pek sou	1365	43	
128	Patiagama	744	13	do	flowery pek	1430	69	
129	Do	746	28	do	pekoe	2800	42	
130	Do	748	1	do	pek sou	100	26	
131	Do	750	1	do	dust	150	13	
132	Queensland	752	25	do	bro pek	2500	75	
133	Do	754	22	do	pekoe	2200	42	
134	Do	756	1	do	pek fans	130	27	
135	Aberdeen	758	32	hf-ch	bro pek	1600	45	bid
136	Do	760	38	do	pekoe	1900	33	bid
137	Do	762	20	do	pek sou	1000	33	
138	Do	764	10	do	pek fan	500	29	bid
139	C	766	3	ch	unas	288	24	
140	P D M, in estate mark	768	3	hf-ch	dust	225	21	
141	O O	770	25	ch	bro pek	2500	56	
142	A	772	1	do	dust	150	18	
143	Ugieside	774	2	do	dust	260	19	
144	Do	776	1	do	bro mix	92	17	

Messrs. A. H. Thompson & Co. put up for sale at the Chamber of Commerce Sale-room on the 1st June the undermentioned lots of Tea (11,790 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	L M	1	3	hf-ch	bro pek	150	46	
2	Do	2	7	do	pekoe	300	30	
3	Do	3	1	do	sou	48	15	
4	Kirimettia	4	1	ch				
			8	hf-ch	bro pek	500	39	bid
5	Do	6	3	ch				
			1	hf-ch	pekoe	311	80	
6	Do	7	1	ch				
			1	hf-ch	pek sou	130	20	
7	Do	8	1	do	dust	52	14	
8	G, Ceylon	9	10	ch	bro pek	500	38	
9	Do	11	30	do	pekoe	1500	31	
10	A S	13	3	hf-ch	pekoe	135	27	
11	S B M, in estate mark	14	10	ch	bro mix	835	12	
12	D	16	2	do	dust	300	15	
15	Willisden	21	8	do	bro pek	496	42	bid
16	Do	22	21	do	pekoe	1050	33	
17	W. Tenne	24	6	do	bro pek	300	23	bid
18	L	25	1	ch	bro pek	76	26	
19	L	26	1	do	or pek	71	24	
20	P	27	4	do	pek sou	389	13	
21	New Cornwall	28	8	hf-ch	bro pek	480	55	
22	Do	30	11	do	pekoe	605	32	bid
23	R W	32	2	do	pek sou	162	15	
24	B U S	33	1	do	congou	80	10	
25	Harrow	34	5	do	bro or pek	300	63	
26	Do	35	15	do	bro pek	900	64	
27	S C R	37	3	do	dust	250	18	

Messrs. Somerville & Co. put up for sale at the Chamber of Commerce Sale-room on the 1st June the undermentioned lots of Tea (55,217 lb.), which sold as under :—

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
1	H A W	58	6	ch	bro mix	525	10	
2	J C	59	7	do	bro mix	650	17	
3	Woodlands	60	4	do	bro mix	400	13	
4	K	61	4	hf-ch	bro pek	200	40	
9	D Y K	66	17	hf-ch	bro pek	850	56	
10	Do	67	11	do	pekoe	770	37	
11	Do	68	15	do	pek sou	1275	34	
12	Do	69	2	do	dust	150	21	
13	H J S	70	3	do	bro pek	150	55	
14	Do	71	5	do	pekoe	250	39	
15	Do	72	6	do	pek sou	600	30	
16	Do	73	4	do	sou	200	25	
24	Lyndhurst	81	14	ch	bro pek	1400	50	
25	W	82	5	do	bro tea	476	9	bid
26	T, in estate mark	83	5	do	pek sou	480	27	
27	Do	84	4	do	fans	440	21	
28	Do	85	3	do	red leaf	186	8	
29	Do	86	1	do	congou	100	13	bid
30	Do	87	1	do	mixed	96	22	
31	Do	88	6	do	dust	840	18	
32	I P	89	42	hf-ch	bro pek sou	1890	21	
33	E C	90	4	do	dust	336	20	
34	Do	91	1	do	congou	55	16	
35	Do	92	1	do	congou	56	16	
36	I N G, in estate mark	93	17	do	bro pek	700	60	bid
37	Do	94	10	do	pekoe	950	45	bid
38	Do	95	26	do	pek sou	2340	33	
39	Do	96	1	do	bro mix	100	withd'n	
40	Do	97	2	do	dust	200	withd'n	
41	Yahalatenne	98	24	do	bro pek	1200	54	
42	Do	99	33	do	pekoe	1320	34	
43	Do	100	56	do	pek sou	2240	32	
44	Do	1	2	do	dust	116	23	
45	G L	2	9	do	dust	810	15	bid
46	Do	3	5	do	congou	450	18	
47	B	4	5	ch	bro pek	595	44	
48	B	5	3	do	pek sou	348	25	bid
49	Denmark Hill	6	1	do	pek fans	90	21	
50	M K	7	16	do	bro pek	1600	50	bid
51	Do	8	14	do	pekoe	1260	35	
52	Do	9	17	do	pek sou	1530	28	
53	Diyagama	10	15	do				
			1	hf-ch	bro pek	530	41	bid
54	Do	11	3	ch	pekoe	300	30	bid
55	Do	12	1	do	pekoe	84	29	bid
56	Do	13	4	do	pek sou	400	20	
57	Do	14	2	do	mixed	200	16	bid
58	Do	15	1	do	dust	104	15	bid
59	A R	16	3	do	bro mix	300	17	
60	W G	17	13	do	dust	1910	16	
61	B S	18	13	do	pekoe	1300	33	
62	S B R	19	26	do	bro pek	2340	49	
63	Do	20	21	do	pekoe	1890	33	
64	Do	21	33	do	pek sou	2970	26	bid

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

Mincing Lane, May 6th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 6th May:—

Ex "Gleneagles"—ARIF&C, 22b 88s 6d; 10b 78s.

Ex "Kintuck"—Freshwater, 1c 108s; 6c 103s; 1c 1t 1b 98s 6d; 1t 1b 121s 6d; 1c 1t 110s; 1c 107s.

Ex "Chancellor"—Logie, 1b 107s: 1c 1t 104s; 1c 98s 1t 115s.

Ex "Golconda"—New Valley, 1t 109s; 1c 103s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 13th May:—

Ex "Coromandel"—Kirklees, 1t 103s; 1b 94s; 1b 104s; Gampaha, 1t 101s; 1b 96s; 1b 93s; 1b 103s. Gleneagles, 1c 1b 103s; 1c 1b 101s; 1t 97s; 1b 114s. Dammeria, 1t 92s; 1b 84s. Balmoral, 1c 103s; 2c 100s 6d; 1c 97s; 1c 114s. Mousaella, 1c 108s; 2c 107s; 1c 99s; 1t 128s. Battawatte, 1b 93s 6d; 1b 93s.

Ex "Teucer"—Barragalla, 3c 1b 107s; 5c 103s; 1c 1b 102s 6d; 1b 89s; 1c 1b 107s. Killarney, 1c 113s; 1c 1b 106s 6d; 1t 97s; 1t 120s.

Ex "Dorunda"—Eton, 1c 109s; 1c 1t 103s; 1b 94s; 1b 113s.

Ex "Coromandel"—Diyanellakelle, 1c 110s; 1c 1b 107s; 3c 104s; 1c 1b 98s; 1c 105s; 1b 83s; 1b 107s.

Ex "Nubia"—Gonakelle, 1c 98s; 1t 92s; 1b 89s; 1b 104s,

CEYLON COCOA SALES IN LONDON.

(*From Our Commercial Correspondent.*)

Mincing Lane, May 6th, 1892.

Ex "Coromandel"—MK, 24b 106s 6d; 25b 98s 6d; 7b 81s 6d; 1b 40s.

Ex "Port Douglas"—North Matale, 20b 109s.

Mincing Lane, May 13th, 1892.

Ex "Chancellor"—(KA), 21b 100s; 171b 96s; 11b 51s 11b 92s; 27b 92s; 10b 94s.

Ex "Gleneagles"—(KA) 25b 95s; 5b 55s.

Ex "Pindari"—Levelle, 14b 60s; 1b 1p 100s.

Ex "Chancellor"—London, 8b 60s.

CEYLON CARDAMOM SALES IN LONDON.

(*From Our Commercial Correspondent.*)

Mincing Lane, May 13th. 1892.

Ex "Rosetta"—SDM, 2c 1s 6d; 1c 1s 4d; 3c 1s 5d.

Ex "Oopack"—Loonagalla, 2c 1s 6d.

Ex "Peshawur"—MH, 4c 1s 2d.

Ex "Bengal"—Mysore, 2c 1s 1d.

Ex "Manora"—Sherwood, 7c 2s 4d; 3c 1s 4d.

Ex "Cheshire"—Legalla, 1c 1s 4d; 1c 1s 3d; 1c 1s 2d; 1c 1s 5d.

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COLOMBO SALES OF TEA.

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 1st June the undermentioned lots of Tea (38,973 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	T E	66	3	ch	bro mix	300	24	
2	Little Valley	67	1	do	pek sou	100	28	
3	Do	68	1	do	dust	127	14	
4	Bowhill	69	9	do	pek sou	900	27	
5	Do	71	4	do	sou	400	22	
6	Albion	72	22	do	bro pek	2310	63	bid
7	Do	74	18	do	pekoe	1710	46	
8	Do	76	16	do	pek sou	1520	33	
9	Do	78	4	do	dust	340	20	
10	H M P	79	3	hf-ch	pek sou	168	21	
11	Do	80	3	do	bro tea	168	21	
12	Do	81	7	do	do	350	21	
13	Do	82	1	do	dust	60	8	
14	A	83	12	box	bro pek	60	out	
15	Talagalla	84	11	ch	bro pek	1210	56	
16	Do	86	18	do	or pek	1620	50	
17	Do	88	18	do	pekoe	1710	34	
18	Do	90	12	do	pek sou	1380	30	
19	Do	102	2	do	bro tea	200	15	
20	Coslande	103	27	do	or pek	2700	42	
21	Do	105	6	do	sou	600	23	
22	Troup	107	40	hf-ch	bro pek	2400	66	
23	Cruden	109	9	ch	sou	900	18	
24	D F D	111	3	do	dust	240	10	
25	Do	112	1	do	congou	100	20	
26	Madooltenne	113	12	do	bro pek	1260	56	
27	Do	115	12	do	pekoe	1200	36	
28	Dickapittia	117	25	do	bro pek	2500	56	
29	Do	119	13	do	pekoe	1300	40	
30	Do	121	35	do	pek sou	3500	34	
31	Do	123	4	do	sou	360	23	
32	Agra Ouvah	124	25	hf-ch	bro pek	1250	70	bid
33	Do	126	23	do	pekoe	1035	51	bid
34	Do	128	19	do	pek sou	855	35	bid
35	Ottery and Stamford Hill	130	14	ch	bro mix	1568	11	
36	Do	132	23	do	sou	2070	26	
37	Do	134	4	do	dust	600	16	

Messrs. BENHAM & BREMNER put up for sale at the Chamber of Commerce Sale-room on the 8th June the undermentioned lots of Tea (6,037 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.
1	Pemberton	14	1	hf-ch	bro pek	50	38
2	Do	16	1	ch	pekoe	52	80
3	Do	18	1	do	pek sou	100	18
4	W O	20	6	hf-ch	pek fans	480	20
7	Elston	26	5	do	bro mix	500	24
8	Do	28	4	do	dust	520	17
9	Do	30	1	do	Congou	100	10
10	Battalgalla	32	14	do	sou	1330	25
11	Do	34	4	do	fans	500	22

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 8th June the undermentioned lots of Tea (15,860 lb.), which sold as under :—

Lot No	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	Comillah	1	9	hf-ch	bro pek	505	38	
2	Do	3	10	do	pekoe	500	32	
3	Do	5	6	do	pek sou	300	24	
4	Brae	6	5	do	red leaf	225	10	
5	W	7	8	do	bro pek	496	42	
6	A G C	9	2	do	bro or pek	155	28	
7	Do	10	13	do	pek dust	910	24	
8	Do	12	13	do	dust	910	20	
9	Saidewatte	14	9	do	bro pek	569	50	
10	Do	16	11	do	pekoe	579	34	bid
11	W	18	6	do	bro tea	300	27	
12	Willisden	19	20	ch				
			1	hf-ch	pekoe	2225		out
13	Do	21	12	ch				
			1	hf-ch	pek sou	1129	24	
14	Nahalma	23	3	ch	congou	300	26	
15	Do	24	1	hf-ch	dust	75	17	
17	Agraoya	26	27	do	bro pek	2700	45	bid
18	Do	28	25	do	pekoe	2500	33	
19	Do	30	11	do	pek sou	1100	25	
20	Do	32	1	do	dust	100	14	

Mr. E. JOHN put up for sale at the Chamber of Commerce Sale-room on the 8th June the undermentioned lots of Tea (57,135 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pgs.		Description	Weight lb.	c.	
1	Y S	135	3	ch	red leaf	240	17	
2	B, in estate mark	136	2	hf-ch	congou	110	26	
3	Do	137	1	do	dust	80	24	
4	Bowhill	138	2	ch	pek dust	320	17	
5	Albion	139	18	do	bro pek	1890	63	
6	Do	141	17	do	pekoe	1615	47	
7	Bittacy	143	26	hf-ch	bro pek	1430	57	
8	Do	145	29	do	pekoe	1595	40	
9	Do	147	39	do	do	2145	36	bid
10	Kandenewera	149	18	do	bro pek	900	61	bid
11	Do	151	18	ch	pekoe	1800	41	bid
12	K G	153	14	do	pekoe	1120	32	bid
13	Ardlaw	155	22	do	or pek	2530	} withd'n.	
14	Do	157	9	do	pekoe	927		
15	Do	159	8	do	bro tea	880	30	
16	O, in estate mark	161	1	do	dust	125	21	
17	O V T	162	49	hf ch	bro pek	2450	56	bid
18	Do	164	21	do	pek sou	2100	35	bid
19	Do	166	3	hf-ch	dust	210	22	
20	Eila	167	18	ch	bro pek	1800	47	
21	Do	169	18	do	pekoe	1620	36	
22	Do	171	13	do	pek sou	1170	31	
23	Do	173	12	do	congou	1080	18	
24	Do	175	1	do	fans	112	20	
25	Do	176	2	do	dust	280	15	
26	Anchor, in estate mark	177	20	ch	bro or pek	2300	61	
27	Do	179	21	do	or pek	1995	54	
28	Do	181	20	do	pekoe	1900	35	
29	Do	183	10	hf-ch	pek sou	530	33	
30	Do	185	7	do	sou	525	17	
31	Agra Ouvah	187	47	box	bro or pek	470	85	
32	Do	189	26	hf-ch	bro pek	1300	72	
33	Do	191	24	do	pekoe	1080	50	
34	Do	193	20	do	pek sou	900	36	
35	Do	195	6	do	pek sou No. 2	270	31	
36	A O	197	2	do	pek fans	140	24	
37	Do	198	2	do	pek dust	142	16	
38	Gonakelle Factory	199	6	ch	bro pek	672	62	
39	Do	201	5	do	pekoe	550	46	
40	Do	203	6	do	pek sou	690	37	
41	L	205	14	do	sou	1400	33	
42	L	207	12	do	pek fan	1800	29	
43	Sumtra Valle	209	16	ch	bro bek	1760	65	bid
44	Do	211	25	do	pekoe	2500	46	
45	Do	213	17	do	pek sou	1700	39	
46	Ayr	215	20	hf-ch	bro pek	1000	61	
47	Do	217	38	do	pekoe	1596	38	
48	Do	219	42	do	pek sou	1806	37	
49	Do	221	2	do	bro pek fan	114	28	
50	Do	222	4	do	congon	172	18	
51	Do	223	5	do	fans	240	20	
52	Do	224	1	do	pek dust	71	17	
53	P O K, in estate mark	225	1	do	bro pek fans	65	31	
54	Do	226	6	do	fans	288	16	
55	Do	227	9	do	congou	387	19	
56	Do	228	1	do	pek dust	71	17	
57	Do	229	4	do	red leaf	172	17	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 8th June the undermentioned lots of Tea (62,607 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	R T, in estate mark	22	2	hf-ch	dust	140	16	
2	D	23	2	ch	bro mix	180	14	
3	D	24	4	do	dust No 1	600	28	
4	D	25	2	do	dust „ 2	320	16	
5	C A, in estate mark	26	8	hf-ch	bro mix	480	18	bid
6	Do	27	8	do	pek dust	528	22	
7	Do	28	4	do	dust	248	18	
8	Hatdowa	29	3	ch	bro pek	330	48	
9	Do	30	4	do	pekoe	440	30	
10	Do	31	8	do	pek sou	880	26	
11	Do	32	7	do	bro tea	700	20	
12	Diganakelle	33	11	hf-ch	bro pek	550	49	bid
13	Do	34	7	do	pekoe	350	36	
14	Do	35	34	do	pek sou	1700	34	
15	Do	36	3	do	dust	240	20	
16	Do	37	7	do	fans	385	24	
17	Do	38	2	do	bro mix	100	19	
18	Depedene	39	34	do	bro pek	1700	ou	
19	Do	40	32	do	pekoe	1600	30	
20	Do	41	37	do	pek sou	1850	27	
21	H D	42	79	do	bro sou	3950	23	
22	Do	43	7	do	dust	560	15	
23	Do	44	10	do	bro mix	500	16	
24	Do	45	1	do	dust	80	16	
25	Yarrow	46	12	ch	bro pek	1200	54	
26	Do	47	14	do	pekoe	1260	35	
27	Allakolla	48	63	hf-ch	bro pek	4095	53	
28	Do	49	29	ch	pekoe	3045	37	
29	Do	50	17	do	pek sou	1700	34	
30	Do	51	2	hf-ch	dust	200	21	
31	R X	52	3	ch	bro mix	360	22	
32	Do	53	4	do	dust	560	19	
33	C T M	54	1	do	bro mix	95	21	bid
34	Do	55	5	hf-ch	dust	350	18	
35	Crurie	56	19	ch	bro pek	2185	60	
36	Do	57	20	do	pekoe	2000	41	
37	Do	58	21	do	pek sou	1995	33	
38	Do	59	1	do	dust	160	18	
39	W G	60	5	do	dust	950	22	
40	Do	61	8	do	bro pek sou	800	16	
41	P T	62	11	do	pek sou	935	29	
42	Ovoca	63	10	hf-ch	pek sou	500	28	
43	Do	64	8	do	fans	440	24	
44	Do	65	11	do	dust	880	22	
45	Do	66	2	do	bro tea	110	15	
46	B	67	3	do	pek sou	348	33	
47	W T	68	5	do	bre tea	475	10	
48	Forest Hill	69	25	ch	bro pek	2750	53	
49	Do	70	25	do	pekoe	2500	38	
50	Do	71	2	do	dust	260	23	
51	Do	72	2	do	congou	200	23	
52	R	73	4	do	bro pek	480	42	bid
53	Hatdowa	74	2	do	red leaf	200	14	
54	Do	75	1	do	dust	130	14	bid
55	R E	76	3	do	bro pek	260	44	
56	Do	77	7	do	pekoe	560	30	
57	Do	78	3	do	pek sou	265	25	bid
58	Narangoda	79	10	do	bro pek	1100	42	
59	Do	80	6	do	pekoe	660	34	
60	Do	81	34	do	pek sou	3400	29	
61	Do	82	4	do	dust	280	18	
62	G N O	83	1	do	bro mix	100	15	
63	Do	84	1	do	fans	115	25	
64	Do	85	3	do	dust	405	17	
65	St. Andrews	86	54	box	or pek	1080	51	bid
66	Do	87	14	hf-ch	bro or pek	924	55	bid
67	Do	88	19	do	bro pek	1216	32	bid
68	Do	89	37	do	pekoe	2368	55	bid

Messrs. FORBES & WALKER put up for sale at the Chamber of Commerce Sale-room on the 8th June the undermentioned lots of Tea (195,406 lb.), which sold as under :—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	P U L D Co., in estate mark Goorkoya	778	6	hf-ch	red leaf	240	17	
12	Gikiyanakande	780		h	dust	625	23	

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
3	W E D	782	1	hf-ch	bro pek	54	40	
4	Do	784	1	do	pekoe	33	36	
5	Do	786	1	do	pek sou	46	22	
6	Do	788	1	ch	bro pek sou	70	15	
7	Do	790	1	hf-ch	dust	59	14	
8	G	792	7	ch	bro pek	784	43	
9	G	794	9	do	pekoe	900	32	
10	G	796	11	do	pek sou	1100	28	
11	Halpatenne	798	3	do	bro pek	290	38	
12	Do	800	15	do	pek sou	1567	29	
13	Do	2	7	do	sou	696	20	
14	Do	4	5	do	fans	709	10	
15	D D S	6	6	do	bro pek	684	40	
16	Do	8	5	do	pekoe	558	28	
17	Do	10	8	do	pekoe No. 2	832	27	
18	Do	12	5	do	pek sou	508	36	
19	M A, in estate mark	14	7	do	bro tea	700	20	
20	Do	16	36	hf-ch	dust	2880	18	
21	B	18	29	ch	bro pek	2900	53	
22	B	20	7	do	pekoe	630	35	
23	B	22	14	do	pek sou	1260	33	
24	Malvern	24	18	do	bro pek	1620	53	
25	Do	26	16	do	pekoe	1120	35	
26	Do	28	28	do	pek sou	2240	34	
27	Do	30	3	do	bro pek sou	270	20	
28	Do	32	2	do	dust	300	15	
29	Lethenty	34	3	do	bro pek	315	50	
30	Do	36	2	do	pekoe	196	35	
31	Do	38	4	do	pek sou	360	27	
32	Do	40	3	do	pek fans	405	28	
33	Do	42	12	do	bro mix	1320	22	
34	R T	44	4	hf-ch	dust	320	17	
35	Riverside	46	11	ch	bro pek	1155	60	
36	Do	48	14	do	pekoe	1260	38	
37	Do	50	7	do	pek sou	735	33	
38	Bismark	52	5	do	bro pek	550	48	
39	Do	54	7	do	pekoe	700	37	
40	Do	56	6	do	pek sou	600	31	
41	Do	58	1	do	dust	140	23	
42	St. Helier's	60	35	hf-ch	bro or pek	1925	54	
43	Do	62	33	ch	pekoe	3300	35	
44	Do	64	20	do	pek sou	2000	33	
45	A K, in estate mark	66	21	do	bro or pek	2100	44	
46	Do	68	30	do	pekoe	2700	30	
47	Do	70	5	do	pek sou	450	24	
48	Andaradeniya	72	4	ch	bro pek	440	40	
49	Do	74	6	do	pekoe	600	29	
50	Do	76	3	do	pek sou	270	24	
51	Do	78	1	hf-ch	red leaf	50	13	
52	Do	80	1	do	fans	60	15	
53	Do	82	1	do	dust	70	16	
55	M P	84	5	ch	bro pek	550	39	
55	Do	86	11	hf-ch	pekoe	540	23	
56	Do	88	1	ch	bro pek sou	103	12	
57	Do	90	7	do	dust	1045	11	
58	Do	92	5	do	bro mix	500	8	
59	H D A	94	15	ch	bro pek	1543	31	
60	M P	96	1	do	or pek	110	36	
61	Gallantenne	98	1	do	sou	90	23	
62	Do	100	1	hf-ch	dust	75	24	
63	Kelvin	102	1	ch	congou	90	19	
64	Do	104	1	do	fans	130	23	
65	Do	106	1	do	dust	160	14	
66	G	108	2	do	bro tea	280	24	
67	H & H	110	5	do	dust	760	15	
68	D A	112	5	do	unas	500	24	
69	Do	114	2	do	pek dust	290	16	
70	Harangalla	116	22	do	bro pek	2200	53	
71	Do	118	5	do	pekoe	425	34	
72	Do	120	4	do	pek sou	360	29	
73	Ederapolla	126	36	hf-ch	bro pek	1800	51	bid
74	Do	128	20	ch	pekoe	1600	36	
75	Do	130	18	do	pek sou	1440	33	
76	E P D	132	3	do	congou	240	15	
77	Do	134	4	hf-ch	dust	280	14	
78	Macaldenia	136	23	hf-ch	bro pek	1265	72	
79	Do	138	8	ch				
			1	hf-ch	pekoe	750	55	
80	Do	140	9	ch	pek sou	900	41	
81	Do	142	2	do	sou	200	32	
87	W W	154	3	hf-ch	bro pek	150	60	
88	Do	156	1	do	pekoe (in lb. pkts)	37	44	
							26	
89	Silver Valley,	158	16	do	unas	729		

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
90	Do	160	3	do	bro tea	150	9	
91	Do	162	1	do	dust	68	14	
92	Bandarapolla	164	33	ch	bro pek	3300	51	
	Do	166	42	do	pekoe	4200	37	
93	Do	168	26	do	pek sou	2600	32	
94	N C, in estate mark	170	11	do	sou	1100	21	
95	Do	172	5	do	dust	700	22	
96	Yataderia	186	13	do	bro or pek	1430	53	
103	Do	188	20	do	bro pek	2200	46	
104	Do	190	12	do	or pek	1260	39	
105	Do	192	34	do	pekoe	3570	34	
106	Do	194	36	do	do	3780	34	
107	Alnoor	196	20	hf-ch	bro pek	1000	40	bid
108	Do	198	20	do	pekoe	1000	34	
109	Do	200	22	do	pek sou	1100	29	
110	Do	202	4	do	sou	200	17	
111	Do	204	10	do	dust	600	16	
112	Do	206	7	do	congou	350	15	
113	Condegalla	208	2	ch	bro pek fans	280	22	
114	Clyde	210	13	do	bro pek	1235	59	
115	Do	212	13	do	pekoe	1040	35	
116	Do	214	13	do	pek sou	1170	33	
117	Doomo	216	47	do	bro pek	5264	56	
118	Do	218	30	do	pekoe	3300	39	
119	Do	220	15	do	pek sou	1680	34	
120	Inguru-galla	222	7	do	pek sou	630	27	
121	Lunugalla	224	3	do	red leaf	180	18	
122	Theberton	226	49	hf-ch	bro pek	2450	49	
123	Do	228	27	do	pekoe	1350	34	
124	Do	230	34	do	pek sou	1700	32	
125	Do	232	2	do	pek fan	100	27	
126	Do	234	3	do	pk dust	150	15	
127	Do	236	4	do	congou	200	20	
128	C R D	238	8	ch	dust	480	24	
129	Do	240	5	do	red leaf	500	18	
130	St. Leonard's	242	4	do	congou	400	21	
131	Do	244	1	do	dust	130	14	
132	Deaculla	246	22	do	or pek	1320	60	
133	Do	248	49	do	pekoe	2940	40	
134	B T N	250	1	hf-ch	sou	55	22	
135	Talgaswela	252	17	ch	pek sou	1450	38	
136	Do	254	3	do	sou	270	26	
137	Do	256	2	do	bro tea	200	21	
138	Do	258	3	do	red leaf	300	9	
139	Do	260	1	do	fans	130	15	
140	Esperanza	262	2	hf-ch	congou	350	24	
141	Do	264	5	do	dust	450	14	
142	Hunugalla	266	5	ch	bro pek	525	40	
143	Do	268	5	do	pekoe	500	32	
144	Do	270	11	do	pek sou	1100	26	
145	Do	272	2	do	bro mix	200	16	
146	Radella	274	18	do	bro pek	1800	64	
147	Do	276	19	do	pekoe	1710	45	
148	Do	278	17	do	pek sou	1530	35	
149	Do	280	3	do	dust	390	17	
150	G O	282	12	do	bro pek	1140	55	
151	Do	284	14	do	pekoe	1260	36	
152	Do	286	2	do	congou	189	20	
153	Do	288	1	do	dust	107	24	
154	Monrovia	294	7	hf-ch	bro pek	350	44	
157	Do	296	7	ch	pekoe	700	33	
158	Do	298	5	do	pek sou	500	28	
159	Do	300	1	do	unas	100	24	
160	Do	302	3	do	bro mix	300	15	
161	Do	304	3	do	fans	320	18	
162	Do	306	2	do	pek dust	290	15	
163	E K	308	3	hf-ch	bro pek	150	39	
164	Do	310	2	ch	pekoe	200	25	
165	Do	312	1	do	pek sou	100	18	
166	A A	322	2	ch	pek sou	140	21	
171	Middleton	326	28	hf-ch	bro pek	1680	57	bid
173	Do	328	14	ch	pekoe	1400	40	bid
174	Do	330	21	do	pek sou	1995	35	
175	Do	332	2	do	congou	190	28	
176	Angruwelie	334	2	hf-ch	dust	164	25	
177	Melrose	336	11	ch	bro pek	1320	36	
178	Do	338	11	do	pekoe	1210	38	bid
179	Do	340	6	do	pek sou	660	33	
180	Do	342	1	do	congou	100	20	
181	Do	344	1	do	dust	130	17	
182	Penrhos	346	32	hf-ch	pek sou	1435	36	
183	Do	348	8	do	sou	360	31	
184	Do	350	8	do	pek fans	400	37	
185	Do	352	12	do	dust	780	27	
186	Do	354	2	do	bro tea	100	31	
187								

Lot No.	Mark	Box No	Pkgs.		Description	Weight lb.	c.	
188	N	356	2	do	pekoe	84	24	
189	N	358	1	do	fans	50	24	
190	N	360	5	do	dust	370	14	
191	N	362	2	do	bro tea	240	13	
92	Alton	364	6	ch	bro tea	540	22	
193	Mirisketiya	366	16	hf-ch	unas	800	30	bid
194	Do	368	3	do	pek sou	150	20	
195	Do	370	2	do	pek fans	156	23	
196	Do	372	2	do	do	120	17	
197	M	374	2	ch	unas	196	23	
198	M	376	1	do	pek sou	64	16	
199	Lankapura, W	378	16	do	bro pek	1600	63	bid
200	Do	380	42	do	pekoe	3990	45	
201	Do	382	23	do	pek sou	2070	35	
202	W A	384	13	do	bro pek	1430	39	
203	W G	386	1	do	bro pek	108	35	
204	Do	388	1	do	pekoe	88	30	
205	Palmerston	390	2	hf-ch	bro pek	110	66	
206	Do	392	5	ch	pekoe	500	53	
207	Do	394	3	do	pek sou	300	38	
208	Dy	396	2	do	unas	200	37	
209	Do	398	7	hf-ch	dust	525	28	
211	V	402	1	ch	dust	140	14	
212	Ewhurst	404	26	hf-ch	pekoe	1560	29	
213	A R	406	5	ch				
			4	hf-ch	pekoe	684	23	
214	Polatagama	408	40	do	bro pek	2400	54	
215	Do	410	71	do	pekoe	3550	40	
216	Yarrow	412	12	ch	bro pek	1200	54	
217	Do	414	14	do	pekoe	1260	36	

Messrs. A. H. THOMPSON & Co. put up for sale at the Chamber of Commerce Sale-room on the 15th June the undermentioned lots of Tea (10,020 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight lb.	c.	
1	Bogahagoda watte	1	2	hf-ch	bro pek	148	44	
2	Do	2	2	do	pekoe	140	28	
3	Do	3	4	do	pek sou	240	22	
4	Do	4	2	do	fans	140	22	
5	Agra Oya	5	27	ch	bro pek	2700	48	bid
6	D	7	3	do	sou	300	15	bid
7	C G	8	5	do	bro pek	560	35	bid
8	Do	10	7	do	pekoe	735	30	
9	Do	12	8	do				
			1	hf-ch	pek sou	890	25	
10	Do	14	1	ch	dust	120	14	
11	A G C	15	6	hf-ch	pek dust	420	26	
12	Do	16	8	do	dust	560	17	
13	R S	17	7	do	fans	441	16	
14	Dikmukalana	18	2	do	dust	100	15	
19	H	25	3	do	or pek	291	27	

Mr. E. JOHN put up for Sale at the Chamber of Commerce Sale-room on the 15th June the undermentioned lots of Tea (62,600 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description.	Weight. lb.	c.
1	Ottery and Stamford Hill	230	3	ch	sou	270	31
2	Do	221	2	do	dust	300	26
3	O, in estate mark	232	7	do	bro tea	784	25
4	Maddoolenne	234	10	hf-ch	bro or pek	500	35
5	Do	236	2	ch	congou	200	25
6	Do	237	2	hf-ch	dust	140	20
7	Great Valley	238	27	do	bro or pek	1350	83
8	Do	240	12	ch	or pek	1080	63
9	Do	242	42	do	pekoe	4200	47
10	Do	244	12	do	pek sou	1140	23
11	Do	246	4	hf-ch	dust	320	35
12	Do	247	1	ch	congou	95	24
13	Tientsin	248	26	hf-ch	bro pek	1300	70
14	Do	250	20	do	pekoe	2000	50
15	Do	252	10	do	pek sou	1000	34
16	Do	254	3	hf-ch	dust	210	25

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
17	Talagalla	255	17	ch	or pek	1530	45	
18	Do	257	20	do	bro pek	2100	46	bid
19	Do	259	19	do	pekoe	1805	33	
20	Do	261	3	do	dust	480	18	
21	Dikoya	262	17	do	dust	2040	20	
22	Do	264	8	do	unas	800	24	
23	J, in estate mark	266	9	box	pekoe	45	40	
24	Troup	267	48	hf-ch	bro pek	3120	61	bid
25	Do	269	41	ch	pekoe	4100	36	bid
26	Do	271	2	hf-ch	dust	170	24	
27	Do	272	1	ch	red leaf	100	16	
28	Sumtra Valle	273	12	do	bro pek	1260	59	bid
29	Do	275	15	do	pekoe	1350	39	bid
30	Do	277	3	do	pek sou	255	29	
31	Tarf	278	12	do	pke sou	1080	35	
32	Do	280	1	do	dust	135	22	
33	W T	281	8	do	pek dust	1152	7	
34	Glasgow	282	26	do	bro pek	2340	75	
35	Do	284	26	do	pekoe	2600	58	
36	Sumtra Valle	286	13	do	bro pek	1430	63	bid
37	Do	288	14	do	pekoe	1400	41	
38	Do	290	12	do	pek sou	1200	33	
39	H	302	5	do				
			1	hf-ch	pekoe	468	20	bid
40	H	304	11	ch				
			1	hf-ch	pek sou	1010	22	
41	H	306	4	ch	pek fan	360	23	
42	D	307	3	do	bro mix	226	15	
43	D	308	16	hf-ch	dust	1131	15	
44	D	309	1	do	red leaf	50	10	
49	Albion	318	28	do	bro pek	2940	59	bid
50	Do	320	18	do	pekoe	1710	46	
51	Do	322	18	do	pek sou	1710	35	
52	Do	324	3	hf-ch	dust	255	25	
53	Little Valley	325	1	ch	pekoe	99	3	

Messrs. SOMERVILLE & Co. put up for sale at the Chamber of Commerce Sale-room on the 15th June the undermentioned lots of Tea (85,735 lb.), which sold as under:—

Lot No.	Mark	Box No.	Pkgs.		Description	Weight lb.	c.	
1	W A Y	90	3	ch	dust	480	8	bid
2	W	91	3	hf-ch	red leaf	165	12	
3	W	92	1	do	dust	320	14	
4	W	93	2	ch				
			2	hf-ch	sou	230	22	
6	T, in estate mark	95	27	hf-ch	bro pek	1566	40	bid
7	Do	96	17	ch	pekoe	1666	32	
8	Do	97	25	do	pek sou	2350	25	
9	Mousagalla	98	20	do	bro pek	2100	51	
01	Do	99	6	do	pekoe	600	45	
11	Do	100	15	do	pek sou	1500	33	
12	Arslena	1	56	hf-ch	bro pek	2800	53	bid
13	Do	2	55	do	bro pek	2750	52	bid
14	Do	3	30	do	pekoe	1500	36	bid
15	Do	4	30	do	pekoe	1500	35	bid
91	Do	5	27	do	pek sou	1350	31	
17	Do	6	3	do	dust	150	17	
18	Yahalakelle	10	16	ch	bro pek	1600	49	bid
22	Do	11	14	do	pekoe	1400	37	
23	Do	12	18	do	pek sou	1620	29	
24	Do	13	2	do	red leaf	200	18	
25	Do	14	2	do	dust	300	15	
31	D B G	20	2	ch	pek sou	190	31	
32	Do	21	3	do	sou	300	21	
33	Do	22	2	do	fans	220	23	
34	Do	23	3	do	bro mix	330	22	
35	Do	24	6	hf-ch	dust	480	17	
36	Hatdowa	25	1	ch	dust	130	15	
37	M L	26	3	hf-ch	bro tea	150	out	
38	E H J	27	13	ch	bro or pek	1430	48	
39	Do	28	16	do	bro pek	1600	42	
40	Do	29	17	do	pekoe	1700	32	
41	G L	31	4	do	bro pek	400	14	bid
42	Do	32	4	do	pekoe	320	19	
43	Hagalla	33	39	hf-ch	bro pek	1950	51	
44	Do	34	23	ch	pekoe	2254	37	
45	Do	35	13	do	pek sou	1274	30	
46	Do	36	4	do	dust	280	21	
47	Aadneven	37	9	do	bro pek	900	60	
48	Do	38	13	do	pekoe	1170	47	
49	Do	39	5	do	pek sou	450	31	
50	Hiralouvah	40	1	hf-ch	bro pek	50	out	
51	Do	41	2	ch				
			1	hf-ch	fans	298	27	
52	Do	42	1	ch	unas	105	24	
53	Do	43	2	do	bro mix	190	22	
54	Do	44	5	hf-ch	bro pek dust	350	29	
55	Do	45	6	do	dust	420	19	
56	Labugama	46	16	hf-ch	bro pek	800	48	
57	Do	47	8	ch	pekoe	600	34	
58	Do	48	15	do	pek sou	1275	27	
59	N N	49	13	hf-ch	pek sou	650	18	bid
60	W G	50	5	do	sou	450	20	
61	Do	51	5	do	bro tea	475	17	
62	Roseneath	52	23	do	bro pek	1495	53	
63	Do	53	19	ch	pekoe	1995	35	
54	Do	54	15	do	pek sou	1775	32	
65	Morningside	55	24	hf-ch	bro pek	1320	48	
66	Do	56	23	do	pekoe	1265	30	
67	Do	57	2	do	sou	110	22	
68	Do	58	1	do	bro tea	55	16	
69	M	59	6	do	pek fans	420	19	bid
70	Mousakanda	60	16	ch	bro pek	1760	62	
71	Do	61	18	do	pekoe	1800	48	
72	Do	62	2	do	dust	260	17	
73	Do	63	1	do	congou	100	20	
74	Forest Hill	64	14	do	pek sou	1400	29	
75	Do	65	1	do	dust	130	21	
76	H	66	5	do	bro tea	475	10	
77	Wewatenne	67	4	hf-ch	bro pek	260	26	
78	Do	68	2	do	pekoe	100	22	
79	A	69	6	ch	bro pek	618	40	
80	K K A, in estate mark	70	8	do	pek sou	800	20	
81	Do	71	1	do	sou	99	20	
82	Do	72	1	do	pek fans	104	22	
83	Do	73	1	do	fans	104	18	
84	Do	74	4	do	bro tea	400	14	
89	Lyndhurst	79	14	ch	bro pek	1400	49	
90	Do	80	14	do	pekoe	1190	34	
91	Do	81	23	do	pek sou	1955	28	
92	Do	82	3	do	sou	270	18	
93	Do	83	3	do	dust	420	15	

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 20th, 1892.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 20th May:—

Ex "Keemun"—Kirkoswald. 1b 110s; 2c 104s; 1b 97s; 1b 112s.

Ex "Navigator"—Alnwick, 1b 94s; 1c 1b 92s; 1b 88s 1b 96s.

Marks and prices of CEYLON COFFEE sold in Mincing Lane up to 27th May:—

Ex "Scotia"—Rajawelle, 1b 88s: 1b 89s; 1b 75s; 2b 80s 6d; 1b 58s.

Ex "Chingwo"—Invery, 1t 1b 107s. (KA)N, 20 bags native 85s 6d.

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 20th, 1892.

Ex "Assaye"—Udapolla, 76b 99s 6d; 71b 95s; 8b 51s 6d; 4b 86s.

Ex "Dunera"—Elmshurst, 9b 104s; 2b 51s; 1p 62s.

Ex "Navigator"—Rock Hill, 9b 102s; 2b 89s; 5b 45s; 1b 56s.

Ex "Bohemia"—Kondesalle, 1b 88s; 7b 100s 6d; 3b 88s; 3b 64s 6d; 1b 50s; 1b 94s; 16b 44s. Mahaberia, 5b 100s; 2b 61s.

Ex "Scindia"—Kondesalle, 8b 60s.

CEYLON CARDAMOM SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 27th. 1892.

Ex "Kintuck"—Malabar, 3c 2s 4d; 9c 1s 8d; 2c 1s 2d; 1c 1s 1d. Mysore, 2c 2s 5d; 1c 2s 4d; 7c 1s 10d; 1c 1s 4d.

Ex "Glenogle"—Mysore, 2c 2s 2d; 2c 1s 9d; 1c 1s; 10d; 6c 1s 4d; 2c 2s; 5c 1s 8d; 1c 1s 2d; 2c 1s 5d.

Ex "Navigator"—Gallantenne, 1c 4s 1d; 2c 3s 2d; 2c 2s 4d; 2c 2s 2d; 2c 1s 8d; 2c 1s 5d.

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ROYAL BOTANIC GARDENS.

REPORT OF THE DIRECTOR FOR 1891.

1.—Movements of the Staff.

The Director, by permission of His Excellency the Governor, visited in the early part of the year the Botanic Gardens at Singapore and at Buitenzorg (Java), being absent on that duty from February 27 to April 5. I had long desired to have an opportunity of examining the two principal botanical establishments in Malaya, and especially the great scientific institution kept up by the Government of the Dutch Indies. During this short visit I acquired much new information, and made many useful additions to our collections, as will be seen in this report; and I may add here a few notes as to the character of the two Gardens in general.

There is little to be said about that at Singapore, which is situated close to the town, and has to fulfil somewhat of the part of a public park as well as of a scientific garden. Both aspects are well carried out: there is more ornamental gardening than we are accustomed to see in Ceylon, the turf is well kept, and the flower-beds very neat for a tropical climate, whilst there is a large and valuable collection of rare Malayan plants. The ground for the experimental culture of economic plants is separated by some distance from the Garden itself, which is a very good arrangement. The Director has under him a European Head Gardener and two or three good native assistants; and has also charge of branch gardens, each under a trained English gardener, at Penang and Malacca. The Herbarium and Library are being rapidly extended and improved.

The Dutch botanical establishment at Buitenzorg is of a different character from this or any English one, not even excepting Kew, and is maintained entirely on a scientific basis. The Director has the control of all the six departments into which the institution is divided, as follows:—1, the Herbarium, Library, and Museum; 2, the Botanical Laboratory; 3, the Experimental Garden and Laboratory for Agricultural Chemistry; 4, the Pharmacological Laboratory; 5, the Botanic Gardens; 6, the Photographic Institution. Each of these departments is under the immediate management of a highly trained scientific or technical chief from Holland, and most of these have also an assistant. There is thus a very large staff of Europeans. The Laboratories, Library, &c., are completely stocked, and kept fully up to the time, and everything is provided for close investigation and original research in all branches of botanical study. Many students are thus attracted from Europe, and the Laboratories afford accommodation for a considerable number of workers. A valuable serial publication, the "Annales du Jard. Buitenzorg," is issued at intervals, devoted to scientific botany, and another one, "Teijsmannia," occupied with economic and garden subjects.

The Botanic Gardens themselves at Buitenzorg occupy between 60 and 70 acres, at an elevation of about 800 ft., with a fine soil and abundant water, and are well protected by a high iron railing and a barbed wire fence. Nearly the whole is occupied by a classified arboretum, each Natural Order being isolated by a road or path. The collection is extremely rich, and every species is elaborately labelled with upright labels made of the very hard wood of *Eusideroxylon*, which is never attacked by termites. The whole is now much too crowded, and cannot be said to be of much beauty, but is of course extremely convenient for scientific study. Connected with Buitenzorg is a small Hill-garden at Tijbodas, 4,700 ft., also under a European superintendent, where is also a house for the Director and a laboratory and accommodation for four students.

The Experimental Garden (Cultuur-tuin) is about two miles from the main Garden, and is 200 acres in extent, but is not all at present occupied. It is laid out in square plots, each devoted to one product; large labels at each corner give the name, date of sowing or planting, and other information. Here are very many plants of great interest. Though a large distribution of seeds and plants is made to planters and others, no charge is made for anything.

On the whole, I was filled with surprise and admiration at the completeness of Buitenzorg as a centre for botanical work ; the only weak side seemed to be the Herbarium, which is by no means kept up on a par with the rest of the means of study.

The Head Gardener, Mr. Clark, went on leave to England on February 11, and had not returned at the end of the year.* For the greater part of this time he has been travelling, for the Peruvian Corporation, in the Andes, whence he has sent (through Kew) a few seeds of useful and ornamental plants for cultivation here.

Mr. H. M. Alwis, the Clerk and Foreman at Hakgala Garden, left the Department in July, after a very satisfactory service of nine years, to take charge of the Victoria Park Gardens in Colombo under the Municipality. His place has been filled by the appointment of Mr. M. G. Perera, from the Forest Department, who had previously served under Mr. Nock at Hakgala, and given satisfaction.

2.—Péradeniya Garden.

Roads and Paths.—The almost constant rain throughout the year has rendered necessary a continuous attention to all the drives and footpaths, so that no extensive repairs have been anywhere undertaken. The road round the Palm Crescent in the South Garden was however partly remade, and a portion of the Central Drive, during the dry time at the commencement of the year.

Buildings.—I regret that my efforts to obtain a suitable dwelling for the Head Gardener have been again unsuccessful, and that he will be compelled to still continue to live in the incommodious old store, the demolition of which I have so often urged. I trust it is deferred only. Some repairs to the roof and flooring of the building have been made by the Public Works Department during the year, which have rendered it a little more suitable for a dwelling-house.

The much-needed repairs and alterations to the Director's bungalow are to be taken in hand in 1892 ; the other buildings that now require attention, after the long wet weather, are the Museum, which needs new pipes and guttering, and the houses occupied by the Garden Arachchi and the Draftsman, which both much require repairs to the roofing, &c.

During the year a small dwelling for the second gate-peon was put up in the Garden, and the plant-collector's new house finished. These have both been erected at the cost of the Gardens ; and I may here remark that it is my practice to effect all small repairs in the same way, the Public Works Department being required only to estimate for the larger works beyond our means.

Improvements.—A balance remaining on the vote granted by Government to supplement the sum given by the British Association for conveying water to the Laboratory (see last year's Report), I asked permission to be allowed to employ it in the formation of a small tank and fountain. This was granted, and the work was carried out in June and July. The tank occupies a little open space under the shadow of the largest trees of *Ficus elastica ;* it is circular, with a diameter of 24 ft., and a continuous stream of water flows through it. Its depth, 2 ft. 3 in., allows the growth of water-plants in sunk pots, which we have hitherto had no opportunity of cultivating. The fountain in the centre is supplied by a small pipe, and can only be played to its full height of 18 or 20 ft. when the water-supply to the rest of the Garden is cut off ; otherwise it rises to only about 6 or 8 ft. This change has much improved the appearance of that part of the Garden affected, formerly a damp patch of rank grass where nothing else would grow.

I have introduced the use of the scythe to Péradeniya during the year. I observed that in Java and the Straits the Malay and Javanese gardeners mowed fairly well, and I now find that after a little practice several of our Tamil and Sinhalese men can handle the scythe after a fashion, and produce a better result than with the old grass-knives hitherto used in places where the large and small machines cannot be employed.

Cultivation.—Many of the palms in the grove by the entrance having become with age very tall and lanky, some of the commoner ones have been cut out, and specimens of rarer kinds planted to supply their places.

The young palmyra palms (sown in 1889), intended to form an avenue, have greatly suffered from the prolonged wet; an endeavour to save them has been made by cutting deep drains on either side.

The collection of ferns in pots kept in one of the old plant-sheds has been improved in appearance by widening the brick stages on which they are placed, and so giving more room for their proper development.

Two or three of the fine clumps of Giant bamboo have died during the year without apparent cause. I think that this species is unable to bear excessive and prolonged wet weather.

The male Coco-de-mer palm *(Lodoicea)* again put out a flower-spike, which came into blossom in September, and continues at the end of the year to open a few flowers at a time successively.

* Returned to duty on February 10, 1892.

Among the plants which flowered during the year for the first time may be noted :—*Saraca declinata, Leea sanguinea, Passiflora Watsoniana, Tristillatcia australasica, Euadenia eminens, Eranthemum velutinum, Chlorocodon Whitei, Pavetta madagascariensis, Ipomœa Briggsii, Asystasia flava, Gynura sarmentosa, Ruellia affinis, Araucaria Cookii, Euphorbia heterophylla, Lagetta lintearia, Carludovica ensiformis, Smilax officinalis, Aiphidium floribundum, Æchmea calyculata ;* and of Orchids :—*Galeandra Devoniana, Epidendrum aloefolium, E. Stamfordianum, Calanthe Regnieri and C. Sanderiana, Vanda teres, V. Hookeriana, Cœlogyne cristata, Dendrobium Lowii, D. lituiflorum, D. Cassiope, Lœlia grandis, Cattleya eldorado, C. Mendelii, Bifrenaria atropurpurea (?), Arundina densiflora, Dendrochilum filiforme, Miltonia Weltoni, Cycnoches chlorochilum, Rodriguezia fragrans, R. candida, Oncidium splendidum, Phalœnopsis Esmeralda, Plocoglottis* sp., *Cypripedium Haynaldianum, C. Sedenii.*

Labelling.—This has been steadily persevered with, a writer being employed throughout the whole year. Most of his work has been writing labels for the plants in pots (several thousands), orchids, aroids, ferns, &c. Nearly all the wooden tallies formerly used have now been supplanted by neat tin labels, black, with the names in white paint.

Race-course Ground.—The forest of weeds covering this was cleared off and burnt early in the year, but by May it had largely grown up again, and a second clearance had to be made. This nearly exhausted the small sum of money at my disposal, and I was unable to make a much-needed third clearance before the end of the year, though the rains caused a heavy growth to again spring up. I regret that my original request was not complied with and a smaller piece reserved, which could have then had more attention given to it, and be constantly kept in order.

Visitors.—The number of foreign visitors and tourists who entered their names in the book kept at the Lodge during the year was 1,792, a considerably large number than hitherto. Most of our visitors come in the early part of the year, especially in February.

On February 13, H. I. H. the Czarewitch of Russia visited the Gardens in company with his Excellency the Governor, and planted a tree as a memorial of his visit. I selected a ná tree (*Mesua ferrea*), and a spot opposite to the bó tree (*Ficus religiosa*) planted by H. R. H. the Prince of Wales in 1875.

Weather.—A very exceptionally wet year has to be recorded, the rainfall having exceeded our average by nearly 34 in., and fallen on 63 days more than the average number. This remarkable period of wet weather set in on March 7, the season up to that date having been of the ordinary dry character of the north-east monsoon season. From March 7 to 17 it rained continuously, and from that date to the end of the year more or less wet weather has been experienced. From April 15 to June 6 only six days passed without rain, the fall in May being 21·30 in., against an average of 7·67. The south-west monsoon wind set in about May 17 here, and blew vigorously for over three months. From June 12 to July 4 there was but a single rainless day, but after that a period rather drier than usual was experienced—that is, with less rain, though with more rainy days—until early in October, when the rain set in with increased persistence. From October 3 to November 16 only three days passed without rain, and the total fall for October reached the unprecedented figure of 27·73, or about 2½ times the average amount. We had a fortnight of dry weather at the end of November, after which heavy rain again set in and continued till the end of the year.

These facts are shown in the subjoined table, where the averages for the past 7–8 years are also given :—

Rainfall at Péradeniya.

	1891.		Average.		
	Rainfall.	Rainy Days.	Rainfall.	Rainy Days.	
January ...	2·66	7	1·86	4	
February ...	1·57	5	1·43	4	
March ...	10·73	13	3·59	8	1884–90
April ...	12·73	15	9·48	13	
May ...	21·30	29	7·67	12	
June ...	8·72	23	9·94	20	
July ...	4·36	21	7·66	16	
August ...	5·02	17	6·62	15	
September ...	2·74	19	7·83	14	
October ...	27·73	29	11·21	18	1883–90
November...	6·00	12	9·96	17	
December...	14·15	22	7·92	11	
Year ...	117·71	212	84·99	149	1884–90

The heaviest fall in any recorded twenty-four hours was 4·85 in. on October 19–20.

3.—Hakgala Garden.

Such improvements as our votes will allow have been effected during the year, and the Garden continues gradually to advance under the assiduous care of the Superintendent, Mr. Nock. I am gratified to know that an increased vote for upkeep is to be granted for the coming year, which will render progress somewhat more rapid.

Another portion of the old drive has been taken in hand and finished off. This was the worst remaining piece, 130 yards in length, very uneven and irregular, and with a gradient in one part of as much as 1 in 9. By altering the curves and adopting a new trace a uniform gradient of 1 in 15 has been obtained, and the banks being cut back and sloped the road has been greatly improved in appearance and utility.

A second propagating pit has been constructed during the year. It forms a sunk span-roofed house, 36 ft. long by 12 ft. wide, the details of which are given below. This is a great aid to garden work and the maintenance of a stock of plants.

I regret to have to report that much less progress has been made by the Public Works Department with the reservoir than might have been expected. The work of excavation was not even commenced till May 8, and it was not till July that the foundations of the walls were laid. Then, at the end of September, it was discovered that the sum voted for the whole work was exhausted, though little more than half of it was done. Work was not commenced again till December 16 (with a supplementary vote), and as little could be done during the wet weather at the close of that month, the end of the year sees us still without any provision against the probable droughts of March and April.

I have made a commencement towards labelling the more prominent trees and other plants on a similar plan to that in use at Pérádeniya, and about 300 brick labels have been painted and put in position. I hope to continue this work during the coming year.

A permanent shelter for carriages and horses, in place of the shabby and dilapidated structure at present used, is one of the most pressing requirements at this Garden.

The following details are extracted from the Superintendent's Report for the year :—

One of the principal pieces of work during the year has been the construction of a span-roofed pit for the propagation and growth of young plants. It is 36 ft. long and 12 ft. wide. From the ridge to the floor it is 7 ft. 6 in. The walls up to 12 in. above surface-level are made of split stones. The uprights for the side lights, which are 18 in. deep, are fitted on to this, and the wall plates on top of this support the roof. Three iron tie-rods, three quarters of an inch in diameter, screwed to the ridge and wall plates, strengthen the roof and keep it in place. Four side lights on each side are made to open with small hand levers to admit air, and three small lights on each side of the roof for top air. The pit is entered by a flight of four steps on each side. These steps are 4 ft. 6 in. wide, the tread 12 in., and the rise of each step 10 in. The path, which is 3 ft. below the surface of the ground, runs along the centre, and is 3 ft. wide. The stages which are made of 2-in. planks are supported by brick pillars, 9 in. square, and are 3 ft. 6 in. wide. This, with the 8-in. margin of wall all round, gives us about 250 superficial feet of stage-room for plants. The roof is glazed with ordinary glass. The stages were put in, the woodwork well painted, and all made ready to receive plants by the end of September. All that remains now to complete it is a small coping for the ridge and guttering round the eaves.

Fernery.—Beyond cutting down the undergrowth for a space of twenty-four yards wide on the upper side, fixing orchids on to the stems of the large trees, and thinning out and pruning the jungle trees, nothing but the ordinary weeding, cleaning, and replanting was done in the fernery. During the high winds in June a tree, which afforded shade to the large clump of *Adiantum cuneatum*, was blown down, and the plants here suffered a good deal from exposure. With the exception of about six weeks during the drought the plants generally here have done well, and continued to be attractive to visitors. A quantity of cowslips and oxlips flowered very well among the ferns in February.

Plant Sheds and Nurseries.—The usual stock of plants, trees, and shrubs has been kept up, both for distribution and for the upkeep of the Garden. I regret, however, to report that, owing to the severe drought at one time and continued heavy falls of rain at other times, several batches of cuttings have failed to strike, and many succulent plants were killed completely.

A large number of the grafts which were worked on to stocks of the common plum in November, 1890, united well, and a considerable quantity of them have been distributed. In consequence of the fine bright weather in November the grafting this year was delayed till December, when 190 scions of various kinds of plums were grafted on to common stocks.

Some of the conifers in the Garden are now beginning to produce good seeds. These have been collected, and a part sown in the nursery, and some have been sold.

There were 1,024 pans of seeds sown and 46,550 seeding plants pricked out or transplanted, 60,050 cuttings of various sorts were put in the nursery or propagating house, and 4,844 plants were potted.

Borders, Shrubberies, &c.—Our manure supply is so limited that we were unable to give so liberal a dressing as the soil required.

39,139 plants of ornamental trees and shrubs and general garden plants and annuals were set out during the year in the borders, beds, and shrubberies.

A new border, 66 ft. long, was formed near the carriage shed and planted with herbaceous plants —ribbon-border fashion. A stone drain of the same length, to carry off the water, and one side to support this border, was made here on the side next the drive. Another new border, 111 ft. long, was made near the large

Cupressus tree at the top corner of the herbaceous garden. Stone edging was laid along the side next the path, and over this was planted *Sedum stoloniferum*, and the border was planted with mixed plants.

Considerable improvement was made round the summer arbour. The floor of this was raised 3 in. and a layer of gravel spread on the surface. In front and around the building the land was made even and turfed. The little shrubbery at the back was overrun with roots of *Acacia decurrens*, which had choked out nearly all other plants, and a number of *Leptospermum scoparioides* plants have now been planted this year, in the hope that they will hold out against the *Acacia* roots, as they are very hardy and usually grow fairly well in poor soil.

Two retaining walls have been built to support the new borders running along the lower side of the portion of drive reconstructed this year. The larger measures 168 ft. long with an average height of 4 ft.. and the other is 36 ft. long with an average depth of 2½ ft. A large amount of filling in was required to make these borders. The borders have been planted with a large variety of roses, small shrubs, herbaceous plants, and showy annuals.

In the space of ground between the nursery and the rubbish yard, large holes were got out 20 ft. apart, and prepared for growing specimens of trees and large shrubs. Eighty-two assorted plants were planted out in them.

A large flight of steps made of dressed stones were laid down the long bank below the flower garden. This makes a very convenient and short way to reach the new pits, the anemometer and nurseries, and saves much time. The steps are 23 in number, and 4 ft. wide.

In August the old pond was cleared of growing weeds and of leaves and stalks, and the silt from the two inlets was removed.

Plants of *Cupressus macrocarpa* were planted on the bank near entrance gates at equal distances of 12 ft. apart, and 12 ft. from the edge of the drive. Those planted last year on the opposite side are making good growth.

170 English oak plants and 54 plants of various *Acacias* were set out on the patana near the cooly lines, and 105 plants of several varieties of *Eucalyptus* on either side of the bridle-path leading down to Gorindakela.

New turf verges, measuring 373 running yards, 12 in. wide, were laid down along the sides of the drive and paths, and 220 square yards of turf on banks by new flight of steps, and around the summer arbour.

It is with much regret that I have to report the loss, by fire, of nearly all the young trees of *Junipers*, *Cupressus*, *Frenela*, *Pinus*, *&c.*, which were growing so nicely on the patana above the entrance gates. The fire occurred on April 2 during my absence on a visit to Pérádeniya. The fire originated near the public road, and was evidently lighted by some one passing by, but all efforts to find out who did it failed. This loss is most annoying, as the plants were doing well, and some of them were fully 9 ft. high. We had been unable, for want of labour, to do more than clean occasionally round the collar of each plant, and the patana grass had grown so thick between them, that the fire, when once alight, spread rapidly, and it was not discovered until it was too late to put it out.

During the high winds in June a considerable number of trees were blown down and destroyed. The cold damp weather in the following month, assisted by the strong gusts of wind twisting and shaking about soft and tender plants, killed out more plants than is usual for these months.

Flower Garden.—No alteration of any importance was made in the flower garden. The beds and borders were kept supplied with the usual showy garden plants, and were maintained in good order all through the year. I may mention one bed which was very attractive. It was planted with mixed varieties of *Phlox Drummondii* (of Messrs. Sutton & Sons' strain) and edged with *Antennaria margaritacea*. None of the *Phlox* plants grew higher than 9 in., and formed one compact mass of thirteen distinct colours, and they remained in full bloom for several months.

Rose Garden.—A few new varieties were added during the year, and the plants on the whole have done well. There were some very fine blooms out during the month of March. I was able to stage forty varieties at the Nuwara Eliya Show at the end of that month. The plants were all pruned well back in the middle of January, in order to get them to come in for the Show. Experience has proved that from nine to ten weeks is about the time to allow, in this locality, from the time of pruning till they are in full bloom. The treatment the plants received was the same as last year, with the addition that they were supplied liberally with liquid manure after the flower buds began to show. Great difficulty was experienced this year in getting rose cuttings to strike, and two fine batches were complete failures, owing in a great measure to the severe drought.

Herbaceous Garden.—In March, 232 supplies and additions were planted out in the beds. As a quantity of plants had grown too large for the beds, and a considerable number of the weaker and tender sorts were killed out by the drought, it became necessary to re-arrange the whole garden. This was done in November. All the beds were dug up for a depth of 18 in., and roots and rough stones removed. The beds were heavily manured and filled up with old potting soil and decayed matter from the rubbish yard. Fifty-two cart loads of manure and twenty-nine cart loads of the above-named soil, besides a large quantity of burnt earth and ashes, were used in this work. The plants were all replanted in their Natural Orders as before. Many plants of interest flowered during the year. A fine plant of the "tree daisy" flowered profusely, and continued in bloom for many months.

Manure Supply.—Manure is a great necessity in a Garden like this where the soil is naturally poor. The want of a good supply is more and more felt, and without which it is impossible to do justice to the plants. We have received sixty-five cartloads from the coach shed at the foot of the Garden, the coach proprietor kindly allowing us to have all the manure made there, for the use of the shed which was built by the garden coolies. The only other manure we get is what is made by the five bullocks belonging to the Garden and that made by my own cattle and pigs. Considering the importance of this matter, and the fact that there is a large acreage of Government patana land pasturage in the vicinity of the Garden, I would respectfully suggest the advisability of the purchase of, say, at least half a dozen breeding cows. These could be kept at little cost, and with the young ones they would produce would always be worth the money spent on them. The Garden would thus receive an increasing supply of valuable manure. Manure is readily sold here for two rupees per load, and considering the first cost of half a dozen cows would not be more than one hundred and twenty rupees. They would more than pay this off in the first year.

Cattle Disease.—At the beginning of the year foot-and-mouth disease was very bad in this locality. The garden bulls and most of the other cattle here suffered with it. They were dressed with Jey's disinfectant, and all recovered in about ten days. There were no cases this year of the murrain, which was so prevalent in this district last year.

Two of the most promising young bulls in my herd have been killed by a large leopard, one in April and the other in October. The animal had caused great destruction among the cattle in this neighbourhood for some time previously. We have not yet succeeded in trapping the leopard, though he has been seen in and about the Garden several times since.

Lime Kiln.—A permanent lime kiln was built in February on a site near the lime-stone rock, a few hundred yards below the cooly lines. This was built at the expense of the Public Works Department on the understanding that lime be supplied them for the restoration of the reservoir at the price it costs us to burn. This was of course agreed to, and we can now burn lime for the Garden use at any time.

Water Supply.—We have this year again been very short of water, and during the long drought in July, August, and September, a good deal of labour was spent in carrying it, especially for three weeks in September, when from 3,000 to 6,000 gallons were used daily, and the greater part of this had to be carried from the pond in the lower part of the Garden, all the little streams above the Garden having completely dried up.

Visitors.—The number of visitors during the year was 1,519, being an increase of exactly 200 over that of last year. The greatest number in any one month was 206 in December, against 154 in the same month last year. The lowest in any month was 42 in July, against 46 in June the year before.

Weather.—The weather was remarkable for general low temperature, for the severe drought during July, August, and September, and for the heavy rainfall in May, October, and December. In the three last-named months no less a quantity than 64·26 in. of rain fell, considerably more than half the total for the whole year.

The following table shows the monthly rainfall and averages from July, 1883, to the end of 1891, and the number of days on which rain fell during the ten years 1882–91 :—

		Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1891 ...	Rainfall ...	8·54	4·20	8·50	6·22	18·53	7·14	3·76	2·70	5·87	22·85	7·46	22·88	118·65
	Days ...	10	15	10	16	22	17	16	16	13	30	13	26	205
1890 ...	Rainfall ...	6·34	4·47	·88	15·91	3·98	4·78	4·75	4·16	3·52	5·98	8·97	7·23	70·97
	Days ...	14	11	8	20	8	11	14	19	15	19	18	15	172
1889 ...	Rainfall ...	7·25	1·55	7·06	12·21	15·01	4·55	8·50	4·02	10·37	4·25	7·69	5·88	88·34
	Days ..	10	3	15	20	18	16	20	14	20	10	16	18	180
1888 ..	Rainfall ...	·26	0	5·11	9·84	8·79	15·53	·96	2·03	6·96	10·04	11·62	18·93	90·07
	Days ...	4	0	11	16	28	23	8	11	14	19	22	19	175
1887 ...	Rainfall ...	4·89	3·67	1·21	7·48	8·20	4·45	5·05	3·32	6·43	10·04	13·40	33·77	101·91
	Days ...	16	11	7	19	17	27	16	15	20	24	23	29	224
1886 ...	Rainfall ...	11·30	2·66	3·28	3·43	9·13	7·60	8·18	8·45	6·79	9·61	6·97	9·03	86·43
	Days ...	21	9	9	15	18	17	24	19	20	21	18	20	211
1885 ...	Rainfall ...	5·56	2·42	3·12	4·16	8·52	15·57	4·77	3·47	3·21	10·60	8·03	12·71	83·14
	Days ...	24	5	12	12	19	26	18	11	14	26	23	25	215
1884 ...	Rainfall ...	4·67	1·85	3·90	3·02	4·48	2·23	3·09	4·33	8·32	14·07	9·81	15·47	75·24
	Days ...	17	7	9	12	12	11	17	22	20	25	19	25	196
1883 ...	Rainfall ...	—	—	—	—	—	—	11·96	7·96	3·27	6·80	9·24	7·83	47·06*
	Days ...	22	11	8	18	18	23	22	25	14	22	24	19	226
1882 ...	Days ...	10	16	6	12	15	18	31	31	27	27	20	22	235
Average Days ...		15	9	9	16	17	19	19	18	18	22	20	22	204†
Average Rainfall ...		6·10	2·60	4·13	7·78	9·58	7·74	5·67	4·49	6·08	10·47	9·24	14·89‡	89·34

The greatest pressure of the wind registered was 1·620 lb. per square ft. on 4th and 5th of June, this being equal to only 18 miles an hour, against 27·60 miles on 19th June last year. But, as stated in the general remarks, the wind was often strongest during the evenings and nights in June, our windiest month, after the afternoon readings were taken.

The mean daily horizontal movement of the air for the year was 97·31 miles, against 145·41 miles last year, which shows that the movement of the air was very much less this year than last. The windiest month was again June, with a mean daily horizontal movement of 239·74 miles, against 384·37 miles last year. The calmest month was January, with a mean of 31 miles, against 33·51 miles in December the year before.

The barometric pressure and temperature of the air for the year are given in the following table :—

* Of half a year.
† Average of ten years.
‡ Average of eight years, January to June, and nine years July to December.

Barometric Pressure (5,581 *ft. elevation*).

1891.	Mean.	Range.
January ...	24·571 ...	187
February ...	24·567 ...	230
March ...	24·570 ...	166
April ...	24·570 ...	168
May ...	24·511 ...	311
June ...	24·510 ...	220
July ...	24·506 ...	202
August ...	24·519 ...	175
September ...	24·554 ...	190
October ...	24·528 ...	252
November ...	24·550 ...	208
December ...	24·563 ...	218
The twelve months	24·543 ...	364
Highest reading ...	24·694 on Feb. 14	
Lowest reading ...	24·330 on May 21	

Temperature of the Air.

1891.	Mean.	Range.
January ...	57·5 ...	23·5
February ...	59·8 ...	21·5
March ...	62·2 ...	25·7
April ...	63·8 ...	23·5
May ...	63·3 ...	17·5
June ...	61·6 ...	15·2
July ...	62·1 ...	16·5
August ...	62·5 ...	20·0
September ...	63·3 ...	20·0
October ...	62·2 ...	15·5
November ...	60·9 ...	18·0
December ...	60·6 ...	16·5
The twelve months ...	61·6 ...	31·5
Maximum temperature 73·0 on April 16 and May 5.		
Minimum temperature of air 41·5 on January 14.		

The highest temperature in the sun's rays during the year was 148·8 on March 22, against 149·0 on May 10 last year.

The lowest on grass was 33·8 on March 1, against 36·5 on February 18 of the year before.

The mean amount of cloud was 6·3, against 6·6 last year. The cloudiest months this year were October and December, with a mean of 8·5 each, against April of last year with a mean of 7·5. The brightest month was August, with a mean amount of cloud of 5·0, against February last year with a mean of 6·0.

4.—Henaratgoda Garden.

The condition of this branch remains excellent, and the various newly-introduced economic plants are progressing most satisfactorily.

Rainfall returns were kept here during the year for the first time, with the following result :—

Rainfall at Henaratgoda, 1891.

	Fall.	Days.		Fall.	Days.
January ...	1·93 ...	4	July ...	4·82 ...	13
February ...	3·32 ...	7	August ...	5·43 ...	9
March ...	8·29 ...	11	September ...	7·01 ...	21
April ...	11·19 ...	13	October ...	22·51 ...	28
May ...	14·44 ...	19	November ...	16·91 ...	11
June ...	14·30 ...	17	December ...	10·58 ...	19

Total for year, 120·17 in. on 172 days.

Comparing this with Pérádeniya, it is to be noticed that though the fall is slightly (2·46 in.) greater, it fell on much fewer (40 less) days. Even the very much heavier falls in November and June occurred in both months on less days.

This heavy rain did a good deal of damage to the paths, but most have been remade and stamped. Some old Liberian coffee has been removed to allow one path to be widened, and a good many old trees, too much crowded, have been cut out.

The Conductor's little house has been roofed with tiles in place of the old thatch.

It remains a subject for regret to me that this pretty and interesting little Garden has so few visitors. Besides a party of the boys of the Royal College (40 in number), only 34 persons came during the year. Probably the wet weather had something to do with this diminution of the number of the previous year : but it is chiefly the want of a place to stay at during the necessary waiting for the trains that makes a visit to the Garden a matter of discomfort. I have been in communication with the Government Agent as to the desirablity of the establishment of a small rest-house somewhere between the Garden and the Railway station, and I believe that he has selected a site, and that a building will be erected very soon.

5.—Anurádhapura Garden.

The season of 1891 has been on the whole a favourable one. This part of Ceylon shared in the generally heavy rainfall, as much as 75·04 falling. On the whole it was well distributed, though there was the usual dry period from June to September, during which four months there was a rainfall of only 1·68 in., August being absolutely rainless. An unusually heavy fall of 19·42 in. occurred in May, and the last three months of the year were very wet, 36·54 in. falling, of which 11·87 were recorded in December.

As a result the trees, shrubs, and other plants in the Garden are looking very well at the end of the year, and much growth is apparent in most of them. The mastic and divi-divi trees are in fruit, and the sandalwood in flower. Teak has done remarkably well : young trees, six years old

from seed, are over 22 ft. high ; and seedling trees of *Eucalyptus alba* are making fine growth. In favourable years like this, it is interesting to find plants succeeding which are not generally adapted for the climate : thus, a cacao this year ripened eleven good pods, the seeds of which have been sown. Breadfruit and pineapples seem to ripen in most years.

In spite of these interesting results, I confess to feeling some disappointment as regards this branch garden. It has now been nine years in existence, and it must be acknowledged that its influence on the inhabitants of the North-Central Province has been very slight. In the little town itself some improvement in the gardens is observable : many now have flowers in the front, and there are beginning to appear a very few cocoanuts, jaks, mangoes, oranges, limes, breadfruits, plantains, and pineapples. These have been obtained from the Garden, but how small is the desire for such things is evidenced by the fact that the average annual sales have been less than Rs. 50. The purchasers, too, are almost always Tamils from Jaffna.

The Arachchi in charge is a very intelligent, industrious, and capable man, but he is discouraged by the little result of his nine years' work and the little support he receives. Our very small vote—deducting his pay, only Rs. 600 per annum—also renders it impossible to carry out even the most trifling improvements, the whole being required to pay a few coolies, whose main work is watering ; yet I scarcely feel justified in asking for a larger sum for the support of a Garden in which no one of those intended to be benefited by it appears to take the slightest interest.

We have usually had the use of a small provincial vote for "Botanic Gardens" annually placed in the hands of the Government Agent, and this has enabled me to send up cartloads of plants from Pérádeniya ; but the vote this year has not been available for us, being otherwise employed.

I hope to be able to properly roof the Conductor's bungalow, and to build brick or stone supports for the plant-house during the coming year.

6.—Badulla Garden.

Our little vote just suffices to keep up routine work here, and does not allow of much progress by any additional undertakings. The principal improvement during the year has been the levelling of the main driving road, which formerly ran over a hill now cut through. The flower-beds on either side now appear raised above the road, but this has by no means a bad effect.

The young trees and shrubs have made much progress, this being largely due to a good supply of manure regularly obtained from the town till the end of July. Some new arrangement for its disposal having been then made, we have lost this benefit for the remainder of the year ; but it is hoped that the deprivation will be only temporary. Many trees have made striking growth here, especially conifers ; a durian is 16 ft. high, and the rambutans have flowered. Brick pillars in place of wooden ones have been set up in the plant-shed, but I have not been able to finish this house or to build new cooly lines as I hoped to do.

Nor has as yet anything been done to give a better cottage to the Conductor. This is urgently needed, and I trust will be effected during the coming year.

As usual the Garden suffered somewhat from drought in the very dry weather of August and September ; but the year generally was, here as elsewhere, a wet one. In all 142·48 in. of rain fell, of which no less than 87·74 fell during the last quarter of the year, October having the extraordinary record of 41·67 in.

7.—Interchange of Plants and Seeds.

Our mutual relations with other Botanical establishments are shown by the following lists :—

Plants.—Wardian cases and boxes of living plants were received from the following : Kew (2), Calcutta (2), Singapore (3), Buitenzorg (2), Natal (1), Trinidad (2), and from Messrs. Sander (2), Messrs. Bull (1), and Messrs. Veitch (1).

Cases and boxes in exchange were sent to the following :—Kew (3), Cambridge (1), Calcutta (2), Singapore (1), Hongkong (1), Buitenzorg (1), Brisbane (1), and to Messrs. Sander (4), Messrs. Bull (1), and Messrs. Veitch (1).

Seeds.—Packets of seeds have been received from the Botanic Gardens at Kew, Edinburgh, Dublin, St. Petersburg, Paris, Calcutta, Saharunpore, Madras, Hongkong, Singapore, Buitenzorg, Natal, Mauritius, Jamaica, Trinidad, British Guiana ; also from Baron F. von Mueller, Melbourne ; J. S. Gamble, Dehra Dun ; W. Bull, London ; J. H. Maiden, Sydney ; and L. Yates, California.

In exchange, seeds have been sent to Kew, Cambridge, St. Petersburg, Calcutta, Saharunpore, Madras, Singapore, Penang, Hongkong, Natal, Buitenzorg, Mauritius, Brisbane, Jamaica, Grenada, Trinidad, and British Guiana ; to the Agri-Horticultural Society at Calcutta, to Baron von Mueller, and to Messrs. Bull and Veitch.

My thanks are also due to the following residents in the Colony to whom the Department is indebted for plants, cuttings, or seeds, by gift or in exchange :—Lady Havelock, Mrs. Baker, Mrs.

Ballardie, Mrs. Grinlinton, Miss McLaren, and Miss Layard, and Messrs. C. H. Bagot, F. Bayley, D. F. Browne, N. G. Campbell, J. Cotton, G. de Saram, J. Ferguson, E. Hamlin, T. C. Huxley, A. J. Kellow, R. M. Knight, A. C. Lawrie, G. E. Miller, E. Mortimer, J. Regan, H. B. Roberts, J. H. Starey, F. H. Stephens, E. J. Thwaites, R. Wardrop, J. Wickwar, E. P. Willisford, and J. P. William Bros.

We have, as usual, distributed from the Gardens, free of charge, large quantities of plants and seeds to public departments, places, and persons throughout the Colony, viz.:—The Queen's House at Colombo, the Pavilion at Kandy, and Queen's Cottage at Nuwara Eliya ; the Municipalities of Colombo and Kandy ; the Government Agents of Batticaloa and Ratnapura ; the Assistant Agents of Mátalé and Kégalla ; the Director of Public Works and the Public Works Officers at Kandy, Batticaloa, Jaffna, Trincomalee, Katugastota, Mihintalé, Haldummulla, Dikoya, and Haputalé ; the Principal Civil Medical Officer, Colombo, and the Hospital and Dispensaries at Kandy, Nuwara Eliya, Hanguranketa, Kalmunai, and Maturata ; the Assistant Conservators of Forests at Ratnapura and Kurunégala ; the Postmaster, Maskeliya ; the Railway Stations at Nánu-oya, Gampola, Mátalé, Veyangoda, Henaratgoda, Hunupitiya, and Katukurunda ; the "Happy Valley" Mission, Haputalé ; the Agricultural Instructor, Nildandahinna ; and the Churchyards at Nuwara Eliya and Wattegama. I have, under the head of Receipts, given a statement of the estimated value (at our ordinary rates) of these gratuitously distributed plants, &c., which ought to be taken into consideration in estimating the amount of saleable produce sent out from the Gardens.

8.—Additions to the Collections.

As is seen by the following lists, my visit further East resulted in the acquisition of several interesting plants, which have been for too long *desiderata* in Ceylon. Some of these I brought back here with me, and others have been since received.

For the large additions to our collection of orchids we are again mainly indebted to Messrs. Sander, of St. Albans.

The sum at my disposal for the purchase of plants has been expended on a large collection of plants (including many roses) from Messrs. Cannell ; a large collection of seeds from Messrs. Haage and Schmidt, of Erfurt ; and a further selection of plants and seeds from Japan from Mr. Boehmer, of Yokohama. Most of these purchases were for Hakgala Garden. (In the following list for that Garden the large collection of temperate ferns was purchased from Messrs. Veitch in 1890, but the consignment sent in that year having nearly all died *en route*, Messrs. Veitch kindly sent a duplicate series during the past year.)

[Then follows the list of plants acquired.]

9.—Notes on Economic Plants.

Tea.—An enormous increase of more than 21¼ million lb. over last year's export—much exceeding all expectations—has been witnessed during 1891, the total export being no less than 68,274,420 lb. This greatly increased yield has doubtless been largely due to the continuous rainfall of the year. It cannot be regarded as altogether an unmixed benefit, as there seems to be no doubt that the quality has often suffered from the great difficulty experienced in properly withering the leaf. Prices ranged considerably lower than in 1890 for the greater part of the year, the average for the whole being estimated at a little less than 10*d.* per lb.

The hitherto extraordinarily rapid progress of the exports from Ceylon may now be expected to be considerably less marked ; we have also now reached the point when an extension of existing markets has become essential to the industry. It is satisfactory to note that the Australian ports took 3,210,598 lb. during the year, an increase of nearly three-quarter million lb.; and that to German and Austrian ports a direct export of 237,299 lb. has taken place, showing a commencing taste for Ceylon tea on the European continent. It is noted that in England for the first time the year showed a larger consumption of Ceylon than of China tea, the figures being roughly 51 against 49 million lb.

As a whole, the condition of the plantations remains excellent. In a few places, where planting was done on shallow soil in worn-out coffee estates, the bushes have shown a tendency to die back when the roots have reached an impervious bed of rock ; but considering the rapidity with which whole districts were planted up with this product, it is rather a subject for astonishment that so generally high a standard of healthy trees has resulted. I regret to notice that *Helopeltis* has been doing a little damage in some low-country estates, but nowhere has this pest assumed any serious proportions.

Coffee.—There is no change to report in the position of this cultivation in Ceylon. The export, 82,324 cwt., is much the same as in 1890, and the crop, so far as estate coffee is concerned, is mostly derived from the east of the Island.

I am however, since my visit to Java, more than ever of opinion that the cultivation of Liberian coffee in Ceylon was too hastily abandoned, and would be still a profitable one.

Cinchona.—A great drop of over 3 million lb. in our exports for 1891—to 5,679,339 lb.—shows how rapidly our trees are now being used up. Our poor barks are, however, now scarcely worth harvesting. The history of cinchona culture in Ceylon—a most interesting and instructive one—is drawing to its close ; the future of the industry belongs to Java, which has followed wiser counsels and has known how to wait.

Cacao.—It is gratifying to see a substantial increase in our export of this product, the amount for 1891 (20,532 cwt.) being considerably the largest yet recorded. Prices, too, have continued very high for Ceylon cacao, which now occupies a commanding position in the home market.

Many inquiries have been addressed to me by persons interested in the West Indies as to the causes of the much higher prices reached by the Ceylon product. So far as I am able to judge, I believe it to be almost wholly due to the greater care and skill employed in the processes of manufacture, and especially to the copious washing and thorough drying of the beans. I do not think it possible to attribute it to any general superiority in the cacao here grown, for, as remarked in my last report, it holds good both as to the "Old Red" and "Forastero" varieties, though no doubt it is the fact that it is the former sort alone which exhibits the peculiar light colour of the interior so appreciated by the chocolate maker.

The distribution of seed to villagers has been continued, and about 1,000 pods have been sent from Pérádeniya, and nearly the same number from Henaratgoda, to the Government Agents of Ratnapura, Kégalla, and Mátalé, for direct distribution. I followed up the remarks made on this subject in my last report by an inquiry into two applications received through the Government Agent of the Central Province, and found, as I had suspected, that the persons who were asking for seed *gratis* were not of a class who had any right to be so supplied, or indeed likely to be cultivators at all ; and I of course refused to entertain the applications. In Sabaragamuwa, on the contrary, the distribution has been carried out in a proper manner, and its results are beginning to appear. At the Agri-Horticultural Show held at Kégalla in August, there were no less than eighteen exhibits of cacao.

India-Rubber Trees.—Para Rubber. I was able to supply the Forest Department with 20,000 seeds and 2,000 stumps for the plantations near Nambapána, in Sabaragamuwa, alluded to in my last report ; and it is hoped there will be at least as large a quantity of seed to spare in 1892. A case of 40 stumps was also sent to British North Borneo, and 500 seeds to the German East African Company. Our largest tree, now sixteen years old, girths 6 ft. 1 in. at a yard from the ground.

Panama Rubber (*Castilloa elastica*). The Conductor of Henaratgoda Gardens prepared a sample of rubber from this for the Colombo Exhibition. It was obtained by making small V-shaped incisions in the bark (after carefully washing it) and allowing the milk to trickle down on the tree and into cocoanut shells and to dry *in situ*, afterwards pulling it off and finally finishing the drying by exposure to the sun. The sample appears to be of first-rate quality, very clean and solid, and is very dark, almost black in colour. Our best tree of this is only 3 ft. 7 in. in circumference.

Gambier (*Uncaria Gambier*).—The five plants at Henaratgoda are very healthy and have grown rapidly. Two flowered freely in April, and produced a few seed-pods. There will apparently be no difficulty in propagating this plant in the Colony.

I took the opportunity whilst at Singapore of witnessing the manufacture of this curious product, and though it has more than once been partially described,* I think the precise mode of procedure as I saw it is worth recording. Accompanied by Mr. Ridley, the Director of the Botanic Gardens, I visited on 11th March a Chinese plantation at Chung-chu-kong, a few miles out of Singapore, where the cultivation and manufacture is carried on. The whole industry is in the hands of the Chinese, who grow the plant—it can scarcely be said to be cultivated—on the exposed slopes amid a tangled mass of weeds, lantana, and alang-grass ; the last is occasionally cut away, but no other help is given. The bushes on this plantation were five years old, and the plant lives from thirteen to fifteen years, flowering all the year round. The manufacture is carried on only when the pepper, a more valuable product, is not ready for picking. Only one sort is grown in Singapore, and whether the *U. acida*, said to afford Gambier in Penang, is really different, is very doubtful. *U. Gambier* does not seem to be known in a wild state, but Mr. Ridley tells me that the wild *U. ovalifolia* is very close, and may possibly be the same.

The Gambier plant forms a straggling semi-scandent shrub with long arching branches, and the crop consists of the short leafy twigs which branch off from them laterally. These are rapidly stripped off by hand and carried in baskets to a low thatched shed. Here are fixed large circular iron vats filled with water, which is kept in complete ebullition by large fires beneath ; a constant supply of brushwood or other fuel is thus necessary for this industry. The leaves and twigs are immersed in the boiling water, and constantly stirred about and bruised for six hours by two men armed with long-handled five-pronged forks made of the very hard "Tampines" wood (*Sloetia*

* There is a good account in Begbie's "Malayan Peninsula, 1834."

Sideroxylon). This is very tiring work. The flaccid masses are then taken out and placed on a sloping wooden trough and allowed to drain into the vat so as to obtain all the extract possible.

The boiling ley is next poured into shallow wooden tubs to cool. It is now of a yellowish olive-green colour, with the consistence and appearance of thin pea-soup. When quite cool it still remains fluid, and the process of solidification is effected in the following curious manner. The operator thrusts into each of two of the wooden buckets placed before him a short, thick, smooth cylinder made of the very soft wood of "Mahang" (*Macaranga hypoleuca*), and then proceeds to agitate the mass by rubbing his fingers up and down on the surface of the cylinders. During this process the fluid gradually becomes thicker, and some solid matter coagulates on the fingers, but is wiped off. The process is continued for about a quarter of an hour, when the whole mass rather suddenly becomes somewhat contracted and of a paler colour. A few minutes after the whole "sets" into a mass of the consistence of soapy cheese, the effect probably of the crystallisation of the catechuic acid of which it chiefly consists. The whole art of the manufacture is said to lie in knowing precisely when to cease the agitation: if not done sufficiently, or if carried on too long, it is said that solidification will not occur. Nothing whatever was added to the fluid at any time so far as I could observe. After a few hours the mass can be turned out as from a mould, and is cut into small cubes and finally dried in the shade; but these final processes I did not see.

Cubebs.—As one result of my expedition to Buitenzorg, I have at last succeeded in obtaining the true *Piper Cubeba*, which for so many years I have been vainly trying to get. Thirty-one rooted cuttings were obtained from the Java Garden, and 20 reached Ceylon in apparently good health. Most of these have however since died, and at the end of the year only 8 were living. I have, however, little doubt that these will succeed at Henaratgoda, if not at Pérádeniya.

At Buitenzorg I found the plant grown on white cotton trees (*Eriodendron*) closely planted; they were fruiting freely. The difference in the form of the upper and lower leaves on the same plant was striking; they would never be supposed to belong to the same species. I am not however, sure that there are not two plants cultivated together as *P. Cubeba* at Buitenzorg.*

I had no opportunity of seeing the cultivation of this product on a commercial scale, and it does not seem to be carried on in W. Java. The plant, however, is apparently a wild one there, to judge from the labels of plants I examined in the Buitenzorg herbarium. All the specimens of the true plant have the leaves (however much differing in from according to age) thick, with an unequal base, alike on both surfaces, and drying of a pale colour with a pinkish tinge; the younger ones are more veiny beneath. I may refer to my reports for 1887, 1888, and 1889 for further remarks on this pepper.

Cola-nut.—A small plantation of 36 seedlings, raised from Jamaica seed, was made at Pérádeniya in April; a smaller one was also made at Henaratgoda. We have not as yet found this tree to do well with us, and it is equally unsatisfactory in Java. Our trees at Henaratgoda, eight years old, have as yet made no attempt to flower.

Calumba Root (*Jateorhiza Calumba*).—This valuable tonic medicine is known as "Columbo" in the trade, and was formerly supposed to be obtained from Ceylon. Its name is, however, derived from the word "Kalumb," which is its appellation in E. Trop. Africa, of which country it is a native, and whence all supplies are obtained. I have been for some time desirous to add this to our rich collection of medicinal plants, but have never been able to obtain it from any of the Gardens with which we have relations, though it is reported to be growing in more than one of them. So long back as 1866 or 1867 we received a plant from Mauritius, and I find a record here to the effect that it lived for a few years only. With much surprise, therefore, this year I have discovered a plant of it in Pérádeniya. The great tuberous root is sending up a vigorous stem, and unless this be the plant above referred to, which has lain dormant for so many years, I am at a loss to know how it came here.

Erythroxylon Coca.—The plant cultivated at Buitenzorg (originally obtained in 1876 from Linden, the Nurseryman of Ghent) has been distinguished by Dr. Burck from that usually cultivated (which he names *E. bolivianum*) as var. *Spruceanum*. He states that it affords four times as much alkaloid as the common kind; but there seems to be some doubt as to this. I examined the Buitenzorg plant, and find it identical with plants familiar to me in Pérádeniya, where I have been accustomed to call it the "small-leaved form." We may have probably obtained it from Buitenzorg in one of our frequent exchanges. The flowers are quite white (not yellow), and the leaves very like those of var. *granatense* of Morris, but not so pale and less rounded at the ends.

* I saw nothing at Buitenzorg quite corresponding with the plant we received as Cubebs from Socrabaya in 1889 (see my report for that year) though some specimens approached it nearly. I suspect that this will prove to be *Piper (Cubeba) sumatranum* (figured in Miquel's Comm. Phyt. t. 5) which is perhaps really a variety of *P. Cubeba*. But till it flowers and fruits this must remain doubtful.

Chinese Ginger.—In my last report I ventured to express a doubt as to the correctness of the roots sent from Kew under this name, which proved to be *Alpinia Galanga ;* and my remarks have received confirmation from the observations of Mr. Ford of the Hongkong Botanic Gardens. In his report for 1890 he states that he saw cultivated extensively in the rich alluvial delta south of Canton (whence the "preserved ginger" of commerce is chiefly derived) the ordinary true ginger (*Zingiber officinale*), and believes this to be after all the source of the product. He points out that the confusion may have arisen from both the plants coming under the same general name of "Keung" in Chinese.*

Fruit Trees at Hakgala.—Mr. Nock reports :—

A good many of the European fruit trees started into growth in May, but none have made satisfactory progress. The Morella cherries flowered well and produced some fruit. The raspberries, too, bore some fruit, but they tiller out so much in their growth that I am afraid they can never be profitably cultivated here. Some very fine fruit was produced on the blackberry plants, raised from English seeds—one panicle bearing 72 berries. The American sorts have made remarkably good growth, and are now sparsely showing flower buds. I have hopes that they will fruit next year. Three varieties of plums received from Japan in February have grown very well indeed, and at the end of the year showed numbers of fruit buds. I have every reason to believe that these varieties will suit this locality.

Ullucus.—On this vegetable Mr. Nock further remarks :—

The crop of *Ullucus* which was taken up in February weighed 16 pounds. This was the produce of a bed 46 ft. long and 4 ft. wide. Another small patch was taken up in March, which gave 21 lb. more. These were the produce of 2½ lb. weight of tubers planted. The 25 largest weighed 2 lb. We have had very few applicants for tubers of this plant, and unless some one should take up its cultivation for feeding pigs and require a stock of it, I see no reason to continue its propagation here. The natives, though they like the tubers very much, have not taken to growing it, and its flavour is scarcely such as to lead to its cultivation by Europeans as a table vegetable.

Palmyra Fibre.—The sheathing leaf-stalks of the palmyra, as of many other palms, contains a stiff thick fibre, and a new industry in the collection of this has sprung up, under the auspices of a Colombo firm, in the north of the Island. These fibres or bristles are much like the "Piassaba," so largely exported from Brazil (the produce of the palms *Attalea funifera* and *Leopoldinia Piassaba*) for brush-making, and are doubtless exported hence for the same purpose. Immense numbers of the palmyra exist in the Jaffna peninsula and the islands near, and it is in the latter especially that the business of collecting the leaf-stalks for sale has been carried on by the inhabitants. In Elavaitivu the value thus collected in six months was about Rs. 3,000, a great addition to the means of the people. Unfortunately, in their eagerness for this easy method of money-getting, they have treated the trees so badly that it is reported that in that island alone 1,000 young palmyras have been destroyed. As this palm is the principal permanent source of food in the country, and is besides of immense utility for timber, fences, &c., it became obviously necessary to put a stop to this reckless destruction, and I understand that steps have been taken to regulate the fibre industry, which, properly conducted, should become a valuable addition to the means of living for the inhabitants.

Mahogany Trees.—In my report for 1888 (page 7) I recorded the receipt from the Calcutta Botanic Gardens of the seed of *Swietenia macrophylla*, a new kind of mahogany. Young trees from this seed are now very flourishing at Pérádeniya, Anurádhapura, and Henaratgoda, those at Pérádeniya being about 13 ft. high. This shows a much more rapid growth than the old kind, *S. Mahogani ;* experience in Java is the same, and I saw at Buitenzorg trees sown in December, 1888, which were 12 ft. high.

I obtained more seed of this promising tree from Calcutta this year, and have sent 160 of the resulting seedlings to the Forest Department to form a small plantation in the North-Western Province.

The Calcutta Gardens originally received the seed in 1872 as mahogany seed, said to be from Honduras, through the India Office ; and Dr. King, on its flowering, named and described it in Hooker's "Icones Plant." for November, 1886 (t. 500). Its great advantage over ordinary mahogany is that it seeds freely in the East, whilst the latter very rarely does so.

I had occasion to fell a large tree of ordinary mahogany in Pérádeniya during the year, and found it very sound and free from all defects. The trunk measured, at 6 ft. from ground, 9 ft. 1 in. in girth ; another tree growing in the Garden is 11 ft. 2 in. in circumference at the same level ; both these trees are, I believe, just fifty years old from seed.†

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* Since writing the above I have received the Kew "Bulletin" for January, 1892, in which it is now acknowledged that "in some way a mistake was made in the selection of the plant" in China, and that "it is probable that none of the preserved ginger is derived from" *Alpinia Galanga.*

† These measurements may be compared with those of trees at Jaffna given at p. 8 of the Report for 1890 of the Conservator of Forests.

10.—Herbarium and Library.

Ceylon Herbarium.—All the additions up to the end of 1890 have been mounted and intercalated in their places Four new cabinets were set up, and the whole of the additional duplicate specimens, accumulated during the last few years, have been named and sorted away into their places. The Ceylon duplicates are now all properly named and arranged, and occupy 14 cabinets.

Owing to Mr. Clark's absence on leave, my own visit to Java, and the prolonged wet weather, I have made no extended tour in Ceylon for collecting during 1891. The Garden collectors have, however, been out as usual.

The herbarium of Ceylon plants formed by the late W. Ferguson, F.L.S., which he bequeathed to the Ceylon Medical College, was during the year transferred to my Department. I have been carefully through the whole, and regret to have to say that owing to the ravages of damp and insects nearly the whole of the specimens were perfectly useless and had to be destroyed. This is less to be regretted, as Mr. Ferguson had been careful to supply the Garden herbarium with duplicates of all plants of interest which he collected.

The whole of the specimens and drawings of Ceylon *Anonaceæ* have been lent to Dr. G. King, F.R.S., of Calcutta, to assist him in preparing his monograph on this Family for the "Annals" of the Calcutta Gardens.

Dr. G. Radde, the well-known traveller in the Caucasus and Director of the Tiflis Museum, accompanied the Czarevitch of Russia to Ceylon, and made a botanical expedition in the Hambantota District. He formed there a considerable collection of plants, which I had the pleasure of naming for him.

General Herbarium.—A very large collection of plants sent in exchange (I believe in 1878) from the Imperial Museum at St. Petersburg, which had remained ever since tied up in bundles, has been taken in hand, and all have been sorted away into the General Herbarium. It proved a valuable addition, consisting of numerous specimens from the following collectors :—Skofitz, Armenia and Persia ; Karelin, Turcomania ; Radde, Baikal ; Schrenk, Songaria ; Maximowicz, Japan ; Riedel and Langs dorff, Brazil ; and F. von Mueller, Australia.

From Dr. King, F.R.S., we have received from the Herbarium of the Calcutta Gardens about 300 named and mounted specimens illustrating his memoirs on *Myristica*, the flora of the Malay Peninsula, &c.

The draughtsman made 31 finished drawings of Ceylon plants and 29 of garden plants during the year.

Library.—The Garden Library has received the following books and pamphlets during the year either by gift or by purchase, and my thanks are due to the various donors :—

Pfeiffer, Nomenclator Botanicus, 2 vols. (in 4). 1873–4.
De Candolle, A. P., Mémoire sur Anonacées. 1832.
De Candolle, A., Monographiæ Phanerogamarum, vol. VII. 1891.
Hegelmaier, Die Lemnaceen. 1868.
La Billardiere, Nouveau Genre de Palmier. 1809.
Palisot de Beauvois, Essai d une Nouv. Agrostographie, 2 vols. 1812.
Seemann, Revision of Hederaceæ. 1868
Teijsmann, Lodoicea Seychellarum. 1868.
Veitch, Manual of Orchidaceous Plants, Pt. 7. 1891.
Hooker, J. D., Flora of Brit. India, Pt. 17. 1890. (*Presented by India Office.*)
King, Two new Ilex from E. Himalaya 1886. (*Presented by Author.*)
Id., Three new Himalayan Primula. 1886. (*Presented by Author.*)
Blume, Flora Javæ, Orchideæ. 1858.
Boerlage, Handleiding d. Flora v. Nederlansh Indie, vol I. 1890 (*Presented by Dr Treub.*)
King, Materials for Flora of Malay Peninsula, pts. 1–3. 1889–91. (*Presented by Author.*)
Vander Sande-Lacoste, Synopsis Hepatic. Javan. 1856.
Elliot, Farinaceous Grains of S. India. 1862.
Greshoff, Onderzoek n. d. Plantenstoffen v. Ned. Indie, pt. 1. 1890. (*Presented by Author.*)
Watt, Dictionary of Economic Products of India, vols. IV. & V. 1890. 1891. (*Presented by Government of India.*)
Ferguson, The Palmyrah Palm. (*Reprint.*) 1888.
Annales du Jard. Bot. de Buitenzorg, vol. IX., pt. 2 ; vol. X. pt. 1. 1891. (*Presented by Dr. Treub.*)
Hooker's Icones Plantarum, vol. X., pts. 3 & 4., vol. XI., pts. 1–3. 1891. (*Presented by Bentham Trustees.*)
Bailey, Catalogue of Plants in Botanic Gardens, Brisbane. 1885. (*Presented by Author.*)
The Missouri Botanic Gardens, Report for 1890. (*Presented.*)
Woodrow, Gardening for India. 1889.
Commelinus, Plantæ Rariores Exoticæ. 1706.
Murray, Avifauna of Ceylon. 1891. (*Presented by Ceylon Government.*)

As in previous years, we have added the annual volume of the following periodical publications to our series of each :—

Botanical Magazine.
Gardeners' Chronicle. (*Presented.*)
Chemist and Druggist. (*Presented.*)
Illustration Horticole. (*Presented.*)
Indian Forester.
Journal of Botany. (*Presented.*)
Kew Bulletin. (*Presented.*)
Nature.
Pharmaceutical Journal. (*Presented.*)
Tropical Agriculturist.

Acknowledgment has also to be made of the receipt of numerous Reports, Bulletins, &c., from various Colonial and Indian Botanic Gardens and other public departments.

11.—Museum and Laboratory.

Museum.—The purchase of three more wall-cases, six table cases, and twenty-five dozen more stoppered glass jars has enabled me to exhibit a fair collection of the vegetable products of the Colony in one of the rooms. Many valuable specimens have been obtained from the fine series sent from the Northern Province and the Province of Uva to the exhibition held at Colombo in December. When completely arranged the four rooms of the Museum will be thus occupied : rooms 1 and 2, native timbers and wood specimens ; room 3, native foods, drugs, and other raw and manufactured products ; room 4, foreign products and botanical specimens too bulky to go into the Herbarium.

Laboratory.—Mr. J. B. Farmer, M.A., Fellow of Magdalen College, Oxford, spent nearly six months here, during most of which period he was engaged on researches on the Ceylon *Hepaticæ*. He left on July 8. No student has availed himself of the Laboratory for the present season.

12.—Receipts from Sales.

The sales at Pérádeniya were somewhat higher than usual, but the total amount remains pretty steady year by year. As many as sixteen Wardian cases and twenty-nine boxes of orchids were sold to the public during 1891, mostly for export :—

	Sales. Rs. c.	Number of Purchasers.
Pérádeniya	2,210 6	... 368
Hakgala	593 61	... 100
Henaratgoda	163 72	... 31
Anurádhapura	71 92	... 46
Badulla	50 60	... 25
Total ...	3,089 91	570

In estimating the actual distribution of seeds and plants from the Gardens, there should be added to this the value of those supplied *gratis* to the Government officers, &c., enumerated on page 8. These have been for the year 1891 :—

	Rs. c.
From Pérádeniya (about 2,000 plants, and very large quantities of seeds) value	700 76
From Hakgala (over 8,000 plants, 500 cuttings, and 16 packets of seeds) value	1,030 0
Total ...	1,730 76

In all Rs. 4,810·67.

13.—Expenditure.

The whole actual cost of this Department for 1891 has been as follows :—

	Rs. c.	Rs. c.
Salaries and Personal Allowances	—	20,188 58
Gardeners' and Labourers' wages :—		
Pérádeniya	8,330 0	
Hakgala	3,499 98	
Henaratgoda ...	2,199 99	
Anurádhapura	1,200 0	
Badulla	1,500 0	
		16,729 97
Stationery	98 37	
Postage and telegrams... ...	100 0	
Pots, tools, books, freight, &c. ...	3,499 6	
Purchases of plants and seeds ...	443 63	
Museum	497 65	
Upkeep of racecourse ground ...	119 76	
Travelling and collecting ...	1,848 41	
		6,606 88
Total ...		43,525 43

Pérádeniya, February 23, 1892.

HENRY TRIMEN, F.R.S.,
Director.

BRITISH MUSEUM

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, Rood Lane, London, E.C. *June 26th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	41,782 packages.	70,309 packages.	6,905 packages.
1891-1892.	25,469 ,,	79,545 ,,	6,506 ,,

During the week

8,093 packages Indian }
18,815 ,, Ceylon } Total 29,011 packages have been offered in public auction.
2,103 ,, Java }

For the time of year the market continues steady and bidding generally is animated, although we are approaching so closely the end of the present month, when dealers frequently endeavour to carry a minimum of stock.

The first cargo of new season tea from China is expected to reach London this day week; but very little interest centres on New Season's China Tea when compared with the excitement of a few years back. Now that barely 30% of China Tea is taken for home consumption it is natural that Indian and Ceylon Tea absorb the greatest share of the attention of the trade, and that even the quality of the new China crop should excite comparatively little interest.

INDIAN. Auctions have been slightly heavier and comprised a fair number of New Season's Teas. The quality of these still continues about as previously noticed. The market shows little alteration, and bidding has been fairly brisk up to last week's rates. The following averages are worthy of note:—"Mim T Co.," 1/1¾; "Jetookiah," "Jetookiah, M.," and "Singtom," 11¼d.

Average price of New Season's Teas sold on Garden Account. Total 1261 pkgs. average 10½d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	434 p	10d	Chôta Nagpore ..			Kangra Valley ..		
Cachar and Sylhet..	107 p	7¾d	Darjeeling & Terai	617 p	11d	Neilgherry.. ..		
Chittagong			Dooars	103 c	10¼d	Travancore.. ..		

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	6d.	1890,	6¼d.	1889,	4¼d.	1888,	4½d.
FANNINGS.	(Red to brown, strong rough liquor)	,,	7d.	,,	6¾d.	,,	4½d.	,,	5¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	8¼d.	,,	8d.	,,	5¼d.	,,	7d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	8¾d.	,,	9d.	,,	8d.	,,	9d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	10¼d.	,,	10½d.	,,	9d.	,,	9¾d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	7¾d.	,,	8¼d.	,,	5¾d.	,,	7½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8¾d.	,,	9¼d.	,,	6½d.	,,	8½d.

CEYLON. With rather lighter auctions, competition became animated in Tuesday's sale; all grades, except the very commonest kinds, sold well. Pekoe Souchongs were firm, Medium Brokens slightly dearer, and the few Teas where distinctive flavour could be noticed, again showed an advance. Thursday's auction passed at Tuesday's rates with good competition. Speaking generally, the quality continues poor, liquors in many instances being very weak, and dry leaf brownish, jagged and uneven. The following averages may be mentioned:—"Ouvahkellie," 1/2¾; "Frotoft," 1/2½; "Mooloya" and "Portswood," 1/0¼.

Average for week, 9¼d.

JAVAS were offered in considerable quantity and sold chiefly at firm prices. The lowest grades attracted least attention but sold without material change, while better descriptions, especially Pekoes, were keenly competed for, principally for export markets. An invoice from the "Bagelen" estate, comprising 1,165 packages, realised an average of 7½d.

Average for week, 7¾d.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE, 1890, TO 31st MAY, 1891.

	Imports.			Deliveries.			Stock		
	1888-1889.	1889-1890.	1890-1891.	1888-1899.	1889-1890.	1890-1891.	1889.	1890.	1891.
DIAN	94,954,287	101,052,264	99,879,231	91,368,186	101,167,868	100,708,482	27,754,935	27,489,789	26,660,538
YLON.....	26,389,632	34,246,224	47,404,702	23,830,564	31,946,972	42,615,838	7,194,188	9,590,374	14,974,892*
VA	4,169,200	3,107,700	3,780,700	3,862,880	3,279,690	3,994,480	1,233,820	1,064,840	851,060
INA, etc	98,969,104	90,096,227	69,755,713	105,665,544	87,652,676	81,382,057	37,349,932	39,990,303	28,341,426
Total lbs.	224,209,223	228,502,415	220,820,346	224,727,774	224,047,206	228,700,857	73,532,875	78,135,306	70,827,916

* In adjusting the figures at the end of May, the closing month of the season, an addition of 600,000 lbs. was made to the Ceylon stock

BANK RATE. 3 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. $5\frac{11}{16}$d.

INDIAN. 4,126 pkgs. Average 10¼d.

Garden.	Total. Quantity.	Total. Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Broken Org. Pekoe or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity.	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity	Broken Pekoe. Price	Pekoe Souchong. Quantity	Pekoe Souchong. Price	Broken and Souchong. Quantity	Broken and Souchong. Price	Fannings, Dust and Various. Quantity.	Fannings, Dust and Various. Price.
ASSAM	**2594 p**	**10¼d**												
*Assam Frontier	835 c	10½d	241 c	1¼ 1/7½	386 c	9¼-1/-	73 c	†9-9¼	132 c	8-9	—	—	53 c	7 [illegible]
† ,, ...	19 c	11d	19 c	11d	—	—	—	—	—	—	—	—	—	—
†Budla Beta ...	20 c	11d	7 c	11½d	13 c	10¾d	—	—	—	—	—	—	—	—
*Harmutty ...	445 c	9¼d	—	—	120 c	8¼-11	84 c	†10¾d	151 c	8¾d	78 c	7¾d	12 c	5½d
Jetookia ...	300 c	10½d	—	—	120 c	11d	30 c	1/3	—	—	115 c	6¼-9¼	35 c	10½d
*Jetookiah ...	214 c	11¼d		—	97 c	11½d	2[illegible] c	1/3½	[illegible] c	7¼d	—	—	[illegible] c	[illegible]
*Jetookia M ...	115 c	11¼d	—	—	39 c	1/0¾	12 c	1/5	—	—	39 c	6-9¾	25 c	11½d
†JokaiCHuknpuri	23	10¼d	—	—	23	10¼d	—	—	—	—	—	—	—	—
*Khobong T Co	201 p	8¾d	35	10d	73 p	8¾-9½	14	11¼d	48 c	8d	—	—	31 c	8½d
† ,, ...	90 p	9d	30	10½10¾	60 c	8-9¾	—	—	—	—	—	—	—	—
†Lethijhora ..	35 c	8½d	—	—	—	—	—	—	--	—	35 c	8½d	—	—
†Oaklands ...	74	9½d	37 p	9¾d	—	—	—	—	37	9d	—	—	—	—
†Tukvar Co ...	173 c	10¾d	—	—	63 c	11½d	20 c	1/0½	70 c	10d	—	—	20 c	9¼d
CACHR & SYLHT	**548 p**	**9½d**												
†B&Co Eraligool	50 c	7½d	—	—	—	—	—	—	—	—	50 c	7½d	—	—
,, Singla ...	110 c	9½d	28 c	10½ 1/1	31 c	9½d	13 c	9¼d	22 c	8¼d	12 c	8d	4 c	6½d
,, ,, ...	331 c	9¾d	33 c	10¾ 1/2¾	134 c	9½d	42 c	11¼d	118 c	8¾d	1 c	7¼d	3 c	6½d
†Ragnajar ...	57	8¼d	—	—	—	—	24	8¾d	33	8d	—	—	—	—
DRJELNG&TERI	**831 p**	**10½d**												
Chong TongTAss.	113 c	10½d	—	—	71 c	11d	14 c	10¾d	15 c	9d	13 c	8½d	—	—
†LMBMondakote	320 c	10¼d	—	—	218 c	10-11	42 c	10½10¾	60 c	8½d	—	—	—	—
†Mim T Co ...	100 c	1/1¾	—	—	38 c	1/1¼	13 c	1/1	37 c	11½d	—	—	12 c	10¼d
Nagri ...	101 c	8¼d	—	—	—	—	—	—	101 c	8¼d				
†Pusumbing ...	27	1/	—	—	27	1/	—	—	—	—	—	—	—	—
†Rungmook ...	70 c	10d	—	—	30 c	11d	—	- -	40 c	9¼d	—	—	—	—
†Singtom ...	100 c	11¼d	12 c	1/2¼	48 c	1/	—	—	40 c	9¼d	—	—	—	—
DOOARS														
†Chalouni ...	103 c	10¼d	—	—	25 c	11¼d	20 c	11¾d	18 c	10d	40 c	8¾d	—	—
TRAVANCORE														
Glenmore ...	50	7½d	—	—	48	6½-7¾	—		—	—	—	—	2	5½-5[illegible]

Teas marked thus * are last of the Season. Teas marked thus † are New Season's.

CEYLON. Average 9¼d.

Garden.	Total. Quantity.	Total. Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity.	Broken Org. Pek. or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity.	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity.	Broken Pekoe. Price.	Pekoe Souchong. Quantity.	Pekoe Souchong. Price.	Broken and Souchong. Quantity.	Broken and Souchong. Price.	Fannings, Dust and Various. Quantity.	Fannings, Dust and Various. Price
Aadneven ...	52 c	8¾d	—	—	34 c	†8d	18 c	10d	—	—	—	—	—	—
Abbotsford ...	134 p	9¼d	18	10¾d	40 c	8½d	50 c	10d	26 c	8d	—	—	—	—
Abbotsleigh ...	100 c	9d	—	—	66 c	8¼d	34 c	10¼d	—	—	—	—	—	—
Aldie ...	57 p	9¾d	—	—	15 c	8¾d	25 c	11¼d	12 c	8d	—	—	5	6¾d
Atherfield ...	114 c	9d	—	—	41 c	8¼d	48 c	10½d	25 c	7¾d	—	—	—	—
Bambrakelly&D.	116 c	9¾d	—	—	58 c	9d	58 c	10½d	—	—	—	—	—	—
Barnagalla ..	137 c	9¼d	—	—	35 c	8¾d	64 c	10¼d	38 c	†8d	—	—	—	—
Belgravia ...	53 c	9¼d	—	—	20 c	8½d	25 c	10½d	8 c	8d	—	—	—	—
Bismark ...	73 c	9d	—	—	31 c	8½d	28 c	10d	14 c	7¾d	—	—	—	[illegible]
Blair Athol ...	143	9½d	—	—	69	8¾d	58	10¾d	14	7¾d	2	6¾d	—	—
Blackwater ...	181 p	9¼d	37	1/0½ 1/5½	57 c	8¾d	16 c	8½d	52 c	8d	14 c	8¼d	5 c	6½
Broad Oak ...	86	9¾d	—	—	38	7¼d	41	1/0¼	5	9d	2	8d	—	—
Bromley ...	42 c	11½d	—	—	16 c	11½d	12 c	1/2	14 c	9¾d	—	—	—	—
Burnside ...	77	9¼d	—	—	42	9d	28	10¼d	6	7¾d	—	—	1	6d
Carlabeck ...	35 c	8½d	—	—	10 c	7½d	13 c	9¾d	12 c	†8d	—	—	—	—
Castlemilk ...	112 c	8¾d	—	—	39 c	8¾d	29 c	10d	44 c	8d	—	—	—	—
Charley Valley ...	401 b	10½d	—	—	94 b	10¾d	69 b	1/2¾	231 b	†9d	—	—	7 b	6½d
Choisy ...	72 c	9d	—	—	21 c	9d	17 c	10½d	29 c	8¼d	—	—	5 c	7¾d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Chrystler's Farm	84 c	11¼d	—	—	46 c	9¼d	19 c	1/6¼	19 c	8½d	—	—	—	—
CL&PC Andngdie	128 c	8¾d	—	—	36 c	8½d	46 c	9¾d	46 c	7¾d	—	—	—	—
,, Eadella ...	93 c	8d	—	—	28 c	†7¾d	29 c	9½d	36 c	7¼d	—	—	—	—
,,NewPeradeniya	97 c	8¾d	—	—	32 c	8½d	36 c	10d	29 c	7¾d	—	—	—	—
Craig ...	180	9½d	—	—	—	—	45	11½d	125	9d	4	8d	6	6¾d
CTPCEstHolyod	65 p	9¼d	—	—	15 c	8¾d	37 c	9¾d	12 c	†7¾d	1 c	6¼d	—	—
,,Mariawatte	158 c	8½d	—	—	47 c	8½d	41 c	9½d	70 p	7½d	—	—	—	—
,,Tillyrie ...	165 p	9¾d	92 p	1 0¼ 1/2¾	54	8¾d	—	—	19 c	8d	—	—	—	—
,,Wallaha ...	170 p	9¾d	—	—	57 p	9¼-9½	63 c	11¼d	24 c	8½d	9 c	8d	17 c	7¾d
Dambulagalla ...	136 c	8½d	—	—	55 c	8d	42 c	9½d	39 c	7¾d	—	—	—	—
Deeside ..	143 p	9½d	—	—	64 c	9d	79	10¼d	—	—	—	—	—	—
Delpotonoya ...	65 c	8¾d	—	—	12 c	8¼d	23 c	10¼d	30 c	7¾d	—	—	—	—
Devonford ...	46 p	10½d	—	—	16 c	9¼d	30	11¾d	—	—	—	—	—	—
Doranakande ...	79 c	8½d	—	—	25 c	8¼d	25 c	10d	29 c	7¾d	—	—	—	—
Dotel-Oya ...	98 c	8¾d	—	—	31 c	8¼d	52 c	9½d	9 c	7½d	1 c	6¾d	5 c	6½d
Dromoland ...	54	8¾d	—	—	36	8¼d	18	10d	—	—	—	—	—	—
Duckwari T P Co	114 c	9½d	—	—	34 c	9¼d	29 c	1/	30 c	8½d	16 c	7½d	5 c	6¾d
Dunsinane ...	126 p	9½d	36	1/0½	53 c	†9½d	—	—	30 c	8½d	—	—	7 c	7¾d
Elbedde ...	100 c	9¾d	—	—	45 c	9½d	25 c	1/0¼	26 c	†8¼d	2 c	7½d	2 c	6¾d
Elfindale ...	263	8¼d	—	—	135	8d	70	9½d	58	7½d	—	—	—	—
Elkadua ...	54 c	9½d	—	—	20 c	†9¼d	12 c	1/0½	22 c	8d	—	—	—	—
EP&ECLabukele	51 c	9¼d	—	—	—	—	51 c	7½-9¼	—	—	—	—	—	—
,,Vellai-Oya ...	276 c	9¼d	90 c	10¾-11	149 c	8¾d	—	—	37 c	8d	—	—	—	—
Epplewatte ...	143	8¾d	25	10½d	68	8¾d	—	—	50 c	8d	—	—	—	—
Erroll ...	108 p	9d	13	11½d	41 c	8½d	32	10¼d	15 c	8d	4	6¾d	3	6½d
Faithlie ..	58 c	9d	—	—	21 c	8¾d	16 c	10¾d	21 c	7¾d	—	—	—	—
Fassifern ...	41 c	9¼d	—	—	29 c	8½d	12 c	10¾d	—	—	—	—	—	—
Ferndale ...	69 c	8¾d	—	—	44 c	8¼d	25 c	†9¾d	—	—	—	—	—	—
Frotoft ...	109	1/2½	—	—	28	1/1¾	43	1/6¼	38	10¾d	—	—	—	—
Galella ...	61	8¾d	—	—	29	8¼d	26	9¾d	6	7½d	—	—	—	—
Galgawatte ...	76 p	8¾d	—	—	22 c	8½d	40	10d	14	7¾d	—	—	—	—
Geddes ...	99 p	10¼d	—	—	55 c	8½-9¼	32 c	1/1	5 c	7½d	—	—	7	7d
Glasgow ...	65 p	10¼d	—	—	29 c	9½d	36	11½d	—	—	—	—	—	—
Glen Alpin ...	126 p	9½d	—	—	78 c	8¾d	27 c	1/1	15 c	8d	—	—	6	6¾d
Glencairn ...	86 c	8¾d	—	—	23 c	8¾d	21 c	10d	39 c	8d	—	—	3 c	6¼d
Goomera ...	112 c	8¾d	—	—	21 c	8¼d	48 c	9¾d	43 c	8d	—	—	—	—
Goonambil ...	72	8½d	—	—	23	8¾d	18	10d	23	8d	—	—	8	6-7¼
Great Western ...	207 c	9¼d	—	—	74 c	9-9¼	133 c	8½†10¼	—	—	—	—	—	—
Hagalla ...	50 c	8½d	—	—	19 c	8¼d	15 c	9½d	16 c	7¾d	—	—	—	—
Happugahalande	58 c	9d	—	—	20 c	8½d	20 c	10¼d	17 c	8d	—	—	1 c	5¼d
Hardenhuish & L.	52 p	8½d	—	—	—	—	26 c	9d	26	7¾d	—	—	—	—
Hatale ...	132 c	8½d	23 c	9¼d	43 c	8¼d	26 c	10¼d	38 c	7¾d	—	—	2 c	6½d
Hattangalla ...	42 c	8½d	—	—	16 c	8¼d	16 c	9¾d	10 c	7½d	—	—	—	—
Hauteville ...	142 c	10¼d	—	—	57 c	9¼d	64 c	11½d	21 c	8¼d	—	—	—	—
Hemingford ...	24	8d	—	—	24	8d	—	—	—	—	—	—	—	—
Hillside ...	85 c	8¼d	26 c	9½d	25 c	8½d	—	—	18 c	7½d	16 c	7d	—	—
Holmwood ..	60 p	10d	—	—	22 c	9¾d	25 c	11¼d	10 c	8d	—	—	3	7d
Hope ...	83 c	9½d	—	—	17 c	9¼d	39 c	10½d	—	—	27 c	†7¼-8½	—	—
Hoonoocotua ...	95 c	8¾d	—	—	30 c	8¾d	29 c	10d	36 c	8d	—	—	—	—
Hyndford ...	100 c	8½d	—	—	39 c	8¼d	31 c	9½d	30 c	7¾d	—	—	—	—
Imboolpittia ...	233 p	9d	—	—	86 p	8½-10¼	41 c	10½d	97 p	8-9	—	—	9	6¾d
Kadien Lena ...	174 c	9¾d	—	—	49 c	9¼d	71 c	†11¼d	51 c	8½d	—	—	3 c	6½-7¾
Kallebokka ...	159 c	9d	—	—	65 c	8-8¼	78 c	10-10¼	12 c	7½d	—	—	4 c	7¼d
Kandapolla ...	86 c	10d	25 c	9¾d	—	—	34 c	11½d	27 c	8½d	—	—	—	—
Kelburne ...	50 c	9¼d	—	—	16 c	8½d	20 c	10½d	14 c	8¼d	—	—	—	—
Kelliewattie ...	76 p	9½d	—	—	23 c	9d	20 c	1/0½	31 c	8d	—	—	2	5¾d
Kirkoswald ...	159 p	11¼d	29	1/7½	38 c	10½d	50	11¾d	42 c	9d	—	—	—	—
Koladenia ...	43 c	8¾d	—	—	29 c	8d	14 c	10¼d	—	—	—	—	—	—
Kotiyagalla ...	104 p	11¼d	—	—	36 c	10d	68	1/0½	—	—	—	—	—	—
Kurulugalla ...	96 c	8¾d	—	—	32 c	8½d	31 c	10d	29 c	7¾d	4 c	7¼d	—	—
Lebanon ...	117 c	7½d	—	—	37 c	†7¾d	—	—	80 c	†7¼d	—	—	—	—
Le Vallon ...	289 p	9¼d	—	—	90	9d	137	10d	62 c	8½d	—	—	—	—
Lindoola ...	60 c	9¼d	—	—	28 c	8¼d	32 c	10¼d	—	—	—	—	—	—
Lunugalla ...	96	10¼d	—	—	35	9¾d	21	1/0¾	40	9¼d	—	—	—	—
Maha Nilu ...	190 p	9½d	85	10¾-11	82 c	9d	—	—	19 c	8¼d	2	6½d	2 c	6½d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Mahatenne ...	84 p	8½d	—	—	22 c	8¾d	24	10¼d	38 c	†7¾d	—	—	—	—
Maskeliya ...	136 p	10¼d	109	10¼ 1/	23 c	8¾d	—	—	—	—	—	—	4	6 6½
Meria Cotta ...	157 c	8¾d	—	—	61 c	8½d	43 c	10½d	53 c	7¾d	—	—	—	—
Mipitiakande ...	208 p	9¼d	—	—	98 c	8¾d	43 c	1/0¼	59 c	8d	1 c	7d	7	7d
MK ..	61 c	8½d	—	—	33 c	8¼d	16 c	9¾d	12 c	7¾d	—	—	—	—
Mooloya ...	38 c	1/0¼	—	—	16 c	10¼d	22 c	1/1½	—	—	—	—	—	—
Moray ...	160 c	10¾d	—	—	103 c	8¾9½	57 c	10¼ 1/1¾	—	—	—	—	—	—
Mousagalla ...	141	8d	—	—	25	8¾d	24	10d	79	7¾d	10	4½6¾	8	5½d
NewDimbula D	112 c	10d	—	—	34 c	9¾d	63 c	10½d	15 c	9	—	—	—	—
New Valley ...	100 c	9d	22 c	10¾d	48 c	8¾d	—	—	30 c	8d	—	—	—	—
North Cove ...	105 p	10½d	—	—	50 c	9½d	43	1/2	—	—	5 c	6¾d	7	7½d
OBEC Havilland	132	8½d	—	—	44	8¾d	26 c	10d	62	7¾d	—	—	—	—
Oolanakande ...	26	8¾d	—	—	14	8¼d	8	10¼d	—	—	2	7¼d	2	6¼d
Ouvahkellie ...	40 c	1/2¾	—	—	11 c	10½d	29 c	1/4½	—	—	—	—	—	—
Palmerston ...	49 p	10¼d	—	—	19 c	10¼d	20	1/0½	10 c	8¾d	—	—	—	—
Pambagama ...	146 p	8¼d	—	—	71 c	7¾d	70	9¼d	5 c	7d	—	—	—	—
Pansalatenne ...	57 c	9d	—	—	16 c	8¾d	23 c	10¼d	18 c	7¾d	—	—	—	—
Parusella ...	126 p	8½d	20 b	1/0¼	42 c	8¼d	33	9½d	31 c	7½d	—	—	—	—
Patiagama ...	54 c	8d	—	—	38 c	7¼8¾	16 c	9¾d	—	—	—	—	—	—
Penrith ...	71 c	9d	—	—	25 c	8½d	26 c	10½d	20 c	7¾d	—	—	—	—
Penylan ...	94 c	9d	—	—	29 c	8½d	49 c	10d	11 c	7½d	—	—	5 c	7d
Poolbank ...	60	9½d	35	10d	25	8½d	—	—	—	—	—	—	—	—
Portswood ...	143	1/0¼	—	—	88 1	1† 1/1¾	33	†1/3½	22	9¾d	—	—	—	—
Pundaloya ...	106 p	10d	48	1/	40 c	9½d	—	—	18 c	8½d	—	—	—	—
Ragalla ..	169 p	9¼d	—	—	64 c	8¾d	69 c	10½d	6 c	7¾d	13	7¼d	17	6¾d
Rahatungoda ...	54	9½d	—	—	—	—	30	10½d	22	8½d	—	—	2	6d
Rangalla ...	101 c	9¾d	—	—	44 c	9¼d	29 c	1/0¼	28 c	8¼d	—	—	—	—
Robgill ...	55 p	9½d	—	—	16 c	9½d	25	10¾d	14 c	8¼d	—	—	—	—
Sheen ...	103 p	10½d	46	1/0½	40 c	10d	—	—	17 c	8¾d	—	—	—	—
Spring Valley ...	143 c	9½d	—	—	50 c	8¾d	81 c	10¼d	12 c	8d	—	—	—	—
St. Clair ...	194 c	9¼d	—	—	75 c	9 9½	36 c	11½d	77 c	8d	2 c	7¾d	1 c	7¼d
St. Clive ...	47 c	8½d	—	—	22 c	8¼d	17 c	10d	—	—	8 c	6¼d	—	—
St. John Del Rey	137 p	11d	—	—	49 c	10½d	64	1/1	24 c	9d	—	—	—	—
St. Vigeans JG...	46 p	9¼d	—	—	23 c	9d	19	†11d	3 c	7½d	—	—	1	6d
Sunnycroft ...	161 p	8¼d	67 p	8½ 1/0¼	58 c	8d	—	—	36 c	7¼d	—	—	—	—
Talawakelle ...	105 c	9½d	—	—	36 c	9½d	20 c	1/0¾	43 c	8¼d	—	—	6 c	7 0¼
Talgaswella Co...	47 c	10d	40 c	10½d	—	—	—	—	7 c	†7¾d	—	—	—	—
Tyspany ...	67 c	9½d	—	—	43 c	8¼d	24 c	11¾d	—	—	—	—	—	—
Udugama ...	32 c	7½d	—	—	20 c	7½d	6 c	8¾d	4 c	7d	—	—	2 c	5¾d
Wangie Oya ...	115 p	9d	55 p	†9¼ 1/1	27 c	†8½d	—	—	33 c	7¾d	—	—	—	—
Wattakelly ...	152 c	9¼d	—	—	79 c	8½d	69 c	10d	—	—	2 c	7¾d	2 c	6½d
Westhall ...	123 c	8¾d	—	—	45 c	8¾d	24 c	10¾d	52 c	8d	—	—	2 c	6¼d
West Holyrood...	80 p	10¼d	—	—	37 c	9 10½	36 p	† 10 1/0¾	7 c	8d	—	—	—	—
Wewelmadde ...	79 c	8¾d	—	—	30 c	8 8¼	35 c	9½10	14 c	7½d	—	—	—	—
Wiltshire ...	43 c	8½d	—	—	26 c	†7¾d	17 c	9¼d	—	—	—	—	—	—
Wootton ..	107 p	11d	36	1/6½	47 c	9½d	—	—	24 c	8¼d	—	—	—	—
Yalta ...	18 p	8¼d	—	—	—	—	—	—	6 c	8½d	7 c	8d	5	8½d
Ythanside ...	139 c	11d	35 c	1/3¾	—	—	57 c	10d	47 c	8½d	—	—	—	—

The Averages of the Ceylon Tea sold on Thursday will be included in our next Circular.

JAVA. 2,097 pkgs. Average 7¾d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Bagelen ...	1165 c	7½d	—	—	530 c	7½-10	—	—	629 c	6-7¼	—	—	—	—
Jasinga ...	190 c	7¾d	14 c	†8d	55 c	7¼ 1/2	18 c	6½d	27 c	6½d	59 c	6¼d	17 c	†5¾d
Perbakti ...	34 p	9d	—	—	8 c	10¾d	8 c	9¾d	8 c	8¾d	10 c	7¾d	—	—
Perbawattie ...	100 c	11½d	—	—	50 c	11d	50 c	1/0¼	—	—	—	—	—	—
Sindang Sarie ...	160 c	8¼d	—	—	38 c	9½9¾	50 c	7¾†8	72 c	7½ 8	—	—	—	—
Tendjo Aijoe ...	143 p	7¼d	—	—	27 c	†7¾9¼	27 c	†7½d	28 c	†6¾7½	35 p	6¾7½	26 c	6d
Tjiloear ...	107 c	6¾d	—	—	60 c	7¼d	14 c	6½d	24 c	6½d	9 c	5¼d	—	—
Tjisalak ...	198 c	8¾d	—	—	145 c	8¼11	32 c	7½8½	21 c	7¾d	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, Rood Lane, London, E.C. *July 3rd*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	46,894 packages.	78,693 packages.	6,905 packages.
1891-1892.	31,000 ,,	89,541 ,,	9,433 ,,

During the week
8,093 packages Indian
8,815 ,, Ceylon Total 29,011 packages have been offered in public auction.
2,103 ,, Java

The first cargo of New Season's China Tea ex S.S. "Moyune," is expected to be on the market during the course of to-day. It is too early yet to speak positively as to the character of the Teas, or their reception by the trade.

The deliveries of all Teas during the month of June have been exceptionally heavy for the time of year and it is evident that the lower prices recently current for Indian and Ceylon Teas have had a marked effect upon consumption whether in this Country or in foreign markets.

INDIAN. The very small auctions which consisted both of new and old season's Teas passed without material change in valuations. Wherever good quality could be discerned in the new arrivals bidding was brisk and fair prices were obtainable, but amongst old seasons Teas bidding lacked animation wherever the Teas were wanting in point or character.

TRAVANCORES have been in larger supply this week but there were no invoices which obtained specially high average. The following however being amongst the best:—"Vembenard," 10¼d.; "Poonmudi," 9¾d.; "Kuduwa Karnum," 9¼d.

Average price of New Season's Teas sold on Garden Account. Total 392 pkgs. average 10½d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
Assam			Chota Nagpore ..			Kangra Valley ..		
Cachar and Sylhet..			Darjeeling & Terai	392 p	10½d	Neilgherry.. ..		
Chittagong			Dooars			Travancore		

s an idea of the comparative prices of Indian Tea in London we quote:—

UST.	(Fair ordinary, dark liquor)	1891,	6d.	1890,	6¼d.	1889,	4¼d.	1888, 4½d.
ANNINGS.	(Red to brown, strong rough liquor)	,,	7d.	,,	6¾d.	,,	4½d.	,, 5¼d.
ROKEN TEA.	(Brownish to blackish, strong liquor)	,,	8¼d.	,,	8d.	,,	5¼d.	,, 7d.
EK. SOUG.	(Blackish greyish, useful liquor)	,,	8¾d.	,,	9d.	,,	8d.	,, 9d.
EKOE.	(Greyish to blackish some tip, useful liquor)	,,	10¼d.	,,	10½d.	,,	9d.	,, 9¾d.
EK. SOUG.	(Blackish greyish, inferior liquor)	,,	7¾d.	,,	8¼d.	,,	5¾d.	,, 7½d.
EKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8¾d.	,,	9¼d.	,,	6½d.	,, 8½d.

CEYLON. Auctions comprised only about half the quantity brought forward last week. Consequently a rather firmer market was natural, but no advance has taken place in quotations of any descriptions except those Teas where special point can be discerned in liquor. Only small auctions are so far advertised for next week. Quotations for commonest kinds are weak, but for all other descriptions competition was very strong at last week's rates. The following averages may be mentioned:—"Chapelton" and "Kotiyagalla," 11½d; "Columbia," "Glassaugh" and "Sheen," ¼d. Average for week, 9¼d.

JAVA. The chief demand still continues to run upon Medium Pekoes for export, other kinds attract less attention and poorest liquoring descriptions are difficult to sell, several parcels have in consequence been withdrawn from sale for higher prices.

Average for week, 7¾d.

MOVEMENTS OF TEA (in lbs.) IN LONDON DURING JUNE.

	Imports.			Deliveries.			Stock		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
DIAN	825,246	457,587	1,561,734	7,256,436	8,630,442	6,759,819	21,323,705	19,316,934	21,462,453
YLON.....	3,649,132	3,693,204	6,480,184	2,667,890	3,613,768	5,480,572	8,175,430	9,669,810	15,974,504
'A	315,840	302,890	641,620	419,580	308,770	474,600	1,130,080	1,058,960	1,018,080
INA, etc	512,526	465,418	452,455	5,875,678	6,059,360	5,982,508	31,982,112	34,396,167	22,912,038
Total lbs.	5,302,744	4,919,099	9,135,993	16,219,584	18,612,340	18,697,499	62,611,367	64,441,871	61,367,075

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 4 27/32d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity.	Price.	Quantity.	Price.
DRJELNG&TERI	**392 p**	**10½d**												
†Castleton ...	172 p	9¼d	49	11d	74	9¼d	—	—	49 c	†8d	—	—	—	—
†Goomtee ...	122 p	11½d	19 c	1/1½	35 c	1/0½	21	1/4	35 c	9¾d	—	—	9 c	7¼d
†Soom T Co ...	98 c	11d	—	—	44 c	11½d	16 c	1/2¼	38 c	9¼d	—	—	—	—
NEILGHERRY	**180 p**	**9¼d**												
Glendale ...	47 c	9½d	—	—	24 c	10¼d	6 c	9d	—	—	17 c	9d	—	—
Kodanaad ...	133 p	9d	30	10¼d	5	9-1/-	40	9½d	25 c	8¾d	33 p	8¼-9	—	—
TRAVANCORE	**1947 p**	**8½d**												
Aniemudi ...	89	7¼d	—	—	18	†8d	18	9d	24	7½d	19	5¾-6¾	10	5½d
Belford ...	104	7¾d	—	—	102	7¾ 8	—	—	—	—	1	5d	1	5¾d
Bonaccord ...	166	8¼d	—	—	94	7¾ 8	44	9½d	—	—	24	7¼d	4	5¾d
Braemore ...	62	8¼d	—	—	33	8d	18	9¾d	—	—	10	7d	1	5¾d
CMR ...	64	9d	—	—	60	9¼d	—	—	—	—	3	5¾d	1	6¼d
Corrimony ...	40	8¼d	—	—	38	7¼-8¼	—	—	—	—	1	5¾d	1	6½d
Glenbrittle ...	160	8d	—	—	91	7¾ 8	38	9½d	—	—	28	7d	3	6¼d
Great Valley ...	36	8½d	—	—	36	8½d	—	—	—	—	—	—	—	—
Home ...	88	8d	—	—	86	7¾8¼	—	—	—	—	1	6½d	1	5¾d
Invercauld ...	142	8¼d	—	—	110	8†8¼	14	9½d	—	—	13	6½-7½	5	5¾d
Isfield ...	97 c	8½d	—	—	21 c	9d	18 c	†10d	39 c	8¼d	19 c	7¼d	—	—
Kinmylies ...	30 p	8½d	—	—	24 c	†8¾d	—	—	—	—	4	7¾d	2	6¼d
Kuduwa Karnum	75 c	9¼d	—	—	21 c	10-10¼	10 c	10¼d	37 c	8¾-9	4 c	7¾ 8	3 c	6¼-6½
Parvithi ...	124	8½d	—	—	29	8¼d	31	10d	60	7¾d	—	—	4	7½
Penshurst ...	23	8¼d	—	—	18	8¾d	—	—	—	—	—	—	5	7
Poonmudi ...	85 p	9¾d	—	—	34 c	10¾d	26 c	10½d			17 c	7¾d	8	7
Rockwood ...	103	8d	—	—	103	8d	—	—	—	—	—	—	—	—
Seafield ...	150	8¾d	—	—	95	8-8½	45	8¾-10	—	—	6	6¾d	4	6½
Seenikali ...	116	7¾d	—	—	57	7¾d	27	9d	—	—	29	7¼d	3	7
TPC ...	93	8½d	—	—	36	8¾d	23	9½d	31	7½d	—	—	3	7
Vembenard ...	48 c	10¼d	—	—	29 c	9½d	16 c	11¾d	2 c	8d	—	—	1	11
Venture ...	59 c	8¼d	—	—	46 c	8d	13 c	9½d	—	—	—	—	—	—

Teas marked thus * are last of the Season. Teas marked thus † are New Season's.

CEYLON. Average 9¼d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price
Ambatenne ...	76 c	8¾d	—	—	41 c	8¾d	16 c	10d	19 c	8d	—	—	—	—
Attabage ...	263 p	8d	—	—	100 c	8d	85	9¾d	53 c	†7¼d	13	5¾d	12	7½
Bambrakelly&D.	129 c	10d	—	—	63 c	9½d	66 c	†10¼d	—	—	—	—	—	—
,, ...	133 p	9¾d	—	—	50 p	9-9½	83 p	10½d	—	—	—	—	—	—
Battalgalla ...	132 p	9¼d	58	11¾d	61 c	9¼d	—	—	9 c	7¾d	—	—	4	6¾
Beaumont ...	93 c	8½d	—	—	52 c	8d	41 c	†9d	—	—	—	—	—	—
Bramley ...	153	9½d	—	—	38	8¾d	79	10d	36	8½d	—	—	—	—
Carlabeck ...	36 c	8¼d	—	—	10 c	8¼d	11 c	9½d	13 c	7½d	2 c	6½d	—	—
Chapelton ...	143 p	11½d	—	—	39 c	10d	65	1/4¾	39 c	8½d	—	—	—	—
Chetnole ...	53 p	9¼d	—	—	16 c	9d	25	†10¼d	12 c	8¼d	—	—	—	—
Columbia ...	42	11¼d	—	—	21	†9¾d	21	†1/0¾	—	—	—	—	—	—
Ceylon T PlantCo														
,,Mariawatte	167 p	8¼d	—	—	43 c	8¼d	40 c	9½d	84 p	7¼d	—	—	—	—
,,Sembawatte	100	8½d	—	—	30	7¾d	50	9¼d	20	7½d	—	—	—	—
,, ,, ...	172 p	8½d	—	—	95 p	8-8¾	65 p	9-†9	12 c	7¾d	—	—	—	—
,,Tillyrie ...	111 p	9½d	43 c	10½d	57 p	8¾-9	—	—	11 c	8¼d	—	—	—	—
,,Wallaha ...	245 p	10¼d	—	—	89 p	9-11½	109 p	1½ 1/0½	47 p	8½-10¼	—	—	—	—
Dawatagas ...	152 c	8½d	—	—	50 c	8¼d	50 c	9¾d	50 c	7¾d	—	—	—	—
Debatgama ...	53 c	8¾d	—	—	12 c	8½d	29 c	9½d	12 c	7d	—	—	—	—
Denegama ...	77	9½d	—	—	57	8¾d	20	11½d	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
Derby ...	38 p	8½d	1 c	9¾d	13 c	9d	6 c	9¼d	13 c	8¼d	4 c	7¼d	1	6¼d
Dewalakanda ...	314 p	8¼d	22 c	10d	222 c	7¾-8¾	29 c	9¾d	41 c	7¼d	—	—	—	—
Dickoya ...	136 c	8½d	20 c	9½d	78 c	7½-8¼	19 c	10¼d	19 c	7¾d	—	—	—	—
Dimbula ...	181 p	9⅜d	—	—	150 p	8½-9¼	31	1/3½	—	—	—	—	—	—
Elkadua ...	57 c	9¼d	—	—	20 c	9d	12 c	†11¾d	25 c	8d	—	—	—	—
Eltofts ...	102 p	10½d	—	—	20 c	10d	50 p	†1 0½ 1/1½	32 c	8¾d	—	—	—	—
EP&ECo Cndegal	155 c	9d	—	—	42 c	8¾d	89 c	9¼9¾	21 c	7¾d	—	—	3 c	7½d
,,Kirrimattia	62 c	9¼d	—	—	38 c	8½d	24 c	10¼d	—	—	—	—	—	—
,,Labukelle ...	25 c	7½d	—	—	—	—	—	—	25 c	7½d	—	—	—	—
,,Meddecombra	141 c	8¾d	—	—	44 c	8¼d	67 c	9½d	30 c	7½d	—	—	—	—
,,Norwood ...	69 c	10d	—	—	45 c	9d	24 c	11¾d	—	—	—	—	—	—
,,Sogama ...	116 c	9d	35 c	10¾d	77 c	8¼-8¾	—	—	—	—	4 c	6¾d	—	—
Galata ...	69	9½d	—	—	35	9d	32	10¼d	2	7½d	—	—	—	—
Gallawatte ...	93	8¼d	26	9¾d	46	7¾-8¼	—	—	9	7¾d	7	6d	5	6-6¼
Gallebodde ...	203 c	8½d	—	—	69 c	8½-8¾	54 c	9¾-10	68 c	7¾d	—	—	12 c	7¼d
Gikiyanakanda ...	114 c	10d	—	—	48 c	9¾d	37 c	11¾d	29 c	8¼d	—	—	—	—
Glassaugh ...	80 p	11¼d	—	—	31 c	11d	22	1/4½	27 c	9¼d	—	—	—	—
Glencorse ...	82 c	9½d	—	—	26 c	8¾d	34 c	10¼d	21 c	8d	—	—	1 c	6¾d
Glenugie ...	148 p	10¾d	—	—	85 c	10d	46	1/3	—	—	9	8¼d	8	7½d
Gonamotava ...	78 c	9¾d	—	—	36 c	9d	38 c	10½d	—	—	3 c	8½d	1 c	6¼d
Hemingford ...	52	9d	—	—	26	8½d	26	9½d	—	—	—	—	—	—
Hope ...	112 c	9¾d	—	—	30 c	9¼d	52 c	10¾d	—	—	30 c	8½d	—	—
IMP ...	145 p	9¼d	24 p	†9¼ 1/0½	46 p	9¼d	17 c	10½d	58 c	8¼d	—	—	—	—
Indurana ...	70 p	8¾d	—	—	25 c	8¾d	16 c	10¾d	23 c	7½d	—	—	6	7d
Kaipoogalla ...	24 c	10½d	24 c	10½d	—	—	—	—	—	—	—	—	—	—
Kandapolla ...	95 p	9¾d	23 c	9¾d	30 c	11d	—	—	24 c	8½d	—	—	18	8d
Kelaneiya ...	107 c	10d	—	—	54 c	†8¾d	48 c	11½d	—	—	2 c	7¾d	3 c	7½d
KelaniValAsso D	341 c	8½d	—	—	129 c	8¼d	96 c	9¾d	83 c	7¾d	—	—	33 c	7d
Kelburne ...	29 c	9¼d	—	—	13 c	8½d	13 c	10¼d	—	—	—	—	3 c	6¾d
Kelvin ...	63 c	8¾d	—	—	17 c	8¾d	26 c	9¾d	20 c	7½d	—	—	—	—
Kintyre ...	58 c	9¾d	—	—	23 c	8¾d	31 c	10⅓d	—	—	4 c	8d	—	—
Kotiyagalla ...	80 p	11½d	—	—	29 c	10d	51	1/1	—	—	—	—	—	—
Kowlahena ...	91 c	9¼d	—	—	40 c	8¾d	30 c	11¼d	19 c	7¾d	—	—	2 c	8d
Lebanon ...	171 c	7½d	—	—	69 c	†7¼ †7½	29 c	8½d	73 c	7d	—	—	—	—
Llan Thomas ...	82 c	10½d	—	—	28 c	9½d	30 c	1/0½	22 c	8½d	—	—	2 c	8d
Loonagalla ...	133	9¼d	56	†10 11	77	†8½d	—	—	—	—	—	—	—	—
Lynsted ...	279	8¾d	—	—	89	8¾d	111	†9½d	69	7¾d	4	5¾d	6	6¾d
Mahaousa ...	141 p	8¾d	70	9½10	38	8¼d	—	—	32 c	7¾d	—	—	1 c	6d
Mapitigama ...	26 c	8d	—	—	21 c	†7¾d	5 c	9½d	—	—	—	—	—	—
Marske ...	92	10d	—	—	70	9d	18	1/3	—	—	2	7¾d	2	7d
Mattakelly ...	77 c	9¼d	—	—	16 c	8¾d	41 c	10¼d	17 c	7¾d	—	—	3 c	7d
Maturatta ...	68	8¾d	—	—	27	8¾d	15	10d	—	—	25	8¼d	1	7¼d
Mayfield ...	104	9½d	—	—	38	9¾d	24	11½d	32	8½d	10	6¾-7¾	—	—
M' K' Oya ...	56 p	8d	—	—	14 c	8¼d	10 c	9¾d	26 c	7¼d	—	—	6	6¼d
Moralioya ...	37 p	8¼d	—	—	11 c	8½d	10 p	8¼ †9¼	13 c	8d	1 c	5¾d	2 c	6½d
Nayabedde ...	55 c	9d	—	—	20 c	9d	15 c	10¼d	19 c	8d	—	—	1 c	8d
NewDimbula D	124 c	9¾d	—	—	37 c	9½d	68 c	10¼d	19 c	8¾d	—	—	—	—
Newton ...	177	9½d	—	—	71	9d	67	11d	33	8¼d	4	6¾d	2	6d
Nilambe ...	119 c	8½d	—	—	21 c	8d	78 c	9d	18 c	7½d	—	—	2 c	5½d
OBECWattawela	53 c	8¾d	—	—	22 c	8½d	19 c	10d	12 c	7¾d	—	—	—	—
Oliphant ...	147 p	10d	—	—	59	9½d	26 c	1/0¾	54	8¾d	4 c	6d	4 c	7d
Oolapane ...	124 c	8d	—	—	37 c	8d	33 c	9½d	51 c	†7¼d	—	—	3 c	7d
Ooragalla ...	89 c	8½d	—	—	18 c	8d	51 c	9-9¼	20 c	7½d	—	—	—	—
Ottery ...	52 c	9½d	—	—	27 c	†8¾d	19 c	11¼d	—	—	6 c	7d	—	—
Pantiya ...	111 c	8½d	—	—	31 c	8½d	39 c	9¾d	35 c	7¾d	6 c	6½d	—	—
Peradenia ...	190 c	8¾d	—	—	37 c	8½ †8¾	70 c	†9¾d	83 c	8d	—	—	—	—
Polgahakande ...	85 c	8¾d	—	—	26 c	8¼d	29 c	10¼d	24 c	7¾d	5 c	7½d	1 c	5d
Portmore ...	68 c	10¾d	—	—	18 c	10¼d	50 c	11d	—	—	—	—	—	—
Pundaloya ...	66 p	11d	34	1/1	32 c	10d	—	—	—	—	—	—	—	—
Rahatungoda ...	55	9¾d	—	—	29	†9¼d	24	†10¾d	—	—	—	—	2	6½d
Ravenscraig ...	73 p	8¼d	—	—	55 c	7¾ 8¼	18	10¼d	—	—	—	—	—	—
Rothschild ...	80 c	9d	21 c	10¾d	55 c	8¼ 9	—	—	—	—	4 c	6¾d	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannies, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Rowley ...	50 p	10¼d	—	—	20	8¼d	30 b	1/	—	—	—	—	—	—
Sapu ...	58 p	7d	—	—	—	—	—	—	40 c	7¼d	—	—	18	6½d
Saumarez ...	98 c	7¾d	—	—	69 c	†7¾d	15 c	†9¼d	12 c	†7d	—	—	2 c	6d
SBR ...	98 c	8¼d	30 c	9d	28 c	7¾d	—	—	40 c	7¾d	—	—	—	—
Sheen ...	85 p	11¼d	44	1/1¾	41 c	10d	—	—	—	—	—	—	—	—
Shrubs Hill ...	29 c	10d	—	—	—	—	29 c	10d	—	—	—	—	—	—
Stamford Hill	45 c	9¼d	—	—	27 c	†8¼d	18 c	†10½d	—	—	—	—	—	—
St. Clair ...	233 c	9d	—	—	89 c	8¾9¼	41 c	11½d	96 c	8d	3 c	6½d	4 c	8½d
St. Leys ...	18 c	8½d	—	—	12 c	8d	5 c	10¼d	—	—	1 c	5½d	—	—
Sunnycroft ...	169 c	8¼d	72 c	8½9½	65 c	7¾d	—	—	32 c	7¼d	—	—	—	—
Sutton ...	39 p	9d	—	—	16 c	8¼d	20 c	10d	2 c	7½d	—	—	1	6¼d
Templestowe ...	110 p	9¼d	48	11¾d	34 c	8¾d	—	—	28 c	8d	—	—	—	—
Udabage ...	200	9d	—	—	100	8 8¼	100	9½9¾	—	—	—	—	—	—
Valamaly ...	43 c	9d	—	—	31 c	†8½d	12 c	†10¼d	—	—	—	—	—	—
Vogan ...	43 c	8¼d	—	—	12 c	8¼d	14 c	9¾d	13 c	7¾d	3 c	6¾d	1 c	5¼d
Windsor Forest	114 c	9d	—	—	43 c	8½d	33 c	10¾d	—	—	38 c	7¾d	—	—
Wangie Oya ...	94 c	9¼d	40 c	9¾ 1/1¾	26 c	8¾d	—	—	28 c	7¾d	—	—	—	—
Wariagalla ...	41 c	9½d	12 c	11d	15 c	9¾d	—	—	13 c	8¼d	—	—	1 c	6d
Wattegodde ...	137 c	9d	—	—	59 c	9d	42 c	10d	26 c	8d	—	—	10 c	7d

JAVA. 2,917 pkgs. Average 7¾d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price
Dramaga ...	300 c	6½d	—	—	58 c	8-1/4¼	26 c	†6½d	73 c	†5½ 6¾	115 c	5½ †5½	28 c	4¼d
Jasinga ...	199 c	7d	—	—	71 c	5½ 1/0¾	12 c	†6d	23 c	6¾d	74 c	†5¾d	19 c	5½d
Nangoeng ...	134 p	8¾d	—	—	68 p	8¾ †1/0¼	—	—	60 c	6½d	—	—	6 c	6¼d
Panoembangan ...	72 c	11½d	—	—	72 c	11¼11½	—	—	—	—	—	—	—	—
Parakan Salak ...	150 c	7½d	—	—	—	—	50 c	8¼d	—	—	—	—	100 c	7 7¼
Passier-Moending	119 c	8½d	—	—	41 c	8½d	54 c	9d	24 c	7¼d	—	—	—	—
Perbawatte ...	100 c	10½d	—	—	40 c	9½d	60 c	11d	—	—	—	—	—	—
Roempien ...	40 c	5¾d	3 c	6-1/0¼	13 c	7d	—	—	5 c	5d	3 c	4¾d	10 c	5d
Semplak ...	207 c	7½d	—	—	83 c	8½10	—	—	32 c	7d	80 c	6¼ 6¾	12 c	4¼d
Sinagar ...	390 p	8¼d	1 b	†6/	250 c	7¾9¼	49 c	7¼ 8	27 c	†6½ †6¾	—	—	63 c	6½7½
Sindang Sarie ...	208 c	7¼d	—	—	26 c	†8¼ 9½	61 c	†7¼ †8	92 c	†7 7¼	—	—	20 c	†5¾d
Soekmana ...	49 c	6¾d	—	—	—	—	23 c	†6¾d	12 c	7¾d	14 c	†6d	—	—
Tjiboengoer ...	153 c	9½d	66 c	11¼11½	—	—	—	—	47 c	7¾d	40 c	8½d	—	—
Tjikoija ...	119 c	7d	—	—	19 c	8¼d	15 c	7¾d	55 c	6¾d	18 c	5¾d	12 c	6¾d
Tjiloear ...	216 p	7d	36 b	† 1/1¾	64 c	8-8¼	17 c	7d	31 c	6½d	26 c	†6d	42 c	5¼ †5½
Tjisalak ...	192 c	8½d	—	—	120 c	†8 10	17 c	8½d	55 c	†6¾ †7	—	—	—	—
Tjogreg ...	269 c	8d	—	—	135 c	7½ 9	58 c	8-9	76 c	6¾ †6¾	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, Rood Lane, London, E.C. *July 10th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	51,325 packages.	93,111 packages.	7,751 packages.
1891-1892.	45,338 ,,	103,309 ,,	9,433 ,,

During the week
4,527 packages Indian
3,768 ,, Ceylon } Total 28,295 packages have been offered in public auction.
— ,, Java

During the last six months there has again been a large increase in the Home Consumption of Tea; duty was paid on about 8,000,000 lbs. more than the corresponding period two years ago. This is the more remarkable considering the high prices ruling throughout many months of 1891.

Quantity of Tea (in lbs.) on which Duty was paid at all Bonded Warehouses in the Kingdom from 1st January to 30th June.

	1889.	*per centages.*	1890.	*per centages.*	1891.	*per centages.*
Indian	46,500,000	51	51,430,411	54	48,309,455	49
Ceylon	13,066,893	14	14,583,450	16	22,205,172	23
China, etc.	31,418,794	35	28,686,554	30	28,102,441	28
Total lbs.	90,985,687		94,700,415		98,617,068	

The first New Season's China Teas were offered last Friday. They are generally considered to be of fair quality and flavor, but lacking in strength. Some high bids ranging up to 3/- per lb., have been registered, mostly for export. The market has quieted since then and business is now slow, and sales difficult to effect.

INDIAN. This is the first week in which New arrivals were sufficiently extensive to afford a test of the market. Prices have been weak and irregular, dealers preferring to await the arrival of better liquoring Teas. Quality generally has so far been very similar to early arrivals last season.

Average price of New Season's Teas sold on Garden Account. Total 7,660 pkgs. average 9¼d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	1641 p	9½d	Chota Nagpore ..	117 c	7½d	Kangra Valley ..	140 p	9¾d
Cachar and Sylhet..	772 p	8½d	Darjeeling & Terai	3209 p	9½d	Neilgherry.. ..	1 b	12/6
Chittagong			Dooars	1620 p	9¼d	Travancore	160 p	8½d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	6d.	1890,	6¼d.	1889,	4½d.	1888,	4½d.
PANNINGS.	(Red to brown, strong rough liquor)	,,	7d.	,,	6¾d.	,,	4¾d.	,,	5¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	8d.	,,	8d.	,,	5½d.	,,	7d.
BLK. SOUG.	(Blackish greyish, useful liquor)	,,	8½d.	,,	9d.	,,	8½d.	,,	9d.
BKOE.	(Greyish to blackish some tip, useful liquor)	,,	9¾d.	,,	10½d.	,,	9½d.	,,	9¾d.
BLK. SOUG.	(Blackish greyish, inferior liquor)	,,	7½d.	,,	8¼d.	,,	6d.	,,	7½d.
BKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8¾d.	,,	9¼d.	,,	6¾d.	,,	8¾d.

CEYLONS met with good competition and sold at last week's rates. All teas with fine quality, and especially those where delicate flavour could be detected, were eagerly bid for, and sold at advanced rates. Really fine Broken Pekoes commanded full prices. The following averages are worthy of note:—"Goatfell," 1/0¼; "Calsay," 1/-; "Templestowe," 11½d.

Average for week, 9¼d.

JAVA. No auctions were held and no catalogues are issued.

MOVEMENTS OF TEA (in lbs.) IN LONDON DURING JUNE.

	Imports.			Deliveries.			Stock		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
INDIAN	825,246	457,587	1,561,734	7,256,436	8,630,442	6,759,819	21,323,705	19,316,934	21,462,453
CEYLON.....	3,649,132	3,693,204	6,480,184	2,667,890	3,613,768	5,480,572	8,175,430	9,669,810	15,974,504
JAVA	315,840	302,890	641,620	419,580	308,770	474,600	1,130,080	1,058,960	1,018,080
CHINA, etc	512,526	465,418	452,455	5,875,678	6,059,360	5,982,508	31,982,112	34,396,167	22,912,038
Total lbs.	5,302,744	4,919,099	9,135,993	16,219,584	18,612,340	18,697,499	62,611,367	64,441,871	61,367,075

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 5/32d.

Garden.	Total.		Average.		Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust, and Various.	
	Quantity.		Price.		Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
ASSAM	**1641**	p	**9½d**													
†Amluckie ...	40		9d		—	—	40	9d	—	—	—	—	—	—	—	—
†Assam Frontier	263	c	9½d	53 c	1 0¼ 1/3½		130 c	8½-9½	—	—	57 c	†7½-8	—	—	23 c	7¼d
† ,, ...	67	c	9d	17 c	10¼d		50 c	8¼-8½	—	—	—	—	—	—	—	—
†Dahingapear ...	57		8¼d	—	—		37	8¾d	—	—	—	—	20	†7½d	—	—
Dhoolie ...	39	c	9¼d	—	—		—	—	17 c	10d	22 c	8¾d	—	—	—	—
†Dibroo ...	15	p	11¼d	8	1/2½		—	—	—	—	5	9½d	2	6¼d	—	—
†Doom Dooma B	204	p	10¾d	14	1/0¼		101 c	9¼ 1/0¼	60	8-10¼	29	8d	—	—	—	—
† ,, B	41	c	9¼d	—	—		21 c	8¾d	11 c	11¼d	9 c	8d	—	—	—	—
† ,, H	142	p	9½d	38	10-10¾		55 c	8½-9	49	10-11	—	—	—	—	—	—
† ,, H	31	c	8¼d	—	—		17 c	8½d	—	—	14 c	7¾d	—	—	—	—
† ,, S	20		1/2¼	20	1/2¼		—	—	—	—	—	—	—	—	—	—
†Jhanzie T Assoc	128	p	9½d	—	—		79 c	10¼ 10¾	—	—	32 c	8½-9¼	—	—	17	5¼ 7¼
†Jokai T Co Jamira	40	p	9½d	15	11½d		25 c	8¾-9	—	—	—	—	—	—	—	—
† ,, Panitola ...	137	c	9d	—	—		56 c	9½-10¼	—	—	—	—	52	5¾	—	—
† ,, Subsansiri ...	25	c	10d	—	—		—	—	—	—	25 c	10d	—	—	—	—
† ,, Tippuk ...	17	c	8½d	—	—		17 c	8½d	—	—	—	—	—	—	—	—
†Khobong T Co	101	p	9¼d	22	11d		68 c	8¼-9¼	11	1/0½	—	—	—	—	—	—
†Mungledye T C	105	c	8¾d	—	—		20 c	9¼d	18 c	10d	30 c	8½d	57	8d	—	—
†Nonoi ...	40	c	8¾d	—	—		—	—	—	—	40 c	8¾d	—	—	—	—
†Tarrapore Co ...	82	c	9½d	—	—		24 c	†9¾d	14 c	11d	31 c	8¾d	18	8¼d	—	—
†Wilton T Co W	47	c	8¾d	—	—		34 c	9d	—	—	13 c	8d	—	—	—	—
CACHR & SYLHT	**928**	p	**8¼d**													
†B&Co Hingajea	97	c	8d	—	—		27 c	8¼d	15 c	8d	55 c	7¾d	—	—	—	—
,, Magura ...	80	c	7¾d	—	—		35 c	8¼d	20 c	7½d	25 c	7¼d	—	—	—	—
* ,, Singla ...	76	c	7¾d	8 c	9¾-1/-		26 c	7¾d	9 c	†6¾d	27 c	7¼d	2	†4d	4	5½d
†Binnakandy ...	60	c	8½d	—	—		—	—	60 c	8½d	—	—	—	—	—	—
†Borokai T Co.	74	c	8½d	—	—		20 c	9½d	—	—	13 c	8d	11	8½	—	—
†Budderpore ...	60	c	10½d	—	—		21 c	10½d	12 c	1/2¼	—	—	27	8½d	—	—
†Puttareah ...	58	c	8¾d	—	—		27 c	9½d	—	—	31 c	8d	—	—	—	—
†Sephinjuri Bh TC	56		8d	—	—		36	8¼d	—	—	—	—	20	†4d	—	—
†SST Co Amrail..	110	c	8½d	23 c	9d		39 c	8½d	12 c	9½d	36 c	8d	—	—	—	—
† ,, Goombira	100	c	7¾d	15 c	†8½d		30 c	†8d	15 c	8½d	30 c	†7½d	10	†9d	—	—
†TF&Co ...	77	c	8¾d	—	—		27 c	9d	28 c	9d	18 c	8d	4	6¼d	—	—
†Western Cachr C	80	c	7¾d	—	—		—	—	—	—	—	—	50	7½-8¼	—	—
CHOTA NAGPRE	**117**	c	**7½d**												—	—
†Ballyhat ...	47	c	8d	—	—		47 c	8d	—	—	—	—	—	—	—	—
†Hotewar ...	70	c	7d	—	—		70 c	7d	—	—	—	—	—	—	—	—
DRJELNG&TERI	**3209**	p	**9½d**													
†Avongrove ...	59	p	9d	—	—		13 c	†8¾d	34	†9¾d	12 c	8d	—	—	—	—
†Cedars ...	100	c	8½d	—	—		50 c	9d	7 c	9¾d	31 c	7½d	12 c	8¾d	—	—
†Central Terai TC	165	p	8¾d	25	10½d		30 c	9d	30 c	9½d	80 c	8-8¼	—	—	—	—
†Darjeeling Co	74	c	10½d	—	—		26 c	11½d	8 c	1/1¼	40 c	9¼d	—	—	—	—
†Dhajea ...	127	c	8d	—	—		63 c	8-8¾	—	—	64 c	7½d	—	—	—	—
†Dilaram ...	73	c	10¼d	—	—		25 c	10½d	15 c	1/0¼	20 c	9¼d	—	—	13 c	5¼
† ,, ...	60	c	9¾d	—	—		25 c	9½d	15 c	1/	20 c	8¼d	—	—	—	—
†Dooteriah ...	69	c	10¼d	—	—		35 c	11¼d	—	—	34 c	9d	—	—	—	—
†Happy Valley ...	45	c	10¼d	—	—		25 c	11¼d	—	—	20 c	9d	—	—	—	—
†Hopetown T Co	162	p	9¼d	—	—		30 c	8½d	96	†10d	36 c	†8¼d	—	—	—	—
†Indian Terai TCo	160	p	8½d	—	—		81 p	8½-8¾	23	9¼d	56 p	7¾-8¼	—	—	—	—
†Kalej ...	67	c	9¾d	—	—		30 c	10¼ 10½	—	—	37 c	9d	—	—	—	—
†Lebong T Co ...	291	c	10¼d	30 c	1/2¼		114 c	8½-1/-	17 c	†10¼d	130 c	8½-9½	—	—	—	—
Lingia ...	94	c	9¼d	—	—		38 c	10d	14 c	9¾d	42 c	8½d	—	—	—	—
† ,, ...	91	c	8½d	—	—		35 c	†9d	13 c	9d	43 c	8d	—	—	—	—
†Maharanee ...	65	c	10¼d	—	—		23 c	1/	—	—	42 c	9½d	—	—	—	—
†Margaret's Hope	130	c	11d	—	—		34 c	1/1¼	15 c	1/1¼	64 c	9½d	—	—	17 c	9½
†Marionbaree ...	90	c	9d	—	—		—	—	50 c	9½d	40 c	8½d	—	—	—	—
NST Co Blomfild	53	p	11½d	12 c	1/1½		12 c	†11¾d	15 c	1/	12 c	†9½d	—	—	2	†5½
Pandam ...	65	c	8½d	—	—		27 c	†9d	—	—	38 c	8d	—	—	—	—
†Poobong ...	70	p	11½d	25	1/0¼		25 c	1/0½	—	1/0¼	20 c	10d	—	—	—	—
†Pusumbing ...	78	p	9d	—	—		42	10½d	—	—	23 c	9d	—	—	13 c	6½
†Puttabong ...	61	c	10½d	12 c	1/0¾		13 c	11d	12 c	11d	24 c	9d	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
†Risheehot ...	50 c	10d	—	—	25 c	10½d	—	—	25 c	9¼d	—	—	—	—
†Rungmook ...	105 p	9½d	—	—	16 c	11¼d	30	11¼d	43 c	9d	16 c	7d	—	—
†Selimbong ...	50	10d	—	—	25	11d	—	—	25	8¾d	—	—	—	—
†Sidrapong ...	58 c	7¾d	—	—	20 c	8½d	—	—	38 c	7½d	—	—	—	—
†Singtom ...	140 c	8¾d	—	—	45 c	†9½d	20 c	†8¼d	75 c	8¼-†8½	—	—	—	—
†Tong Song ...	79 c	11¾d	—	—	40 c	1/1¾	—	—	39 c	9½-9¾	—	—	—	—
†Tirihannah ..	196 p	9¾d	—	—	85 c	10d	42 c	†11¼d	54 c	8¾d	—	—	15 p	7d
†Tumsong ..	90 c	9d	—	—	26 c	9d	14 c	10¾d	32 c	8½d	18 c	8d	—	—
†Turzum ...	96	10¼d	24	11¼d	36	11½d	—	—	36	8½d	—	—	—	—
† ,, ...	96	10d	24	† 10d	36	11¼d	—	- -	36	8½d	—	—	—	—
DOOARS	**1620 p**	**9¼d**												
†Aibheel ...	134 c	9d	24 c	9¾d	35 c	9d	24 c	10d	47 c	8¼d	—	—	4 c	7d
†BaintbarrieTC	140 c	8¾d	—	—	54 c	8¾ †9½	16 c	10¼d	70 c	8¼d	—	—	—	—
†Bullabarrie ...	139 p	9¾d	—	—	60 c	9½†10½	19 c	†11½d	30 c	8¾d	—	—	30	9¼d
†Gajilidoubah ...	30 c	9¾d	—	—	—	—	—	—	—	—	30 c	9¾d	—	—
†Hope ..	92 c	9¾d	—	—	32 c	9-10	20 c	10½d	40 c	8¼9¼	—	—	—	—
†Leesh River Co	95 c	9¾d	—	—	27 c	10¼d	20 c	11½d	21 c	9¼d	27 c	8d	—	—
Manabarrie ...	100 c	9d	36 c	†9½10½	—	—	—	10¼d	50 c	8¾d	—	—	14 c	8½d
Meenglas ...	223 c	9d	—	—	94 c	9½d	50 c	10d	79 c	8d	—	—	—	—
NSTC Dam Dim	160 c	10½d	31 c	11d	51 c	11¼d	23 c	10¼d	40 c	9½d	15 c	8½d	—	—
,, Nakhati ...	61 c	9½d	15 c	10½d	15 c	9¾d	—	—	15 c	9d	16 c	8¾d	—	—
Phoolbarrie Co	152 p	8½d	20	†9½d	40 c	8¾d	47 c	8-8¾	29 c	8¼d	16 c	7¾d	—	—
Putharjhora ...	294 p	9d	56 p	9¾1/10	74 c	9-1/1¾	—	—	118 c	8d	31 c	7½d	15 c	5½-8½
KANGRAVALEY	**140 p**	**9¾d**												
Bygnauth ...	40	6½d	13	6¾d	20	†6¾d	—	—	7	5¾d	—	—	—	—
Nassau T Co.	100 c	10½d	38 c	† 10¾d	29 c	9½d	15 c	†1/1¼	18 c	9d	—	—	—	—
NEILGHERRY														
Glendale ...	1 b	12/6	1 b	12/6	—	—	—	—	—	—	—	—	—	—
TRAVANCORE	**160 p**	**8½d**												
Bon Ami ...	1 b	£1 1s.	1 b	£1 1s.	—	—	—	—	—	—	—	—	—	—
,, ...	99 c	8½d	—	—	40 c	8½d	22 c	9¾d	29 c	8d	5 c	8¾d	3 c	7d
Nagamally ...	60 c	7¾d	—	—	29 c	†7¾d	12 c	8¾d	19 c	7¼d	—	—	—	—

Teas marked thus * are last of the Season. Teas marked thus † are New Season's.

CEYLON. Average 9¼d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
adneven ...	34 c	7½d	—	—	34 c	7½d	—	—	—	—	—	—	—	—
berfoyle ...	145 p	8d	11 c	9d	82 p	7¾ 8	21	10¼d	18 c	7¼d	4 c	5½d	9	6½d
lbion ...	58 c	8¾d	—	—	25 c	9½d	—	—	33 c	8d	—	—	—	—
mherst ...	39 p	9½d	—	—	18 c	8¾d	16 c	11d	2 c	†8d	2	†6½d	1	5½d
mpittiakande ...	39 p	10½d	11	1/6¾	28 c	8¾d	—	—	—	—	—	—	—	—
nnfield ..	119 c	9¼d	—	—	40 c	8½d	70 c	† 10d	9 c	8d	—	—	—	—
rdross ...	67 c	8¼d	—	—	16 c	8d	23 c	9¾d	28 c	7d	—	—	—	—
ugusta ...	113 c	8½d	—	—	37 c	8¼d	40 c	9½d	36 c	7¼d	—	—	—	—
athford ...	70 c	9½d	—	—	30 c	8¾d	28 c	10¾d	12 c	8d	—	—	—	—
tterne ...	70 c	9¼d	—	—	25 c	8½d	45 c	†9¾d	—	—	—	—	—	—
oomfield ...	86 c	9¼d	22 c	10d	39 c	8½d	21 c	10d	—	—	—	—	4 c	6¾d
llagalla ...	33 c	7¾d	—	—	33 c	7¾d	—	—	—	—	—	—	—	—
n Accord ...	30 c	9¾d	—	—	15 c	8½d	15 c	11d	—	—	—	—	—	—
unswick ...	132 p	9¼d	55	10†10½	35 c	8¼d	35	9¾d	—	—	—	—	7	7d
ledonia ...	35 c	10¾d	—	—	16 c	9½d	14 c	1/1¼	5 c	8¼d	—	—	—	—
lsay ...	183 c	1/	111 c	10¾1/3½	72 c	10¼d	—	—	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity.	Price	Quantity	Price	Quantity	Price
Carlabeck ...	22 c	7¾d	—	—	10 c	8d	—	—	12 c	7½d	—	—	—	—
Caskie Ben ...	91 p	9¼d	51	10¾d	34 c	7½-8½	—	—	—	—	—	—	6	7¾d
Chapelton ...	143 p	1/	—	—	43 c	10¾d	58	1/7	42 c	8¾d	—	—		
Chetnole ...	66 p	9d	—	—	26 c	9d	25	†9¾d	15 c	†8d	—	—	—	
CeyLand&ProdC														
,, Rickarton ...	92 p	11¼d	22 c	1/0½	22 c	10d	18	1/9¼	27 c	8¼d	—	—	3 c	8¾d
Clonlara ...	32	8d	—	—	30	8d	—	—	—	—	1	8¾d	1	5¼d
Cocoawatte ...	63	8d	—	—	30	7¾d	21	9d	10	6¾d	2	†8d	—	
Coombewood ...	61 p	9½d	—	—	32 p	8¾d	29 p	10d	—	—	—	—	—	
Ceylon T PlantCo														
,,Dunedin ...	200 p	9d	26 b	1/0½	118	8½d	36 c	9½d	20 c	7¾d	—	—	—	
,,EastHolyrood	121	9⅝d	—	—	57 p	8¾d	64 c	10d	—	—	—	—	—	
,,Mariawatte	201 p	8¼d	—	—	64 c	8¼d	52 c	9½d	85 l	7-7¼			—	
,,Tillyrie ...	139 p	9¼d	71 p	10¼10¾	53 p	7-9	—	—	15 c	8d	—	—	—	
,,Wallaha ...	268 p	10d	—	—	116 p	9-9½	107 c	10¾11½	45 c	8¼	—	—	—	—
,,Waverley ...	280 p	9¼d	—	—	138 p	8½-8¾	124 c	10-10¼	14 c	7½d	—	—	4 c	6¼d
Culloden ...	100 c	9½d	—	—	40 c	†8¾d	25 c	1/1	35 c	†8d	—	—	—	—
Dalleagles ...	204	9¼d	—	—	87	8¾d	71	10½d	46	†8d	—	—	—	—
Dea Ella ...	93	8½d	—	—	50	8d	20	†8¾d	20	10½d	—	—	3	5¼d
Deanstone ...	134	9½d	56	11d	68	8¾d	—	—	—	—	10	6¾d	—	—
Dessford ...	83 c	9¼d	—	—	35 c	8¾d	34 c	10d	14 c	8d	—	—	—	
Detenagalla ...	73	10½d	—	—	28	10¼d	25	1/	20	8¾d	—	—	—	
Devonford ...	56 p	9¾d	—	—	15 c	9¼d	28	1/0¼	9 c	8d	3	6½d	1 c	5d
Digalla ...	112 p	8¼d	—	—	29 c	8½d	17 c	10d	52 c	7¾d	6 c	7d	8	7d
Doranakande ...	52 c	8½d	—	—	13 c	8¼d	18 c	9⅜d	21 c	7½d	—	—	—	—
Dunkeld ...	179 p	9d	—	—	60 c	9d	46 c	10¼d	29 c	8¼d	—	—	44 p	7-7½
Dunsinane ...	138 p	9¼d	36	†11½d	59 c	9½d	—	—	37 c	8¼d	—	—	6 c	7¼d
Eilandhu ..	36 c	8½d	—	—	24 c	†8d	12 c	9¾d	—	—	—	—	—	
,, ...	15 c	9½d	—	—	—	—	15 c	9½d	—	—	—	—		
Ekolsund ...	63 c	9¼d	—	—	20 c	8½d	35 c	10d	4 c	7¾d	—	—	4 c	6¼d
Elbedde ...	25 c	1/1½	—	—	—	—	25 c	1/1½	—	—	—	—	—	
Elkadua ...	54 c	9¼d	—	—	22 c	8¾d	12 c	11¾d	20 c	8d	—	—	—	—
Elston ...	127 c	9d	—	—	50 c	8¾d	40 c	10¾d	37 c	7¾d	—	—	—	
EP&ECo Arapo.	109 c	8⅝d	—	—	45 c	8¼d	41 c	9¾d	23 c	7d	—	—	—	
,,Ingurugalle ...	111 c	8¼d	31 c	9¾d	49 c	8d	—	—	—	—	31 c	7¼-7½	—	
,,Kirrimattia	64 c	8⅓d	—	—	26 c	8½d	18 c	10d	—	—	20 c	7½d	—	
,,Sogama ...	88 c	9¼d	22 c	10¾d	61 c	8½-9	—	—	—	—	5 c	7d	—	
Ernan ...	85 c	9¼d	—	—	30 c	8¾d	37 c	10d	18 c	8d	—	—	—	—
Excelsior ...	53	9¾d	—	—	12	9¾d	22	†10¾d	16	8½d	1	8d	2	7d
Fassifern ...	56 c	9d	—	—	41 c	8½d	15 c	10d	—	—	—	—	—	—
Fordyce ...	40	11¼d	40	11¼d	—	—	—	—	—	—	—	—	—	—
Friedland ...	72	10¼d	—	—	20	10d	27	1/0¼	25	8¼d	—	—	—	—
GA ...	61 p	8¼d	—	—	19 c	8½d	15 c	9½d	25 c	7½d	—	—	2 c	7-†9½
Galgawatte ...	77 p	8¼d	—	—	19 c	7¾d	46	9¼d	12 c	†7¼d	—	—	—	—
Galloola ...	82	8¾d	—	—	30	8¾d	20	†9¾d	30	8d	—	—	2	6½d
Glassel ...	70 c	9d	—	—	40 c	8½d	17 c	10¾d	13 c	7¾d	—	—	—	—
Goatfell ...	69 c	1/0¼	—	—	41 c	11½d	16 c	1/4¼	12 c	9½d	—	—	—	—
Gona Adika Co M	95	8¾d	—	—	80	8d	15	1/0½	—	—	—	—	—	—
Good Hope ...	81 b	8¾d	—	—	48 b	†8¼d	33 b	9¾d	—	—	—	—	—	—
,, ...	130 b	9¼d	—	—	65 b	8¼d	65 b	10d	—	—	—	—	—	—
Gouraville ...	133 p	8½d	87	†9¾d	46 c	†7⅗d	—	—	—	—	—	—	—	—
Great Western ...	233 c	9d	—	—	184 c	8¼-9¼	49 c	10d	—	—	—	—	—	—
Hattangalla ...	44 c	8¾d	—	—	16 c	8¼d	16 c	10d	12 c	7¾d	—	—	—	—
Heatherley ...	60 c	10½d	—	—	28 c	9¼d	15 c	1/2½	16 c	8¾d	—	—	1 c	6d
Heeloya ...	55 c	9¼d	—	—	24 c	8¾d	23 c	10½d	8 c	7¾d	—	—	—	—
Hemingford ...	61	8½d	—	—	18	8¼d	18	10d	18	7¾d	6	5¾-6¼	8	5¾-7
Hethersett ...	54 c	11d	—	—	17 c	11d	24 c	1/0¼	11 c	8⅓d	1 c	7¾d	1 c	6½
Hoonoocotua ...	103 c	8½d	—	—	30 c	8½d	34 c	9¾d	39 c	7¾d	—	—	—	—
Hope ...	81 c	9½d	—	—	19 c	9½d	35 c	10¾d	—	—	27 c	7¼-8½	—	—
Hopewell ..	69	8½d	—	—	42	8d	27	9d	—	—	—	—	—	—
Imboolpittia ...	206 p	10d	—	—	83 p	9½d	55 c	1/0¼	68 p	8¼-8½	—	—	—	—
IMP ...	130 p	8¾d	12	10½d	39 c	8½-†8½	16 c	10½d	58 c	†8½d	—	—	5 c	7
Indian Walk ...	55	8¼d	—	—	35	†8d	14	9½d	4	7¼d	—	—	2	†4½
Ingestre ...	124 p	9d	—	—	64 c	8½d	45	†11½d	15 c	6¾d	—	—	—	—

Garden.	Total.		Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Ingirya ...	36 c		8½d	—	—	36 c	8½d	—	—	—	—	—	—	—	—
Kaipoogalla ...	98 p		9¾d	—	—	29 c	9¼d	35	11¾d	13 c	8d	—	—	1 c	6¾d
Kaluganga ...	46 p		9d	—	—	17 c	8½d	16 c	10¼d	12 c	8d	—	—	1	6½d
Kandapolla ...	98 p		10d	25 c	10d	—	—	28 c	1/0¼	27 c	8¾d	—	—	18	7¼d
Karagastalawa ...	47 c		8¾d	—	—	25 c	†8d	21 c	9¾d	—	—	—	—	1 c	7½d
Katookellie .	91		9¼d	—	—	36	9d	16	1/0½	34	8¼d	—	—	5	6¾8¾
KAW ...	288 c		8¼d	—	—	171 c	7½9¼	78 c	7 10	—	—	39 c	7½d	—	—
Keenagaha Ella...	57 p		8¾d	—	—	13 c	9d	19	10d	22 c	8¼d	1	7½d	2 c	6¼7½
Kellie ...	126 c		9d	—	—	29 c	9½d	32 c	10½d	41 c	8½d	24 c	6¾7½	—	—
Kinloch ...	48 p		10¼d	24	1/0¾	18 c	9½d	—	—	4 c	†8d	—	—	2	7d
Kintyre ...	13		10¾d	—	—	—	—	13	10¾d	—	—	—	—	—	—
Kirkoswald ...	128 p		10¼d	—	—	37 c	10½d	49	1/0½	42 c	9d	—	—	—	—
Lankapura M ...	107 p		8¾d	—	—	54 c	8½d	40	†9¾d	9 c	7½d	—	—	1 c	5¾7¼
Lauderdale T Co	134 c		8¼d	—	—	27 c	8½d	31 c	10d	63 c	7½d	3 c	4¾d	10 c	6¾d
Leangapella ...	38 c		9¼d	24 c	10d	14 c	†8d	—	—	—	—	—	—	—	—
Luccombe ...	161		8¾d	41	10½d	86	8¼d	—	—	32	7¾d	—	—	2	6½d
Mahagastotte ...	60 c		9½d	—	—	31 c	9d	29 c	10d	—	—	—	—	—	—
Mapitigama ...	21 c		7¾d	—	—	21 c	7¾d	—	—	—	—	—	—	—	—
Mayfair ...	28 c		8½d	—	—	28 c	8½d	—	—	—	—	—	—	—	—
Moralioya ...	22 c		8d	—	—	—	—	9 c	8¼d	13 c	7¾d	—	—	—	—
Mount Vernon ...	235 p		10¼d	85p 11	¼-1/9¾	94 c	8¾d	—	—	39 c	7¾d	5 c	9¼d	12	†7d
NewDimbula D	198 c		10d	—	—	62 c	9½d	99 c	10¾d	37 c	8¾d	—	—	—	—
Oolapane . .	50 c		7d	—	—	—	—	—	—	50 c	†7d	—	—	—	—
Pambagama ...	132 p		7¾d	—	—	64 c	†7¼d	60	9½d	8 c	6½d	—	—	—	—
Peckleton ...	213		10d	—	—	63	8½8¾	122	10¼ 1/2	28	7¾ 8	—	—	—	—
Pen-y-lan ...	117 c		9¼d	—	—	36 c	9¾d	62 c	9½d	14 c	7¾d	1 c	6d	4 c	6½d
Pine Hill ...	145		9¾d	30	1/1	60	9½d	—	—	55	8½d	—	—	—	—
Poengalla ...	104 c		8¼d	29 c	9¼d	34 c	7¾d	20 c	†8¼d	21 c	7¼d	—	—	—	—
Poolbank ...	62		9d	35	9¾d	27	8¼d	—	—	—	—	—	—	—	—
Portmore ...	60 c		10½d	—	—	19 c	10¼d	41 c	10¾d	—	—	—	—	—	—
Poyston . .	39 p		9d	—	—	—	—	13	11½d	26 c	8¼d	—	—	—	—
,, ...	42 p		9d	—	—	—	—	16	11d	26 c	8¼d	—	—	—	—
Rahatungoda ...	56		10½d	—	—	21	9½d	35	11¼d	—	—	—	—	—	—
Rangalla ...	109 p		10¼d	—	—	44 c	9¾d	32 c	1/0¼	14 c	8¾d	—	—	19	7½d
Riseland ...	60 c		7¾d	—	—	35 c	7½d	12 c	9¾d	—	—	13 c	6½d	—	—
Rothes ...	31 b		11¼d	—	—	31 b	11¼d	—	—	—	—	—	—	—	—
St. George ...	57 c		10d	—	—	19 c	9d	30 c	†11¼d	8 c	8d	—	—	—	—
Sanquhar ...	119 c		9d	—	—	42 c	8¾d	45 c	10 10½	32 c	8d	—	—	—	—
SCTCo Invery ...	121 p		10½d	—	—	45 c	9½d	39	1/5	—	—	37 p	7 8¼	—	—
,,Mincing Lane	71 p		10d	—	—	24 c	9d	33	1/1¼	14 c	8d	—	—	—	—
,,Strathdon ...	256 p		8½d	—	—	72 c	8½d	121	9½9¾	54 c	7½d	—	—	9	6¾d
Situlaganga ..	62		7¼d	—	—	39 c	†7¾d	12	9d	9	7d	—	—	2	6d
Templestowe ...	30		11½d	30	11½d	—	—	—	—	—	—	—	—	—	—
Udaradella ...	132		8½d	—	—	83 c	8d	49 c	9¼9½	—	—	—	—	—	—
Ugieside ...	45 c		8d	—	—	16 c	8d	17 c	9¼d	6 c	6½d	5 c	6½d	1 c	6¼d
Vincit ...	22 c		7¾d	6 c	†7¾d	5 c	†7¼d	5 c	9¼d	6 c	9d	—	—	—	—
Waltrim ...	106 c		9d	—	—	39 c	8¾d	29 c	10¾d	34 c	7¾d	—	—	4 c	8d
Wangie Oya ...	60 c		9¼d	33 c	10d	27 c	8½d	—	—	—	—	—	—	—	—
Warriapolla ...	124		9d	75	9¼ 11¾	—	—	—	—	41	7¾d	8	6½d	—	—
Wewelmadde ...	36 c		9¼d	—	—	14 c	8¾d	22 c	9¾d	—	—	—	—	—	—
Weyweltalawa ...	180 p		9d	18	10½d	30 c	8¾d	29	10¾d	103	8¼d	—	—	—	—
Woodstock ...	65 p		9¼d	—	—	25	8½d	40	10¼d	—	—	—	—	—	—
Yahalakelle ...	125		8¾d	—	—	34	9d	39	9¾d	52	7¾d	—	—	—	—
Yarrow ...	45		9¼d	—	—	18	9d	15	11d	12	7¾d	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, Rood Lane, London, E.C. *July 17th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	57,573 packages.	101,045 packages.	8,556 packages.
1891-1892.	58,705 ,,	121,463 ,,	9,433 ,,

During the week
3,367 packages Indian }
8,154 ,, Ceylon } Total 31,521 packages have been offered in public auction.
— ,, Java }

With increasing supplies from India and Ceylon the importance of fostering new markets becomes greater than ever. Re-exports of British Grown Tea from this country during the past six months compare favourably with the corresponding period of 1890, considering the high rates lately ruling. At the lower prices now current these Teas should find a readier sale in foreign and colonial markets.

Exports of Indian and Ceylon Tea from Great Britain during the six months ending 30th June.

	1890.		1891.	
	Indian.	Ceylon.	Indian.	Ceylon.
United States of America ...	423,776	189,636	142,802	155,999
Canada	235,595	96,203	273,619	205,370
Holland	173,414	85,234	119,748	65,462
Germany	47,391	121,842	59,032	175,675
Russia	15,664	6,943	955	13,768
France	22,172	9,040	12,511	18,311
Other places	525,982	143,070	594,421	214,554
lbs.	1,443,994	651,968	1,203,088	849,139

INDIAN. A good supply of New Season's Tea was offered on the market, all but the lowest qualities being well competed for. Prices have remained at about last week's rates except for poorest liquoring kinds which are weaker. Quality continues much the same as previously noted. Shipments to date are telegraphed as 9,740,000 lbs., against 8,600,000 lbs. same time last year.

Average price of New Season's Teas sold on Garden Account. Total 8,021 pkgs. average 8¾d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	1458 p	9d	Chota Nagpore ..			Kangra Valley ..		
Cachar and Sylhet..	1143 p	7½d	Darjeeling & Terai	3400 p	9d	Neilgherry.. ..	74 p	7½d
Chittagong			Dooars	983 p	9¼d	Travancore	963 p	8d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	6d.	1890,	6¼d.	1889,	4½d.	1888, 4½d.
PANNINGS.	(Red to brown, strong rough liquor)	,,	7d.	,,	6¾d.	,,	4¾d.	,, 5¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	8d.	,,	8d.	,,	5½d.	,, 7d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	8½d.	,,	9d.	,,	8½d.	,, 9d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9¾d.	,,	10½d.	,,	9½d.	,, 9¾d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	7¼d.	,,	8¼d.	,,	6d.	,, 7½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8½d.	,,	9¼d.	,,	6¾d.	,, 8¾d.

CEYLON. Auctions have been heavier but not excessive. The condition noted last week continues to prevail, all good liquoring Teas being sought after and when found rather more keenly competed for. Anything that can be classed as above good medium is distinctly dearer, the best liquoring Broken Pekoes showing a decided advance. Undesirable liquoring Teas are slow of sale and the lowest grades of Pekoe and Pekoe Souchong are rather cheaper. July exports to date are telegraphed as 2¾ millions, the revised estimate for the entire month of July being 4,500,000 lbs. Average for week, 9¼d.

JAVAS have not been offered this week, but sales are advertised for next and the following week.

MOVEMENTS OF TEA (in lbs.) IN LONDON DURING JUNE.

	Imports.			Deliveries.			Stock		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
INDIAN	825,246	457,587	1,561,734	7,256,436	8,630,442	6,759,819	21,323,705	19,316,934	21,462,453
CEYLON.....	3,649,132	3,693,204	6,480,184	2,667,890	3,613,768	5,480,572	8,175,430	9,669,810	15,974,504
JAVA	315,840	302,890	641,620	419,580	308,770	474,600	1,130,080	1,058,960	1,018,080
CHINA, etc	512,526	465,418	452,455	5,875,678	6,059,360	5,982,508	31,982,112	34,396,167	22,912,038
TOTAL lbs.	5,302,744	4,919,099	9,135,993	16,219,584	18,612,340	18,697,499	62,611,367	64,441,871	61,367,075

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5⅞d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
ASSAM	**1458 p**	**9d**												
Assam Frontier	121 c	8¾d	—	—	86 c	9-9¼	—	—	35 c	7¾d	—	—	—	—
,, ...	236 c	10¾d	46 c	1½1/1¼	99 c	8¾-9¾	28 c	1/3½	53 c	8¼d	—	—	10 c	6¾d
Beheating ...	55 c	9d	—	—	14 c	10¼d	—	—	22 c	9d	6 c	7¾d	15 c	8¼d
Bhogotpore ...	161 c	9d	—	—	32 c	10¼d	24 c	10¼d	90 c	8½d	—	—	15	8¾d
Choonsali T Co S	70 c	8¼d	—	—	20 c	8¾d	10 c	8¾d	—	—	40 c	8d	—	—
Chubwa T Co ...	21 c	8d	—	—	—	—	—	—	21 c	8d	—	—	—	—
Dejoo T Co ..	63 c	8d	—	—	20 c	8½d	—	—	—	—	43 c	7¾d	—	—
Eastern AssamC	15	10d	15	10d	—	—	—	—	—	—	—	—	—	—
GreenwoodTC D	60 c	8½d	—	—	—	—	21 c	9½d	20 c	8d	19 c	7½d	—	—
Hapjan ...	14 c	9¼d	—	—	14 c	9¼d	—	—	—	—	—	—	—	—
Jetookia ...	50 c	9d	—	—	30 c	9d	—	—	—	—	—	—	20 c	9¼d
JokaiTCo Bokel	66 c	9d	25 c	10¼d	—	—	—	—	28 c	8½d	—	—	13 c	7d
,, Hukanpukri	20	9¾d	—	—	20	9¾d	—	—	—	—	—	—	—	—
,, Jamira ...	24 c	9d	—	—	12 c	9½d	—	—	12 c	8½d	—	—	—	—
,, Joyhing ...	32 c	9½d	—	—	18 c	10d	—	—	14 c	9d	—	—	—	—
,, Panitola ...	61 c	8¼d	—	—	20 c	9¼d	—	—	—	—	41 c	7½-8	—	—
,, Tippuk ...	26 c	8½d	—	—	22 c	8¾d	—	—	—	—	4	7¾d	—	—
Khonikor ...	43 p	8½d	—	—	20	10d	—	—	23 c	7¾d	—	—	—	—
Romai ...	44 c	8½d	—	—	23 c	9¼d	—	—	21 c	8d	—	—	—	—
Tezpore Old Con.	276 p	8¼d	—	—	62 c	8¾-9¼	20	11½d	143 c	7½-8¼	30 c	7½d	21 c	7¼d
CACHR & SYLHT	**1143 p**	**7½d**												
B&C Muddanpore	30 c	7¼d	—	—	17 c	7½d	—	—	—	—	13 c	6¾d	—	—
,, Singla ...	226 c	7¾d	12 c	9¾d	79 c	7¾d	50 c	8½d	34 c	7½d	47 c	7d	4 c	5¾d
Borokai T Co.	126 c	9d	—	—	36 c	9¾d	16 c	1/0¼	22 c	8¼d	52 c	7¾d	—	—
Chandkhira ...	80 c	6½d	—	—	20 c	†6¾d	40 c	†6¼†6½	20 c	†6d	—	—	—	—
CherraCBallacha	414 c	6¾d	—	—	—	—	—	—	190 c	†7¼d	24 c	5¾-6¼	200 c	†1½d
Dilkoosha ...	68 c	8½d	—	—	24 c	9d	—	—	21 c	8½d	23 c	8d	—	—
JetingaValleyTCo	41 c	8¼d	—	—	17 c	8½d	12 c	9d	—	—	12 c	7½d	—	—
Koomber ...	58 c	8d	—	—	39 c	8d	12 c	†9d	7 c	†6¾d	—	—	—	—
Longai ...	100	7d	—	—	—	—	30	†7½d	—	—	70	6¾d	—	—
DRJELNG&TERI	**3400 p**	**9d**												
Bannockburn ...	105 p	7¾d	—	—	—	—	30 b	11d	75 c	†7½d	—	—	—	—
Darjeeling Co	604 p	9¾d	—	—	160 c	9¼-1/2	79 p	8½ 1/2¼	201 c	8½-10	155 c	8½d	9 c	6¼d
Gyabaree ...	70 c	11d	—	—	31 c	11¼d	24 c	1/	15 c	9½d	—	—	—	—
IndianTeraiTCo	51 c	7¾d	—	—	29 c	8¾d	—	—	22 c	7¾d	—	—	—	—
Kalabarrie ...	69 p	10¾d	—	—	44 c	†9½d	25	† 1/3¾	—	—	—	—	—	—
Lizziepore ...	59 p	8¾d	—	—	27 c	†9¼d	16	8¾d	16 c	†8d	—	—	—	—
LMB Chong Tong	120 p	9d	—	—	50	9½d	20	9½d	50 c	8¼d	—	—	—	—
,, ,, ...	100 c	9d	—	—	57 c	9½d	12 c	10d	16 c	8d	15 c	8d	—	—
,,Kurseong ...	213 p	7½d	—	—	64	8¼-8½	38	8d	80 c	†7¼†7½	31 c	†6¾d	—	—
,,Lebong ...	191 c	7½d	—	—	70 c	†8d	20 c	†8d	69 c	7¼d	32 c	6½d	—	—
,,MineralSpring	270 c	8¼d	—	—	119 c	8½d	27 c	†8¼d	83 c	7½d	41 c	†8¾d	—	—
,,Moondakotee	157 c	8¾d	—	—	50 c	10¾d	—	—	50	8¾d	57 c	7½d	—	—
,,Nagri ...	125 c	9d	—	—	75 c	9¾d	—	—	50 c	8d	—	—	—	—
Margaret's Hope	100 c	10d	—	—	50 c	11d	—	—	50 c	8¾d	—	—	—	—
Mary Bong ...	57 c	11d	—	—	25 c	1/	18 c	11¼d	14 c	8½d	—	—	—	—
Mim T Co ...	181 c	9¾d	—	—	59 c	†11d	16 c	1/0½	70 c	†8½d	—	—	36 c	†8½d
Munjha ...	84	8¾d	—	—	35	9¼d	20	†9d	29	7-8¼	—	—	—	—
Muttigurrah ...	75 p	8d	29	9d	12 c	7¾d	16	8¾d	14 c	7d	—	—	4 c	6½d
NewChumtaTCo	49 c	9d	—	—	24 c	9d	25 c	9d	—	—	—	—	—	—
Nurbong ...	209 p	8d	8	9d	72 p	†8¼10¼	—	—	97 p	†7¼-†8	28 p	6¼-†6¾	4 c	6¼d
Poobong ...	109 p	10¼d	20	1/	47 c	11¼d	—	—	42 c	9d	—	—	—	—
Puttabong ...	56 c	9¼d	—	—	13 c	10d	12 c	11¼d	31 c	8¼d	—	—	—	—
Rungmook ...	50 c	8¾d	—	—	20 c	†10d	—	—	30 c	†7¾d	—	—	—	—
Selimbong ...	85 p	9¼d	—	—	32	†10d	17	10d	36	8¼d	—	—	—	—
Shapore ...	103 p	7¾d	—	—	35 c	8-†8¾	10	†9¼d	48 c	7½d	10 c	7d	—	—
Tukvar T Co ...	108 c	9¾d	—	—	38 c	10½d	20 c	10¾d	50 c	9d	—	—	—	—
DOOARS	**983 c**	**9¼d**												
DooarsBamandng	113 c	9¼d	—	—	50 c	9¼d	28 c	10½d	20 c	8½d	—	—	15 c	†8¼d
,, Ghatai ...	109 c	9¾d	—	—	29 c	10¼d	17 c	1/	50 c	9d	—	—	13 c	8½d
,, ,, ...	86 c	9¾d	—	—	21 c	7¼d	17 c	1/1½	21 c	10¼d	16 c	9d	11 c	9d
,, Indong ...	79 c	10¼d	—	—	23 c	10¼d	26 c	11d	12 c	10¼d	18 c	9d	—	—
,, Nagrakatta	111 c	9d	—	—	38 c	9d	20 c	†9¾d	36 c	9d	—	—	17 c	8¼d
,, Tondoo ...	55 c	11½d	—	—	23 c	11¼d	17 c	1/2	15 c	9¼d	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
Ellenbarrie ...	48 c	9d	23 c	†9½d	—	—	—	—	25 c	8½d	—	—	—	—
Gajilidoubah ...	33 c	8¼d	—	—	—	—	—	—	33 c	8¼d	—	—	—	—
,, ...	42 c	9¼d	—	—	—	—	14 c	10¼d	28 c	8¾d	—	—	—	—
Hope ...	75 c	10¼d	—	—	20	9½d	35 c	1 0¾ 1/0¼	20 c	8¾d	—	—	—	—
Lethijhora ..	37 p	8d	—	—	—	—	—	—	—	—	27 c	8¼d	10	6d
LMB Kolabarree	48 c	8½d	—	—	33 c	8¾d	—	—	—	—	15 c	7¾d	—	—
Manabarrie ...	47 c	8¼d	—	—	—	—	—	—	47 c	†8¼d	—	—	—	—
Meenglas ...	100 c	7¾d	—	—	—	—	—	—	100 c	7¾d	—	—	—	—
NEILGHERRY	**74 p**	**7½d**												
COA ...	38 c	8¼d	—	—	38 c	†8¼d	—	—	—	—	—	—	—	—
Nilgiri ...	36	5½d	5	5¼d	12	†6 6½	—	—	—	—	19	5¼d	—	—
TRAVANCORE	**956 p**	**8d**												
Arnakel ...	83 c	8½d	—	—	81 c	8½d	—	—	—	—	—	—	2 c	7d
Ashley ...	50 c	7½d	—	—	—	—	19 c	8¾d	29 c	7d	1 c	6d	1 c	5¾d
Fairfield ...	25 c	8½d	—	—	25 c	7¾ 9	—	—	—	—	—	—	—	—
Glenmary ...	77 p	8½d	19 p	9½ 11¾	44 c	7 8¼	—	—	—	—	11 c	7d	3 p	6½d
Hope ...	30 c	8¼d	—	—	—	—	9 c	†9¼d	20 c	7¾d	—	—	1 c	5½d
sfield ...	45 c	7¾d	—	—	13 c	†7¾d	5 c	9¼d	27 c	7¼d	—	—	—	—
Kinmylies ...	24 c	8¾d	—	—	24 c	7¾d	—	—	—	—	—	—	—	—
Kuduwa Karnum	120 c	8¼d	—	—	25 c	8¾d	19 c	9½d	64 c	7¾d	9 c	7¼d	3 c	6d
Maimalli ...	111 p	7½d	—	—	—	—	40 p	8½ 8¾	69 p	†7d	2	6¼d	—	—
Mount ...	70 c	7¼d	—	—	—	—	12 c	9½d	51 c	†7½d	7 c	6½d	—	—
Nagamally ...	50 c	7½d	—	—	17 c	7½d	12 c	9d	17 c	7d	4 c	6½d	—	—
Parvithi ...	78	7¾d	—	—	19	7¾d	16	9¼d	41	7¼d	—	—	2	5d
Lockwood ...	29	7d	—	—	29	†7d	—	—	—	—	—	—	—	—
TPC ...	128	8d	—	—	56	8d	26	9½d	42	†7d	—	—	4	5¾d
Venture ...	36 c	7¾d	—	—	24 c	†7d	10 c	9¼d	—	—	2 c	†6d	—	—

CEYLON. Average 9¼d.

Aberdeen ...	100	7½d	40	†8¼d	60	†7d	—	—	—	—	—	—	—	—
Adams Peak ...	138 c	9½d	—	—	56 c	9d	46 c	11½d	34 c	†7¾d	—	—	2 c	7½d
Albion ...	93 p	9½d	—	—	31 c	9¼d	30 c	†11½d	27 c	7¾d	—	—	5	7½d
Alnwick ...	101 c	1/1	—	—	58 c	10d	41 c	1/5¼	—	—	—	—	2 c	8½d
Ancoombra ...	28 c	9d	—	—	16 c	8½d	12 c	†9½d	—	—	—	—	—	—
Ardlaw ...	43 p	8¾d	—	—	14 c	†7¾d	26	10d	—	—	2	6½d	1	5¾d
Arslena ...	154	7¾d	—	—	71	†7-7¼	67	8¾d	—	—	6	5¼ 6¾	10	6¾d
Avisawella ...	95 p	8¾d	33 b	1/2½	13 c	7¼-8¼	12 c	7¼-9¾	33 c	6½-7¾	4 c	6d	—	—
Ambrakelly&D.	142 c	10d	—	—	59 c	9d	83 c	10½d	—	—	—	—	—	—
Arnagalla ..	129 c	9d	—	—	41 c	7½8½	51 c	9 10¼	37 c	7¾d	—	—	—	—
Beaumont ...	94 c	8½d	—	—	57 c	7¾d	37 c	9¾d	—	—	—	—	—	—
Bentura ...	84 p	8d	22	10d	60 c	7¾d	—	—	—	—	—	—	2 c	5½d
Berragalla ...	97 c	11d	—	—	13 c	9¼d	62 c	†11 1/0½	14 c	8¼d	7 c	7½d	1 c	8¼d
Blackstone ...	106 p	8½d	—	—	17 c	9¼d	34	10¾d	51 c	7½d	4	6¼d	—	—
Blackwater ...	211 p	9¾d	36 1/3	-1/10½	58 c	9¾d	21 c	11d	65 c	7¾d	27 c	8½d	4 c	6½d
Bogawantalawa	103 p	1/0¾	—	—	52 c	11¼d	26 c	1/7½	14 c	8½d	5 c	7¼d	6	7½d
Braemore ...	54 c	11½d	—	—	27 c	9¼d	27 c	1/1½	—	—	—	—	—	—
Campion ...	134 p	9¼d	—	—	37 c	8¾d	51 c	10½d	25 c	8d	—	—	21	7¼d
Castlereagh ...	89 p	11d	35	1/3¾	54 c	9½d	—	—	—	—	—	—	—	—
Ottaratenne ...	116	9½d	—	—	37	†8½d	65	10¼d	12	8d	—	—	2	6½d
Chapelton ...	149 p	10¾d	—	—	41 c	9½d	68	1/3½	40 c	8d	—	—	—	—
Charley Valley ...	416 b	10¼d	—	—	104 b	10¼d	83 b	1/2½	219 b	9d	—	—	10 b	6½d
Choisy ...	102 c	8¾d	—	—	31 c	7d	26 c	10¾d	40 c	7¾d	—	—	5 c	7d
CLPCo F & S...	19	9d	—	—	18	9¼d	—	—	—	—	—	—	1	5¾d
Colbawn ...	108 c	8d	—	—	28 c	8d	32 c	9½d	40 c	7½d	8 c	5½d	—	—
Combewood ...	89 p	9½d	—	—	30 p	8¾d	59 p	10d	—	—	—	—	—	—
Ottaganga ...	63 c	8¾d	—	—	20 c	8½d	20 c	10d	23 c	7¾d	—	—	—	—
TPCo Alton ...	246 p	9d	—	—	110 p	8¾d	43 c	10¾d	37 c	8¼d	35 c	8½d	21	7d
Uhanaike ...	99	9¼d	—	—	29	9d	23	1/0¾	34	8¼d	6	6¼d	7	7d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Dammeria ...	146	9d	51	†8-10	42	9¼d	—	—	50	6¾-8½	3	7½d	—	—
Delta ..	27 c	7½d	—	—	—	—	—	—	27 c	7½d	—	—	—	—
Denmark Hill ...	54 c	10d	—	—	18 c	9½d	22 c	†11¾d	13 c	8¾d	—	—	1 c	7d
Deviturai ...	49 c	9d	—	—	22 c	7½-8¾	23 c	8¼-9¾	—	—	4 c	7¼d	—	—
Dimbula ...	95 p	10d	—	—	73 c	8-9¾	22 c	1/7½	—	—	—	—	—	—
Diyanella Kaele	136 c	9d	—	—	53 c	8¾d	57 c	9¾d	26 c	8d	—	—	—	—
Donside ...	30 c	8¼d	—	—	12 c	8¼d	5 c	†9¼d	13 c	7¾d	—	—	—	—
Doteloya ...	146 p	8¾d	—	—	46 c	8d	82 c	9½d	11 c	7¼d	—	—	2	6¼d
Drayton ...	153 p	11¼d	92 p	111/7¾	—	—	—	—	52 c	9d	2 c	6¾d	7	7d
Dunlow ...	51 p	9¾d	—	—	13 c	9d	25 c	11¾d	10	6¾d	—	—	3	7½d
Ederapolla ...	78 p	8½d	—	—	15 c	8½d	33	9½d	—	7¾d	—	—	—	—
Eilandhu ..	41 c	8½d	—	—	27 c	7¾d	14 c	10d	—	—	—	—	—	—
Elangapitiya ...	78 c	8½d	37 c	8½-9½	—	—	—	—	36 c	8d	5 c	7d	—	—
Elgin ...	30 c	11½d	—	—	12 c	10d	11 c	1/3¼	7 c	8¼d	—	—	—	—
Emelina ...	63 c	9¼d	—	—	28 c	9d	19 c	10¾d	13 c	8d	2 c	6¾d	1 c	6d
EP&ECoDoomba	68 c	8½d	—	—	—	—	21 c	10d	47 c	7¾d	—	—	—	—
,,Meddecombra	133 c	8½d	—	—	41 c	7¾d	63 c	9½d	29 c	7½d	—	—	—	—
,,Norwood ...	84 c	9½d	—	—	53 c	8¼d	31 c	11¼d	—	—	—	—	—	—
Erroll ...	88 p	9¼d	—	—	37 c	8¼d	30	1/0¾	15	7¼d	3	6¾d	3	6¼d
ESM ...	40 c	7¾d	—	—	15 c	7½d	12 c	9d	12 c	7d	—	—	1 c	6¼d
Fairlawn ...	130	9¾d	—	—	71	8¼d	43	1/1¼	11	7½d	2	6¾d	8	6¼d
Ferndale ...	38 c	9¼d	—	—	25 c	8½d	13 c	10¼d	—	—	—	—	—	—
Fordyce ...	155 p	9d	48	†11¼d	41 c	9¼d	—	—	58 c	†7¾d	—	—	8 c	7d
FT ...	60 c	7¾d	—	—	—	—	35 c	†8d	25 c	7½d	—	—	—	—
Galaha ...	132 c	9d	—	—	24 c	8¼d	75 c	9¾d	13 c	7¾d	20 c	7¼d	—	—
,, ...	167 c	8½d	—	—	40 c	8¼d	85 c	9d	15 c	7½d	15 c	7¼d	12 c	7¼d
Galella ...	39	8¼d	—	—	20	†7¾d	19	†9d	—	—	—	—	—	—
Gallamudina ...	140 c	9d	—	—	60 c	8¼d	42 c	11d	—	—	38 c	7¾d	—	—
Gallebodde ...	82 c	8½d	—	—	28 c	8¾d	23 c	10d	31 c	7½d	—	—	—	—
Gallewatte ...	51	7d	—	—	18	†7¼d	—	—	19	†7d	2	6¾d	15	5¾-7¼
Galloola ...	80	9d	20	†10d	20	9d	20	9d	20	7½d	—	—	—	—
Gammadua ...	25 c	9½d	—	—	11 c	9d	9	10¼d	5 c	8¼d	—	—	—	—
Gangwarily ...	118 p	8¼d	—	—	68 c	8d	44	9d	—	—	—	—	6	6¼d
Gartmore ...	55 c	10¾d	17 c	1/3½	34 c	7½-9½	—	—	—	—	—	—	4 c	6¾d
Gavatenne ..	68	9¾d	—	—	39	9d	28	11d	—	—	—	—	1	5½d
Gingranoya ...	70 c	8½d	—	—	31 c	8¼d	20 c	9¾d	19 c	7¼d	—	—	—	—
Glassel ...	60 c	8¾d	—	—	35 c	8¼d	14 c	10½d	11 c	7½d	—	—	—	—
Glenalla ...	131 c	8d	48 c	9¼-9½	47 c	7¾d	—	—	20 c	7¼d	5 c	6d	11 c	6½-7
Glengariffe ...	65 c	8¾d	—	—	22 c	8½d	22 c	10¼d	21 c	7½d	—	—	—	—
Glenugie ..	119 p	10¾d	—	—	71 c	9¾d	44	1/2¾	—	—	4	6½d	—	—
Goatfell ...	80 c	1/0¾	—	—	43 c	11½d	22 c	1/5	15 c	9¾d	—	—	—	—
Gonakelle ...	110 c	8½d	17 c	†10d	20 c	9¼d	—	—	73 c	†8d	—	—	—	—
Goorookoya ...	135 c	8½d	16 c	9¾d	49 c	8½d	21 c	9¾d	49 c	7¾d	—	—	—	—
Gorthie ...	153 p	9¾d	—	—	58 c	9¼d	57	1/0¾	54 c	8¼d	—	—	4	7¾d
Halowella ...	53 c	8½d	12 c	9¾d	24 c	8¾d	—	—	17 c	7½d	—	—	—	—
Hantane ...	88 p	8d	—	—	28 c	7¼-8	28	9¾d	32 c	6¾-7½	—	—	—	—
Hardenhuish & L.	79 p	8¾d	—	—	—	—	32 c	9½d	47	7½d	—	—	—	—
Harrington ...	104 p	9½d	—	—	49 c	7½-9	34	1/1	10 c	7¾d	1 c	5½d	2	6d
Hayes ...	281	8d	80	10d	57	8¼d	144	†6¾d	—	—	—	—	—	—
Hautville ...	149 c	9½d	—	—	66 c	9d	58 c	11d	25 c	8d	—	—	—	—
Heeloya ...	44 c	9¼d	—	—	22 c	9d	17 c	10d	—	—	—	—	5	6¼d
Hethersett ...	120 c	11d	—	—	35 c	10d	52 c	1/1	30 c	8½d	—	—	3 c	7¼d
Hindagalla ...	101 p	9¾d	—	—	53 c	8¾d	34 c	1/0¼	12 c	7¾d	—	—	2	8d
Hiralouvah	30 c	8¾d	—	—	16 c	8d	14 c	9¾d	—	—	—	—	—	—
Holmwood ..	93 p	9½d	—	—	33 c	8¾d	38 c	10½d	18 c	8d	—	—	4	6¼d
Kabragalla M...	101	9¼d	—	—	35	9¼d	32	10¾d	23	8¼d	4	6¾d	7	6¾-8
Kandapolla ...	107 p	10d	30 c	9¾d	—	—	33 c	11¾d	26 c	8½d	18	7½d	—	—
KAW ...	303 c	8¼d	—	—	186 c	8-8¾	76 c	7-9¾	—	—	41 c	7¼d	—	—
Kellie ...	130	8¾d	—	—	34 c	9d	36 c	10½d	48 c	†7¾d	12 c	6¾d	—	—
Kew ..	194 p	10¾d	—	—	64 c	10d	81	†10¾ 1/10¼	45 c	8¼d	—	—	4 c	7d
Kirklees ..	97 c	10d	—	—	32 c	9¾d	33 c	1/	30 c	8¼d	2 c	6½d	—	—
Kirkoswald ...	111 c	10½d	—	—	44 c	10¾d	28 c	1/1	39 c	8½d	—	—	—	—
Kotiyagalla ...	93 p	11½d	—	—	32 c	9½d	61	1/1¾	—	—	—	—	—	—
Lagalla ...	185	9d	—	—	89	8¼d	81	10d	—	—	13	4½-7½	2	6½d

CEYLON.—Continued.

Garden.	Total.		Average	Broken Org. Pekoe or Flowery Pekoe.			Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Lavant ...	111	c	8¼d	—		—	51 c	†7¾d	30 c	9½d	28 c	7½d	—	—	2 c	6d
Lawrence ...	150	c	9½d	44	c	†10¾d	62 c	9½d	—	—	44 c	8d	—	—	—	—
Lebanon Group	130	c	6¾d	—		—	—	—	61 c	†7½d	69 c	†6¼d	—	—	—	—
Lindoola ...	56	c	9½d	—		—	26 c	8½d	30 c	10½d	—	—	—	—	—	—
Liskillin ...	31	c	8¾d	—		—	20 c	†7½d	11 c	10¾d	—	—	—	—	—	—
Loinorn ...	67	p	11d	34		1/2¾	—	—	—	—	33 c	9¼d	—	—	—	—
Mahatenne ...	69	c	8½d	—		—	19 c	8½d	21	11½d	29 c	7½d	—	—	—	—
Maria ...	80	c	8d	—		—	31 c	7½d	25 c	†9¾d	24 c	6¾d	—	—	—	—
Maria D ...	52	c	9d	—		—	17 c	8¾d	17 c	8d	18 c	8d	—	—	—	—
Mattakelly ...	97	c	9½d	—		—	21 c	8¾d	53 c	†10½d	23 c	8d	—	—	—	—
Maturatta ...	49		8½d	—		—	17	9d	10	10½d	20	7½d	—	—	2	6¾d
,, ...	178	c	8¾d	—		—	76	†8½ 9	35	10 10½	60	7½7¾	—	—	7	7d
Melfort ...	69	c	11¾d	41	c	11¼ 1/2	—	—	—	—	28 c	9¾d	—	—	—	—
Minna ...	112	c	8½d	—		—	38 c	8¼8¾	29 c	10½10¾	45 c	7¼d	—	—	—	—
Moray ...	210	p	10¾d	—		—	103 c	8½9¼	62 c	1/3¼	20 c	7½d	—	—	25	7d
Morton ...	39	c	7¾d	—		—	18 c	8d	9 c	9d	11 c	6¾d	—	—	1 c	5¾d
Mooloya ...	73	c	1/0¼	—		—	33 c	10d	40 c	1/2	—	—	—	—	—	—
Mossville ...	136	c	8¼d	—		—	25 c	8½d	30 c	10d	65 c	7¾d	16 c	5¾7¾	—	—
Mottingham ...	78	c	7¼d	—		—	—	—	—	—	65 c	7½d	3 c	5¾d	10 c	6½d
Mousakelle ...	34	c	9d	—		—	34 c	9d	—	—	—	—	—	—	—	—
Narangalla ...	84	c	8½d	36	c	9-10	—	—	—	—	43 c	8d	—	—	5 c	6¼d
NewDimbula D	115	c	10¼d	—		—	32 c	9¾d	64 c	10¾d	19 c	8¾d	—	—	—	—
New Forest ...	55	c	10d	—		—	30 c	8¾d	25 c	11¾d	—	—	—	—	—	—
New Peacock ...	141	p	8¼d	—		—	76 c	7¾d	65	9¾d	—	—	—	—	—	—
Nyanza ...	107	c	8¼d	—		—	38 c	8d	39 c	9½d	30 c	7¼d	—	—	—	—
Orion ...	48	c	8¼d	—		—	47 c	8¼d	—	—	—	—	1 c	6¾d	—	—
Orwell ...	82	c	8½d	—		—	42 c	8¾d	17 c	9¾d	19 c	7¾d	2 c	6½d	2 c	6d
Osborne ...	133	p	9¼d	—		—	40 c	9d	67	10½d	17 c	7¾d	—	—	9	7½d
Ottery ...	45	c	9½d	—		—	24 c	8¾d	17 c	11d	—	—	4 c	6¼d	—	—
PDM ...	55	p	1/2½	—		—	21 c	9-1/1¼	27	1/9	4 c	9¼d	2 c	7¼d	1 c	5½d
Penrith ...	138	p	8½d	44	b	1/1½	34 c	8d	22 c	9¾d	31 c	7¼d	3 c	5¾6½	4 c	6d
Pen-y-lan ...	94	c	8¾d	—		—	31 c	8d	49 c	9¾d	9 c	7d	1 c	6½d	4 c	6¼d
Portree ...	71	p	10½d	—		—	—	—	26	1/3¼	45 c	†9d	—	—	—	—
Putupaula ...	131	c	9d	—		—	32 c	8½d	36 c	11¼d	63 c	7¾d	—	—	—	—
Rahatungoda ...	67	p	9½d	—		—	18	9¼d	28	10¾d	18	8¼d	—	—	3 c	6½d
Rangbodde ...	174	c	10¼d	—		—	51 c	10d	54 c	1/0½	69 c	8¾d	2	6½d	—	—
Ravenscraig ...	41		8½d	—		—	22	7¾d	19	9½d	—	—	—	—	—	—
Raxawa ...	55	c	8¼d	—		—	14 c	8¾d	15 c	10d	18 c	7½d	7 c	6½d	1 c	6½d
Riverside ...	59	c	9d	11	c	†9d	28 c	9d	12 c	†9¾d	8 c	†7½d	—	—	—	—
Saduganga ...	27		7¾d	—		—	25	7¾d	—	—	—	—	—	—	—	—
Saidewatte ...	49	c	9d	12	c	11d	12 c	8d	12 c	9¾d	13 c	7¼d	—	—	—	—
Salawe ...	82		8½d	—		—	29	8¼d	28	9¾d	25	7½d	—	—	—	—
Salem ...	75	c	7½d	—		—	23 c	7½d	20 c	†9¼d	30 c	†6¾d	—	—	2 c	6d
SBR ...	69	c	7¾d	19	c	9d	23 c	†7½d	4 c	7¾d	23 c	†6¾d	—	—	—	—
Scarborough ...	205	p	10d	38	c	11¼d	58 c	8¾d	51	1/1¼	58	8d	—	—	—	—
Shrubs Hill ...	104	c	8½d	—		—	26 c	8¼d	33 c	10d	45 c	7½d	—	—	—	—
Somerset ...	52	c	10¾d	—		—	36 c	8¾9¾	16 c	1/0¾	—	—	—	—	—	—
Stamford Hill	41	c	10¾d	—		—	23 c	9d	18 c	1/0¾	—	—	—	—	—	—
St. Helen ...	59	c	8½d	—		—	17 c	8d	25 c	9¾d	16 c	7¼d	—	—	1 c	6¼d
St. Leonards-on-S	26	c	9¼d	—		—	12 c	8½d	14 c	9¾d	—	—	—	—	—	—
Stockholm ...	47	p	9¾d	27		1/	—	—	—	—	19 c	8d	—	—	1 c	9d
Stubton ...	43	c	8¾d	—		—	14 c	8½d	10 c	10d	16 c	8d	1 c	6¾d	2 c	6¼d
Summerville ...	70	c	10d	—		—	41 c	9d	16 c	1/2¾	13 c	†7½d	—	—	—	—
Sunnycroft ...	142	c	8d	61	c	8-9¼	50 c	7¾d	—	—	31 c	6¾d	—	—	—	—
Talawakelle ...	107	p	9d	—		—	36 c	9d	13 c	1/1	43 c	8d	—	—	15	7½18¾
Tamaravelly ...	200		8½d	—		—	90	8½d	45	†9¾d	59	7½d	6	5½d	—	—
Taprobana ...	55	p	8¼d	—		—	33 c	†7¾d	17 c	10d	3 c	6d	—	—	2	6¾d
Tellisgalla ...	50		8¼d	—		—	14	8¾d	15	9½d	14	7d	2	4-5½	5	5¾ †8¼
Templestowe ...	49	p	9¾d	34		11d	15 c	8½d	—	—	—	—	—	—	—	—

CEYLON.—Continued.

Garden.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Sonchong.		Broken and Sonchong.		Fanning, Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Tommagong ...	100	p	8¾d	—	—	30 c	9¼d	26	10d	36 c	8d	8	8d	—	
Troy ...	73	c	8¼d	—	—	31 c	†7¾d	26 c	9½d	15 c	†7d	—	—	1 c	5¾d
Tunisgalla ...	138	p	8½d	13 c	11d	96 c	7 7¾	12 c	10½d	11 c	7d	—	—	1	6½d
Tyspany ...	87	c	9d	—	—	50 c	8d	37 c	10½d	—	—	—	—	—	—
Vallambrosa ...	60	p	10¼d	14	1/3¾	26 c	10½d	—	—	13 c	8½d	2 c	6¼d	5 c	8d
Venture ...	137	p	9¼d	—	—	52 c	9d	52	†11d	33 c	8d	—	—	—	—
,, ...	100	p	10¾d	—	—	51 c	9½d	49	1/1¼	—	—	—	—	1 c	5½ d
Vicarton ...	98	c	7¾d	54	†8¼d	—	—	—	—	34	7¼d	—	—	—	—
Wereagalla ...	59	c	6¾d	—	—	26 c	†7d	—	—	30 c	†6¾d	—	—	1 c	4½d
Westhall ...	143	c	9d	—	—	58 c	9¼d	28 c	11d	54 c	7¾d	—	—	2 c	5½d
X ...	60	p	6½d	—	—	—	—	—	—	41 c	6½d	9	5d	1 c	5d
Ythanside ...	151	c	10½d	35 c	1/3¾	—	—	46 c	10d	40 c	8½d	21 c	7½d	9 c	6¼d

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, ROOD LANE, LONDON, E.C. *July 24th*, 1891

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1st JUNE TO DATE.

	Indian.	Ceylon.	Java.
1890-1891.	63,881 packages.	115,595 packages.	9,795 packages.
1891-1892.	69,349 ,,	138,150 ,,	11,282 ,,

During the week
5,644 packages INDIAN
5,687 ,, CEYLON Total 29,180 packages have been offered in public auction.
1,849 ,, JAVA

With an unusually large quantity of unattractive Tea upon the market, quotations naturally became depressed.

New arrivals from India do not yet show much strength or flavor, and imports from Ceylon will continue poor in cup. Telegraphic advices state that better quality is coming forward from Ceylon, and that an improvement is taking place in some of the Indian districts.

INDIAN. A larger quantity has been brought forward, but there is not much alteration to record as regards general quality. Competition for poor Teas was dull, and the market for these depressed. Better liquoring Teas continue to be sought for. The following averages are worthy of note:—"Putharjhora," 1/-; "Doom Dooma B," 11¾d.; "Joyhing of the Jokai T. Co.," 11½d.

Average price of New Season's Teas sold on Garden Account. Total 7,341 pkgs. average 9¼d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
ASSAM	3264 p	9¾d	CHOTA NAGPORE ..	234 p	7¼d	KANGRA VALLEY ..		
CACHAR AND SYLHET..	1270 p	8d	DARJEELING & TERAI	1976 p	9½d	NEILGHERRY.. ..		
CHITTAGONG			DOOARS	563 p	9½d	TRAVANCORE	34	6½d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	5¾d.	1890,	6¼d.	1889,	4½d.	1888, 4½d.
CANNINGS.	(Red to brown, strong rough liquor)	,,	6¾d.	,,	6¾d.	,,	5d.	,, 5½d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7½d.	,,	8d.	,,	6d.	,, 7d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	8¼d.	,,	9d.	,,	8½d.	,, 9d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9½d.	,,	10¼d.	,,	10d.	,, 10d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	7d.	,,	8d.	,,	6d.	,, 7½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8d.	,,	9d.	,,	7d.	,, 8½d.

CEYLON. Auctions passed without much change except for undesirable Teas which are again weaker. Anything with good character or point in liquor meets with marked attention and sells at dearer rates. Quality continues disappointing and many Teas of indifferent liquor are brought forward, but advice of better quality is cabled from Ceylon. We are now approaching the time of year when an improvement generally commences.

The following averages may be mentioned:—"Portswood," 1/3; "Mooloya," 1/1½; "Goatfell" and "Henfold," 1/0¾.

Average for week, 9d.

JAVAS. Sales passed with fair competition, but prices for poorest Teas are weaker.

Average for week, 6¾d.

MOVEMENTS OF TEA (in lbs.) IN LONDON DURING JUNE.

	IMPORTS.			DELIVERIES.			STOCK		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
INDIAN	825,246	457,587	1,561,734	7,256,436	8,630,442	6,759,819	21,323,705	19,316,934	21,462,453
CEYLON.....	3,649,132	3,693,204	6,480,184	2,667,890	3,613,768	5,480,572	8,175,430	9,669,810	15,974,504
JAVA	315,840	302,890	641,620	419,580	308,770	474,600	1,130,080	1,058,960	1,018,080
CHINA, etc	512,526	465,418	452,455	5,875,678	6,059,360	5,982,508	31,982,112	34,396,167	22,912,038
TOTAL lbs.	5,302,744	4,919,099	9,135,993	16,219,584	18,612,340	18,697,499	62,611,367	64,441,871	61,367,075

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 11/32d.

Garden.	Total.		Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity	Price
ASSAM	**3221**	p	**9¾d**												
Assam Frontier	198	c	11d	41 c	1/5-1/8¼	100 c	9¾d	—	—	38 c	8d	—	—	19 c	8½d
,, ...	348	c	11d	68 c	1/5 1/11½	248 c	8¾-9¾	—	—	32 c	8d	—	—	—	—
Bishnauth T Co	90	c	8¾d	—	—	35 c	10½d	—	—	36 c	8½d	19 c	7d	—	—
Choonsali T Co...	60	c	8½d	—	—	17 c	8½d	17 c	9d	26 c	8d	—	—	—	—
Corramore ...	71	c	8d	—	—	25 c	9d	6 c	8¼d	29 c	7½d	11 c	7½d	—	—
Doom Dooma B	52	p	11¼d	24	1/3	28 c	9½d	—	—	—	—	—	—	—	—
,, B	70	p	11¾d	—	—	40 c	9¾d	30	1/5¼	—	—	—	—	—	—
,, H	127	p	10d	25	1/0¼	38 c	8½d	35	1/3¾	29 c	8d	—	—	—	—
,, H	75	p	11¼d	—	—	53 c	9¼-10½	22	1/4¾	—	—	—	—	—	—
Fookenbari ...	12	c	8d	—	—	1 c	9¼d	—	—	—	—	11 c	7¼-8	—	—
GellahattingTC	68	c	10d	—	—	31 c	11½d	—	—	37 c	8½d	—	—	—	—
Gotoonga ...	44	c	8½d	—	—	20 c	9¼d	—	—	—	—	24 c	8d	—	—
GreenwoodTC D	67	c	9½d	—	—	17 c	9½d	12 c	1/1½	20 c	8¼d	18 c	7¾d	—	—
Jhanzie T Assoc	124	c	11d	—	—	61 c	1/0¼	—	—	45 c	9½d	—	—	18	[illegible]
JokaiTCo Bokel	109	c	9¾d	13 c	1/6¼	54 c	8¾-9½	—	—	28 c	8¾d	—	—	14 c	7½d
,, Jamira ...	133	p	9¼d	17	1/3¼	25 c	9¾ 1/0¾	14 c	9½d	12 c	8¼d	28 c	7 8½	37	[illegible]
,, Joyhing ...	43	c	11½d	—	—	16 c	11d	13 c	1/2¾	14 c	9½d	—	—	—	—
,, Muttuck ...	34	c	8d	—	—	—	—	—	—	34 c	8 8¼	—	—	—	—
,, Panitola ...	123	c	11¼d	34 c	1/2½-1/6	20 c	11¾d	—	—	16 c	10d	53 c	7¾d	—	—
Jorehaut T Co	126	c	9d	—	—	48 c	10d	—	—	78 c	8½d	—	—	—	—
,,	150	c	9d	—	—	36 c	10¼d	18 c	11d	84 c	8½d	—	—	12 c	7d
Majuli T Co. ...	129	p	9¼d	—	—	43 c	9¼-11¼	23	10d	63 c	8 8½	—	—	—	—
,, K	53	c	8½d	—	—	33 c	9d	—	—	20 c	7¾d	—	—	—	—
Moran T Co ...	116	p	9d	45	9½ 1/0¼	10 c	8¾d	—	—	40 c	8¼d	21 c	8½d	—	—
Nahor Habi ...	54	c	9¼d	—	—	—	—	26 c	11d	28 c	7¾d	—	—	—	—
NoakachareeC ...	70	c	7d	—	—	—	—	—	—	30 c	7¼d	40 c	6¾d	—	—
NSTCo Burjan...	80	c	7½d	—	—	50 c	7½d	15 c	8¾d	15 c	6¾d	—	—	—	—
SL&Co ...	14		10d	—	—	—	—	14	†10d	—	—	—	—	—	—
Turzum ...	114		9½d	24	10¼d	48	10d	—	—	42	8¼d	—	—	—	—
Upper Assam C	467	p	8½d	—	—	101	†8¾-9½	15	9¾d	282	p 7½-8¾	69	8¼ 8¾	—	—
CACHR & SYLHT	**1145**	**c**	**8d**												
B & Co Chargola	99	c	7¼d	—	—	45 c	7½d	24 c	7½d	30 c	6¾d	—	—	—	—
,, Singla ...	120	c	7½d	12 c	8¼d	40 c	7½d	14 c	7¾d	30 c	7¼d	19 c	7d	5 c	5½d
Burrumsal ...	62	c	9d	—	—	21 c	9d	15 c	10¼d	—	—	26 c	8d	—	—
Craigpark ...	57	c	8¼d	—	—	16 c	8½d	15 c	9d	14 c	8¼d	12 c	7d	—	—
Dilkoosha ...	67	c	8¼d	—	—	25 c	9d	—	—	22 c	8d	20 c	8d	—	—
Dooloogram ...	75	c	8d	—	—	25 c	7¾d	20 c	9½d	30 c	7½d	—	—	—	—
Luskerpore ...	22	c	7½d	—	—	—	—	—	—	22 c	†7½d	—	—	—	—
NSTCo Bytagool	40	c	9¼d	—	—	23 c	10d	—	—	17 c	†8d	—	—	—	—
,,Khadim ...	52	c	7¼d	—	—	28 c	7¾d	—	—	12 c	6¾d	12 c	6½d	—	—
Pathini ...	37	c	7½d	10 c	9¼d	—	—	27 c	7d	—	—	—	—	—	—
Phoenix T Co	79	c	7¼d	—	—	17 c	†7½d	10 c	†8¼d	44 c	7d	8 c	7d	—	—
Rookeenee ...	73	c	8¼d	—	—	—	—	53 c	8½-8¾	20 c	7½d	—	—	—	—
ScottporeTCo S	56	c	8¼d	—	—	16 c	8½d	12 c	9d	—	—	28 c	7¾d	—	—
TarraporeTCo ..	125	c	9¾d	—	—	50 c	10d	25 c	1/	25 c	8½d	25 c	8d	—	—
TF&Co ...	98	c	8¾d	—	—	35 c	9d	35 c	9d	24 c	8½d	4 c	6¾d	—	—
Thaligram ...	83	c	7d	—	—	—	—	—	—	83 c	†7d	—	—	—	—
CHOTA NAGPRE	**234**	**p**	**7¼d**												
Ballyhat ...	60	c	7¼d	—	—	35 c	7½d	—	—	25 c	7d	—	—	—	—
IHTCB ...	30	c	8¼d	—	—	30 c	7½-8¼	—	—	—	—	—	—	—	—
Mowdie Hill ...	79	p	7¼d	—	—	59	†7¼d	—	—	—	—	20 c	†7d	—	—
Ramgurh ...	65	c	7¾d	—	—	53 c	†7¾d	—	—	12 c	†7½d	—	—	—	—
DRJELNG&TERI	**1976**	**p**	**9½d**												
Bannockburn ...	128	p	7½d	—	—	—	—	16	10d	98 c	†7¼7½	—	—	14 c	6¾d
Dhajea ...	62	c	8d	8 c	†5¾d	29 c	8-9	12 c	†9d	9 c	7d	4 c	†6¾d	—	—
Mahalderam ...	100		7¾d	—	—	40	8¼d	20	8½d	40	7d	—	—	—	—
Margaret's Hope	120	c	10¾d	—	—	60 c	11¼d	12 c	1/0½	48 c	9d	—	—	—	—
Marionbaree ...	80	c	8¼d	—	—	40 c	†8½-9½	—	—	40 c	†7-7¾	—	—	—	—
Mary Bong ...	90	c	8¾d	—	—	28 c	10d	15 c	10d	25 c	8d	22 c	7¼d	—	—
NewChumtaTCo	67	c	8d	—	—	26 c	8d	27 c	†8¼d	14 c	7d	—	—	—	—
Nurbong ...	62	p	8¼d	11	1/0¾	20 c	8½d	—	—	26 c	7¾d	5 c	6½d	—	—
Pandam ...	84	c	8¼d	—	—	23 c	9¼d	17 c	9¼d	44 c	†7½d	—	—	—	—
Phoolbarrie Co	217	p	8¾d	20	10¼d	99 c	8¼-9½	27 c	9¾d	44 c	8½d	27 c	7½d	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
Pusumbing ...	136 p	9d	44	†9½10½	59	9¾d	—	—	33 c	8d	—	—	—	—
Puttabong ...	68 c	9½d	12 c	11½d	12 c	10¼d	12 c	11d	17 c	8d	15 c	7¾d	—	—
Risheehot ...	149 c	10d	—	—	58 c	10¾ 1/1	20 c	11½d	45 c	8¼d	—	—	26 c	6½9¼
Rungmook ...	50 c	8½d	—	—	25 c	†9¼d	—	—	25 c	7¾d	—	—	—	—
Rungneet ...	89 p	8½d	—	—	37 c	9d	27	8½d	25 c	7½d	—	—	—	—
Selimbong ...	104	8¾d	—	—	28	9¾d	21	9½d	55	7¾d	—	—	—	—
Singtom ...	106 c	9½d	19 c	1/0¼	32 c	11d	12 c	†7¾d	37 c	†7¼d	2 c	†4½d	4 c	6¼d
Soom T Co ...	55 c	9¾d	—	—	30 c	11d	—	—	25 c	8¼d	—	—	—	—
Sukvar T Co ...	136 c	10¾d	—	—	52 c	1/	27 c	11d	57 c	9½d	—	—	—	—
Sumsong ..	73 c	9¼d	—	—	18 c	10d	13 c	1/	23 c	8½d	19 c	7¾d	—	—
SOOARS	**554 p**	**9½d**												
SaintbarrieTCo	22 c	8d	—	—	—	—	—	—	22 c	8d	—	—	—	—
Shalouni ...	58 c	10¼d	—	—	22 c	10d	21 c	11½d	15 c	9d	—	—	—	—
Sllenbarrie ...	79 p	10¼d	50	10¼ 1/1¼	—	—	—	—	29 c	8¾d	—	—	—	—
Sajilidoubah B	27 c	9d	—	—	—	—	—	—	27 c	9d	—	—	—	—
,, BO	21 c	8½d	—	—	—	—	—	—	21 c	8½d	—	—	—	—
Sahai patha ...	87 c	8¾d	—	—	43 c	9 9¼	7 c	10½d	20 c	8¾d	—	—	17 c	6¼ 8
Sethijhora ..	19 c	8d	—	—	—	—	—	—	—	—	19 c	8d	—	—
Sanabarrie ...	112 c	9½d	25 c	10¾ 1/4	—	—	—	—	77 c	†8¼-9	—	—	10 c	8¼d
Sundani ...	34 c	8d	—	—	—	—	—	—	—	—	34 c	8d	—	—
Sitharjhora ...	64 c	1/	2 c	1/10	42 c	1/1	—	—	—	—	17 c	8¼d	3 c	10½d
Singdong ...	31 c	8d	—	—	—	—	—	—	—	—	31 c	8d	—	—
TRAVANCORE														
Glenmore ...	34	6½d	—	—	31	6½d	—	—	—	—	1	6¼d	—	—

CEYLON. Average 9d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Abotsleigh ...	97 c	9¼d	—	—	61 c	8¼d	36 c	11¼d	—	—	—	—	—	—
Aburth ...	57 c	8½d	—	—	16 c	†7¾d	28 c	†9½d	13 c	†7¼d	—	—	—	—
Ahall ...	39 p	8½d	18	9¾d	21 c	7¾d	—	—	—	—	—	—	—	—
Asawella ...	76 c	7¾d	17 c	9½d	15 c	7½d	—	—	41 c	7¼d	3 c	6½d	—	—
Atalgalla ...	185 p	9¼d	92 1	†1/0¼	76 c	8¼d	—	—	11 c	8¼d	—	—	6	7d
Aumont ...	99 p	9d	2 b	†4/6	52 c	7¾d	45 c	9¾d	—	—	—	—	—	—
Arwell ...	80 p	9d	—	—	33 c	8½d	33 c	10½d	13 c	7¼d	—	—	1	6½d
Amark ...	70 c	8¾d	—	—	31 c	8d	31 c	9¾d	8 c	6¾d	—	—	—	—
Awantalawa	91 c	11¾d	—	—	45 c	10¼d	22 c	1/6¾	15 c	8¼d	7 c	7d	2	6¾d
Bedonia ...	36 c	10¼d	—	—	17 c	9d	14 c	1/1½	5 c	6¼d	—	—	—	—
B&PC Fetteresso	138 p	9¾d	—	—	39 c	9 9¼	70	†11½d	25 c	8¼d	3 c	8d	1 c	6d
Beverton ...	57 c	8¾d	—	—	36 c	8¼d	18 c	10d	—	—	2 c	6½d	1 c	5½d
Bintarf ...	81 c	8¾d	28 c	8¾d	33 c	†7¾d	20 c	†10¾d	—	—	—	—	—	—
Blues ...	190 p	8½d	—	—	91 p	8¼d	67	†10d	32 c	7½d	—	—	—	—
BPCo Alton ...	91	8½d	—	—	34 c	9d	18 c	11¼d	39 c	7d	—	—	—	—
Balgownie ...	39 c	7¾d	—	—	18 c	7¾d	10 c	9d	10 c	6½d	—	—	1 c	6d
Dunedin ...	202 p	8⅓d	38 b	11½d	83	8¼d	51 c	9d	30 c	7½d	—	—	—	—
EastHolyrood	101 p	9¾d	—	—	48 p	8½d	53 c	10½d	—	—	—	—	—	—
Mariawatte	233 p	7¾d	—	—	60 c	7¾ 8	61 c	9¼d	92 c	6¾d	—	—	20	6½d
Scrubs ...	150 c	10½d	—	—	56 c	9d	70 c	1/0½	24 c	8d	—	—	—	—
Sangakelly	88 c	11d	—	—	34 c	9½d	34 c	1/1¾	19 c	9¼d	—	—	1 c	7d
Killyrie ...	194 p	9½d	102	11 11½	65 p	8¾ 9	—	—	27 c	7¾d	—	—	—	—
Wallaha ...	192 c	9½d	—	—	55 c	8½d	91 c	11d	45 c	7½d	—	—	1 c	6d
Waverley ...	115 p	10d	—	—	63 p	9d	46 c	11d	4 c	7¾d	—	—	2 c	6½d
Watagas ...	148 c	8d	—	—	55 c	8d	50 c	†9d	43 c	7d	—	—	—	—
Weide ...	124 p	8½d	—	—	56 c	7¾d	68	9¾d	—	—	—	—	—	—
Wilgama ...	58	9¼d	—	—	36	9d	20	10¼d	—	—	1	6½d	1	6d
Wilmclare ...	57 c	10¾d	—	—	23 c	9¾d	20 c	1/1½	14 c	8½d	—	—	—	—
Woya ...	63 c	8d	—	—	50 c	7½d	13 c	9¾d	—	—	—	—	—	—
Wo-oya ...	139 c	8½d	—	—	40 c	8d	79 c	9¼9½	12 c	7d	1 c	6d	7 c	6½d
Wular ...	100 c	8½d	—	—	49 c	†7¾d	51 c	†9¼†9½	—	—	—	—	—	—
Yourgh ...	68 p	10¾d	—	—	29 c	9d	39	1/1½	—	—	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pekoe Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Eildon Hall ...	99 c	8¾d	—	—	39 c	8¼d	42 c	9½d	18 c	7½d	—	—	—	—
Elbedde ...	132 c	9¾d	—	—	50 c	8¾d	36 c	1/2½	52 c	7¾d	—	—	—	—
Ellagalla ...	93 c	8¼d	—	—	12 c	8½d	44 c	9d	32 c	7½d	2 c	7d	3 c	6¼d
Eltofts ...	105 p	9¾d	—	—	18 c	10½d	53	11½d	34 c	8d	—	—	—	—
EP&ECo Asgeria	60 c	8d	—	—	46 c	7¼d	14 c	10½d	—	—	—	—	—	—
,,Labukellie ..	181 c	9d	—	—	117	8½d	36 c	11d	24 c	7¾d	—	—	4 c	8½d
,,Meddecombra	172 c	8¼d	—	—	49 c	7½d	89 c	9d	34 c	7d	—	—	—	—
,,Norwood ...	72 c	9¾d	—	—	44 c	8¾d	28 c	11½d	—	—	—	—	—	—
,,Vellai-Oya ...	277 c	9d	90 c	10½10¾	150 c	8¼-8½	—	—	37 c	7¼d	—	—	—	—
Fairfield ...	76 p	9¼d	—	—	34 p	8½d	42 p	9¾d	—	—	—	—	—	—
Faithlie ..	45 c	8½d	—	—	17 c	8d	13 c	10½d	15 c	7¼d	—	—	—	—
Friedland ...	85	9d	—	—	18	†9½d	24	1/0¼	23	†7¾d	20	6d	—	—
Fruit Hill ...	73 p	8¾d	40	†10½d	20 c	8d	—	—	13 c	7d	—	—	—	—
Galkandewatte ...	91 c	8½d	—	—	64 c	8d	27 c	10d	—	—	—	—	—	—
Gallaheria ...	121 p	8¼d	24	10¼d	45	7¾d	30 c	9½d	22 c	7d	—	—	—	—
Gallamudina ..	140 c	9d	—	—	60 c	8¼d	41 c	11¼d	39 c	7½d	—	—	—	—
,, ...	140 c	8½d	—	—	60 c	7¾d	39 c	10¾d	41 c	7¼d	—	—	—	—
Gammadua ...	63 c	8½d	—	—	23 c	8¼d	22 c	10d	13 c	7½d	2 c	6½d	3 c	6½d
Gingranoya ...	60 c	8¼d	—	—	26 c	8½d	17 c	9½d	14 c	†6¾d	2 c	3d	1 c	5½d
Glasgow ...	59 p	9¾d	—	—	28 c	9d	31	11¼d	—	—	—	—	—	—
Glassaugh ...	114 p	11¼d	—	—	48 c	11d	18	1/8¾	30 c	9¾d	—	—	18	9½d
Glencairn ...	112 c	8¼d	—	—	38 c	8d	37 c	9½d	33 c	†7d	—	—	4 c	6¾d
Glentilt ...	118 p	9¼d	40	1/0½	32 c	9½d	—	—	26 c	8¼d	20 c	7d	—	—
Glenugie ...	127 p	10¼d	—	—	63 c	†9d	49	1/2¾	15 c	8d	—	—	—	—
Goatfell ...	71 c	1/0¾	—	—	42 c	11½d	17 c	1/6¼	12 c	9¼d	—	—	—	—
Goomera ...	130 c	8¼d	19 c	8¾d	36 c	8d	39 c	9½d	33 c	7d	—	—	3 c	6d
Great Valley ...	113 c	7¾d	—	—	27 c	7¼d	40 c	9d	46 c	7d	—	—	—	—
Hangran-oya ...	42 c	8½d	—	—	13 c	8¾d	14 c	9½d	15 c	7½d	—	—	—	—
Hantane ...	75 p	8½d	—	—	26 c	8¾d	25	10d	24 c	7½d	—	—	—	—
Hardenhuish & L.	81	8¼d	—	—	—	—	38	9½d	43	7½d	—	—	—	—
Hatale ...	117 c	8½d	29	9¼d	32 c	7¾d	24 c	10¼d	—	—	31 c	7¼d	1 c	6¼d
,, ...	130 c	8½d	23 c	9¼d	46 c	7¾d	27 c	10¾d	—	—	32 c	7¼d	2 c	6d
Hatherleigh ...	139	8¾d	—	—	40 c	7¾d	12 c	11¾d	60 c	8d	25 c	5-10	2 c	5½d
Hattangalla ...	57 c	8d	—	—	27 c	7¾d	21 c	†8¾d	9 c	6¾d	—	—	—	—
Henfold ...	110 c	1/0¾	—	—	57 c	10¼d	47 c	1/4¼	6 c	8½d	—	—	—	—
Hewa Ellia ...	24 c	9½d	—	—	6 c	8½d	11 c	11½d	5 c	7¾d	—	—	2 c	7¼
Hillside ...	84 c	8¼d	25 c	10d	29 c	8¼d	—	—	20 c	7¼d	10 c	6d	—	—
Hoolankande	79 p	9d	21	1/1¼	31 c	9d	—	—	27 c	7¾d	—	—	—	—
Hoonoocotua ...	112 c	8½d	—	—	23 c	8¼d	41 c	9¾d	48 c	7½d	—	—	—	—
Hope ...	135 c	9½d	—	—	37 c	9¼d	63 c	10½d	—	—	35 c	6¾-8	—	—
Hornsey ...	82 c	8¾d	—	—	32 c	8¼d	30 c	10d	20 c	7½d	—	—	—	—
Hunasgeria ...	127 p	7½d	—	—	16 c	8¼d	19 c	9½d	22 c	7¼d	63 c	4½-7	7	6½d
Ivanhoe ...	72 p	7½d	—	—	19 c	†7½d	20	10¼d	15 c	7d	14 c	6¼d	4 c	6-8
Kaloogala ...	66 c	8d	—	—	40 c	7¼d	26 c	9¼d	—	—	—	—	—	—
Kataboola ...	126 c	9d	—	—	39 c	9d	34 c	†10½d	53 c	†8d	—	—	—	—
KAW ...	220 c	8¼d	—	—	137 c	7¾-8¾	62 c	6¾-9¾	—	—	21 c	7d	—	—
Keenagaha Ella...	64 p	8½d	—	—	15 p	7 -8¾	22	10d	24 c	7¾d	1	5¾d	2	6d
Kelliewatte ...	81 c	9¼d	—	—	31 c	8½d	26 c	11¼d	24 c	7½d	—	—	—	—
Kenmare ...	140	9¼d	41	10d	—	—	51	†10d	37	8½d	7	6¾d	4	6¼d
Koladenia ...	63 c	8¼d	—	—	42 c	†7½d	21 c	10d	—	—	—	—	—	—
Kottagalla ...	105 c	9½d	—	—	53 c	8¾d	32 c	1/	20 c	8d	—	—	—	—
,, ...	97 p	10½d	43	1/1½	54 c	9¼d	—	—	—	—	—	—	—	—
Knuckles Group	174 c	8¼d	—	—	54 c	8¼d	50 c	9½d	65 c	7½d	1 c	5d	4 c	6d
Lameliere ...	184	8¾d	—	—	—	—	89	10d	95	†7½d	—	—	—	—
Laxapana ...	152 p	8½d	34	9½d	55 c	8d	48	10d	15 c	7½d	—	—	—	—
Lebanon ...	138 c	7d	—	—	45 c	†6½d	51 c	7¾d	42 c	6½d	—	—	—	—
Lynsted ..	135	8¼d	—	—	32	†8¼d	62	†9½d	36	†7d	4	4d	2	†4d
Macduff ...	84 p	11¼d	—	—	23 c	10¼d	38	1/3¾	20 c	†8¼d	—	—	3	7d
Mahacoodagalla	104 c	8½d	—	—	53 c	7¾d	51 c	9¼d	—	—	—	—	—	—
Maha Eliya ...	99 p	10d	—	—	40 c	9¾d	55	11d	4 c	7¼d	—	—	—	—
Mahanilu ...	210 p	9d	95	7-11¾	91 c	8d	—	—	19 c	7¼d	—	—	5 c	6½d
Mahatenne ...	73 p	8d	—	—	18 c	8d	23	10½d	32 c	7¼d	—	—	—	—
Mahaousa ..	117 p	8¾d	51 c	10 10¼	27 p	8d	—	—	39 c	7¼d	—	—	—	—
Marlborough ...	60 c	8½d	—	—	30 c	8½d	16 c	10¼d	11 c	7¼d	2 c	6d	1 c	6¼d

CEYLON.—Continued.

Garden.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Mattakelly ...	70	c	9½d	—	—	19 c	8½d	36 c	10¾d	15 c	7¾d	—	—	—	—
Mocha ...	148	p	9¾d	—	—	58 c	9½d	57	1/0½	33 c	8¼d	—	—	—	—
Mooloya ...	31	c	1/1½	—	—	12 c	10¾d	19 c	1/3	—	—	—	—	—	—
Morar ...	82	p	10¾d	—	—	20 c	10¼d	30	1/3¾	32 c	8¾d	—	—	—	—
Nartagalena ...	76		8d	—	—	32	8d	20	9¾d	16	6¾d	8	6d	—	—
Nayapane ...	205	p	7½d	—	—	77 c	7½d	67	9¼d	41 c	6¾d	10	4d	10	7¼d
NewDimbula D	114	c	9¾d	—	—	32 c	9½d	63 c	10¼d	19 c	8½d	—	—	—	—
Newton ...	200		9½d	—	—	86	†8¾d	59	†1/	50	†7¾d	3	6½d	2	6¾d
New Valley ...	201	c	8½d	—	—	89 c	8 8¼	50 c	10½d	62 c	7¾d	—	—	—	—
Nickolaoya ...	107		9d	—	—	60	8d	47	10½d	—	—	—	—	—	—
Nilambe ...	143	c	8¼d	—	—	28 c	7½d	92 c	8¾d	23 c	6¾d	—	—	—	—
North Cove ...	83	p	10¾d	—	—	45 c	†8¾d	38	1/3½	—	—	—	—	—	—
Norton ...	118		8¾d	—	—	53	8½d	33	†10¼d	27	†7½d	—	—	5	6d
OBEC Stellenbrg	49	c	11d	—	—	16 c	10¾d	15 c	1/2¼	18 c	8¾d	—	—	—	—
Old Madegama	92		8½d	45	9¼d	—	—	—	—	40	†7¾d	5	6¾d	2	5¾d
Oodewelle ..	33	c	9½d	—	—	—	—	33 c	9½d	—	—	—	—	—	—
Oononagalla ...	140	p	8½d	23	11¾d	36 c	8¼d	20 c	10½d	56 c	7½d	—	—	5 c	6¾d
Opalgalla ...	65	p	8¼d	—	—	12 c	8d	18 c	9¾d	28 c	7½d	3 c	4½6¼	4	6¼d
Patiagama ...	82	c	8¼d	—	—	65 c	7½8¼	17 c	9½d	—	—	—	—	—	—
Poengalla ...	149	c	8d	40 c	9¼d	48 c	7½d	30 c	8½d	31 c	7d	—	—	—	—
Portmore ...	74	p	9d	—	—	30 c	†8¼d	38 c	10d	—	—	4 c	7d	2	6d
Portswood ...	53		1/3	—	—	20	1/2½	33	† 1/3¼	—	—	—	—	—	—
Pundaloya ...	138	p	10d	53	1/1	60 c	9½d	—	—	25 c	8d	—	—	—	—
Queensberry ...	115	p	9d	—	—	—	—	61 c	10¼d	51 c	7½d	1 c	7¼d	2	6½d
Rahatungoda ...	60		9½d	—	—	20	9d	36	10¼d	—	—	—	—	4	6¾d
,, ...	15		1/0¼	—	—	—	—	15	1/0¼	—	—	—	—	—	—
Rajatalawa ...	136	p	8¾d	—	—	25 c	8½d	84	9½d	27 c	8d	—	—	—	—
Rangbodde ...	167	c	9½d	—	—	51 c	9d	57 c	11½d	59 c	8d	—	—	—	—
Relugas ...	78	p	7¾d	—	—	16 c	†7½d	31	10d	31 c	†6¾d	—	—	—	—
Riverside ...	91	c	8d	9 c	9¼d	56 c	7¼7½	19 c	10d	7 c	7d	—	—	—	—
Rookwood ...	180		10¼d	—	—	—	—	57	1/1½	36	8d	87	9d	—	—
Rothschild ...	80	c	9d	21 c	11d	56 c	8 8½	—	—	—	—	3 c	6½d	—	—
Salawe ...	1	b	5/	1 b	†5/-	—	—	—	—	—	—	—	—	—	—
Saumarez ...	157	c	7¾d	—	—	132 c	†7¼ 7½	25 c	9¼d	—	—	—	—	—	—
SBR ...	127	c	7¼d	37 c	8½d	35 c	†7d	—	—	55 c	†6½d	—	—	—	—
SctshCyCStrathn	207	p	8¼d	—	—	63 c	†7½d	108	10d	36 c	7d	—	—	—	—
Sheen ...	186	p	10¾d	77	1/3	76 c	9¾d	—	—	33 c	8¼d	—	—	—	—
Somerset ..	80	p	10d	—	—	31 c	9½d	29	1/2¾	—	—	20 c	7¾d	—	—
SouthWanaRajah	51	c	8d	—	—	51 c	†8d	—	—	—	—	—	—	—	—
Stamford Hill	45	c	9¼d	—	—	27 c	8½d	18 c	10½d	—	—	—	—	—	—
St. Heliers ...	65	c	8¾d	24 c	10d	23 c	8¼d	—	—	18 c	7½d	—	—	—	—
St. Vigeans JG...	50	p	8¾d	—	—	26 c	8¼d	19	11d	4 c	7d	1	5½d	—	—
Tientsin ...	38	p	8½d	—	—	—	—	12	1/0¼	24 p	7¾d	—	—	2	6 6½
Torwood ...	70	p	9d	—	—	20 c	9d	20	1/0¼	30 c	8d	—	—	—	—
Vangie Oya ...	81	p	8½d	37 p	9½ 1/0¼	20 c	7¾d	—	—	24 c	6¾d	—	—	—	—
Varleigh ...	26	c	7¾d	—	—	26 c	7¾d	—	—	—	—	—	—	—	—
Varriapolla ...	69	c	9¼d	30 c	9-1/2¼	—	—	—	—	31 c	7¾d	8 c	6¼d	—	—
Vellekelle ..	45		9¾d	—	—	22	9d	18	11½d	3	8d	—	—	2	6¼d
Vesthall ...	133	c	8½d	—	—	66 c	8½8¾	24 c	10¾d	41 c	7¼d	—	—	2 c	6½d
Vindsor Forest	90	c	8½d	—	—	25 c	8d	25 c	10¼d	—	—	40 c	7½d	—	—
Vootton ..	79	p	11¾d	25	1/10¼	34 c	10¼d	—	—	20 c	8d	—	—	—	—

JAVA. 1,849 pkgs. Average 6¾d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Comg. Bro. & Dust	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
Ardja Sarie ...	752	c	6¾d	—	—	—	—	41 c	8d	657 c	6-7¼	—	—	54 c	5¾d
Dramaga ..	221	c	6¼d	—	—	29 c	7½d	29 c	7d	38 c	6¼d	107 c	5¾ 6	18 c	4½d
Nangoeng ...	198	p	7d	—	—	92 p	7¼ 10¾	42 b	8¼d	64 c	6d	—	—	—	—
Semplak	112	c	7d	—	—	31 c	8¼d	20 c	7¼d	16 c	7d	43 c	6 6¼	—	—
Soekamana ...	66	c	6d	—	—	—	—	—	—	—	—	66 c	6d	—	—
Tjiboegel ...	80	c	6¼d	—	—	—	—	—	—	80 c	†6¼d	—	—	—	—
Tjicadjang ...	169	c	8¾d	—	—	46 c	10½d	39 c	9½d	44 c	8d	40 c	7d	—	—
Waspada ...	251	c	6½d	—	—	44 c	7¼d	74 c	6½d	62 c	6¼d	46 c	6½d	25 c	6d

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *July 31st*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	73,623 packages.	131,023 packages.	11,935 packages.
1891-1892.	77,090 ,,	153,377 ,,	13,185 ,,

During the week
7,741 packages Indian
5,227 ,, Ceylon } Total 24,871 packages have been offered in public auction.
1,903 ,, Java

A little more enquiry from the country, combined with moderate auctions, has tended to steady the market, and the sales have passed off with fair spirit at fully last week's rates.

Home Consumption is going on satisfactorily, being a little ahead of last year to date, for the month, and the low range of prices current appears also to have caused some demand for export.

INDIAN. Less Tea has been catalogued, but the quality shows no improvement. Competition has been fairly active, but no advance can be quoted. Amongst the most desirable Teas offered, were invoices from the "Bamandanga" Estate of the Dooars T. Co., and from "Hukanpukri" Garden of the Jokai T. Co., 1/7¾; also "Chalouni," 1/2; and "Budla Beta, 1/1½.

TRAVANCORE. The offerings from this district were important, some fifteen gardens being represented. The quality without exception was very poor, and but low prices were consequently realized.

Average price of New Season's Teas sold on Garden Account. Total 5,175 pkgs. average 9¼d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	1785 p	10¼d	Darjeeling & Terai	253 p	10⅛d	Kangra Valley ..	161 c	8d
Cachar and Sylhet..	656 p	8½d	Dehra Doon ..	94 p	6½d	Neilgherry.. ..	154 p	7½d
Chittagong			Dooars	654 c	9½d	Travancore	1418 p	7½d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	5¾d.	1890,	6¼d.	1889,	4½d	1888,	4½d.
CANNINGS.	(Red to brown, strong rough liquor)	,,	6¾d.	,,	6¾d.	,,	5¼d.	,,	5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7½d.	,,	8d.	,,	6d.	,,	7¾d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	8¼d.	,,	9d.	,,	8½d.	,,	9d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9½d.	,,	10⅛d.	,,	10d.	,,	10d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	7d.	,,	8d.	,,	6¼d.	,,	8d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8d.	,,	9d.	,,	7¼d.	,,	8¾d.

CEYLON. Though the demand has improved and all good liquoring Teas have realized better prices, the average for the week is the lowest which has been reached for a considerable period. This is owing to the large proportion of Teas with inferior leaf and liquor which have been brought to auction. No general advance in price can be anticipated until the quality improves, though fine flavoury Teas are badly wanted and the few offering realize extreme rates. The following averages may be mentioned:—"Pita Ratmalie," 1/2; "Goatfell," 1/1; "Chapelton," 1/0¼.

Average for week, 8¾d.

JAVAS of fair quality were pretty well competed for, and sold with no change in prices, but commoner kinds were cheaper, and in little demand. There being a large proportion of the latter class of Tea, averages in general were somewhat low.

Average for week, 6¾d.

MOVEMENTS OF TEA (in lbs.) IN LONDON DURING JUNE.

	Imports.			Deliveries.			Stock		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
Indian	825,246	457,587	1,561,734	7,256,436	8,630,442	6,759,819	21,323,705	19,316,934	21,462,453
Ceylon.....	3,649,132	3,693,204	6,480,184	2,667,890	3,613,768	5,480,572	8,175,430	9,669,810	15,974,504
Java	315,840	302,890	641,620	419,580	308,770	474,600	1,130,080	1,058,960	1,018,080
China, etc	512,526	465,418	452,455	5,875,678	6,059,360	5,982,508	31,982,112	34,396,167	22,912,038
Total lbs.	5,302,744	4,919,099	9,135,993	16,219,584	18,612,340	18,697,499	62,611,367	64,441,871	61,367,075

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5⅞d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flo very Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
ASSAM	**1785 p**	**10¼d**												
Assam Frontier	333 c	11¾d	82 c	1/4¾-1/8	180 c	9½-10	—	—	40 c	8¼d	—	—	31 c	8¾d
Balijan T Co ...	64 p	8¼d	—	—	12 c	8½d	20	1/0½	32 c	7d	—	—	—	—
Bargang T Co ...	48 c	8¾d	—	—	20 c	10d	—	—	28 c	8d	—	—	—	—
Beheating ...	74 p	1/0¼	12	1/5¼	25 c	1/1	12	1/3	25 c	9¼d	—		—	—
Behora ...	14 c	8¼d	—	—	—	—	—	—	—	—	14 c	8¼d	—	—
BITC Mancotta	24 c	7½d	—	—	12 c	8d	—	—	12 c	7¼d	—	—	—	—
Borbarrie ...	64 c	7¼d	—	—	—	—	—	—	49 c	7¼d	15 c	7¾d	—	—
BrahmapootraTC	85 c	9d	—	—	20 c	9¾d	15 c	9¾d	35 c	8½d	15 c	7¾d	—	—
Budla Beta ...	24 c	1/1½	6 c	1/8½	10 c	11½d	—	—	—	—	—	—	2 c	8¼d
Doom Dooma S	20	1/7	20	1/7	—	—	—	—	—	—	—	—	—	—
Harmutty ...	105 c	7½d	—	—	—	—	—	—	69 c	7½d	36	7¾d	—	—
Hunwal T Co ...	71 p	8½d	—	—	23 c	8¾-9¾	20	10d	28 c	7½d	—	—	—	—
JokaiTCo Bokel	153 c	11¾d	19 c	2/2	82 c	9¾-11	—	—	35 c	8¾d	—	—	17 c	8¼d
,, Hukanpukri	44 p	1/7¾	12 b	4/7	23 p	1/-1/4½	—	—	—	—	—	—	9	7¼d
,, Jamira ...	127 p	9¼d	—	—	26 c	10d	30 c	10½d	28 c	8¾d	28 c	8-8¼	15	6¾d
,, Subsansiri ...	41 c	9d	—	—	—	—	—	—	25 c	9¼d	16 c	8½d	—	—
K ...	20	11½d	20	11½d	—	—	—	—	—	—	—	—	—	—
KamroopTAssoA	44 c	7¾d	—	—	—	—	—	—	24 c	†8d	20 c	7¼d	—	—
Kettela T Co ...	40 c	10d	—	—	20 c	11½d	—	—	20 c	8½d	—	—	—	—
Khobong T Co	122 p	10¾d	27	1/3¼	83 c	8½-11	12	1/4¾	—	—	—	—	—	—
Majuli T Co. G	72 c	9d	—	—	39 c	9¼d	12 c	10¼d	21 c	8d	—	—	—	—
Rungaghur ...	18 c	8¾d	—	—	—	—	—	—	18 c	8¾d	—	—	—	—
Sealkottee ..	118 p	11¼d	52	11½d	45 c	8¾d	21	1/9¼	—	—	—	—	—	—
Subong ...	60 c	7¼d	—	—	20 c	7¼d	20 c	8d	20 c	6¼d	—	—	—	—
CACHR & SYLHT	**656 p**	**8½d**												
Amo ...	62 c	9½d	—	—	20 c	9d	42 c	8¼-11	—	—	—	—	—	—
BITC Dwarbund	76 c	7¾d	—	—	—	—	—	—	—	—	76 c	7¾d	—	—
,, Urrunbund...	80 c	8d	—	—	47 c	8½d	—	—	—	—	33 c	7-7½	—	—
Budderpore ...	42 c	9¾d	—	—	21 c	11d	—	—	—	—	21 c	8¼d	—	—
Chatlapore ...	143 c	9¼d	—	—	73 c	10d	12 c	8d	39 c	8¼d	19 c	7¾d	—	—
Doloo ...	116 p	9¼d	25	10½-1/	36 c	9d	28 c	9¼d	23 c	8½d	4 c	7d	—	—
Dulcherra ..	47 c	8¼d	—	—	18 c	9¼d	—	—	—	—	29 c	7½d	—	—
SephinjuriBhTCo	90 c	7¼d	—	—	40 c	7d	30 p	8¾d	—	—	20 c	6½d	—	—
DRJELNG&TERI	**253 p**	**10½d**												
IndianTeraiTCo	74 c	10¼d	—	—	28 c	9½d	26 c	1/1	20 c	7¾d	—	—	—	—
Poobong ...	70 p	11½d	24	1/1	28 c	1/0½	—	—	18 c	9¼d	—	—	—	—
Seeyok ...	109	9½d	24	11½d	29	†9d	24	10½d	32	8d	—	—	—	—
DEHRA DOON	**94 p**	**6½d**												
Naringunpore ...	76 p	6¼d	21	7¼d	—	—	—	—	55 c	†6-†6¼	—	—	—	—
West Hope Town	18 c	7½d	18 c	7½d	—	—	—	—	—	—	—	—	—	—
DOOARS	**654 c**	**10¼d**												
Chalouni ...	68 c	1/2	—	—	25 c	1/0¾	25 c	1/5¾	18 c	8½-10	—	—	—	—
DooarsBamandng	165 c	11¼d	19 c	1/4⅝	48 c	10¼d	51 c	1/0¼	31 c	9d	—	—	16 c	9d
,, Nagrakatta	49 c	9¾d	—	—	17 c	10d	14 c	8¼-11¼	18 c	8½d	—	—	—	—
Gajilidoubah ...	40 c	9d	—	—	12 c	10¼d	—	—	15 c	9¼d	—	—	13 c	7¾d
Leesh River Co	142 c	9¼d	—	—	44 c	9¾d	31 c	1/	45 c	8d	22 c	7¾d	—	—
Lethrjhora ..	24 c	8¼d	—	—	—	—	—	—	—	—	24 c	8¼d	—	—
Manabarrie ...	65 c	10½d	25 c	11 1/4½	—	—	—	—	40 c	8¾d	—	—	—	—
Meenglas ...	70 c	8½d	—	—	26 c	9½d	—	—	44 c	7¾d	—	—	—	—
Mundani ...	31 c	9d	—	—	—	—	—	—	30 c	9d	1 c	8d	—	—
KANGRA VALEY														
Bundla ...	161 c	8d	39 c	9¾d	—	—	—	—	91 c	7½d	31 c	6¾d	—	—
NEILGHERRY														
New Hope ...	133 p	7¼d	48 p	6¼-8½	—	—	—	—	85 c	6¾-7½	—	—	—	—
TRAVANCORE	**1418 p**	**7⅛d**												
Aniemudi ...	96	7⅛d	—	—	22	7⅛d	28	8½d	46	6¾d	—	—	—	—
Balamore ..	46	7¾d	—	—	42	8d	—	—	—	—	—	—	4	5¼-5½
Braemore ...	81	7¾d	—	—	40	7½d	24	9½d	—	—	14	6d	3	5⅛d
Corrimony ...	32	7¼d	—	—	30	7½d	—	—	—	—	—	—	2	4¾d
CY ...	32	6¾d	—	—	30	6¾d	—	—	—	—	—	—	2	5½d
Glenbrittle ...	37	7¾d	—	—	20	7¼d	12	9½d	—	—	4	5¼d	1	5½d
Invernettie ...	178 p	7¼d	—	—	107 p	7-7¼	33	8¾d	—	—	34	6¼d	4 c	5¼d
Linwood ...	77	7¼d	—	—	74	†7¼d	—	—	—	—	—	—	3	5¼d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
Parvithi ...	39	7¼d	—	—	9	7d	8	8¼d	19	7d	—	—	3	5½d
Penshurst ...	147	8⅜d	—	—	98	†7¾ 8	49	†9½†10¼	—	—	—	—	—	—
Poonmudi ...	76 p	8¼d	—	—	34 c	8d	21 c	10d	—	—	15 c	7d	6	6d
Rockwood ...	91	6¼d	—	—	73	5¾ †6½	—	—	—	—	10	5d	8	5½d
Seafield ...	226	8d	—	—	138	7⅜8¼	58	9½9¾	—	—	—	—	30	5½5½
Seenikali ...	68	7¼d	—	—	29	†7d	20	8¾d	—	—	17	6¼d	2	5¼d
TPC ...	192	7¾d	—	—	85	†7¾d	41	†9¼d	62	7d	—	—	4	5¼d

CEYLON. Average 8¾d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Albion ...	149 p	9d	—	—	37 c	8½d	46 c	11¼d	50 c	7½d	6 c	5½6¼	10	7½d
Allagalla ...	83 c	8¼d	—	—	27 c	8d	30 c	9½d	20 c	7¼d	—	—	6 c	6¼d
Amblamana ..	147 p	8½d	—	—	14 c	7½d	102 p	9 10¼	6 c	6¾d	13 c	6¾d	12 c	6¾d
Annfield ..	109 c	9d	—	—	39 c	8d	60 c	9¾d	10 c	7½d	—	—	—	—
Avisawella ...	71 c	7¾d	15 c	10d	16 c	7¾d	—	—	40 c	6¾d	—	—	—	—
Bambrakelly&D.	75 c	9¼d	—	—	32 c	8¼d	43 c	10d	—	—	—	—	—	—
Barnagalla ..	166 p	8½d	—	—	36 c	8¼d	47 c	10d	33 c	7½d	—	—	50 c	6¾ 9
Beau Sejour ...	34 c	8¼d	—	—	23 c	8d	11 c	9d	—	—	—	—	—	—
Belgravia ...	46 c	9d	—	—	13 c	8¼d	23 c	10d	10 c	7d	—	—	—	—
Blair Athol ...	138	9d	—	—	60	8d	64	10½d	11	7¾d	3	6d	—	—
Bogahawatte ...	266 p	9¾d	—	—	114 c	8½d	122	11½d	15 c	7d	—	—	15	7¾d
Broad Oak ...	80	9½d	—	—	36	8½d	35	11d	3	†7½d	6	6d	—	—
Burnside ...	69	9d	—	—	37	8¼d	27	10¼d	—	—	4	7½d	1	6½d
Castlemilk ...	113 c	8d	—	—	33 c	8d	29 c	9¾d	51 c	†6¾ 7¼	—	—	—	—
Cattaratenne ...	97	9¼d	—	—	31	8d	52	10½d	13	7d	—	—	1	6¼d
Chapelton ...	137 p	1/0¼	—	—	43 c	11¼d	52	1/7¼	34 c	8½d	—	—	8	7½d
CL&PC Andngdie	117 c	8d	—	—	82 c	7¾d	45 c	9¼d	50 c	7d	—	—	—	—
,, Fetteresso ...	136 p	10¼d	—	—	22 c	9d	82	1/0½	26 c	8¼d	4 c	6¾d	2	7¾d
,,Leaston ...	125 p	11d	31 c	11¾d	27 c	10d	22	1/9½	39 c	8¾d	6 c	5½d	—	—
Claverton ...	65 c	8¼d	—	—	35 c	8d	15 c	10d	12 c	7d	—	—	3 c	4½5¾
Curie ...	22 c	10¾d	—	—	—	—	22 c	†10¾d	—	—	—	—	—	—
,, ...	69 c	9¼d	—	—	20 c	9¼d	18 c	1/0¾	31 c	7½d	—	—	—	—
Ceylon T PlantCo														
,,Dewalakanda	278 p	7¾d	22 c	9¾d	192 p	7¼8½	41 c	8½d	23 c	6d	—	—	—	—
,,East Holyrood	88 p	9¼d	—	—	43 p	8¼8½	45	10d	—	—	—	—	—	—
,, ,, ...	75 p	9d	—	—	40 p	†7¾ 8	35 c	10d	—	—	—	—	—	—
,,Mariawatte	305 p	7½d	—	—	100	7¾d	50 c	9½d	155	6¼d	—	—	—	—
,, ,, ..	338	7¼d	—	—	117	7¼d	97	9 9¼	124	6 †6	—	—	—	—
,,Tillyrie ...	102 p	9½d	23	11½d	42 c	8¾d	23 c	11d	14 c	7½d	—	—	—	—
,,Wallaha ...	192 p	8¾d	—	—	77 p	8 8¾	80 c	9¾d	35 c	7¼d	—	—	—	—
Culloden ...	140 c	9¼d	—	—	50 c	9d	19 c	1/2½	71 c	†7¾ 8	—	—	—	—
Dimblagolla ...	42 c	8¼d	—	—	30 c	†7¾d	12 c	9¾d	—	—	—	—	—	—
Dhiowitta ...	51 c	7¾d	—	—	27 c	7½d	13 c	9½d	11 c	6¾d	—	—	—	—
Dunmark Hill ...	52 c	10¼d	—	—	17 c	9½d	20 c	1/1	13 c	7¾d	—	—	2 c	7¾d
Dessford ...	80 c	8¾d	—	—	31 c	10⅜d	31 c	8d	18 c	7¼d	—	—	—	—
Dunsinane ...	136 p	10½d	43	1/2	58 c	10½d	—	—	29 c	8½d	—	—	6 c	7¾d
Dpedde ...	115 c	10½d	—	—	61 c	9¼9½	27 c	1/4	21 c	7¾d	3 c	6¼d	3 c	7¼d
Dolsund ...	53 c	8¾d	—	—	18 c	8d	29 c	9¾d	3 c	7¼d	3 c	6¾d	—	—
D'&ECo Arapo.	77 c	8¾d	—	—	29 c	8¼d	33 c	9¾ †10	15 c	7¼d	—	—	—	—
,Condegalla ...	99 c	8½d	—	—	38 c	8¼d	28 c	10d	25 c	7¼d	—	—	8 c	7¾d
Sogama ...	94 c	9d	—	—	63 c	7¾9¼	28 c	11d	—	—	3 c	6¼d	—	—
Vellai-Oya ...	296 c	9d	100 c	11¼d	157 c	8d	—	—	39 c	7d	—	—	—	—
Dorfield ...	57 c	9¼d	—	—	23 c	8½d	34 c	9¾d	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		[illegible] and Var[illegible]	
	Quantity.	Price.	Quantity.	Price.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fordyce ...	91 p	9½d	19 c	1/1½	32 c	9¼d	—	—	36 c	8d	—	—	4 c	7½d
Frotoft ...	86	9½d	—	—	19	1/1½	28	1/9	26	10½d	13	9¾d	—	—
Galaha ...	145 c	8½d	—	—	26 c	7¾d	85 c	9-9¼	8 c	7¼d	26 c	7d	—	
,, ...	142 c	8½d	—	—	26 c	7¾d	85 c	9-9¼	12 c	7d	19 c	6¾d	—	
Galata ...	106	9d	—	—	40	8d	56	10d	—	—	2	5½d	8	
Gallebodde ...	111 c	8¼d	—	—	33 c	8¼d	25 c	9¾d	29 c	7½d	—	—	24	
,, ...	1 b	£2 1s.	1 b	£2 1s.	—	—	—	—	—	—	—	—	—	
Glassel ...	65 c	8¼d	—	—	37 c	8d	15 c	10½d	12 c	6¾d	—	—	1	
Glen Alpin ...	133 p	9¾d	—	—	80 c	8½d	27 c	1/3	18 c	7½d	—	—	8	
Glencairn ...	113 c	8d	—	—	29 c	†7¾d	41 c	†9¼d	39 c	7¼d	—	—	4	
Glendon ...	104 p	8¼d	—	—	58 c	8d	28 p	9¾d	16 c	7d	—	—	2	
Goatfell ...	112 p	1/1	—	—	46 c	1/0¼	33	1/7½	13 c	10½d	—	—	20	
Good Hope ...	75 b	7½d	—	—	40 b	7d	35 b	†8d	—	—	—	—	—	
Gouraville ...	87	9½d	87	†9½d	—	—	—	—	—	—	—	—	—	
Great Western ...	177 c	8¾d	—	—	130 c	7¾-9	47 c	10d	—	—	—	—	—	
Halloowella ...	65 c	8¼d	15 c	10¾d	31 c	8d	—	—	19 c	7d	—	—	—	
Hangran-oya ...	46 c	8½d	—	—	13 c	8½d	15 c	9½d	18 c	7½d	—	—	—	
Harmony ...	66 p	8½d	—	—	25 c	8½d	22 c	9½d	13 c	6½d	3	4¾d	3	6¼d
Harrington ...	50 p	10d	—	—	27 c	9½d	17	1/1	6 c	7½d	—	—	—	
Hauteville ...	149 c	9d	—	—	60 c	8½d	60 c	10¾d	29 c	7d	—	—	—	
Hindagalla ...	108 p	9¼d	—	—	62 c	8½d	25 c	1/0¼	16 c	7¼d	—	—	5	
Hope ...	63 c	9¾d	33 c	11d	16 c	9d	—	—	—	—	14 c	8d	—	
Hunasgeria ...	96 c	8½d	—	—	18 c	7¾d	60 c	9¼d	18 c	7d	—	—	—	
Ingiriya ...	80 c	8¼d	—	—	80 c	7¾-8½	—	—	—	—	—	—	—	
Ingrogalla ...	15 c	7d	—	—	15 c	†7d	—	—	—	—	—	—	—	
Kaipoogalla ...	77 p	10d	32 p	1/0¾	28 c	9½d	—	—	15 c	7¾d	—	—	2	
Kaloogala ...	54 c	8¾d	—	—	28 c	7½d	26 c	10d	—	—	—	—	—	
Kaluganga ...	41 p	9d	—	—	12 c	8½d	12 c	11¼d	15 c	7½d	—	—	2	
Kalupahani ...	57 p	11¾d	—	—	14 c	9½d	43	1/0¼	—	—	—	—	—	
Kandapolla ...	77 c	9¾d	27 c	9¾d	—	—	28 c	11d	22 c	8d	—	—	—	
Karagastalawa ...	41	8½d	—	—	19 c	7½d	19 c	9½d	—	—	1 c	5½d	2	
KAW ...	232 c	8¼d	—	—	141 c	7½-8¾	67 c	6¾-10	—	—	24 c	6½d	—	
Kellie ...	100 c	8¾d	—	—	25 c	8½d	30 c	11d	30 c	7¾d	—	—	15	
Kelvin ...	49 c	8¼d	—	—	16 c	7½d	22 c	9½d	11 c	7d	—	—	—	
Kottiagalla ...	76 c	6½d	—	—	42 c	6½d	19 c	7¾d	15 c	5¾d	—	—	—	
Lauderdale ...	100 c	7½d	—	—	21 c	7¾d	20 c	10d	59 c	6¾d	—	—	—	
Lavant ...	139 c	7¾d	—	—	65 c	7½d	35 c	9¼d	36 c	6¾d	—	—	3	
Laxapana ...	109 c	8½d	16 c	9½d	54 c	8d	25 c	10d	14 c	7¼d	—	—	—	
Leangapella ...	30 c	8¾d	18 c	9½d	12 c	7½d	—	—	—	—	—	—	—	
Le Vallon ...	244 p	8¾d	—	—	77	8½d	126	9¾d	41 c	7¾d	—	—	—	
Lindoola ...	50 c	9½d	—	—	22 c	7¾d	28 c	10¾d	—	—	—	—	—	
Lippakelle ...	92 c	11d	—	—	51 c	8¼-9¾	35 c	11¾	—	—	—	—	[illegible]	[illegible]
Llanthomas ...	75 c	8d	—	—	31 c	7¾d	21 c	9¾d	21 c	6¾d	—	—	2 c	7½d
Manickwattee ...	82 p	7½d	—	—	36 c	6¼d	46	9¾d	—	—	—	—	—	
Mapitigama ...	42 c	6¾d	—	—	27 c	†6¼d	11 c	9d	—	—	—	—	4 c	3½-5¾
Marlborough ...	50 c	8¾d	—	—	26 c	8½d	11 c	11d	9 c	7½d	3 c	6¼d	1 c	7½d
Maturatta ...	42 p	8¾d	—	—	25	8½d	13	10½d	1	8¾d	—	—	3 c	7½d
Meddetenne ...	30 c	8d	—	—	20 c	7½d	8 c	9¾d	—	—	—	—	2	6¾d
Mount Pleasant	113 c	8½d	—	—	23 c	8½d	44 c	†9½d	38 c	7½d	3 c	6¾d	5 c	6¾-8¼
Mousagalla ...	132	7¾d	—	—	25	7¾d	24	10d	72	7d	8	6¼d	3	5½d
Mousakelle ...	52 c	9d	—	—	32 c	8d	18 c	†10½d	—	—	1 c	5¾d	1 c	6¾d
Narangalla ...	187 p	9¼d	—	—	76 c	8¾d	69 c	11d	24	7½d	10 c	7¼d	8	7d
Nartakanda ...	63 c	7¼d	—	—	24 c	7¼d	12 c	†8¾d	27 c	6½d	—	—	—	—
Nayabedde ...	89 c	8½d	25 c	10¼d	34 c	8½d	—	—	26 c	7½d	3 c	†4½d	1 c	7¾d
NewDimbula D	127 c	9¾d	—	—	38 c	9½d	67 c	10½d	22 c	8d	—	—	3 c	7¼d
New Peacock ...	131 p	8¼d	—	—	76 c	7-7½	55	10¼d	—	—	—	—	—	—
North Cove ...	94 p	10½d	—	—	50 c	8½d	44	1/3	—	—	—	—	—	—
Nyanza ...	9 c	7d	—	—	9 c	†7d	—	—	—	—	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
OBEC Dangknde	64	8¾d	—	—	—	—	34	10d	20	7¾d	7	6½d	3	6d
,, Loolecondera	99 c	9¾d	—	—	33 c	10d	34 c	11¼d	32 c	8¼d	—	—	—	—
,, Nilloomally...	82 c	8¼d	—	—	30 c	8d	28 c	9¾d	24 c	7d	—	—	—	—
Oliphant ...	95 p	9¾d	—	—	23	9½d	17 c	1/2¾	31	8½d	24 c	7¼d	—	—
Ovoca ...	164 p	9d	—	—	109	8½9¼	35	†11d	20 c	7¾d	—	—	—	—
Pansalatenne ...	38 c	9¼d	—	—	20 c	8¾d	18 c	10d	—	—	—	—	—	—
Peradenia ...	187 c	8½d	—	—	48 c	8d	72 c	9½9¾	67 c	7½7¾	—	—	—	—
Pita Ratmalie ...	100	1/2	—	—	50	11¼d	42	1/6½	—	—	3	7d	5	8¾d
Poengalla ...	20 c	8¼d	—	—	—	—	20 c	8¼d	—	—	—	—	—	—
Poolbank ...	57	8½d	33	9¼d	24	7¾d	—	—	—	—	—	—	—	—
Portswood ...	85	11¾d	—	—	60	10¾d	25	1/4	—	—	—	—	—	—
Rappahannock ...	33 c	11½d	—	—	20 c	9¼d	13 c	1/3	—	—	—	—	—	—
Raxawa ...	49 c	8½d	—	—	12 c	8½d	12 c	10d	25 c	7¾d	—	—	—	—
SBR ...	58 c	7¼d	16 c	8d	18 c	7¼d	—	—	24 c	6½d	—	—	—	—
Scarborough ...	409 p	9¼d	42 c	†9½d	123	8½d	146	†10¾d	98	7¾d	—	—	—	—
Selegama ...	91 p	8¼d	22	9¾d	—	—	19 c	9¾d	50 c	7¼d	—	—	—	—
Shannon ...	120	7¼d	—	—	28 c	†6¾d	57	9¼d	27 c	†5½d	5	8½d	3	5¾d
Spring Valley ...	173 p	10½d	—	—	54 c	8¾d	96 c	1/0¼	13 c	7¾d	—	—	10	7d
,, ...	109 p	9¼d	—	—	32 c	8½d	55 c	10½d	10 c	7¼d	—	—	12	6¾d
St. Clair ...	163 c	8d	—	—	55 c	8¼d	32 c	10½d	76 c	7d	—	—	—	—
St. Clive ...	37 c	7¾d	—	—	16 c	6½d	13 c	9¾d	—	—	8 c	7¼d	—	—
St. Johns ...	68 p	9½d	—	—	24 c	8½d	25 c	11¼d	—	—	—	—	19	6½d
Stonycliff ...	134 p	8d	—	—	78 p	7¼7½	40 p	9½d	7	6¼d	—	—	9	6¼d
St. Vigeans ...	50 p	9d	—	—	26 c	8½d	19	11d	4 c	7¼d	1	5¼d	—	—
Tamaravelley ...	200	7¾d	—	—	96	†7½d	76	8¼8½	28	6½d	—	—	—	—
Tellisgalla ...	20	9d	—	—	—	—	15	9½d	—	—	1	5½d	4	7¾d
Tonacombe ...	203	8d	—	—	71	7¾d	43	10¼d	77	7d	6	5½d	6	6¼ 8
Torrington ...	305 c	8d	53 c	10d	124 c	7½d	68 c	9d	60 c	†6½d	—	—	—	—
Tyspany ...	65 c	8¾d	—	—	35 c	7½d	30 c	10d	—	—	—	—	—	—
Tva ...	180	9½d	—	—	74	9¼d	45	11¾d	54	8¼d	2	7¼d	5	7d
Talamaly ...	71 p	9d	—	—	53 p	†8 9	18	10¾d	—	-	—	—	—	—
Tenture ...	137 p	9d	—	—	54 c	8¾d	48	1/	35 c	7½d	—	—	—	—
Tincit ...	40	7½d	10	7½d	10	7d	11	9¼d	9	6½d	—	—	—	—
Tattakelly ...	91 c	8½d	—	—	47 c	7¾d	41 c	9½d	—	—	—	—	3 c	7¼d
Tattegodde ...	153 c	8½d	—	—	58 c	8¼d	45 c	10d	28 c	7½d	—	—	22 c	7d
Tiltshire ...	26 c	7½d	—	—	26 c	7½d	—	—	—	—	—	—	—	—
Tootton ...	24 c	7¾d	—	—	—	—	—	—	24 c	†7¾d	—	—	—	—
...	50 p	6¼d	—	—	—	—	—	—	33 c	6¼d	9	5d	8 c	7d
Thalakelle ...	125	8¼d	—	—	35	8½d	40	9½d	50	7d	—	—	—	—
Talta ...	33	9d	—	—	—	—	—	—	24	8¾d	—	—	9	9¾d
Tellebende ...	58 c	9½d	—	—	21 c	†8¾d	16 c	1/	21 c	8d	—	—	—	—

JAVA. 1,897 pkgs. Average 6¾d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Inlapa ...	32 c	5½d	5 c	6¼6½	7 c	5½d	8 c	5¼d	10 c	5d	2 c	4¾d	—	—
Pontana ...	165 c	7¾d	—	—	71 c	8 1/0½	34 c	7¾d	—	—	40 c	6¾d	20 c	†4d
Knoembangan...	64 c	9¾d	—	—	64 c	9¾d	—	—	—	—	—	—	—	—
Krakan Salak ...	400 c	7¼d	—	—	100 c	7½d	150 c	†7½ 8	—	—	100 c	6½6¾	50 c	6½d
Krbawatte ...	100 c	9½d	—	—	—	—	65 c	†9¾d	35 c	9d	—	—	—	—
Nagar ...	332 c	7d	—	—	60 c	8 8¼	23 c	†7¾d	147 c	†6¼ 7¾	—	—	102 c	6½ †6½
Sidang Sarie ...	208 c	7d	—	—	52 c	8 †9	61 c	†6¼ 8	95 c	6¼7¼	—	—	—	—
Sekamadjoe ...	111 c	5¾d	—	—	—	—	—	—	50 c	†6d	23 c	†5½d	38 c	†5½d
Tindjo Aijoe ...	366 c	5¾d	—	—	50 c	†6d	62 c	5½5¾	73 c	†5½ 5½	79 c	5 5½	102 c	4½5¼
Tloear ...	118 c	6¼d	—	—	50 c	7d	10 c	7¼d	31 c	†5½d	27 c	5¾d	—	—
Tsalak ...	1 b	3/	1 b	†3/	—	—	—	—	—	—	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked this represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, Rood Lane, London, E.C. *August 7th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	79,494 packages.	133,970 packages.	11,935 packages.
1891-1892.	83,766 ,,	157,500 ,,	13,185 ,,

During the week
6,676 packages Indian
4,123 ,, Ceylon } Total 10,799 packages have been offered in public auction.
— ,, Java

The market opened yesterday with a small sale; the tone remains very similar to last week, ne demand being principally concentrated on the better liquoring sorts. Larger sales are atalogued for next week.

The figures for July, of British Grown Tea, may be considered satisfactory, the deliveries of ese growths being 12,565,564 lbs., as against 6,849,182 lbs. from China and other sources.

Shipments for the season to the 31st July from Calcutta were wired as 18,830,000 lbs., against 4,540,000 lbs. for the same period last season.

The exports from Ceylon to the United Kingdom for July were 5,600,000 lbs.

NDIAN. Competition was active for all the better liquoring invoices, and for these satisfactory ites were obtained, dealers however would only take the poorer liquoring descriptions at old rates, nd some low quotations resulted.

Average price of New Season's Teas sold on Garden Account. Total 4,830 pkgs. average 9¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	2317 p	11d	Chota Nagpore ..	60 c	7½d	Kangra Valley ..	315 p	7¼d
Cachar and Sylhet..	521 c	8¼d	Darjeeling & Terai	857 p	9d	Neilgherry.. ..		
Chittagong	86 p	8½d	Dooars	598 c	9¼d	Travancore	76	7½d

s an idea of the comparative prices of Indian Tea in London we quote:—

UST.	(Fair ordinary, dark liquor)	1891,	5½d.	1890,	6¼d.	1889,	4½d	1888, 4½d.
ANNINGS.	(Red to brown, strong rough liquor)	,,	6½d.	,,	6¾d.	,,	5d.	,, 5¾d.
ROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7½d.	,,	8d.	,,	6d.	,, 7¾d.
EK. SOUG.	(Blackish greyish, useful liquor)	,,	8¼d.	,,	9d.	,,	8½d.	,, 9d.
EKOE.	(Greyish to blackish some tip, useful liquor)	,,	9½d.	,,	10¼d.	,,	10d.	,, 10d.
EK. SOUG.	(Blackish greyish, inferior liquor)	,,	7d.	,,	8d.	,,	6d.	,, 8d.
EKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8d.	,,	9d.	,,	7d.	,, 8¾d.

EYLON. There is no appreciable change to record in the tone of this market, buyers showing tle inclination to increase their stocks with the undesirable kinds on offer. For the few Teas ossessing quality and flavour bidding was keen, and good prices were realized. The following verages may be quoted:—"Mooloya," 1/1½; "Bogawantalawa," 1/0½. Average for week 9d.

ORRECTION.—In our last circular the average price obtained for the "Frotoft" Teas was incorrectly stated—it should have read 1/2½ per lb., which was the highest record of the week.

MOVEMENTS OF TEA IN LONDON (in lbs). DURING JULY.

	Imports.			Deliveries.		
	1889.	1890.	1891.	1889.	1890.	1891.
Indian	3,438,990	4,034,877	4,276,542	7,378,119	7,291,524	7,144,722
Ceylon.....	2,883,564	5,142,768	5,728,946	3,677,728	3,932,286	5,420,842
Java	229,810	307,930	270,830	350,140	463,540	412,020
China, etc.	12,274,992	9,841,074	12,117,078	7,344,338	7,820,143	6,437,162
Total lbs,	18,827,356	19,326,649	22,393,396	18,750,325	19,507,493	19,414,746

FROM 1st JUNE TO 31st JULY.

	Imports.			Deliveries.			Stock		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
I ian	4,264,236	4,492,464	5,838,276	14,634,555	15,921,966	13,904,541	17,384,616	16,060,287	18,594,273
C lon.....	6,532,696	8,835,972	12,209,130	6,345,618	7,546,054	10,901,414	7,381,266	10,880,292	16,282,608
J a	545,650	610,820	912,450	769,720	772,310	886,620	1,009,750	903,350	876,890
C na, etc	12,787,518	10,306,492	12,569,533	15,220,016	13,879,503	12,419,670	36,912,766	36,417,098	28,591,954
Total lbs.	24,130,100	24,245,748	31,529,389	34,969,909	38,119,833	38,112,245	62,688,398	64,261,027	64,345,725

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 9/32d.

Garden.	Total.		Average.	Broken Org. Pekoe or Flo very Pekoe.			Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.		Price	Quantity	Price.		Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity.	Price
ASSAM	**2317**	p	**11d**													
Assam Frontier	350	c	11d	97 c	1 1/2	1/7	132 c	9 1/2-10	—	—	57 c	8 3/4d	—	—	64 c	8 1/2-9
Attaree KhatTCo	122	p	9 1/4d	—	—	—	39 c	10 1/4d	22	11d	41 c	8 1/4d	20 c	8 3/4d	—	—
Bamgaon ...	57	c	10 3/4d	—	—	—	29 c	1/	—	—	14 c	10 1/4d	14 c	8 1/4d	—	—
Bishnauth T Co	95	p	11 1/2d	20	1/2	2 3/4	25 c	1/3	—	—	30 c	10 1/2d	20 c	7 1/2d	—	—
Borelli T Co ...	116	c	9 3/4d	—	—		40 c	10 1/2d	17 c	11 1/2d	40 c	8 3/4d	19 c	7 1/2-9	—	—
Chardwar ...	41	c	8d	—	—		—	—	—	—	19 c	8 1/2d	22 c	7 3/4d	—	—
Eastern AssamC	46		10 3/4d	46	9 3/4	1/0 1/4	—	—	—	—	—	—	—	—	—	—
GreenwoodTC D	83	c	10 1/2d	19 c	1/7	3/4	35 c	1/0 3/4	—	—	16 c	10 1/4d	13 c	9 1/2d	—	—
,, G	88		10d	—	—		51	9 1/4d	37	11d	—	—	—	—	—	—
Hattigor ...	65	c	9 1/2d	—	—		25 c	10 3/4d	—	—	20 c	9d	20 c	8 1/2d	—	—
JokaiTCo Bokel	27	c	11 3/4d	27 c	† 11	3/4d	—	—	—	—	—	—	—	—	—	—
,, Hukanpukri	19	c	1/4 1/2	16 c	1/6	1/2	—	—	—	—	—	—	—	—	3	—
,, Jamira ...	21	c	8 1/2d	—	—		—	—	21 c	8 1/2d	—	—	—	—	—	—
,, Joyhing ...	106	c	11 3/4d	—	—		36 c	11 1/2d	24 c	11 3/4	46 c	9d	—	—	—	—
,, Muttuck ...	75	c	11 3/4d	18 c	1/7	1/2	15 c	10d	—	—	42 c	9d	—	—	—	—
,, Panitola ...	154	c	1/6 3/4	64 c	2/1 1/4	† 2/3 1/4	40 c	1/6 1/4	—	—	16 c	1/1 1/2	22 c	8 1/2d	12	—
,, Tippuk ...	55	c	1/4 3/4	28 c	1/7 1/2	1/8 1/4	15 c	1/3	—	—	12 c	11 3/4d	—	—	—	—
Jorehaut T Co	54	c	9 1/2d	—	—		18 c	10 3/4d	—	—	36 c	9d	—	—	—	—
LuckimporeTC	73	c	9 1/2d	—	—		25 c	† 10 1/2d	12 c	† 11 1/2d	20 c	8 1/4d	16 c	8d	—	—
,, ...	44	c	10 1/4d	—	—		24 c	11 3/4d	—	—	20 c	8 1/4d	—	—	—	—
Majuli T Co. G	83	c	10d	—	—		60 c	10 3/4d	—	—	28 c	8 3/4d	—	—	—	—
Mungledye T Co	118	c	10 1/2d	—	—		30 c	9 3/4d	32 c	1/3 1/2	28 c	8 1/2d	28 c	7 3/4d	—	—
,,	101	c	11d	—	—		27 c	11 1/4d	20 c	1/4	30 c	9 1/4d	24 c	8 3/4d	—	—
Nahor Rani ...	50	c	8 1/2d	—	—		10 c	7 1/2d	—	—	23 c	8 1/2d	17 c	9d	—	—
Namgaon ...	84	c	8 1/2d	—	—		—	—	12 c	11 3/4d	40 c	8d	32 c	7 3/4d	—	—
NoakachareeTCo	86	c	7 1/2d	—	—		36 c	8-8 1/2	—	—	30 c	7-7 1/2	20 c	6-7	—	—
Sealkottee ..	67	p	10d	27	1/0	3/4	40 c	9d	—	—	—	—	—	—	—	—
Seconee ...	32	c	9 1/2d	—	—		12 c	11d	—	—	20 c	8 3/4d	—	—	—	—
CACHR& SYLHT	**521**	c	**8 1/4d**													
Borokai T Co.	104	c	11d	—	—		36 c	10 1/2d	12 c	1/7 1/4	20 c	8 3/4d	36 c	10 1/4d	—	—
Cossipore ...	92	c	7 1/2d	—	—		27 c	8d	—	—	—	—	65 c	7-8	—	—
Koyah ...	96	c	7 3/4d	—	—		14 c	8d	17 c	7 1/2-8 1/2	33 c	8d	32 c	7d	—	—
Pathecherra ..	26	c	8d	—	—		14 c	7 3/4d	12 c	8d	—	—	—	—	—	—
ScotporeTCo ...	52	c	7 3/4d	—	—		25 c	7 3/4d	11 c	8 1/2d	—	—	16 c	7 1/4d	—	—
TarraporeTCo ..	73	c	8d	—	—		25 c	7 1/4d	28 c	8 1/2d	20 c	7 3/4d	—	—	—	—
WesternCachr Co	78	c	7 1/4d	—	—		18 c	9 3/4d	—	—	—	—	60 c	6 1/2d	—	—
CHITTAGONG																
Chandpore ...	86	p	8 1/2d	—	—		—	—	24	11 1/2d	—	—	62 c	7 3/4d	—	—
CHOTA NAGPRE																
Mowdie Hill ...	60	c	7 1/2d	—	—		38 c	7 3/4d	—	—	—	—	22 c	7 1/4d	—	—
DRJELNG&TERI	**857**	p	**9d**													
Futtickcherri ...	86	c	8d	—	—		52 c	8-8 1/2	—	—	34 c	7 1/4d	—	—	—	—
Happy Valley ...	69	c	8 1/4d	—	—		30 c	† 8 3/4d	19 c	8 1/4d	20 c	7 3/4d	—	—	—	—
Kalabarrie ...	52	c	9d	—	—		29 c	10d	—	—	23 c	† 7 1/2d	—	—	—	—
Lingia ...	50	c	8 3/4d	—	—		23 c	9 1/2d	—	—	27 c	8d	—	—	—	—
Munjha ...	57	p	9d	—	—		19 c	9 1/4d	21	10d	27 c	8 1/4d	—	—	—	—
Nurbong ...	204	p	9 1/2d	40	† 1/	1/4 3/4	71 c	9 1/2-11	—	—	77 c	7 1/2-8	16 c	7 3/4d	—	—
Nuxalbarrie ...	62	c	10 1/4d	12 c	1/0	1/2	20 c	10 1/4d	—	—	30 c	9 1/4d	—	—	—	—
Oakes ...	70		8 1/4d	—	—		20	8 1/2d	20	8 3/4d	30	7 3/4d	—	—	—	—
Okayti ...	58		9 1/4d	—	—		58	† 9 1/4d	—	—	—	—	—	—	—	—
Puttabong ...	65	c	9 3/4d	6 c	10 1/4d		12 c	1/0 1/4	6 c	11 1/4d	41 c	8 1/4-9 1/4	—	—	—	—
Tumsong ...	84	c	9 1/4d	—	—		22 c	10 1/2d	12 c	† 11 1/4d	28 c	8 1/2d	—	—	22 c	8 1/4d
DOOARS	**598**	c	**9 1/4d**													
Ellenbarrie ...	46	c	10d	20 c	11 3/4d		—	—	—	—	26 c	9 1/4d	—	—	—	—
Hope ...	105	c	9 1/4d	—	—		51 c	† 9 3/4d	20 c	† 11 1/4d	34 c	8 3/4d	—	—	—	—
Meenglas ...	291	c	9 1/2d	12 c	1/2	1/4	79 c	9 3/4d	68 c	† 11 3/4d	127 c	8d	—	—	5 c	5 3/4d
Phoobarrie ...	156	c	8 3/4d	19 c	11 1/4d		48 c	8 3/4d	25 c	10d	37 c	7 3/4d	27 c	7 1/4d	—	—
KANGRA VALEY	**315**	p	**7 1/4d**													
MullaKuttyoor ...	194		8d	—	—		100	7 3/4d	44	† 9 1/2d	50	6 3/4d	—	—	—	—
Parasnath ...	121	p	6 1/4d	—	—		58 b	7 1/2d	—	—	28	6 1/4d	35	5 1/4d	—	—
TRAVANCORE																
Invercauld ...	76		7 1/2d	—	—		43	7 1/2d	16	9d	9	6 3/4d	4	6d	4	5 3/4d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Agrakande ...	76 c	8¾d	—	—	26 c	8½d	27 c	10½d	23 c	7¼d	—	—	—	—
Ambatenne ...	88 c	8¼d	—	—	44 c	8d	25 c	9¼d	15 c	7d	4 c	6¾d	—	—
Bearwell ...	85 p	8½d	—	—	29 c	7¾d	37 c	10d	18 c	6½d	—	—	1	5¾d
Bentura ...	71 p	8½d	28	10¾d	40 c	7¾d	—	—	—	—	—	—	3 c	6½d
Bogawantalawa	81 p	1/0½	—	—	38 c	10½d	21 c	1/8	18 c	8¼d	1 c	7d	3	7d
Cabragalla ...	57 c	8¼d	—	—	26 c	7½d	29 c	9¼d	1 c	6d	—	—	1 c	6d
CTPCEstHolyod	73 p	9¼d	—	—	39 p	8 8½	34 c	10d	—	—	—	—	—	—
„Waverley ...	98 p	9½d	—	—	46 p	8½d	46 c	10¾d	4 c	7d	—	—	2 c	7d
Deemally ...	44 p	7¾d	—	—	—	—	15 c	8¾d	26 c	7¼d	2 p	5¾d	1 c	6½d
Densworth ...	77 c	8d	—	—	23 c	7¼d	42 c	9d	12 c	6½d	—	—	—	—
Derry clare ...	50 c	10¼d	—	—	19 c	9¼d	20 c	1/0¾	11 c	8d	—	—	—	—
Deyanella ...	74 p	9½d	4	1/7¼	33 p	8½d	31 c	†10½d	—	—	3 p	7½d	3 c	7¼d
Dikmukalana ...	82	8d	—	—	22	7¾d	30	9½d	30	6½d	—	—	—	—
Elston ...	130 c	8¾d	—	—	50 c	8½d	40 c	11d	40 c	6¾d	—	—	—	—
,, ...	130 c	8½d	—	—	50 c	8¼d	40 c	10d	40 c	7d	—	—	—	—
Gallaheria ...	94 c	7d	—	—	44 c	7¼d	23 c	7d	27 c	6¾d	—	—	—	—
Glen Alpin ...	244 c	10¼d	—	—	159 c	9d	52 c	1/3½	18 c	7½d	—	—	15 c	7d
Glencoe ...	90 p	8½d	—	—	32 c	8d	32 c	9¾d	21 c	7¼d	2 c	5½d	3	9¾d
Holmwood ..	65 p	9d	—	—	21 c	8¼d	26 c	10½d	16 c	7½d	—	—	2	7d
Hoonoocotua ...	92 c	8d	—	—	20 c	7¾d	35 c	9½d	29 c	7d	4 c	7¼d	4 c	6d
Hopton ...	51 p	8½d	—	—	11 c	8d	26	10¼d	11 c	7¼d	—	—	3	6½d
KAW ...	184 c	8¼d	—	—	120 c	7¼8¾	49 c	9¾d	—	—	15 c	6½d	—	—
Kowlahena ...	147 c	8¼d	—	—	77 c	†7¾8½	41 c	†9½11¼	46 c	†6½d	—	—	3 c	7¼d
Laxapanagalla ...	136	8¼d	50	†8¾d	86	7¾d	—	—	—	—	—	—	—	—
Mahagastotte ...	60 c	9¾d	—	—	25 c	8¼d	35 c	10½d	—	—	—	—	—	—
Mooloya ...	44 c	1/1½	—	—	22 c	10¾d	22 c	1/4	—	—	—	—	—	—
NewDimbula D	91 c	9½d	—	—	28 c	8½d	51 c	10d	12 c	7½d	—	—	—	—
OBEC Dangknde	73 c	8¾d	—	—	—	—	43 c	10d	26 c	7¼d	—	—	4 c	6¾d
,, Loolecondera	48 c	9½d	—	—	24 c	9¾d	—	—	24 c	9d	—	—	—	—
,, Nilloomally...	84 c	8d	—	—	35 c	8d	27 c	9d	22 c	7d	—	—	—	—
Oolanakande ...	74	8¾d	—	—	38	7¾d	27	11d	7	6¾d	—	—	2	6d
Ononagalla ...	130 p	8¼d	30	10¼d	36 c	8d	20 c	10½d	44 c	7d	—	—	—	—
Opalgalla ...	35 c	8½d	—	—	—	—	15 c	10¼d	20 c	7¼d	—	—	—	—
Orwell ...	83 c	8d	—	—	38 c	8d	21 c	9½d	18 c	7¼d	3 c	6½d	3 c	6¼d
Poengalla ...	100 c	7½d	25 c	8¾d	29 c	7¾d	29 c	6¾d	17 c	6d	—	—	—	—
Rookwood ...	120	10½d	—	—	—	—	39	1/2	47	7¾d	34	10½d	—	—
Strathspey ...	45 c	9½d	14 c	1/	29 c	8½d	—	—	—	—	1 c	6¼d	1 c	6¼d
Sutton ...	40 c	9¼d	—	—	18 c	8d	22 c	10¼d	—	—	—	—	—	—
Uva ...	282	9½d	—	—	111	9¾d	67	11¾d	91	8¼d	5	7½d	8	7d
West Haputale...	99	8¾d	—	—	38	†8¼d	47	9½d	14	7¼d	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests ; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *August 14th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	99,919 packages.	153,439 packages.	12,513 packages.
1891-1892.	101,827 ,,	178,702 ,,	13,199 ,,

During the week
18,187 packages Indian
21,202 ,, Ceylon Total 39,403 packages have been offered in public auction.
14 ,, Java

The total quantity brought to auction was considerably in excess of last week. The general tone of the market is towards firmness and many improved quotations have resulted excepting for the poorer liquoring kinds.

The figures given below showing the exports of Tea from Great Britain illustrate a satisfactory increase in the use of British grown Tea in foreign markets. In view of anticipated increased supplies from India and Ceylon during this and subsequent seasons such figures cannot but be of great and pleasing interest to those concerned in these industries.

It will be observed that not only is there an increase in the total amount of Tea re-exported, but that this increase is made up entirely of Indian and Ceylon growths.

Export of Tea from Great Britain for the two months ending 31st July, 1891, compared with same period, 1890.

	1890.	*per centages.*	1891.	*per centages.*
Indian	261,613	5	423,566	7
Ceylon	245,659	4	528,624	9
China, etc.	4,964,514	91	4,782,344	84
	5,471,786		5,734,534	

Average price of New Season's Teas sold on Garden Account. Total 11,085 pkgs. average 9¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	4202 p	10d	Darjeeling & Terai	1568 p	11½d	Kangra Valley ..	253 p	8d
Cachar and Sylhet..	3143 p	9d	Dehra Dun ..	35 c	7¾d	Neilgherry.. ..	301 p	8d
Chota Nagpore ..	140 c	6½d	Dooars	1301 p	10d	Travancore.. ..	142 c	7¾d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	5½d.	1890,	6¼d.	1889,	4¼d	1888,	4½d.
CANNINGS.	(Red to brown, strong rough liquor)	,,	6½d.	,,	6¾d.	,,	4¾d.	,,	5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7½d.	,,	8d.	,,	5¾d.	,,	7½d.
FEK. SOUG.	(Blackish greyish, useful liquor)	,,	8¼d.	,,	9d.	,,	8½d.	,,	9d.
FEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9½d.	,,	10¼d.	,,	10d.	,,	9¾d.
FEK. SOUG.	(Blackish greyish, inferior liquor)	,,	7d.	,,	8d.	,,	5¾d.	,,	7¾d.
FEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	8d.	,,	9d.	,,	6¾d.	,,	8½d.

INDIAN. The tone has been decidedly firmer, and an inclination was displayed to bid higher prices for all grades of good and fair liquoring teas. There is a marked improvement in many of the offerings from the Assam and Darjeeling districts—the latter especially. The Darjeeling Co. obtained over 2/- per lb. for their invoice; the Land Mortgage Bank of India sold an invoice from their Moondakottee Division at 1/5¼, whilst as much as 2/1¾ per lb. was paid for the Teas from the Goomtee Estate.

CEYLON. The market continues much in the position as quoted last week, though there was slightly more animation in the bidding for all desirable kinds. The following averages may be mentioned: "Mooloya," 1/4½; "Portswood," 1/3½; "Goatfell," 1/2; "Henfold and Melfort," 1/1; "Norwood" the E.P.&E.C., and "Ouvahkellie," 1/0½. The average for the week remains the same, being 9d.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 31st JULY.

	Imports.			Deliveries.			Stock		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
Indian	4,264,236	4,492,464	5,838,276	14,634,555	15,921,966	13,904,541	17,384,616	16,060,287	18,594,273
Ceylon.....	6,532,696	8,835,972	12,209,130	6,345,618	7,546,054	10,901,414	7,381,266	10,880,292	16,282,608
Java	545,650	610,820	912,450	769,720	772,310	886,620	1,009,750	903,350	876,890
China, etc	12,787,518	10,306,492	12,569,533	15,220,016	13,879,503	12,419,670	36,912,766	36,417,098	28,591,954
Total lbs.	24,130,100	24,245,748	31,529,389	34,969,909	38,119,833	38,112,245	62,688,398	64,261,027	64,345,725

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. $5\frac{19}{32}$d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flo very Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity.	Price
ASSAM	**4202 p**	**10d**												
Assam Co ...	613 c	8d	—	—	52 c	8½d	—	—	—	—	561 c	7½-7¼	—	—
Assam Frontier	81 c	10½d	—	—	81 c	10½d	—	—	—	—	—	—	—	—
Attaree KhatTCo	512 p	9½d	22	1/2½	130 c	10¼11¼	82 p	10¾11¼	121 c	8½-10¼	117 c	7-7¾	[illegible]	[illegible]
Badulipar ...	58 c	8¾d	—	—	21 c	10d	—	—	—	—	24 c	7¼-7	14 c	7¼-7
Borpukri T Co	143 c	9¼d	—	—	45 c	10 1/0½	—	—	72 c	8½d	26 c	7¼-7	—	—
BrahmapootraTC	128 c	9½d	—	—	—	—	15 c	1/3	88 c	8¾d	25 c	7¼-7	—	—
Choonsali T Co S	130 c	8¾d	—	—	50 c	9¼d	20 c	11½d	—	—	60 c	7½-7	—	—
Chubwa T Co ...	64 p	9d	12 1/	2½ 1/5¾	20 c	9½d	8 c	7¾d	22 c	7¾d	—	—	—	5d
DebrooghurCCo	43 c	8½d	—	—	22 c	9d	—	—	21 c	8¾d	—	—	—	—
Dhoolie ...	52 c	8½d	—	—	—	—	—	—	35 c	8¼d	17 c	7¼-7	—	—
Dibroo ...	22	10d	7 1	/1¾-1/6	—	—	—	—	10	9¼d	5	7¼-7	—	—
Doom Dooma S	20 c	1/2	—	—	20 c	1/2	—	—	—	—	—	—	—	—
GellahattingTC	62 c	11¼d	—	—	25 c	1/2¼	—	—	20 c	10¾d	17 c	7¼-7	—	—
GreenwoodTC B	40 p	10½d	—	—	10 c	11d	17	1/1	13 c	8¾d	—	—	—	—
Hunwal T Co ...	162 p	9¾d	13	1/7½	64 c	9¾-11¼	19 c	10¼d	—	—	61 c	7¼-7	5 c	5¼-5
Jetookiah ...	100 c	9¾d	—	—	62 c	9¼d	—	—	38 c	10¾d	—	—	—	—
Jhanzie T Assoc	190 p	1/2¾	—	—	68 c	1/2¾	30 c	1/11½	67 c	10¾-11	—	—	25 p	7½-7¼
JokaiTCo Bokel	177 c	1/	24 c	1/10½2/4	¾106 c	9¾-11½	—	—	31 c	8¾d	—	—	20 c	7¼-7
,, Muttuck ...	46 c	8½d	—	—	—	—	—	—	46 c	8½d	—	—	—	—
,, Panitola ...	88 c	1/6½	39 c	2/0½2/3¼	23 c	1/7¼	—	—	—	—	26 c	7¼-7	—	—
Jorehaut T Co	231 c	9d	—	—	72 c	10-11	18 c	11¼d	132 c	8-8½	—	—	—	8¼-8
Khobong T Co	113 p	10¾d	25	1/1¾	76 p	9-11¼	12	1/4	—	—	—	—	—	—
LMB Lattakojan	125 c	8¾d	—	—	50 c	8¾d	25 c	10½d	50 c	8d	—	—	—	—
,, ,,	317 c	10½d	—	—	143 c	10¾d	62 c	†1/1¼	112 c	†8¾d	—	—	—	—
Majuli T Co. G	57 c	11½d	—	—	39 c	1/0¼	—	—	18 c	9¾d	—	—	—	—
Naga Dhoolie ...	58 c	9¼d	—	—	16 c	11½d	11 c	10½d	12 c	8½d	18 c	8d	1 c	4½-4
ScottishAssamC	137 p	9d	28 1	/1-1/1¼	27 c	9½d	14	9½d	68 c	8d	—	—	—	—
Sealkottee ..	131 p	10¼d	28 c	1/2	92 p	8¼-11½	4	1/1¼	—	—	7	7¼d	—	—
Shakomato ...	68 c	9½d	—	—	20 c	11¼d	—	—	31 c	9¼d	17 c	8¼d	—	—
Tezpore Old Con.	117 c	9¾d	—	—	47 c	9½-11	16 c	11½d	54 c	8¼-9	—	—	—	—
Upper Assam C	117	9¼d	—	—	74	8½d	43	10¾d	—	—	—	—	—	—
CACHR&SYLHT	**3101 p**	**9d**												
B & Co Chargola	70 c	7¼d	—	—	20 c	8d	13 c	†7¾d	37 c	†6¾d	—	—	—	—
,, Mookham ...	132 p	8d	24 c	10-†11	25 c	8¼d	21 c	8½d	56 c	7d	—	—	6	5¼-5
BITC Urunbund	182 c	8d	—	—	70 c	8¼d	16 c	11½d	—	—	96 c	7¼-7½	—	—
Budderpore ...	77 c	1/0¾	—	—	29 c	11½d	20 c	1/8	—	—	28 c	8¾d	—	—
Chin Joor ...	150	8d	—	—	57	7½d	76	8-9	17	7d	—	—	—	—
,, ..	72	7½d	—	—	29	6¼d	28	8¾d	15	8d	—	—	—	—
Digun ...	86 c	6½d	—	—	20 c	6¾d	20 c	7¼d	25 c	6¼d	21 c	6d	—	—
NSTCBaitakhal	56 p	8d	—	—	33 c	8d	14 c	8¾d	6 c	7d	—	—	3	5¼-5
,,Burjan ...	105 c	7¾d	—	—	60 c	7¾d	15 c	9¼d	15 c	7d	15 c	6½d	—	—
,,Jafflong	110 c	8¾d	26 c	10d	31 c	9d	—	—	38 c	8d	15 c	7¼d	—	—
,,Khadim ...	46 c	7¾d	—	—	31 c	7½d	15 c	8¼d	—	—	—	—	—	—
,,Lallakhal ...	79 c	8½d	16 c	9½d	26 c	8¼d	12 c	10d	12 c	7½d	13 c	7¼d	—	—
ScotporeTCo S	144 c	8¾d	—	—	49 c	9¼d	23 c	10¼d	45 c	8¼d	27 c	7¾d	—	—
,, P	129 c	8¼d	—	—	36 c	8½d	14 c	1/0¼	79 c	7-7¾	—	—	—	—
Seetpoor ...	17 c	6d	—	—	—	—	—	—	—	—	17 c	6d	—	—
SephinjuriBhTCo	82 c	7¼d	—	—	39 c	7d	20 c	9d	—	—	23 c	6d	—	—
SSTCoBalisera	100 c	8½d	17 c	9½d	32 c	8½d	15 c	9¼d	36 c	7½d	—	—	—	—
,,Chundeecherra	32 c	7d	—	—	—	—	9 c	8d	23 c	6½d	—	—	—	—
,,Deanston ...	95 c	8¾d	18 c	9¼d	38 c	8¾d	15 c	10¼d	24 c	7¾d	—	—	—	—
,,Jagcherra ...	52 p	8¼d	9 c	9d	17 c	8d	8 c	9¼d	14 c	7½d	—	—	4	7¼-7
,, Phulcherra..	84 c	8¾d	16 c	9¼d	27 c	8½d	21 c	9¾d	20 c	7¾d	—	—	—	—
,, Rajghat ...	74 c	8¾d	21 c	9d	19 c	8½d	18 c	9½d	16 c	8¼d	—	—	—	—
TarraporeTCo ..	1127 c	9d	—	—	249 c	8¾-11½	116 c	9½ 1/3¾	286 c	8-9½	476 c	6¾-8½	—	—
CHOTA NAGPRE	**140 c**	**6½d**												
Ballyhat ...	75 c	6d	—	—	32 c	†6½d	—	—	43 c	†5¾d	—	—	—	—
Ramgurh ...	65 c	7¼d	—	—	53 c	†7½d	—	—	12 c	†6¾d	—	—	—	—
DRJELNG&TERI	**1476 p**	**11½d**												
Darjeeling Co	90 c	2/0¼	—	—	48 c	2/6	—	—	42 c	1/6	—	—	—	—
Dilaram ...	61 c	1/2¼	—	—	27 c	1/1¼	20 c	1/7¼	14 c	8¾d	—	—	—	—
Dooteriah ...	114 c	1/	—	—	30 c	11¼11½	52 c	1/2½	32 c	9d	—	—	—	—
Goomtee ...	60 p	2/1¾	44 2/	3¼2/6¼	16 c	1/10	—	—	—	—	—	—	—	—
Kyel ...	75 p	8¾d	—	—	18 c	9¾d	15	10d	27 c	8¼d	—	—	15	7¼-7

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
DRJELNG&TERI														
Lebong T Co ...	130 c	1/5½	85 c	1/2-2/3¼	45 c	7¾ 1/0¼	—	—	—	—	—	—	—	—
,, ...	85 c	9¾d	20 c	1/0¼	25 c	10d	—	—	40 c	8½d	—	—	—	—
Lizziepore ...	32 p	8¼d	—	—	—	—	16	9d	16 c	8d	—	—	—	—
LMB ChongTong	134 c	9¾d	—	—	75 c	10½d	14 c	10½d	25 c	8½d	20 c	8d	—	—
,, ,, ...	61 p	9½d	—	—	17 c	1/0½	8	11¼d	25 c	8¼d	—	—	11 c	6¾d
,,Moondakotee	100 c	1/5¼	—	—	55 c	1/9¾	20 c	1/2¼	13 c	10½d	12 c	8½d	—	—
,,Nagri ...	171 c	9¼d	—	—	37 c	11¼d	16 c	1/1¼	118 c	8¼d	—	—	—	—
Maharanee ...	36 c	1/1	—	—	21 c	11¾d	15 c	1/2½	—	—	—	—	—	—
Marionbaree ...	104 c	10d	—	—	47 c	9½d	27 c	1/2¼	30 c	7¼d	—	—	—	—
Rungmook ...	54 p	1/0½	—	—	40	1/2½	—	—	14 c	†9½d	—	—	—	—
Rungneet ...	80 p	7¾d	—	—	30 c	8½d	14	7d	20 c	7¼d	—	—	16	7½d
Sidrapong ...	89 c	7¾d	16 c	10d	10 c	10d	—	—	53 c	7d	—	—	10 c	6¼d
DEHRA DOON														
Raipur ...	35 c	7¾d	20 c	†7¾d	15 c	†7½d	—	—	—	—	—	—	—	—
DOOARS	**1280 p**	**10d**												
Dangua Jhar ...	38	8¼d	—	—	9	8½d	6	10¼d	17	†7d	—	—	6	†8½d
DooarsBamandng	210 c	11d	13 c	1/-1/7	73 c	†9¾d	77 c	1 0¼ 1/0¼	31 c	8¾d	—	—	16 c	9d
,, Ghatai ...	107 c	10d	—	—	27 c	10d	25 c	11 1/1½	42 c	8½d	—	—	13 c	9d
,, Tondoo ...	130 c	11½d	—	—	42 c	10¾d	38 c	1/1¾	36 c	10d	—	—	14 c	10½d
Hope ...	72 c	1/	12 c	1/8	20 c	9¾d	20 c	1/0¼	20 c	9d	—	—	—	—
Leesh River Co	139 c	8½d	—	—	45 c	8½d	35 c	†9¾d	38 c	7¾d	21 c	7d	—	—
Lethijhora ..	63 c	7d	—	—	—	—	—	—	—	—	54 c	†7¼d	9 c	6d
LMB Kolabarree	150 c	9d	—	—	100 c	9 9¼	—	—	—	—	50 c	8½d	—	—
Manabarrie ...	143 c	9¾d	50c	10½-1/2¾	—	—	—	—	75 c	8½d	—	—	18	7¾d
NSTC Bytagool	32 c	10½d	—	—	17 c	9¾d	15 c	†11¼d	—	—	—	—	—	—
,,Dam Dim ...	42 c	9¾d	14 c	10-1/	20 c	9¼10	—	—	—	—	3 c	8½d	5 c	5½ 6
,,Nowrea Nuddy	94 c	10¼d	12 c	10¾ 11	30 c	10½d	21 c	11¾d	23 c	9¼d	8 c	8d	—	—
,;Rungamuttee	60 p	10¾d	—	—	16 c	10½d	24 c	11¾d	15 c	9½d	—	—	5	6½d
KANGRAVALEY	**253 p**	**8d**												
Kangra Valley G	53 p	9½d	40b	10 ¾-†5/	—	—	—	—	13 c	7¾d	—	—	—	—
MullaKuttyoor ...	200	7½d	—	—	157	7¾d	—	—	43 c	6½d	—	—	—	—
NEILGHERRY	**301 p**	**8d**												
Culloocoray ...	40	8d	—	—	40	8d	—	—	—	—	—	—	—	—
Curzon ...	40	9½d	—	—	—	—	12	11d	10	†8½d	12	6¾ 10¼	6	7½d
Kodanaad ...	141 p	9d	40	1/0½	—	—	32	10d	20 c	8¼8½	31 c	7½d	18 c	8¼d
Perindotty ...	80 c	6d	—	—	—	—	—	—	—	—	80 c	6d	—	—
TRAVANCORE	**142 c**	**7¾d**												
Arnakel ...	49 c	7¾d	—	—	48 c	7¾d	1 c	5½d	—	—	—	—	—	—
Glenrock ...	31 c	7¾d	—	—	—	—	8 c	9¼d	22 c	7¼d	1 c	5¾d	—	—
Isfield ...	62 c	7½d	—	—	17 c	7d	11 c	9¾d	22 c	8d	12 c	5¾d	—	—

CEYLON. Average 9d.

Adams Peak ...	130 c	8¾d	—	—	51 c	8d	51 c	10½d	25 c	7¼d	—	—	3 c	6½d
Agrakande ...	47 c	9¼d	—	—	16 c	9d	19 c	10½d	12 c	7½d	—	—	—	—
Ambatenne ...	75 c	9d	—	—	43 c	8¾d	27 c	9¾d	—	—	—	—	5 c	6d
Ampittiakande ...	63 p	9½d	29	1/0½	34 c	8¼d	—	—	—	—	—	—	—	—
Ardlaw ...	36 p	9d	—	—	10 c	†7¾d	26	10d	—	—	—	—	—	—
Arslena ...	122	7¾d	—	—	69	7-7½	44	9d	—	—	—	—	9	6¼d
Atherfield ...	111 c	8½d	—	—	36 c	8d	51 c	9½d	24 c	7½d	—	—	—	—
Attabage ...	127 p	7½d	—	—	53 c	7½d	38	9¾d	25 c	6½d	6	4¼d	5	7¼d
Bambrakelly&D.	57 c	9½d	—	—	26 c	8½d	31 c	10½d	—	—	—	—	—	—
Battalgalla T Co.	187 p	8¾d	80	11¾d	88 c	7¾d	—	—	12 c	7d	—	—	7	6¾d
Beaumont ...	77 p	9d	2 b	6/	40 c	7¼d	35 c	10d	—	—	—	—	—	—
BER ...	9 c	7d	—	—	—	—	9 c	7d	—	—	—	—	—	—
Blackstone ...	118 p	8d	—	—	22 c	8¼d	40	11½d	49 c	6¾d	7	5¾d	—	—
Bogahawatte ...	128 p	8½d	43	11½d	66 c	8d	—	—	12 c	6¾d	—	—	7	7¼d
Bon Accord ...	32 c	10d	—	—	19 c	8¾d	13 c	11½d	—	—	—	—	—	—
Brae ...	158 p	7½d	—	—	33 c	7½d	43	9½d	72 c	6¾d	6 c	5d	4 c	6d

BANK RATE 4 percent. FAIR EXCHANGE 1 SIGHTS

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Yarbs.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity.	Price	Quantity.	Price.	Quantity.	Price.
Bramley ...	146 p	11¾d	10 b	6/-7/7	29	8¼d	71	8¾-10	36	7½d	—	—	—	—
Brunswick ...	70 p	8½d	35	10¾d	35 c	7½d	—	—	—	—	—	—	—	—
Campion ...	152 c	8¾d	—	—	40 c	8½d	60 c	10¾d	30 c	7¼d	22 c	6½d	—	—
,, ...	115 c	8½d	—	—	30 c	7½d	60 c	†9¾d	25 c	7d	—	—	—	—
Chapelton ...	144 p	10¾d	—	—	44 c	9-10½	54	1/2½-1/6	29	7-7½	17 c	5½-6	—	—
Charley Valley ...	281 b	10¾d	—	—	71 b	10½d	59 b	1/3¾	151 b	9d	—	—	—	—
CeyLand&ProdC														
,,NewPeradeniya	153 c	7¾d	—	—	57 c	8d	40 c	7½-9¾	56 c	6-6¾	—	—	—	—
,, Z ...	74 p	8d	—	—	30 c	7¾d	21 c	9¾d	22 c	7d	1	6d	—	—
Clova ...	49	7¾d	—	—	14	8½d	8	10d	27	6¾d	—	—	—	—
Cocogalla ...	119 c	11¾d	—	—	34 c	9¼d	67 c	1/1¾	18 c	8½d	—	—	—	—
Coombewood ...	56 c	9d	—	—	22 c	7¾d	34 c	9¾d	—	—	—	—	—	—
Cooroondawattee	125	9d	—	—	60	9d	40	10¼d	25	7d	—	—	—	—
Cottaganga ...	40 c	8¼d	—	—	14 c	8d	13 c	9½d	13 c	7¼d	—	—	—	—
Court Lodge ...	186 p	10¼d	—	—	55	9¼d	51	1/3¼	73	8¼d	3 c	7½d	4	6¼d
,, ...	1 b	6/6	1 b	†6/6	—	—	—	—	—	—	—	—	—	—
Ceylon T PlantCo														
,,Dunedin ...	292 p	8½d	72 b	1/1	124	7¾d	58 c	9d	38 c	6¾d	—	—	—	—
,,EastHolyrood	82 p	10¼d	—	—	47 p	8½d	35 c	11¾d	—	—	—	—	—	—
,,Tillyrie ...	83 c	10d	—	—	28 c	9d	36 c	1/0¼	19 c	7¼d	—	—	—	—
,,Wallaha ...	136 c	9¼d	—	—	31 c	8¼-8½	70 c	10¼d	35 c	7½d	—	—	—	—
,, ,, ..	230 p	8¼d	—	—	82 p	7¼ 8	77 c	9¾d	40 c	6¾d	8 c	7d	23	5¾d
Dehigalla ...	90	11¼d	—	—	33	10¾d	13	1/9¾	40	8¾d	4	6¾d	—	—
Delpotonoya ...	67 c	8d	—	—	12 c	7¾d	24 c	9¾d	31 c	7d	—	—	—	—
Denegama ...	52	10d	—	—	32	8½d	20	1/0½	—	—	—	—	—	—
Derby ...	42 p	7d	2 c	8¾d	13 c	8½d	4 c	8d	16 c	6¼d	6 c	5½d	1	4½d
Detenagalla ...	80	10¼d	—	—	30	9½d	30	1/0¼	20	8¼d	—	—	—	—
Deviturai ...	51 c	8¼d	—	—	22 c	7¼d	22 c	9 9¾	—	—	6 c	6¼d	1	5¾d
Digalla ...	83 p	8d	—	—	28 c	7¾d	26 c	9¾d	24 c	†6½d	3 c	5½d	2	6d
Dimbula ...	160 p	10d	—	—	137 c	8 11	23	1/9½	—	—	—	—	—	—
Doranakande ...	52 c	8d	—	—	13 c	8d	22 c	8¾d	17 c	6¾d	—	—	—	—
Drayton ...	179 p	11¼d	116 p	11¼ †3/	—	—	—	—	58 c	7¾-8	—	—	5	7¾d
Duckwari T P Co	98 c	8d	—	—	25 c	8½d	23 c	†10½d	40 c	7d	6 c	5¼d	4	5¼-6
Ederapolla ...	91 p	8¼d	—	—	46 c	7-7¾	45	9¾d	—	—	—	—	—	—
Elangapitiya ...	85 c	7¼d	35 c	7¾-9	—	—	—	—	41 c	6¾d	9 c	5d	—	—
,, ...	79 c	7¾d	37 c	7¾-9¼	—	—	—	—	38 c	7d	—	—	4	6½d
Elgin ...	32 c	10d	—	—	11 c	8½d	12 c	1/1½	8 c	6¾d	—	—	1	5¾d
Elkadua ...	127 p	8½d	—	—	42 c	8¼-8½	28 c	11¾d	46 c	7-7¼	10	7¼d	11 c	7¼d
EP&ECo Ingura	93 c	8d	36 c	9½d	57 c	7d	—	—	—	—	—	—	—	—
,,Meddecombra	134 c	8d	—	—	36 c	7¼d	68 c	9d	30 c	6½d	—	—	—	—
,,Norwood ...	61 c	1/0½	—	—	36 c	9¾d	25 c	1/4½	—	—	—	—	—	—
Ernan ...	89 c	8½d	—	—	29 c	7¾d	38 c	9¾d	22 c	7¼d	—	—	—	—
Fairlawn ...	125	9d			66	8½d	41	11d	12	7d	3	6¼d	3	7¼d
Faithlie ...	42 c	8½d	—	—	16 c	8¼d	12 c	10½d	14 c	7d	—	—	—	—
Fassifern ...	54 c	7¾d	—	—	32 c	7¼d	11 c	9½d	11 c	7d	—	—	—	—
Fernlands ...	159 p	10½d	—	—	38 c	10½d	83	1/0¼	30 c	8½d	4	7¾d	4	6½d
Fordyce ...	100 p	9½d	41	1/1½	19 c	9d	—	—	40 c	7½d	—	—	—	—
Gallamudina ...	130 c	8¼d	—	—	50 c	7 7¾	40 c	10½d	—	—	40 c	7d	—	—
Gallebodde ...	81 c	8d	—	—	30 c	7¾d	23 c	9½d	28 c	6¾d	—	—	—	—
Gangwarily ...	108 c	8d	—	—	64 c	7½d	39 c	8¾d	—	—	—	—	—	—
Gikiyanakanda ...	88 c	10¼d	—	—	22 c	9¾d	40 c	11¾d	26 c	8d	—	—	5 c	6½d
Glencairn ...	87 c	7¾d	—	—	27 c	7¼d	34 c	9d	22 c	6½d	—	—	—	—
Glencorse ...	88 c	8¾d	23 c	10¾d	25 c	7-8	15 c	9¾d	24 c	7½d	—	—	4 c	6½d
Glenugie ...	125 p	11¼d	—	—	58 c	10¾d	46	1/3½	16 c	8d	—	—	1 c	5½d
Goatfell ...	94 p	1/2	—	—	42 c	1/2	28	1/8	24 c	10¾d	—	—	5	8d
Gona Adika Co M	69	6½d	—	—	—	—	—	—	64	6½d	—	—	—	—
Gonakelle ...	103 c	9½d	46 c	10¾11¼	25 c	9½d	—	—	32 c	7½d	—	—	5	5d
Gonamotava ...	36 c	9¼d	—	—	18 c	8¾d	17 c	10d	—	—	—	—	—	—
Gorthie ...	133 p	10½d	—	—	44 c	9½d	56	1/3	28 c	8d	1 c	7d	—	—
Hantane ...	72 p	7¾d	—	—	26 c	7¾d	19	10d	27 c	6¾d	—	—	5	7¼d

Garden.	Total.	Average.	or Flowery Pekoe.		Unassorted.		Broken Pekoe.		Pekoe Souchong.		and Souchong.		and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Happugahalande	66 c	7¾d	—	—	24 c	7½d	19 c	9¾d	20 c	6¾d	1 c	5½d	2 c	5½d
Harmony ...	64 p	7¼d	—	—	27 c	7¼d	19	9½d	11 c	6½d	3	4¼d	4	6½d
Hattangalla ...	63 c	7½d	—	—	25 c	7¼d	21 c	8½d	17 c	6½d	—	—	—	—
Hauteville ...	120 c	10½d	—	—	45 c	8¾d	53 c	1/1¼	22 c	7½d	—	—	—	—
Heatherley ...	86 c	8¼d	—	—	44 c	†7½d	30 c	†9¾d	12 c	†6½d	—	—	—	—
Hemingford ...	90	8d	—	—	41	7¾d	25	10d	18	6¼d	—	—	6	6¾d
Henfold ...	111 c	1/1	—	—	53 c	10¼d	41 c	1/6	17 c	8¾d	—	—	—	—
Hillside ...	142 c	8d	53 c	9¾d	45 c	7¾d	—	—	29 c	6¾d	15 c	6d	—	—
Hoolankande ...	53 p	8½d	48	10¼d	13 c	7¼d	—	—	12 c	6½d	—	—	—	—
Hope ...	93 c	9¾d	—	—	22 c	9¼d	43 c	11¼d	—	—	28 c	7¾ 8	—	—
Hunasgeria ...	135 c	7¾d	—	—	21 c	7½d	49 c	9 9¼	45 c	6¾d	20 c	6½d	—	—
,, ...	102 c	7¾d	—	—	—	—	47 c	9d	20 c	6¾d	35 c	6 6½	—	—
Hyndford ...	89 c	7¼d	—	—	27 c	7d	24 c	8¾d	37 c	6¼d	—	—	1 c	5¼d
Imboolpittia ...	215 p	7¾d	—	—	92 p	7 8¼	41 c	10d	82 p	6¾7¼	—	—	—	—
,, ...	72 p	8½d	—	—	26 p	8½d	20	10½d	26 p	7¼d	—	—	—	—
IMP ...	118 p	8¼d	18 p	7 9¾	34 c	8½d	20 c	10½d	46 c	7d	—	—	—	—
,, ...	74 c	7¼d	—	—	—	—	16 c	†9½d	58 c	†6¾d	—	—	—	—
Ingestre ...	63 p	10¼d	—	—	35 c	8¼d	28	1/3½	—	—	—	—	—	—
Ivanhoe ...	69 p	8d	—	—	18 c	8½d	20	1/1	14 c	6¾d	14 c	3-6	3 p	4½-6
Kahagalla ...	25 c	7½d	—	—	13 c	7d	12 c	8¼d	—	—	—	—	—	—
Kallebokka ...	106 p	9½d	18	1/4¼	43 c	8¼d	38 c	10d	5 c	5½d	—	—	2	7d
Kaloogala ...	51 c	8¼d	—	—	28 c	7d	23 c	9½d	—	—	—	—	—	—
Kandapolla ...	70 c	10¾d	24 c	11d	—	—	25 c	11½d	21 c	9½d	—	—	—	—
Katooloya ...	274 c	8¼d	—	—	72 c	8d	110 c	9¼9½	80 c	7d	—	—	12 c	6½d
KAW ...	220 c	7¾d	—	—	132 c	7¼d	70 c	6¾-9¼	—	—	18 c	6¼d	—	—
Kelani Valley D	130 p	7¾d	—	—	44 c	7½d	39 c	9d	29 c	6½d	—	—	18	6d
Kelburne ...	42 c	9½d	—	—	13 c	7½d	26 c	10¾d	—	—	3 c	7d	—	—
Kew ...	122 p	11½d	—	—	54 c	10½d	30	1/11¼	34 c	8¼d	—	—	4 c	7½d
Kinlock ...	40 p	7½d	—	—	18 c	7¾d	16	7d	5 c	6¾d	—	—	1	7d
Kintyre ...	85 p	9½d	—	—	28 c	8¾d	23 c	11¼d	8 c	7¼d	—	—	26 p	6½9¾
,, ...	2 b	5/1½	2 b	†5/-†5/3	—	—	—	—	—	—	—	—	—	—
Kotiyagalla ...	76 p	1/0¼	—	—	27 c	10d	49	1/2½	—	—	—	—	—	—
Le Vallon ...	219 p	8¼d	—	—	66	8d	117	9¼d	36 c	7¼d	—	—	—	—
Little Valley ...	166 p	7½d	—	—	111	†6¾ †7	57 c	9d	—	—	3 c	6d	5	6d
Loonagalla ...	100	10¾d	42	11 1/5¾	43	9d	—	—	—	—	—	—	15	7¾d
Lynsted ...	155	8¼d	—	—	45	7¾d	66	9½d	42	7d	1	5½d	1	6d
Mahacoodagalla	123 c	8¼d	—	—	66 c	7¾d	39 c	9¾d	18 c	6½d	—	—	—	—
Mahaousa ...	115 p	9d	59 p	9½-1/9	28 p	7¾d	—	—	25 c	7¼d	—	—	3 c	6½d
Malgolla ...	252 p	8¼d	—	—	47	8d	62 p	9¾d	129	7¼d	7 c	7d	7	5¾d
Marske ...	75	10¼d	—	—	55	†8½d	17	1/4½	—	—	1	6¼d	2	6¼d
Maryland ...	41 c	7½d	17 c	7¾9¼	—	—	—	—	21 c	6¾d	3 c	5¾d	—	—
Melfort ...	28 c	1/1	14 c	1/3¾	14 c	10¼d	—	—	—	—	—	—	—	—
Melrose ...	42 p	9½d	—	—	18 c	9d	24	10¼d	—	—	—	—	—	—
Middleton ...	63 p	10d	—	—	13 c	8¼d	42	11¾d	8 c	8d	—	—	—	—
Mipitiakande ...	170 p	9¼d	—	—	76 c	9d	55	1/0¼	33 c	7½d	1 c	6½d	5	6d
Mooloya ...	30 c	1/4½	—	—	13 c	1/0½	17 c	1/7¾	—	—	—	—	—	—
Morar ...	92 p	10¼d	—	—	30	10½d	23	1/4½	39 c	8½d	—	—	—	—
Mossville ...	152 c	7¾d	—	—	33 c	8½d	31 c	9¼d	66 c	7d	12 c	8½d	10 c	6¼d
Mount Vernon ...	316 p	10½d	133p	1/0¼-1/6	¾122 c	8½d	—	—	54 c	7¼d	—	—	7 c	6½d
Narangalla D	92 c	7½d	40 c	8¼ 9	—	—	—	—	43 c	6¾d	9 c	6d	—	—
Nartakanda ...	68 c	7½d	—	—	22 c	7½d	14 c	9½d	32 c	6¾d	—	—	—	—
Nayapane ...	185 p	7½d	—	—	78 c	7½d	56	9¾d	34 c	6½d	9	4¼d	8	7d
Needwood ...	94 c	7¾d	—	—	63 c	6½7¼	31 c	9¾d	—	—	—	—	—	—
New Forest ...	39 c	10d	—	—	24 c	8½d	15 c	1/0¼	—	—	—	—	—	—
Nyanza ...	110 c	8d	—	—	35 c	7¾d	38 c	9½d	27 c	6¾d	3 c	5d	7 c	6d
OBECCraigieLea	76 c	9¼d	—	—	29 c	8d	22 c	1/2	25 c	6¾d	—	—	—	—
,, Daagkande ...	109	8¾d	—	—	25 c	8½d	54	10d	21	7¼d	7	6d	2	5d
,, Darrawella ...	111 c	9¼d	—	—	53 c	8½ 10¾	18 c	1/2¾	33 c	7¼d	4 c	6¼d	3 c	6½d
,, Glendevon ...	71 c	10¼d	—	—	19 c	1/1	27 c	1/5¼	25 c	10¼d	—	—	—	—
,, Havilland ...	171	8d	—	—	53	8d	40	10d	78	6¾d	—	—	—	—
,, Loolecondera	81 c	11½d	—	—	32 c	10¼d	30 c	1/2¼	19 c	9d	—	—	—	—
,, Sinnapittia ...	80 c	9½d	—	—	30 c	8½d	29 c	1/	21 c	7¼d	—	—	—	—
Ooragalla ...	88 c	8½d	—	—	15 c	7¾d	73 c	8½8¾	—	—	—	—	—	—
Osborne ...	95 p	8¾d	—	—	28 c	8¼d	53	10d	14 c	7d	—	—	—	—
Ouvahkellie ...	48 c	1/0½	—	—	23 c	10d	25 c	1/3	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Pambagama ...	152 p	7d	—	—	68 c	6¾d	63	8½d	21 c	6¼d	—	—	—	
,, ...	115 p	7¼d	—	—	58 c	6¾d	49	8½d	8 c	6d	—	—	—	
Panmure ...	44 c	7½d	—	—	17 c	7½d	11 c	†9¼d	14 c	6¾d	1 c	5½d	1 c	4¼d
Pantiya ...	204 c	7¾d	—	—	62 c	7¾d	57 c	9½d	66 c	6¾d	15 c	5¾d	4 c	6d
Peacock Hill ...	164 p	7¾d	—	—	51 c	7½-7¾	43	9½d	27 c	6¾d	20	6¼d	23	7¼d
Pen-y-lan ...	118 c	8¼d	—	—	45 c	7¼d	60 c	9½d	1 c	7d	1 c	5½d	2 c	5¼d
Polgahakande ...	104 c	7¾d	—	—	40 c	7¼d	32 c	9¾d	31 c	6½d	—	—	—	
Portswood ...	95	1/3½	—	—	69	1-1/3¾	21	1/3½	—	—	—	—	—	
Putupaula ...	62 c	9d	—	—	13 c	9d	18 c	1/	30 c	7d	—	—	1 c	6¼d
Ravenswood ...	126	8d	—	—	50	8d	28	9¾d	48	7d	—	—	—	
Rookwood ...	143	8d	—	—	75	8¾d	—	—	68	7¼d	—	—	—	—
Rothschild ...	72 c	8½d	17 c	11¾d	52 c	7½-8	—	—	—	—	3 c	6¾d	—	—
Rowley ...	46	9d	—	—	26	8d	20	†10d	—	—	—	—	—	—
Sanquhar ...	185 c	8½d	—	—	72 c	8-8½	64 c	9½-10	39 c	†7d	3 c	6¼d	7 c	4¾d
SCTCo Invery ...	110 p	11d	—	—	42 c	9¾d	41	1/4¾	—	—	27 c	8½d	—	
,,Mincing Lane	77 p	9¼d	—	—	31 c	8¾d	29	1/0¾	13 c	7¼d	2 c	6¾d	2	6¾d
Shannon ...	116 p	7½d	—	—	25 c	6¾d	56	9¼d	29 c	6¾d	3	4d	3	5¼d
Situlaganga ..	48	7½d	—	—	26	6¾d	18	8¾d	4	6½d	—	—	—	
,, ...	75	7¾d	—	—	48	7¾d	18	8½d	8	7d	—	—	1	6d
Sogama ...	90 c	8¾d	26 c	10¾d	60 c	7½-9	—	—	—	—	1 c	6½d	—	—
Somerset ..	82	10d	—	—	29 c	8½d	26	1/2	—	—	—	—	27	7½-10¼
Spring Valley ...	157 p	10½d	—	—	66 c	9d	73 c	1/0¼	—	—	11 c	7½d	7	7¼d
Stinsford ...	35 c	7d	—	—	16 c	7¼d	—	—	17 c	6¾d	—	—	2 c	6½d
St. Leys ...	35 c	9½d	1 b	3/9	20 c	8d	12 c	1/	—	—	2 c	6d	—	—
Stonycliff ...	97 p	9½d	—	—	62 p	7¾-8½	35 p	10-11½	—	—	—	—	—	—
Stubton ...	40 c	8¼d	—	—	13 c	8½d	9 c	9½d	15 c	7¾d	1 c	5d	2 c	5¾d
St. Vigeans ...	28 p	9d	—	—	13 c	8½d	12	11d	2 c	7½d	1	5½d	—	
Summerville ...	70 c	9¾d	—	—	39 c	8½d	17 c	1/2¾	14 c	7¼d	—	—	—	—
Sunnycroft ...	79 c	7½d	34 c	7¾-9½	35 c	7d	—	—	10 c	6d	—	—	—	—
Talawakelle ...	114 p	9d	—	—	36 c	9¼d	14 c	1/2¼	45 c	7½d	3 c	6¾d	15	7¼-10¼
Tamaravelley ...	45	9¼d	—	—	—	—	45	9¼d	—	—	—	—	—	—
Tangapoo T. ...	38 c	7½d	—	—	—	—	16 c	8¼d	19 c	7d	3 c	5½d	—	
Taprobana ...	51	7¾d	—	—	25	7¼d	17	9d	5	5¾d	—	—	4	6¼d
Tellisgalla ...	32	8½d	—	—	10	8d	14	9¾d	4	7½d	4	6½d	—	
Theresia ...	59 p	9¾d	—	—	16 c	10d	27	1/	11 c	8d	2 c	7d	3 c	6¾d
Tommagong ...	89 p	10¾d	—	—	22 c	11¼d	27	1/2¼	24	9d	11	8d	5	7½d
Topare ...	51 p	5¾d	—	—	—	—	—	—	44 c	5¾d	—	—	7	6d
Torwood ...	70 c	9¼d	—	—	15 c	9¾d	20	1/0¾	35 c	8d	—	—	—	—
Troy ...	65 c	8d	—	—	15 c	7¼d	30 c	9½d	20 c	6½d	—	—	—	—
Tyspany ...	59 c	8⅓d	—	—	34 c	7¾d	25 c	9¾d	—	—	—	—	—	—
Ugieside ...	58 c	7½d	—	—	24 c	†6¾d	25 c	8¾d	9 c	6¼d	—	—	—	—
Upper Haloya	34 p	5½d	—	—	12 c	5¾d	6 c	5¾d	12 c	5d	—	—	4	4¾d
Vellaioya ...	213 c	8¾d	73 c	11d	114 c	7¾d	—	—	26 c	6¼d	—	—	—	—
Vogan ...	54 c	7¾d	—	—	18 c	7⅓d	17 c	9½d	19 c	6½d	—	—	—	—
Waltrim ...	141 c	8½d	—	—	51 c	8d	49 c	10¼d	38 c	6¾d	—	—	3 c	6¾d
Wangie Oya ...	137 c	8¾d	61 c	9 1/3½	38 c	7¼d	—	—	38 c	6¾d	—	—	—	—
Westhall ...	136 c	8d	—	—	68 c	8¼d	25 c	10½d	42 c	6½d	—	—	1 c	5d
Wewebedde ...	49 c	11½d	—	—	13 c	9¾d	23 c	1/2½	10 c	8½d	—	—	3 c	6½-7
Wewelmadde ...	47 c	8½d	—	—	13 c	8d	19 c	10d	15 c	6¾d	—	—	—	—
Woodstock ...	61 p	8¼d	—	—	24 c	7¾d	32	9¾d	—	—	3 c	5¾d	2	6½d
Yalta ...	41	9d	—	—	—	—	—	—	19	9¼d	18	8½d	4	9¾d
Yarrow ...	60	8½d	—	—	31	8d	20	9¾d	9	6¾d	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

3, ROOD LANE, LONDON, E.C. *August 21st*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1st JUNE TO DATE.

	Indian.	Ceylon.	Java.
1890-1891.	120,724 packages.	170,861 packages.	12,513 packages.
1891-1892.	121,205 ,,	204,698 ,,	14,751 ,,

During the week

9,378 packages INDIAN
5,996 ,, CEYLON } Total 46,926 packages have been offered in public auction.
1,552 ,, JAVA

The late depression in prices has doubtless to a large extent been caused by the very inferior ass of Tea received from the producing Countries during the last two or three months.

There is now a large demand for useful liquoring Teas of all grades to be satisfied and the rival of a few ships bringing improved quality has had a salutary effect on the Indian Tea market.

NDIAN. For all the better liquoring descriptions competition continues strong, and good New easons Teas are in active demand at advancing rates. Amongst the most desirable invoices fering those from the Jokai Co., Ld., commanded the best attention, the Teas from their "Hukanpukri" Division realising exceptionally high prices, and as much as 4/8 per lb. was paid r a fair sized parcel; the average for this invoice was 2/4¼. Other averages such as 1/6¾ for Tukvar Co.; 1/4½ for "Kalej"; and 1/3 for "Putharjhora" are worthy of note.

This weeks average price of New Season's Teas sold on Garden Account. Total 11,650 pkgs. average 10¼d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
ASSAM	4324 p	11¾d	DARJEELING & TERAI	1627 p	11¾d	KANGRA VALLEY ..	69 p	7¾d
CACHAR AND SYLHET..	2864 p	9d	DEHRA DUN ..	103 c	7½d	NEILGHERRY.. ..		
CHITTAGONG	184 p	8¾d	DOOARS	2007 p	10d	TRAVANCORE	472 p	8¼d

an idea of the comparative prices of Indian Tea in London we quote:—

JST.	(Fair ordinary, dark liquor)	1891,	5½d.	1890,	6¼d.	1889,	4¼d	1888, 4½d.
NNINGS.	(Red to brown, strong rough liquor)	,,	6½d.	,,	6¾d.	,,	4¾d.	,, 5¾d.
OKEN TEA.	(Brownish to blackish, strong liquor)	,,	8d.	,,	8d.	,,	5⅜d.	,, 7½d.
K. SOUG.	(Blackish greyish, useful liquor)	,,	8½d.	,,	8½d.	,,	8½d.	,, 9d.
KOE.	(Greyish to blackish some tip, useful liquor)	,,	10d.	,,	10¼d.	,,	10⅓d.	,, 9¾d.
K. SOUG.	(Blackish greyish, inferior liquor)	,,	6¾d.	,,	7d.	,,	5⅜d.	,, 7¾d.
KOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7¾d.	,,	7¾d.	,,	6¾d.	,, 8½d.

EYLON. The late scarcity of fine and good medium Teas has had a decided effect on prices, l the few lots possessing flavor and quality sold at an advance of from 1d. to 2d. per lb. On the er hand common liquoring descriptions could only be disposed of at a further concession in price. e following averages may be mentioned:—"Goatfell," 1/3½; "Bogawantalawa," 1/2¾; Kotiyagalla," 1/1¾; "Glendevon" of the OBEC 1/1½; "Calsay" 1/1; and "Invery" of SCTCo., 1/1. The Ceylon average remains the same as last week, namely 9d.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 31st JULY.

	IMPORTS.			DELIVERIES.			STOCK		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
AN	4,264,236	4,492,464	5,838,276	14,634,555	15,921,966	13,904,541	17,384,616	16,060,287	18,594,273
LON.....	6,532,696	8,835,972	12,209,130	6,345,618	7,546,054	10,901,414	7,381,266	10,880,292	16,282,608
.....	545,650	610,820	912,450	769,720	772,310	886,620	1,009,750	903,350	876,890
A, etc	12,787,518	10,306,492	12,569,533	15,220,016	13,879,503	12,419,670	36,912,766	36,417,098	28,591,954
TOTAL lbs.	24,130,100	24,245,748	31,529,389	34,969,909	38,119,833	38,112,245	62,688,398	64,261,027	64,345,725

ANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. $5\frac{15}{32}$d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price	Quantity	Price
ASSAM	**3440 p**	**11¾d**												
AssamFrontierCo	124 c	11½d	124 c	11¼-11¾	—	—	—	—	—	—	—	—	—	—
Bargang T Co ...	68 p	1/3	—	—	25 c	1/4¼	23	1/5¼	20 c	1/0¼	—	—	—	—
Bishnauth T Co	441 p	1/2¾	60 1/1	1½-2/3½	203 c	1/4-1/5	—	—	134 c	9½-1/	19 c	9½d	25 c	1/3¾
Borpukri T Co	70 c	1/1	—	—	25 c	1/1¾	20 c	1/3¾	25 c	10¼d	—	—	—	—
BrahmapootraTC	432 c	10d	—	—	131 c	10¾-11½	53 c	1/1½-1/3½	177 c	8½-9½	71 c	8-8¾	—	—
Doolahat ...	84 c	8½d	—	—	23 c	9d	19 c	9¾d	36 c	8d	6 c	6¾d	—	—
JokaiCoHuknpuri	107 p	2/4¼	50 p	2/9½-4/8	32 c	2/0¼	13 c	2-2¼	12 c	1-1¼	—	—	—	—
,, Jamira ...	216 p	10½d	31	1/10¼-2/1	51 c	9½-11¼	28 c	11¼d	30 c	8¾d	41 c	7¼-8	13	6¾-8
,, Joyhing ...	177 c	11¼d	—	—	59 c	10-11¼	36 c	1/4¼	82 c	9d	—	—	—	—
Kettela T Co ...	113 p	1/0½	—	—	52 c	1/-1/2½	21	1/5½	20 c	9¾d	20 c	8½d	—	—
Koddom ...	69 c	8½d	—	—	29 c	9d	23 c	†8½d	17 c	8d	—	—	—	—
Lepetkatta ..	76 p	1/	47	11½-†1/11½	14 c	8¾d	—	—	15 c	7½d	—	—	—	—
LuckimporeTC B	90 c	1/0½	—	—	32 c	1/2	14 c	1/4¼	30 c	10d	14 c	10¼d	—	—
,, Mijica Jan	98 c	1/	—	—	40 c	1/1	16 c	1/3¾	30 c	9¼d	12 c	9¾d	—	—
Majuli T Co. K	149 c	1/2	14 c	1/10¾	78 c	1/2	20 c	1/2¾	23 c	10d	14 c	9¾d	—	—
,, Majuli ...	58 c	10½d	—	—	22 c	1/1	—	—	36 c	9d	—	—	—	—
Mokalbari ...	54	1/4¼	54	1/1-1/6½	—	—	—	—	—	—	—	—	—	—
NoakachareeTCo	226 c	8¾d	—	—	75 c	9½-11¼	—	—	131 c	7½-8	20 c	7¾d	—	—
Nonoi ...	58 c	9½d	—	—	15 c	10d	18 c	10¾d	25 c	8½d	—	—	—	—
Rungli Ting ..	35 c	1/0½	—	—	15 c	1/5	—	—	20 c	9d	—	—	—	—
Salonah T Co	387 p	10d	—	—	191 p	7¾-1/1	88	8½-1/6¾	73 c	6¾-10¼	35 c	7-8½	—	—
Shakomato ...	105 c	1/2	—	—	43 c	1/4¾	20 c	1/3½	42 c	10¾d	—	—	—	—
Tezpore Old Con.	97 c	10d	—	—	46 c	10¾-1/0¾	—	—	51 c	8½d	—	—	—	—
Tingri T Co ...	106 p	8¾d	—	—	31 c	9d	14	1/3¾	49 c	7½d	—	—	12	8
CACHR&SYLHT	**2452 p**	**9d**												
B & Co Chargola	306 c	7¼d	32 c	†7½-†9	129 c	7-7¼	46 c	7¼d	72 c	7d	27 c	7d	—	—
,, Mookham ...	245 c	8d	26 c	8½-9¾	46 c	8½d	46 c	8¼d	113 c	7½d	14 c	7d	—	—
Baraoora ...	110 c	9d	24 c	†9¾-10¾	42 c	9d	14 c	8¾d	30 c	8d	—	—	—	—
Borokai T Co.	166 c	11¼d	—	—	56 c	11½d	16 c	1/9	28 c	9¼d	56 c	9½d	—	—
Budderpore ...	75 c	1/0¼	—	—	22 c	11½d	20 c	1/7¼	—	—	33 c	8½d	—	—
Dilkoosha ...	68 c	9½d	—	—	22 c	9½d	21 c	11d	—	—	25 c	8½d	—	—
Indian T Co ...	129 c	11d	—	—	31 c	10¾d	14 c	1/7½	37 c	9d	47 c	10d	—	—
Longai ...	128 c	7¾d	—	—	26 c	7½d	52 c	8¼d	50 c	7¼d	—	—	—	—
Puttareah ...	92 p	8½d	—	—	30 c	9¼d	30	10d	32 c	7¼d	—	—	—	—
Rookeenee ...	64 c	7¾d	—	—	—	—	46 c	8d	18 c	7d	—	—	—	—
Sathgao ...	91 c	8¼d	—	—	51 c	†8¼d	15 c	10¼d	9 c	†7d	—	—	16 c	†7½
ScotporeTCo P	293 c	8½d	21 c	1/1¼	90 c	9½d	30 c	9d	63 c	7¾d	89 c	7d	—	—
,, S	52 c	11¾d	21 c	1/4¾	2 c	8½d	3 c	10d	—	—	26 c	8d	—	—
SSTC Goombira	101 c	7½d	6 c	7-8	30 c	7½d	25 c	8d	30 c	7¼d	5 c	6½d	5 c	5½
,,Jagcherra ...	51 p	8d	5 c	9¼d	11 c	8d	6 c	8¼d	19 c	7¾d	5 c	6¼d	5	6½
TarraporeTCo ..	97 c	8¼d	—	—	31 c	8¾d	20 c	9¼d	26 c	7¾d	20 c	7d	—	—
,, ,, ...	384 c	10d	—	—	100 c	9½-1/	62 c	1-1½-1/5¾	103 c	8-9	119 c	7½-9	—	—
CHITTAGONG	**184 p**	**8¾d**												
Chandpore ...	83 p	9¼d	—	—	20 c	9¾d	23	1/1¾	—	—	40 c	7¾d	—	—
Futtickcherra ...	101 c	8¼d	—	—	49 c	7¾-9¼	27 c	10½d	25 c	7¼d	—	—	—	—
DRJELNG&TERI	**1077 p**	**11¾d**												
Bannockburn ...	70 p	1/0½	—	—	20 c	1/1½	30 b	1/10	20 c	†8¼d	—	—	—	—
IndianTeraiTCo	83 c	9d	—	—	34 c	9d	13 c	1/0¼	24 c	7½d	—	—	12	7¾
Kalej ...	101 c	1/4½	—	—	30 c	1/6	39 c	1/7¾	32 c	10¾d	—	—	—	—
Marionbaree ...	202 c	8½d	—	—	91 c	8¾-9½	20 c	1/1	91 c	†6¾-7¼	—	—	—	—
Mim T Co ...	70 p	1/6¾	—	—	25 c	1/11	20	2/1½	25 c	11¾d	—	—	—	—
Muttigurrah ...	201 p	7¾d	58	8½d	33 c	7¼d	48	9½d	42 c	7d	—	—	20 c	6¾
Nuxalbarrie ...	183 c	10¼d	25 c	1/1¼	68 c	9½d	20 c	1/3¼	58 c	8¼d	—	—	12 c	8½
Tukvar T Co ...	167 p	1/6¾	94 p	1/-10½-2/4	—	—	—	—	41 c	1/1	—	—	32	9¼
DEHRA DOON														
Arcadia ...	103 c	7½d	72 c	†7¾d	31 c	†7d	—	—	—	—	—	—	—	—
DOOARS	**1863 p**	**10d**												
Aibheel ...	98 c	10¼d	23 c	11d	22 c	9¼d	17 c	1/2½	36 c	8½d	—	—	—	—
Bhogotpore ..	283 p	10d	—	—	56 c	†10d	102	†1/0½	86 c	9d	—	—	39	†6-8
DooarsCo Indong	130 c	11¼d	13 c	1/5¾	55 c	10½d	44 c	11¾d	26 c	8¾d	—	—	12 c	9¾
Fagoo ...	102 p	11¼d	40 b	1/5¾	38	11½d	—	—	24 c	8¼d	—	—	—	—
Gajilidoubah B	62 c	8¾d	—	—	—	—	—	—	35 c	9d	27 c	8½d	—	—
,, BO	140 c	9½d	12 c	1/2	30 c	10¾d	—	—	46 c	8¾d	40 c	8d	12 c	8½
,, BS	100 c	9½d	—	—	13 c	11d	—	—	63 c	8¾-9¼	—	—	24 c	10

INDIAN.—Continued. *August 21st.*

Garden.	Total. Quantity.	Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity.	Price.	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price	Pekoe Souchong. Quantity.	Price.	Broken and Souchong. Quantity.	Price.	Fannings, Dust and Various. Quantity.	Price.
DOOARS														
Hahai Patha ...	93 c	8¾d	—	—	48 c	8¾d	- -	—	22 c	8d	5 c	8½d	18 c	10d
Killcott T Co ...	109 c	9d	—	—	30 c	9d	26 c	11d	50 c	8d	—	—	3 c	7½d
Meenglas ...	165 c	8½d	—	—	61 c	9¾d	—	—	104 c	7¾ 8	—	—	—	—
NSTC Bytagool	74 p	10d	28p	10¾-1/4½	14 c	8¾d	6 c	9¼d	14 c	8½d	10 c	7½d	2	6d
„Dam Dim ...	120 c	10½d	—	—	62 c	10½d	34 c	10½†11¾	17 c	9 9¼	—	—	7 c	6½d
„Rungamuttee	164 p	11½d	50 b	†1/11	25 c	10½d	39 c	11d	39 c	9¼d	—	—	11	7d
Phoolbarrie T Co	175 c	8¼d	—	—	57 c	8½d	29 c	10d	47 c	7¾d	42 c	7d	—	—
Putharjhora ...	48 c	1/3	24 c	1/5¾	24 c	1/	—	—	—	—	—	—	—	—
KANGRAVALEY														
Lode ...	69	7¾d	—	—	48	†8d	21	†7½d	—	—	—	—	—	—
TRAVANCORE	**472 p**	**8¼d**												
Belford ...	48	7½d	—	—	47	6½7½	—	—	—	—	—	—	1	5½d
Bon Accord ...	85	7¼d	—	—	47	7d	26	8¾d	—	—	10	5¾d	2	5¼d
Brigton ...	32 c	8d	—	—	10 c	8d	7 c	9¼d	15 c	7½d	—	—	—	—
CMR ...	40	8¼d	—	—	37	8½d	—	—	—	—	—	—	3	5¼ 6
Glenmary ...	47 p	7½d	8 c	9d	30 c	7¼d	—	—	—	—	7 c	6¼d	2	5¼d
Home ...	32	7½d	—	—	31	7½d	—	—	—	—	—	—	1	5½d
Kinmylies ...	33	10¼d	—	—	31	10½d	—	—	—	—	1	5½d	1	5½d
Maimalli ...	40 c	5½d	—	—	—	—	4 c	8d	29 c	5½d	7 c	4½d	—	—
Mount ...	47 c	6¾d	—	—	—	—	12 c	10d	31 c	†5¾d	4 c	4½d	—	—
Perrintorra ...	21 c	6½d	—	—	19 c	6½d	—	—	—	—	1 c	5¼d	1 c	5½d
Tembenard ...	47 c	6¾d	—	—	32 c	6½d	8 c	8½d	—	—	5 c	5¾d	1 c	5½d

CEYLON. Average 9d.

Abbotsleigh ...	76 c	10d	—	—	50 c	8¾d	26 c	1/0¾	—	—	—	—	—	—
Aberdeen ...	200	7½d	80	8¼8¾	120	6½6¾	—	—	—	—	—	—	—	—
Aberfoyle ...	94 p	7¾d	39	9 9¼	50 c	7¼d	—	—	—	—	1 c	4½d	4	5¾d
Abbotsford ...	140 p	9½d	30 b	1/4½	47 c	10¾d	47 c	†8¼d	16 c	6½d	—	—	—	—
Adams Peak ...	140 c	8¾d	—	—	60 c	8¼d	50 c	10¼d	27 c	7d	—	—	3 c	6¼d
Albion ...	72 c	9¾d	—	—	22 c	9d	23 c	1/1¼	27 c	7½d	—	—	—	—
Aldie & Dunlow...	58 p	10¼d	—	—	12 c	7¼d	30 c	1/0¾	12 c	7¼d	—	—	4	7d
Ambatenne ...	168 c	8d	—	—	82 c	7¼7½	57 c	9½d	26 c	6½d	1 c	6½d	2 c	5½d
Balmoral ...	109 c	8¾d	—	—	33 c	8⅝d	42 c	10d	28 c	7¾d	—	—	6 c	6½d
Bambrakelly&D.	65 c	10¼d	—	—	24 c	9¼d	41 c	11d	—	—	—	—	—	—
Bathford ...	57 c	8¾d	—	—	24 c	7¾d	24 c	10½d	9 c	6¾d	—	—	—	—
Beaumont ...	74 p	8¾d	2 b	†4/-	40 c	7½d	32 c	10d	—	—	—	—	—	—
Benveula ...	72 p	7½d	—	—	24 c	7d	36	9d	12 c	6¼d	—	—	—	—
Beverley ...	117	8d	—	—	72	7¾d	26	9½d	19	7d	—	—	—	—
Bloomfield ...	94 c	9d	41 c	10¼d	53 c	7½ 8	—	—	—	—	—	—	—	—
Bogawantalawa	63 p	1/2¾	—	—	29 c	1/0¾	17 c	1/11½	13 c	9¾d	1 c	6½d	3	7d
Braemore ...	55 p	9½d	—	—	26 c	8½d	27 c	†10¾d	—	—	—	—	2	5½6¼
Broughton ...	67 c	9d	20 c	10¾d	20 c	8⅝d	—	—	27 c	8d	—	—	—	—
Brunswick ...	61 c	9d	30 c	10½d	28 c	7½d	—	—	—	—	—	—	3 c	6½d
Cinyan ...	119 p	8½d	—	—	45 c	8½d	36	11d	38 c	7¼d	—	—	—	—
CW ...	130	9¼d	8	1/1	60	8¼9¼	13	1/2½1/4½	22	7¾d	15	6¾d	12	6½7¼
Calsay ...	149 c	1/1	63 c	1/4	86 c	10¾d	—	—	—	—	—	—	—	—
Campion ...	99 c	10¼d	—	—	20 c	9½d	45 c	1/0½	34 c	7¾d	—	—	—	—
Carney ...	64	7½d	—	—	13	7d	21	9¼d	30	6¼d	—	—	—	—
Castlereagh ...	98 p	11d	41	1/3¾	57 c	9¼d	—	—	—	—	—	—	—	—
Ettaratenne ...	100 p	7¾d	—	—	52 p	6½7¾	46	8¾d	—	—	—	—	2	6¼d
Capelton ...	142 p	1/	—	—	40 c	10½d	68	1/5½	34 c	8¼d	—	—	—	—
Cetnole ...	78 p	9½d	—	—	20 c	9d	42	10½d	16 c	9d	—	—	—	—
Laverton ...	78 c	7½d	—	—	40 c	7¼d	16 c	9½d	17 c	6¾d	2 c	5¾d	3 c	4-6
Dontarf ...	97 c	9d	30 c	9d	—	—	22 c	1/0½	45 c	7½d	—	—	—	—
Dry Land & Prod C														
„ Andangoddie	281 c	8¼d	—	—	117 c	7¾8¼	79 c	9¾10¾	85 c	6¾7¼	—	—	—	—
„ Rothes ...	31 b	10¼d	—	—	31 c	10¼d	—	—	—	—	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity.	Price	Quantity	Price.
Clunes ...	247	8¾d	—	—	113	8d	97	10¼-10½	45	7d	—	—	—	—
Cocoawatte ...	94	7d	—	—	43	†6¾d	29	8¼d	19	6¼d	3	5d	—	—
Coolbawn ...	48 c	7¾d	—	—	15 c	7½d	13 c	9¼d	20 c	6¾d	—	—	—	—
CTPCo Alton ...	44 c	8¼d	—	—	23 c	9d	—	—	21 c	7¼d	—	—	—	—
,,Mariawatte	205 p	7¼d	—	—	52 c	7¼d	55 c	9d	78 c	6d	—	—	20	6¼d
,, ,, ...	258 p	7¼d	—	—	47 c	7¼d	43 c	9¼d	168	6-6¼	—	—	—	—
,,Scrubs ...	173 p	11½d	—	—	57 p	9¼-9½	116 p	1/0¾	—	—	—	—	—	—
,,Tillyrie ...	74 c	9½d	—	—	27 c	9½d	29 c	10½d	18 c	7½d	—	—	—	—
,,Wallaha ...	122 c	10½d	—	—	51 c	9½-10	45 c	1/0¾	26 c	7½d	—	—	—	—
,,Waverley ...	84 c	10¼d	—	—	26 c	9½d	43 c	11¾d	14 c	8d	—	—	1 c	5¼d
,,West Holyrood	67 c	9¼d	—	—	30 c	8¾d	25 c	10¼d	6 c	8½d	—	—	3 c	5¼d
Culloden ...	100 c	9½d	—	—	44 c	9d	20 c	1/2½	36 c	7½d	—	—	—	—
Dalleagles ...	213	8½d	—	—	95	8d	72	10-10¼	46	7d	—	—	—	—
Dambulagalla ...	163 c	7¼d	—	—	71 c	6¾d	55 c	8¾d	37 c	6¼d	—	—	—	—
Dawatagas ...	122 c	8d	—	—	44 c	7¼d	50 c	9¼d	28 c	6½d	—	—	—	—
,, ...	155 c	8d	—	—	50 c	7½d	55 c	9½d	50 c	6½d	—	—	—	—
Dea Ella ...	57	7½d	—	—	30	7¼d	15	9½d	10	6d	—	—	2	5¼d
Deanstone ...	146	8¼d	62	9¾d	66	7½d	—	—	—	—	—	—	18	6-6¼
Debatgama ...	61 c	8¼d	—	—	12 c	7d	36 c	9¼d	13 c	6½d	—	—	—	—
Dehiowita ...	69 c	7¾d	—	—	37 c	7¾d	16 c	9½d	16 c	6½d	—	—	—	—
Denegama ...	52	10d	—	—	32 c	8¼d	20	1/0½	—	—	—	—	—	—
Devonford ...	42 p	1/	—	—	12 c	10d	25	1/3¾	5 c	8d	—	—	—	—
Dickoya ...	148 c	7¼d	—	—	90 c	7d	26 c	9¾d	19 c	6d	5 c	4¾d	8 c	5¼d
Dotel-oya ...	110 c	8d	—	—	32 c	†7¾d	6 c	8¾d	11 c	6½d	—	—	5 c	6d
Drayton ...	137 p	11¾d	101 p	11 1/8¾	—	—	—	—	28 c	7¾d	3 c	6d	5	9¼d
Dunnottar ...	88 p	9d	59	10d	10 c	7½d	17 c	8¼d	—	—	1 c	6d	1 c	5d
Dunsinane ...	109 p	10d	41	1/2	42 c	†9½d	—	—	21 c	8d	—	—	5 c	8d
Eilandhu ..	48 c	8d	—	—	30 c	7¼d	18 c	†9¼d	—	—	—	—	—	—
Ekkie Oya ...	146 c	7¼d	—	—	66 c	7d	51 c	8½d	27 c	6¼d	—	—	2	5½d
Elbedde ...	101 c	1/	—	—	39 c	10d	31 c	1/6½	28 c	8d	3 c	7¼d	—	—
Ellagalla ...	130 c	7½d	—	—	20 c	7½d	48 c	8¾d	47 c	6¾d	5 c	5¼d	10 c	2-6¼
Elston ...	130 c	8¾d	—	—	55 c	8¼d	45 c	10¾d	30 c	6¾d	—	—	—	—
Eltofts ...	113 p	10d	—	—	19 c	10½d	56	1/0½	32 c	7¾d	6 p	6¼d	—	—
EP&ECo Ingura	105 c	7¾d	34 c	9½d	54 c	7¼d	—	—	—	—	17 c	5¾-6¼	—	—
,,Labukellie ..	130 p	10¼d	—	—	75	9½d	28 c	1/1¾	23 c	8d	4 c	7¼d	—	—
,,Meddecombra	99 c	8d	—	—	31 c	7¼d	44 c	9¼d	24 c	6¼d	—	—	—	—
,,Sogama ...	77 c	9d	19 c	11d	55 c	7¾-9¼	—	—	—	—	3 c	6d	—	—
,,Vellai-Oya ...	153 c	8¾d	48 c	11½d	80 c	7¾d	—	—	25 c	6¾d	—	—	—	—
Emelina ...	78 c	9¼d	—	—	33 c	8¾d	23 c	1/0¼	18 c	7½d	2 c	5¾d	2 c	5½d
Erroll ...	114 p	9½d	—	—	44 c	9d	45	1/1	21 c	7½d	—	—	4	6¼d
Ferndale ...	107 c	8¼d	—	—	61 c	7½d	33 c	10d	7 c	6d	—	—	6 c	7d
Friedland ...	68	9¾d	—	—	18	9¼d	30	11¾d	20	†7¼d	—	—	—	—
Frogmore ...	63 c	11d			34 c	8-9	22 c	1/4	3 c	7¼d	—	—	4 c	7d
Galella ...	119	8¼d	—	—	65	7½d	54	9d	—	—	—	—	—	—
,, ...	52	7¼d	—	—	52	7¼d	—	—	—	—	—	—	—	—
Gartmore ...	27 c	11¼d	—	—	16 c	9d	8 c	1/5	—	—	—	—	3 c	8d
Geddes ...	71 p	11d	—	—	38 c	†7¾-9	26 c	1/3¾	3 c	7d	—	—	4	6¼d
Gikiyanakanda ...	89 c	10d	—	—	25 c	9d	40 c	11¼d	24 c	8¾d	—	—	—	—
Gingranoya ...	65 c	7¼d	—	—	28 c	7d	20 c	8¾d	14 c	6¼d	—	—	3 c	3½d
Glassel ...	95 c	8¾d	—	—	40 c	8d	34 c	10½d	21 c	7d	—	—	—	—
Glengariffe ...	59 c	8¼d	—	—	19 c	8d	20 c	9¾d	20 c	7d	—	—	—	—
Glenugie ...	114 p	11d	—	—	68 c	9¾d	41	1/4	—	—	—	—	5	6¼d
Goatfell ...	56 c	1/3½	—	—	44 c	1/2	12 c	1/8½	—	—	—	—	—	—
Gona Adika Co ...	190 p	8¾d	99 b	10¾-11½	91	7½d	—	—	—	—	—	—	—	—
Gonamotava ...	38 c	9¼d	—	—	18 c	8¼d	20 c	10½d	—	—	—	—	—	—
Goorookoya ...	133 c	7½d	11 c	10d	37 c	7¾d	12 c	7¾d	73 c	6¾d	—	—	—	—
Gouraville ...	124 p	8¾d	100	9½d	24 c	7d	—	—	—	—	—	—	—	—
Great Valley ...	82 c	9½d	—	—	—	—	82 c	9¼-9½	—	—	—	—	—	—
Hantane ...	117 p	8¼d	—	—	35 c	8½d	36	11¼d	34 c	7¼d	6 c	6d	6 c	5¾d
Happugahalande	59 c	8d	—	—	20 c	7¾d	18 c	10d	20 c	6¾d	1 c	5d	—	—
Hatale ...	162 c	7¾d	—	—	29 c	8¼d	39 c	9¾d	59 c	7d	32 c	6¾d	3 c	6¾d
Hatherleigh ...	122 p	6½d	—	—	32 c	†6¾d	18	†8½d	50 c	6½d	11 c	5¼-6	11 c	4¾-5½
Hattanwella ...	80	7½d	35	†8¼d	45	†6¾d	—	—	—	—	—	—	—	—
Heatherley ...	69 c	8¼d	—	—	27 c	†8¾d	23 c	†9½d	16 c	†6¼d	—	—	3 c	4¾d
Hindagalla ...	138 p	9¾d	—	—	83 c	8¾d	34 c	1/1¾	—	—	19 c	6¾d	9	7d

Garden.	Total.	Average.	Broken Org, Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Hoonoocotua ...	61 c	8½d	—	—	15 c	8d	23 c	10¼d	20 c	7d	—	—	3 c	7d
Hope ...	84 c	11½d	—	—	26 c	10¼d	38 c	1/1½	—	—	20 c	9d	—	—
Hornsey ...	76 c	8½d	—	—	30 c	8d	26 c	10¼d	20 c	6¾d	—	—	—	—
Hunasgeria ...	117 p	7¼d	—	—	13 c	7½d	31 c	9¼d	15 c	6¾d	44 c	5¼6½	14	6½d
Imboolpittia ...	319 p	7¾d	—	—	108 p	7½8¼	57 c	10¼d	138 p	6½ 7	—	—	16	6d
Indurana ...	141 c	7d	—	—	45 c	†6¾d	51 c	†8d	41 c	†5¾d	—	—	4 c	6½d
Ivanhoe ...	46 p	8½d	—	—	13 c	7¾d	14	1/0¼	9 c	6¾d	8 c	9d	2 p	6 6¾
Kabragalla M...	150	9¼d	—	—	59	8½d	49	11½d	33	7½d	3	5¾d	6	5¾7½
Kandal Oya ...	437	8½d	99	9 9¼	206	8d	83	9¾10	49	6¾d	—	—	—	—
Kandapolla ...	107 p	10¾d	28 c	1/	—	—	29 c	1/	32 c	9d	18	8d	—	—
Kataboola ...	114 c	9¾d	—	—	29 c	9¾d	40 c	11¾d	45 c	7¾d	—	—	—	—
Katookellie .	73	8¾d	—	—	35	9¾d	—	—	19	8d	—	—	19	4½10
Katooloya ...	215 c	7¾d	—	—	66 c	†7¾d	70 c	8½8¾	79 c	7d	—	—	—	—
KAW ...	213 c	8d	—	—	115 c	7½8½	71 c	7 9¾	—	—	27 c	6½d	—	—
Kelaneiya ...	102 c	9½d	—	—	49 c	8½d	48 c	11d	—	—	—	—	5 c	6 6¼
KelaniValAsso D	160 c	7¾d	—	—	59 c	7¾d	45 c	9¼d	46 c	6¾d	2 c	5½d	8 c	6¾d
Kirkoswald ...	206 p	11d	—	—	72 c	11¼d	66	1/2¾	68 c	8¾d	—	—	—	—
Kirrimattia ...	58 c	8d	—	—	37 c	8d	21 c	8d	—	—	—	—	—	—
Koladenia ...	28 c	7¼d	—	—	13 c	6½d	5 c	11¼d	—	—	10 c	6d	—	—
Kotiyagalla ...	96 p	1/1¾	—	—	32 c	11d	64	1/4½	—	—	—	—	—	—
Lagalla ...	147	8½d	—	—	78	8d	39	10¾d	—	—	27	6¾d	3	3¾5¾
Lameliere ...	131	9d	—	—	—	—	60	10½d	71	7¾d	—	—	—	—
Lauderdale ...	101 c	8d	—	—	24 c	8¾d	20 c	9½d	45 c	7½d	12 c	5½d	—	—
Lawrence ...	157 c	9d	42 c	11½d	70 c	8¾d	—	—	20 c	7¼d	25 c	†6¾d	—	—
Lebanon ...	114 c	6d	—	—	45 c	†6¼d	—	—	69 c	†5¾d	—	—	—	—
LL ...	85 c	8½d	—	—	37 c	8d	32 c	10d	15 c	6¾d	—	—	1 c	5d
Loinorn ...	64 p	11¼d	30	1/4	—	—	—	—	30 c	9½d	4 c	5 6¼	—	—
Liskillin ...	31 c	8½d	—	—	20 c	7½d	11 c	10¼d	—	—	—	—	—	—
Luccombe ...	337	7¾d	88	†9¾d	181	7¼7½	—	—	62	6½d	—	—	6	6½d
Lunugalla ...	96	8½d	—	—	31	10d	—	—	65	7¾d	—	—	—	—
Lynsted . .	250	8¾d	—	—	76	8d	131	10d	40	7d	2	4½d	1	4½d
Mahacoodagalla	99 c	9¾d	—	—	48 c	10½d	39 c	10d	12 c	6¼d	—	—	—	—
Maha Eliya ...	94 p	10¼d	—	—	37 c	9¼d	57	11½d	—	—	—	—	—	—
Mahanilu ...	194 p	9d	94	10¾ 11	75 c	8¼d	—	—	21 c	7d	2	4½d	2	6d
Maria ...	56 c	8¼d	—	—	31 c	7d	25 c	9½d	—	—	—	—	—	—
Marske ...	61	11½d	—	—	41	9½d	17	1/5½	—	—	1	6¼d	2	6¾d
Maskeliya ...	203	9¼d	129	10½ 11	51 c	8d	—	—	12 c	6¾d	—	—	11	7 7½
Maturatta ...	213 p	9½d	—	—	91	9¼d	64	11¾-1/	54	7½d	—	—	4 c	8d
Mayfair ...	55 c	9d	9 c	1/2	26 c	8¾d	—	—	13 c	7½d	5 c	5½d	2 c	6½d
Meria Cotta ...	123 c	9¾d	—	—	46 c	8¾d	41 c	1/0¾	36 c	7¼d	—	—	—	—
Minna ...	132 c	7½d	—	—	32 c	7¾d	25 c	10¼d	39 c	†6½d	12 c	5½d	24 c	6½d
Mipitiakande ...	192 p	9d	—	—	82 c	8¾d	54	1/1	52 c	7½d	2	5½d	5	5¾d
M' K' Oya ...	40 p	7½d	—	—	13 c	7¾d	10 c	9d	13 c	6¾d	2 c	5d	2	5½d
Morar ...	53 p	1/0¼	—	—	16 c	11d	19	1/9¼	18 c	8½d	—	—	—	—
Moray ...	292 p	11¼d	—	—	162 c	8¼9¼	98 c	1/3¾-1/4	13 c	7¼d	—	—	19	7d
Mount Pleasant	60 c	8¾d	—	—	12 c	9½d	23 c	10d	25 c	7¼d	—	—	—	—
Mousaheria ...	88	7½d	—	—	49	7d	30	9d	—	—	7	6¼d	2	5½d
NewDimbula D	106 c	10d	—	—	40 c	9½d	48 c	11d	18 c	7¾d	—	—	—	—
Newton ...	204	9½d	—	—	96	8¼d	65	1/0½	37	7½d	4	6¼d	2	6¼d
Nilambe ...	147 c	8d	—	—	36 c	7½d	84 c	8¾d	15 c	6¾d	—	—	12 c	6¼d
North Cove ...	63 p	1/0¼	—	—	37 c	10½d	26	1/5¼	—	—	—	—	—	—
OBEC Bellwood	55 c	10d	—	—	28 c	9¾d	11 c	1/2½	16 c	7½d	—	—	—	—
,, Craigie Lea	88 c	8½d	—	—	31 c	8d	27 c	11¼d	30 c	6¾d	—	—	—	—
,, Darrawella...	101 c	9¾d	—	—	35 c	8½ 11¼	20 c	1/3	36 c	7¼d	—	—	—	—
,, Glendevon ...	114 c	1/1½	—	—	30 c	1/0¾	40 c	1/5½	44 c	10½d	—	—	—	—
,, Kuda-Oya ...	71 c	9d	—	—	34 c	8½d	19 c	11½d	18 c	7½d	—	—	—	—
,, Wattawella	64 c	8d	—	—	23 c	7¼d	23 c	10d	18 c	6¼d	—	—	—	—
Old Madegama	74	7¾d	36	9½d	—	—	—	—	28	6½d	10	5¾d	—	—
Oodewelle ..	281 p	8d	—	—	38 c	7¾d	130 p	9¼ 10¼	26 c	6¾d	45 c	6½d	32 c	5¾6½
Pambagama ...	90 p	7d	—	—	33 c	6½d	43	8½d	8 c	5¾d	—	—	6 c	4½d
Parusella ...	198	7½d	58	†8½d	63	7d	21	9¼d	56	†6d	—	—	—	—
Pen-y-lan ...	109 c	8¾d	—	—	33 c	8d	55 c	9¾d	16 c	7d	1 c	5½d	4 c	7d
Polgahakande ...	94 c	7¾d	—	—	35 c	7¼d	29 c	9½d	30 c	6¼d	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Poolbank ...	67	8½d	34	10	24	7¾d	—	—	—	—	6	5⅜d	3	5¾d
Portmore ...	50 c	9¾d	—	—	14 c	9d	28 c	10½d	8 c	7¾d	—	—	—	—
Pundaloya ...	152 p	11¼d	56	1/4½	61 c	10¼d	—	—	23 c	8¼d	—	—	12	6d
Rahatungoda ...	70	11¼d	—	—	19	9¾d	29	1/2½	19	8¼d	—	—	3	6¼d
Rangalla ...	68 p	10¼d	—	—	26 c	9½d	23 c	1/1	12 c	7½d	—	—	7	7d
Rangbodde ...	45 c	8¼d	—	—	11 c	8¼d	12 c	10¾d	22 c	†6¾d	—	—	—	—
Ravenscraig ...	28 p	8½d	—	—	28 p	6¾-8½	—	—	—	—	—	—	—	—
Rillamulla ...	148	9½d	—	—	57	9½d	34	1/0½	57	7¾d	—	—	—	—
Rookwood ...	114	9¾d	—	—	81	10½10¾	—	—	27	7½d	—	—	6	9¾d
Rothschild ...	67 c	8¾d	17 c	11¾d	47 c	7½-8½	—	—	—	—	3 c	6d	—	—
Sandringham ...	120 c	10d	—	—	35 c	9½d	66 c	10¾d	—	—	19 c	8d	—	—
Scarborough ...	234 c	8¾d	—	—	81 c	8½d	86 c	10d	50 c	7¼d	17 c	6½d	—	—
SCTCo Invery ...	89 p	1/1	—	—	32 c	1/1½	31	1/5¾	—	—	26 p	6¼-9¼	—	—
,,Strathdon ...	400 p	8d	—	—	90 c	†7¼-8¼	196	9½-11	102 c	6½-7	6	4d	6	(illegible)
Springwod Group	230 p	6¾d	48 p	7½d	72 c	6½7¼	29 c	7½8¼	81 c	6d	—	—	—	—
St. Clair ...	58 p	9¾d	—	—	15 c	7½-8¾	12 c	11d	22 c	11d	4 p	5¾d	5 c	(illegible)
St. George RA ...	81 c	9d	—	—	34 c	8¾d	32 c	†10¼d	15 c	7d	—	—	—	—
St. John Del Rey	129 p	10¼d	—	—	46 c	9½d	54	1/1½	29 c	8d	—	—	—	—
St. Johns ...	173 p	10d	—	—	66 c	8⅓d	88	1/1½	19 c	7¼d	—	—	—	—
St. Martins ...	51	8d	—	—	37	7¼d	14	10¼d	—	—	—	—	—	—
St. Vigeans JG	29 p	9d	—	—	13 c	8½d	12	11d	3 c	7½d	1	6d	—	—
,, JG	31 p	9d	—	—	16 c	8¾d	11	11½d	3 c	7½d	—	—	1	5½d
Sunnycroft ...	153 c	7¼d	75 c	7¼-9	40 c	6½-6½	—	—	33 c	6d	—	—	5 c	4¾d
Tamaravelley ...	210 p	7½d	—	—	107	6¾-7	72	8¾d	31 c	6¼d	—	—	—	—
Taprobana ...	47	7¾d	2	6½d	26	7¼d	13	10d	6	6d	—	—	—	—
Tunisgalla ...	49 c	8¾d	—	—	16 c	8d	20 c	10¼d	13 c	7d	—	—	—	—
Udaradella ...	139 c	9d	—	—	91 c	7-10½	48 c	9¼-9½	—	—	—	—	—	—
Valamaly ...	34 p	10¾d	—	—	21 c	9½d	13	1/3	—	—	—	—	—	—
Vallambrosa ...	60 p	10½d	—	—	27 c	10½d	14	1/6	15 c	8¼d	3 c	4¼-6½	1 c	(illegible)
Venture ...	105 p	9½d	—	—	41 c	9d	37	1/1½	27 c	7½d	—	—	—	—
Vicarton ...	81	7½d	37	8¾d	—	—	—	—	25	6¾d	15	4-6¼	4	5½d
Vincit ...	35	7½d	11	7¼d	7	6¾d	9	9¼d	8	6¼d	—	—	—	—
Vogan ...	44 c	7¾d	—	—	17 c	7¼d	13 c	9¼d	14 c	6½d	—	—	—	—
WAH ...	53 c	6¾d	—	—	20 c	6¾d	13 c	8d	20 c	5¾d	—	—	—	—
Wangie Oya ...	53 c	8½d	20 c	9¾d	33 c	7¾d	—	—	—	—	—	—	—	—
Wellekelle ...	105	10d	—	—	62	9¼d	36	1/0¼	3	6¾d	—	—	4	5¾d
Wereagalla ...	129 p	8¼d	—	—	38 p	7¾d	63 p	9¼-†9¾	28 c	†6¼-6½	—	—	—	—
Weyweltalawa	168 p	8¼d	13 c	10d	41	8d	26	10¾d	75	7d	—	—	13	6¾d
Wiltshire ...	58 c	7½d	—	—	36 c	6¾d	22 c	8½d	—	—	—	—	—	—
Woodend ...	66 c	7½d	—	—	32 c	7d	22 c	9d	12 c	6¼d	—	—	—	—
Ythanside ...	169 c	10¾d	42 c	1/4¼	—	—	61 c	9¾d	53 c	8¾d	13 c	7d	—	—

JAVA. 1,261 chests. Average 7¼d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Dramaga ...	200 c	6¾d	—	—	35 c	7¾ 1/4½	21 c	†6¼d	38 c	6¼d	87 c	5½5¾	19 c	4½d
Roempien ...	40 c	5¾d	3 c	6-11	20 c	6¼d	—	—	4 c	5d	4 c	4¾d	9 c	4½d
Semplak ...	110 c	7d	—	—	51 c	7¾-8	—	—	—	—	59 c	6d	—	—
Sinagar ...	440 c	7¾d	—	—	241 c	7½8¼	97 c	†6½ 7	—	—	—	—	102 c	7 7½
Soekamana ...	34 c	6d	—	—	—	—	—	—	23 c	6¼d	11 c	5½d	—	—
Tjisalak ...	437 c	7¼d	—	—	252 c	7 †8¼	67 c	6¼ 8	118 c	6¼†6¾	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, ROOD LANE, LONDON, E.C. *August 28th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1st JUNE TO DATE.

	Indian.	Ceylon.	Java.
1890-1891.	137,131 packages.	180,684 packages.	13,462 packages.
1891-1892.	146,476 ,,	223,207 ,,	17,014 ,,

During the week

25,271 packages INDIAN
18,509 ,, CEYLON
2,263 ,, JAVA

Total 46,043 packages have been offered in public auction.

The demand for useful liquoring teas has become even more pronounced during the past week. As the supplies of Indian tea have contained a fair quantity of these kinds, a busier tone has pervaded the market and a larger volume of business has been transacted than for some time past. From latest advices both by letter and wire from Ceylon, we are led to expect better liquoring teas and decreased quantity from that quarter in the near future.

INDIAN. Arrivals continue to show improving quality especially from Darjeeling and Assam. The teas now coming to hand from the former district are distinctly preferable to those offering at the same period last year, and many excellent parcels have been sold. The Assam Teas are fully up to last season as regards quality. Dooars Teas have not shown any improvement, whilst from Cachar & Sylhet no fine invoices have as yet been placed on the market. The following averages are worthy of note:—"Darjeeling Co.," 1/10¼; "Moondakotee" of the LMBCo., 1/8¼; and "Margaret's Hope," 1/8¼.

This weeks average price of New Season's Teas sold on Garden Account. Total 14,885 pkgs. average 10¾d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
ASSAM	4467 p	11¼d	DARJEELING & TERAI	2955 p	1/1	KANGRA VALLEY ..	280 p	8¾d
CACHAR AND SYLHET..	4864 p	9d	DEHRA DUN ..	159 p	7¼d	NEILGHERRY.. ..	11 p	6d
CHITTAGONG	61	8¼d	DOOARS	1941 p	10¼d	TRAVANCORE	158 p	7½d

Is an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891, 5½d.	1890, 6¼d.	1889, 4¼d	1888, 4½d.
BANNINGS.	(Red to brown, strong rough liquor)	,, 6½d.	,, 6¾d.	,, 4¾d.	,, 5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,, 8¼d.	,, 8d.	,, 5¾d.	,, 7½d.
BEK. SOUG.	(Blackish greyish, useful liquor)	,, 8½d.	,, 8¾d.	,, 8½d.	,, 8½d.
BEKOE.	(Greyish to blackish some tip, useful liquor)	,, 10d.	,, 10¼d.	,, 10½d.	,, 9¼d.
BEK. SOUG.	(Blackish greyish, inferior liquor)	,, 6¾d.	,, 7¼d.	,, 5¾d.	,, 7½d.
BEKOE.	(Blackish, greyish, some tip, inferior liquor)	,, 7¾d.	,, 8d.	,, 6¾d.	,, 8¼d.

CEYLON. The paucity of fine or even good medium invoices and the consequent surfeit of lower grade Teas has had a still more pronounced effect on prices during the current week; useful liquoring Teas are so much wanted that they have sold at a further distinct advance in price, whilst the bulk of the Teas have continued to decline, and the average for the week has fallen to under 9d. The following averages may be mentioned:—"Norwood" of the EP & ECo., 1/5½; "Mooloya," 1/5; "Frotoft," 1/3¼; "Kew," 1/2¾. A small quantity of Golden Tips marked "Mahakettiya," was knocked down in sale at 35 guineas per lb.

JAVA. Considering the heavy fall in quotations that have been recorded in Teas from other countries during the last few months, prices for Java descriptions have remained fairly steady. Average for week, 7¼d.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 31st JULY.

	IMPORTS.			DELIVERIES.			STOCK		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
INDIAN	4,264,236	4,492,464	5,838,276	14,634,555	15,921,966	13,904,541	17,384,616	16,060,287	18,594,273
CEYLON.....	6,532,696	8,835,972	12,209,130	6,345,618	7,546,054	10,901,414	7,381,266	10,880,292	16,282,608
JAVA	545,650	610,820	912,450	769,720	772,310	886,620	1,009,750	903,350	876,890
CHINA, etc	12,787,518	10,306,492	12,569,533	15,220,016	13,879,503	12,419,670	36,912,766	36,417,098	28,591,954
TOTAL lbs.	24,130,100	24,245,748	31,529,389	34,969,909	38,119,833	38,112,245	62,688,398	64,261,027	64,345,725

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 15/32d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price	Quantity.	Price	Quantity.	Price	Quantity.	Price
ASSAM	**4107 p**	**11¼d**												
Assam Co ...	548 p	9¼d	34 c	1/0½	100 c	9½.10	88 p	8¾-1/6	—	—	326 c	7-8¾	—	—
AssamFrontierCo	228 c	11¼d	228 c	†10¾-1/-	—	—	—	—	—	—	—	—	—	—
Attaree KhatTCo	264 c	9¾d	—	—	71 c	11¾d	22 c	1/3¼	111 c	8½d	60 c	7½d	—	—
,, ,, ...	248 p	9¾d	—	—	93 c	10½d	40 1	1¼1/1¼	64 c	8½-8¾	51 c	8-9	—	—
Balijan T Co ...	1 b	6/3	1 b	6/3	—	—	—	—	—	—	—	—	—	—
Bamgaon ...	120 c	1/1½	—	—	50 c	1/1¼	30 c	1/6	20 c	10½d	20 c	9¾d		
Bishnauth T Co	161 p	1/3	20	1/6	61 c	1/5½	17 c	½d	11 c	1	18 c	8½d	—	—
,,	128 c	1/2½	18 c	1/9	40 c	1/3½	25 c	1/5¼	25 c	10d	20 c	8½d	—	—
Borelli T Co ...	171 c	1/1½	—	—	53 c	1/2¼1/10	35 c	1/6¼	44 c	10d	39 c	9¾d	—	—
,, ...	90 c	1/1	—	—	40 c	†1/2½	15 c	†1/4	20 c	10d	15 c	9¾d		
Chardwar ...	49 c	10¼d	—	—	26 c	11d	—	—	23 c	9¼d	—	—	—	—
Choonsali ...	87 c	8¼d	—	—	15 c	9¼d	20 c	9¼d	24 c	8¼d	20 c	6¾d		
Corramore ...	140 c	9d	—	—	30 c	10¼d	20 c	11¼d	70 c	8¼d	20 c	7¼d		
Dhendi ...	80 c	1/0½	—	—	45 c	1¼1/½	15 c	10¾d	—	—	—	—		
Dhoolie ...	89 c	9¾d	—	—	20 c	11d	17 c	†1/0¼	36 c	8¼d	16 c	8¼d		
Doom Dooma H	156 p	1/2¾	56 1	/5-1/9½	66 c	1/0¾1/1¼	34	1/8	—	—	—	—		
GreenwoodTC B	112 p	1/2½	—	—	40 c	1/2¼	31	2/0½	29 c	11d	12 c	11d	—	
,, D	122 c	1/4	29 c	2/1¾	49 c	1/2¾	—	—	28 c	11d	16 c	10½d		
Grob T Co D ...	76 p	9d	—	—	—	—	39	11½d	37 c	7¾d	—	—	—	
Hattigor ...	92 c	10¾d	—	—	40 c	11d	12 c	1/2	20 c	9¾d	20 c	9¼d		
Kellyden ...	174 p	11¼d	—	—	55 p	10-11½	71	†1 1¼1/4¼	48 c	8½-9¼	—	—		
LMB Diffloo ...	85 c	8½d	—	—	—	—	30 c	10d	55 c	7¾d	—	—		
,,Hatticoolie ...	81 c	9d	—	—	—	—	25 c	10½d	56 c	8¼d	—	—		
LuckimporeTC ...	120 c	1/0¼	20	1/8¼	60 c	1/0¾	—	—	40 c	9½d	—	—		
Malijan T Co ...	68 c	9d	—	—	19 c	10d	—	—	26 c	8½d	23 c	8¾d		
Mokalbari ...	90	1/3½	28	2/2½	62	†10¾d	—	—	—	—	—	—		
Mungledye T Co	116 c	11d	—	—	36 c	9½-10¾	22 c	1/0¾	31 c	9¾d	21 c	8¼d		
Namgaon ...	77 c	11d	—	—	25 c	11¼d	12 c	1/4	25 c	9½d	15 c	9¾d	—	—
NoakacharceCTk	94 c	11½d	—	—	27 c	†1/1	16 c	1/5¼	33 c	9d	12 c	7¾d		
Rungajaun ...	50 p	9¼d	—	—	17 c	9¼d	21	10½d	12 c	8¼d	—	—		
Tezpore Old Con.	114 c	11¾d	—	—	39 c	11d	24 c	1/6¾	30 c	9d	21 c	9d	—	
Upper Assam C	76	9¼d	—	—	41	8¾d	15	11d	20	8¾d	—	—	—	
CACHR&SYLHT	**4389 p**	**9¼d**											—	—
Amo ...	122 c	8¾d	—	—	67 c	8-†8¾	55 c	7¼-11	—	—	—	—	—	—
B&Co Mookham	192 p	8¼d	12 c	11d	56 c	8½d	33 c	8½d	58 c	7½d	12 c	6½d	6	5¼
Baraoora ...	250 c	9d	40 c	†9½1/0¾	90 c	†8¾d	50 c	9½d	70 c	†7¾d	—	—	—	—
Borokai T Co.	120 c	11½d	—	—	44 c	10¾d	12 c	1/10½	29 c	8¾d	15 c	10¾d	—	—
Dhamai ...	70 c	7¾d	—	—	51 c	7¾d	19 c	8d	—	—	—	—	—	—
Dilkoosha ...	93 c	9½d	—	—	27 c	9¾d	21 c	1/	20 c	8d	25 c	8¼d	—	—
Koyah ...	214 p	7¾d	17 c	9¼d	28 c	8¼d	69 p	7-9¾	28 c	7½d	72 c	6¼-7	—	—
Longai ...	235 p	8½d	—	—	33 c	8½d	95 p	9½-9¾	107 c	7½d	—	—	—	—
LMB Morapore	130 c	8¾d	—	—	60 c	9½d	15 c	9½d	39 c	7½d	16 c	7½d	—	—
,,Shabazpore ...	50 c	8¼d	—	—	50 c	8¼d	—	—	—	—	—	—	—	—
Luayuni ...	120 c	8½d	—	—	52 c	9d	21 c	†10d	37 c	7½d	—	—	10 c	6d
Mertinga ...	63 c	8½d	—	—	37 c	8¼d	14 c	†9¾d	—	—	—	—	12 c	7¾d
NSTCo Burjan	115 c	8d	15 c	9d	45 c	7¾d	20 c	9½d	20 c	7d	15 c	6¾d	—	—
,,Khadim ...	89 c	7½d	12 c	8½d	27 c	7½d	14 c	9d	20 c	7d	16 c	6d	—	—
Ragnajar ...	126 c	8¼d	—	—	56 c	8¼d	45 c	9d	—	—	—	—	25 c	7¼d
ScotporeTCo ...	225 c	9¼d	—	—	89 c	7½-9½	71 c	10-11½	32 c	7¼d	33 c	7½d	—	—
SephinjuriBhTCo	126 c	7d	—	—	43 c	6¾d	32 c	†8d	—	—	51	6¼-6½	—	—
Shumshernugger	492 p	9d	65	1/1½	180 c	9d	77 c	9½d	124 c	7¾d	20	8¼d	26	6¾d
Sonarupa ...	164 c	9d	—	—	56 c	10¼d	13 c	10¼d	31 c	8½d	64 c	7¾d	—	—
SSTCoAmrail ...	147 p	8¼d	24 c	9¼d	42 c	8d	18 c	10¼d	58 c	7¼d	—	—	5	5¼d
,,Hollicherra ...	92 p	8½d	—	—	33 c	8½d	23 c	10¼d	23 c	7¾d	12 c	7d	1	5½d
,,Jagcherra ...	41 c	8d	8 c	9¼d	14 c	8½d	6 c	8d	6 c	7½d	7 c	6¾d	—	—
TarraporeTCo ...	332 c	9d	—	—	134 c	9-9½	52 c	10d	66 c	8-8¼	60 c	6½d	—	—
,, ...	781 c	10¼d	80 c	1/1¼1/6¼	127 c	10½-1/-	135 c	1/-†1/7	97 c	8¾-9¼	342 c	7-8½	—	—
CHITTAGONG														
Dantmara ...	61 c	8¼d	—	—	24 c	8½d	12 c	10d	25 c	7¼d	—	—	—	—
DRJELNG&TERI	**2410 p**	**1/2**												
Avon Grove ...	100 p	1/3½	—	—	23 c	1/1¾	65 p	1/4¾1/7¼	12 c	10d	—	—	—	—
Castleton ...	99 c	1/1	23 c	†1/5½	51 c	1/1¼	—	—	25 c	8¾d	—	—	—	—
Darjeeling Co	124 c	1/7	36 c	2/1	28 c	1/3¾-1/7	13 c	2/8	28 c	1/1½	19 c	9½d	—	—
,, ...	110 p	9¼d	—	—	50 c	11-11¼	—	—	40 c	7¼d	—	—	20	7¼-8¼

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
DRJELNG&TERI														
Darjeeling Co ...	94 c	1/10¼	30 c	1/11	24 c	1/7¼	20 c	2/9	20 c	1/2½	—	—	—	—
Goomtee ...	68 p	1/6½	482	0½ 2/2½	—	—	—	—	20 c	10¼d	—	—	—	—
IndianTeraiTCo	70 c	9d	—	—	30 c	8¾d	17 c	1/	23 c	7¼d	—	—	—	—
LMB ChongTong	112 c	1/3	—	—	87 c	1/2	25 c	1/6¼	—	—	—	—	—	—
,,Lebong ...	110 c	9d	—	—	60 c	10¼d	—	—	50 c	7¾d	—	—	—	—
,,MineralSpring	120 c	9½d	—	—	70 c	10d	—	—	50 c	8¾d	—	—	—	—
,,Moondakotee	200 c	1/8¼	—	—	168c	1/4½ 1/10	32 c	1/7½-2/8	—	—	—	—	—	—
,,Nagri ...	126 c	1/0½	—	—	105 c	1/1½	—	—	21 c	7¾d	—	—	—	—
Margaret's Hope	100 c	1/8¼	38 c	1/11	20 c	1/6¼	16 c	2/4½	26 c	1/0½	—	—	—	—
Munjha ...	87 p	8¼d	—	—	23 c	9d	20	8¾d	30 c	7¾d	14 c	7¼d	—	—
NST Co Blomfild	75 p	1/1¾	18 c	1/2¾	14 c	1/0¾	27 c	1/3½	12 c	10d	—	—	4	6¼d
Nurbong ...	191 p	9½d	47	1/3¼	63 c	9½ 10½	—	—	69 c	7½ 8	12 c	6½d	—	—
Rungmook ...	86 p	1/1¾	—	—	40 c	1/1¼	26	1/10½	20 c	9d	—	—	—	—
Shapore ...	85 p	8¼d	—	—	30 c	8¼-9¼	10	11½d	30 c	†7½d	—	—	15 c	†7½d
Soom T Co ...	90 c	1/6½	20 c	2/1	45 c	1/8½	—	—	25 c	10d	—	—	—	—
Taipoo ...	81 p	10d	—	—	32 c	9¾d	21	1/4	28 c	8d	—	—	—	—
Tukvar T Co ...	282 c	1/5¼	127 c1	/8½-2/2	½	—	—	—	66 c	1/	—	—	20 c	9½d
DOOARS	**1773 p**	**10½d**												
Chalouni ...	70 c	1/1	—	—	27 c	11¼d	25 c	1/4¾	18 c	10d	—	—	—	—
DooarsBamandng	234 c	10½d	18 c	†1/5½	82 c	8¾9¾	67 c	11d	44 c	7½8¾	—	—	23 c	9d
,, Ghatia ...	176 c	9½d	—	—	49 c	10d	28 c	10¾ 1/0¼	46 c	8¾d	19 c	9¼d	34 c	6-9
,, Indong ...	99 c	9d	—	—	36 c	9¼d	45 c	†9½d	—	—	18 c	7¾d	—	—
,, Nagrakatta	293 c	11¾d	58 c	1/2-1/8¼	78 c	10d	61 c	1/0¾	75 c	9d	—	—	21 c	9¾d
Ellenbarrie ...	62 c	9½d	27 c	10¾d	—	—	—	—	35 c	8½d	—	—	—	—
Nagoo ...	71 p	10¼d	—	—	34	†10d	13	1/6	12 c	†8d	—	—	12	8d
Hope ...	144 c	11½d	20 c	1/9¼	61 c	10¼d	20 c	11¾d	43 c	9d	—	—	—	—
Neesh River Co	183 c	8¼d	17 c	10¾d	55 c	8¼d	45 c	9¼d	44 c	7¼d	22 c	7d	—	—
Neenglas ...	216 c	10¼d	50 c	1/1½ 1/5½	49 c	9½d	—	—	75 c	8d	—	—	42 c	5¼-9¾
NSTC Dam Dim	111 p	11¼d	30 b	2/9¾	60 c	†8¾d	21 c	10¾d	—	—	—	—	—	—
Nutharjhora ...	114 c	11d	14 c	1/7¼	—	—	—	—	48 c	9¾d	34 c	7 8¾	18 c	1/0¼
PANGRAVALEY	**280 p**	**8¾d**											—	—
Pygnauth ...	137	7¼d	71	7¾9¾	24	7d	7	7¼d	18	6d	17	†5d	—	—
Pangra Valley C	143 p	9¾d	112 p	9½- 11¼	17	9¼d	—	—	14 c	8½d	—	—	—	—
PRAVANCORE	**121 c**	**7½d**												
Pison Valley ...	28 c	8¾d	—	—	—	—	8 c	† 11½d	20 c	7¾d	—	—	—	—
Pfield ...	20 c	7¼d	—	—	20 c	7¼d	—	—	—	—	—	—	—	—
Pagamally Co ...	61 c	7¼d	—	—	28 c	7d	12 c	8¾d	18 c	6¾d	1 c	6¾d	2 c	4½d
Pringfield ..	12 c	7d	4 c	†7¾d	2 c	†7d	1 c	†6¾d	—	—	.5 c	6¼d	—	—

CEYLON. Average 9d.

Peerdeen ...	100	7¼d	40	8¼d	60	6½d	—	—	—	—	—	—	—	—
Pgrakande ...	34 c	10¾d	—	—	16 c	9½d	16 c	1/0¼	2 c	8¼d	—	—	—	—
,, ...	2 b	3/3	2 b	3/3	—	—	—	—	—	—	—	—	—	—
Pdie ...	21 c	1/1¾	—	—	—	—	21 c	1/1¾	—	—	—	—	—	—
Pnherst ...	73 p	9½d	—	—	28 c	†8-8½	39	†9½ 1/	3 c	†7d	1	6½d	2	5¾d
Punamulle ...	200	8¼d	—	—	33	7½d	103	9½-9¾	64	6¾d	—	—	—	—
Pnfield . .	93 c	8¼d	—	—	49 c	7½d	36 c	9¾d	8 c	6½d	—	—	—	—
Pherfield ...	99 c	8½d	—	—	34 c	7¾d	45 c	9¾d	20 c	7d	—	—	—	—
Pgusta ...	109 c	8¼d	—	—	43 c	8d	24 c	10¾d	42 c	6¾d	—	—	—	—
Pmbrakelly&D.	86 c	9¾d	—	—	38 c	9d	48 c	10½d	—	—	—	—	—	—
Pthford ...	50 c	9d	—	—	20 c	8¾d	20 c	10¼d	10 c	6¾d	—	—	—	—
Paumont ...	59 c	8¼d	—	—	23 c	7½d	22 c	10¾d	—	—	—	—	14 c	6d
Pverley ...	50	7¾d	—	—	30	7¾d	12	8¾d	8	6½d	—	—	—	—
Packwater ...	422 p	8¾d	65	1/-1/5¼	115 c	†8½d	43 c	10¼d	137 c	7¼d	54 c	3-8	8 c	6d
Pir Athol ...	120	10d	75	1 0¾ 1/0¼	36	8¼d	—	—	6	6¾d	3	5¼d	—	—
Pumley ...	137	9¼d	—	—	33	9d	67	10¼d	37	8d	—	—	—	—
Pkande ...	50 c	8d	—	—	22 c	7d	27 c	8¾d	—	—	—	—	1 c	6¾d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price
Caledonia ...	38 p	11¼d	—	—	18 p	9¾10	13 c	1/2½	5 p	7¾8½	—	—	2 c	6¼
Caskie Ben ...	56 c	8½d	24 c	10d	29 c	7½7¾	—	—	—	—	—	—	3 c	6¾
Castlereagh ...	74 p	10¾d	30	1/2¾	44 c	9¼d	—	—	—	—	—	—	—	—
CL&PC Mousake	48 c	8¾d	—	—	29 c	8½d	16 c	10½d	—	—	2 c	+ 5½	1 c	6¼
,,NewPeradnyaA	101 c	8d	—	—	35 c	7¾d	34 c	9½d	32 c	6¾d	—	—	—	—
,, ,, B	45 c	8½d	—	—	10 c	7¾d	25 c	9½d	10 c	6½d	—	—	—	—
Coodugalla ...	28 c	6¾d	—	—	12 c	6¾d	6 c	†7½d	9 c	6d	—	—	1 c	5¾
Coombewood ...	59 c	9¼d	—	—	22 c	8½d	37 c	9¾d	—	—	—	—	—	—
CTPCo Alton ...	172 p	9¼d	—	—	50 c	9d	56 c	11¼d	14 c	7¾d	—	—	52 p	6¼8¼
,,Dewalakanda	275 p	7¼d	21 c	9½d	184 p	6¾7¾	33 c	8d	37 c	6¾d	—	—	—	—
,,EastHolyrood	73 p	9½d	—	—	38 c	7¾ 8¾	35 c	10½d	—	—	—	—	—	—
,,Mariawatte	192 p	7½d	—	—	46 c	7½d	41 c	9d	105	6¼d	—	—	—	—
,, ,,	234 p	7½d	—	—	44 c	17½d	41 c	9½d	149	6¼d	—	—	—	—
,,Tangakelly	41 c	9¾d	—	—	15 c	8½d	16 c	1 0½	9 c	7d	—	—	1 c	5¼
,,Tillyrie ...	73 c	11d	—	—	29 c	9½d	52 c	1 1¾	12 c	7¾d	—	—	—	—
,,Wallaha ...	95 c	9½d	—	—	30 c	8½9¼	40 c	11¾d	25 c	7½d	—	—	—	—
,, ,, ...	132 c	11d	—	—	42 c	9½ 10½	54 c	1 1	56 c	8¼d	—	—	—	—
,,Waverley ...	74 p	11½d	—	—	36 p	9¾10	39 c	1 1	2 c	8¼d	—	—	2	6¾
Dalleagles ...	192	8¾d	—	—	80	8¼d	74	10¾d	35	7d	—	—	—	—
Damblagolla ...	42 c	7d	—	—	30 c	7¼d	12 c	6½d	—	—	—	—	—	—
Deanstone ...	105	9¼d	45	10½d	60	8¼d	—	—	—	—	—	—	—	—
Dedugalla ...	119 c	7¾d	—	—	52 c	7¾d	28 c	8½d	39 c	7d	—	—	—	—
Densworth ...	91 c	8¼d	—	—	27 c	7½d	52 c	9d	12 c	6¾d	—	—	—	—
Derby ...	35 p	7¼d	—	—	8 c	8½d	7 c	6½d	12 c	6½d	7 c	4½5¾	1	4¼
Derryclare ...	34 c	10½d	—	—	14 c	9d	13 c	1 2	6 c	7½d	—	—	1 c	7½
Dickoya ...	125 p	9½d	27 c	10¼d	65 c	6¼ 9	15 c	1 2	18	7¾d	—	—	—	—
Dimbula ...	116 p	10d	—	—	67 c	8½ 11½	16	1/10¼	—	—	—	—	33	7
Doteloya ...	260 c	8¼d	—	—	95 c	7½d	122 c	9 9½	31 c	7d	1 c	4½d	11 c	5¾
Drayton ...	174 p	11¾d	102 p	1¾ 1/10	—	—	23	1 3¼	41 c	8d	—	—	8	7½
Ederapolla ...	136 p	7¾d	—	—	62 c	6¾ 7	74	9d	—	—	—	—	—	—
Elangapitiya ...	83 c	7½d	35 c	8 9½	—	—	—	—	44 c	6¾d	—	—	4 c	6¾
Elchicho ...	96	8¾d	—	—	25	8d	47	10d	24	6¾d	—	—	—	—
Elfindale ...	180	7d	—	—	84	6½d	61	8¼d	35	6d	—	—	—	—
Eltofts ...	113 p	11½d	—	—	20 c	11d	60	1/2	33 c	9¼d	—	—	—	—
Engurakande ...	229 c	8d	—	—	87 c	8½d	43 c	9¾d	92 c	6¾d	—	—	7 c	6
EP&ECo Arapo.	105 c	7½d	—	—	35 c	7¼d	33 c	9d	37 c	6¾d	—	—	—	—
,,Meddecombra	120 c	8½d	—	—	32 c	7¾d	65 c	9½d	23 c	7d	—	—	—	—
,,Norwood ...	51 c	1/5½	—	—	33 c	1 2½	18 c	1 10¼	—	—	—	—	—	—
,,Sogama ...	96 c	9½d	24 c	1/0¾	69 c	8 9¼	—	—	—	—	3 c	6½d	—	—
Erlsmere ...	150 c	9½d	58c	9½ 1/5¾	85 c	7¼8¼	—	—	2 c	6½d	—	—	5 c	5¾
,, ...	18 c	9½d	—	—	17 c	9½d	—	—	1 c	6¾d	—	—	—	—
Fairfield ...	76 c	9¾d	—	—	33 c	8d	43 c	11d	—	—	—	—	—	—
Frotoft ...	54 p	1/3¼	—	—	14 c	1/2¼	22	1/8¼	18	10¾d	—	—	—	—
FT ...	50 c	8d	—	—	13 c	7¾d	18 c	9d	19 c	7d	—	—	—	—
Galata ...	39 p	8d	—	—	16 p	7¼7½	23	8¾d	—	—	—	—	—	—
Galgawatte ...	48 p	7½d	—	—	12 c	7d	24	8½d	12 c	6¾d	—	—	—	—
Gallamudina ...	128 c	8½d	—	—	28 c	8d	50 c	10¼d	—	—	50 c	6¾d	—	—
Gallebodde ...	101 c	7¾d	—	—	35 c	7½d	26 c	9¾d	40 c	6¾d	—	—	—	—
Galloola ...	108	8d	20	9¾d	30	8d	20	8¾d	30	7d	8	4½ 6	—	—
Gammadua ...	50 c	10¾d	—	—	18 c	8¼d	23 c	1/2¼	7 c	7¼d	1 c	5½d	1 c	5
Gangwarily ...	70 p	8d	—	—	38 c	7¼d	27 c	9¼d	—	—	—	—	5	5
Gavatenne ...	63	9d	—	—	30	8 8¾	22	10¾d	—	—	9	7¼d	2	5
Gikiyanakanda ...	90 c	9d	—	—	25 c	9¼d	28 c	11d	25 c	7¾d	12 c	7¼d	—	—
Gingranoya ...	73 c	7¾d	—	—	30 c	7d	28 c	10d	9 c	5½d	3 c	3½d	3 c	
Glassaugh ...	83 p	11¾d	—	—	32 c	11½d	23	1/7½	28 c	9d	—	—	—	—
Glencoe ...	55 p	8d	—	—	14 c	8d	16 c	10¼d	17 c	6¾d	5 p	+¾5¾	3	5
Glendon ...	187 c	7½d	—	—	110 c	7 7¼	50 c	9½9½	24 c	6½d	—	—	3 c	5
Glengariffe ...	62 c	7¾d	—	—	16 c	7½d	24 c	†9d	22 c	6¾d	—	—	—	—
Gonamotava ...	41 c	7¾d	—	—	20 c	6¾d	21 c	8¾d	—	—	—	—	—	—
Good Hope ...	73 b	8¾d	—	—	38 b	8d	35 b	†9½d	—	—	—	—	—	—
Goomera ...	228 c	7¾d	18 c	8¾d	62 c	7½d	75 c	9 9¼	66 c	6½d	2 c	7d	5 c	5
Great Western ...	147 c	8¾d	—	—	55 c	9d	39 c	10d	53 c	7¾d	—	—	—	—
Happugahalande	43 c	10¼d	—	—	15 c	9¾d	12 c	1/2¾	14 c	7¾d	—	—	2 c	
Hangran-oya ...	37 c	8¼d	—	—	11 c	8¾d	11 c	10d	15 c	6¾d	—	—	—	—

Garden.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Hardenhuish & L.	138	c	7¾d	—	—	—	—	72 c	8¾d	66 c	6½d	—	—	—	—
Hatale ...	147	c	8¼d	22 c	9d	48 c	7¾d	50 c	†9¼-9¾	22 c	6¾d	3 c	5¼d	2 c	5½d
Hayes ...	253		7½d	—	—	61	7¾d	62	9½d	100	6½6¾	10	4½d	20	6½d
Hemingford ...	46	c	8½d	—	—	28 c	7¾d	18 c	9½d	—	—	—	—	—	—
Hethersett ...	170	p	11d	—	—	43 c	10d	91 p	1/1-1/2	34 c	8½d	—	—	2 c	8½d
Hornsey ...	56	c	9d	—	—	20 c	8¼d	24 c	10½d	12 c	7d	—	—	—	—
Imboolpittia ...	169	p	8½d	—	—	58 p	8½d	38 c	11¼d	65 p	7d	—	—	8	6½d
Kaipoogalla ...	49	c	11½d	22 c	1/2¼	22 c	10d	—	—	4 c	7¾d	—	—	1 c	6d
Kaloogala ...	49	c	8½d	—	—	28 c	7¾d	21 c	9½d	—	—	—	—	—	—
Kalupahani ..	80	p	10d	—	—	13 c	10½d	39	11½d	28 p	8½d	—	—	—	—
Kandapolla ...	110	p	10¾d	31 c	11¾d	—	—	32 c	1/0¼	29 c	8¾d	18	8d	—	—
Karagastalawa ...	21	p	10½d	—	—	10 c	9½d	11 p	11½d	—	—	—	—	—	—
KAW ...	349	c	8d	—	—	241 c	6 8¾	74 c	7-9¾	—	—	34 c	5¼-6½	—	—
KelaniValAsso D	188	p	7d	—	—	61 c	6¾d	55 c	8¼d	52 c	6¼d	—	—	20	6¼d
Kellie ...	157	c	7¼d	—	—	19 c	9½d	21 c	†10½d	69 c	†6¾-†7	48 c	5¾d	—	—
Kolliewatte ...	43	c	10d	—	—	16 c	8½d	13 c	1/2¾	14 c	7d	—	—	—	—
Kew ...	103	p	1/2¾	—	—	26 c	1/2¼	44	1/9¾	27 c	10d	—	—	6 p	8¼-8½
Kinagoda ...	57	p	8½d	—	—	14 c	8¼d	30 c	†9½d	11 c	†6½d	—	—	2	6d
Kotiyagalla ...	43	p	1/2	—	—	15 c	11d	28	1/5	—	—	—	—	—	—
Kowlahena ...	58	c	8¾d	—	—	20 c	8¾d	13 c	1/	25 c	7¼d	—	—	—	—
Laxapana ...	121	c	9d	16 c	10½d	59 c	8d	33 c	11d	13 c	7½d	—	—	—	—
Leangapella ...	35	c	9¼d	22 c	10d	13 c	8d	—	—	—	—	—	—	—	—
Lebanon ...	34	c	5¾d	—	—	15 c	5¾d	19 c	5¾d	—	—	—	—	—	—
Lindoola ...	40	c	8½d	—	—	19 c	7¼d	21 c	9½d	—	—	—	—	—	—
Llan Thomas ...	37	c	8¾d	—	—	14 c	8¼d	10 c	11¾d	13 c	7d	—	—	—	—
Lynsted ..	172		9¼d	—	—	73	8¼d	99	10d	—	—	—	—	—	—
Madooltenne ...	42	c	7½d	—	—	18 c	6¾d	24 c	8¼d	—	—	—	—	—	—
Mapitigama ...	36	c	7d	—	—	24 c	6¾d	8 c	10d	—	—	2 c	3¾d	2 c	4¾d
Maria ...	80	c	7d	—	—	29 c	6½d	23	8½d	28 c	6d	—	—	—	—
Mattakelly ...	65	c	9¼d	—	—	28 c	8d	35 c	10¼d	—	—	—	—	2 c	5¾d
Mayfield ...	157		10½d	—	—	91	8¼-10	37	1/1½-1/5	27	7¾d	—	—	2	7¼d
Melfort ...	114	p	11½d	43 c	1 1½ 1/4¾	36 c	10½d	—	—	23	8¾d	—	—	12 c	7¾d
Meria Cotta ...	48	c	1/2	—	—	22 c	1/1	13 c	1/7½	13 c	9¾d	—	—	—	—
Mipitiakande ...	131	p	9d	—	—	61 c	8¾d	23 c	1/0¼	41 c	7½d	3	4½d	3	5¾d
Mooloya ...	55	c	1/5	—	—	28 c	1/2	29 c	1/0¾ 1/10½	6 c	9¼d	—	—	2 c	7¾d
Moray ...	100	c	1/1	—	—	57 c	8¾-10¼	43 c	1/5¼	—	—	—	—	—	—
Morton ...	57	c	7¼d	—	—	22 c	7-7¼	11 c	8¼d	13 c	5½-6¼	—	—	1 c	5¼d
Nayapane ...	129	p	8d	—	—	48 c	7¾d	40 c	11¼d	24 c	7d	11	4½d	6	6½d
NewDimbula D	116	c	10¼d	—	—	47 c	10d	47 c	11½d	22 c	8¼d	—	—	—	—
New Peacock ...	119	p	9d	—	—	64 c	8d	55	11¼d	—	—	—	—	—	—
Nickolaoya ...	148		8¾d	—	—	75	†7¾d	73	†10d	—	—	—	—	—	—
Norton ...	113		7½d	—	—	49	7d	31	9¼d	27	6¼d	—	—	6	5¾d
OBECCraigieLea	125	p	7¾d	—	—	30 c	7¾d	26 c	10½d	30 c	6¾d	10 c	5-6	29	6¼-7¼
,, Darrawella...	118	c	9¼d	—	—	60 c	8-10¾	20 c	†1/2	22 c	7d	16 c	5½-6¾	—	—
,, Dangkande...	95		8⅝d	—	—	18	8¾d	43	10d	27	7¼d	4	5½d	3	5½d
,, Glendevon ...	76	c	1/1⅓	—	—	19 c	1/1¾	23 c	1/7	18 c	10¾d	—	—	16 c	8½d
,, Havilland ...	146		8¼d	—	—	51	8d	41	10d	54	7d	—	—	—	—
,, Nilloomally...	66	c	8d	—	—	25 c	7½d	23 c	9½d	18 c	6¾d	—	—	—	—
,, Sinnapittia...	83	c	9d	—	—	35 6	8¼d	28 c	11¼d	20 c	7d	—	—	—	—
ld Madegama ...	108		7½d	25	†8¾d	—	—	—	—	65	7½d	11	6½d	7	6¼d
olapane ..	138	c	7d	—	—	26 c	7½d	22 c	9½d	84 c	6½d	6 c	5-6	—	—
rion ...	115	p	8¾d	—	—	40 p	8¼-8½	69 p	9-10¼	—	—	—	—	6	6½d
sborne ...	78	p	8⅓d	—	—	25 c	†7½d	31 c	10¼d	15 c	6¾d	—	—	7	6d
ambagama ...	115	p	6½d	—	—	40 c	6¼d	43	8⅓d	21 c	5¾d	11 c	4d	—	—
ansalatenne ...	54	c	9d	—	—	14 c	8¾d	16 c	10½d	14 c	7¾d	—	—	—	—
DM ...	35	p	1/1	—	—	14 c	10½d	21	1/4¼	—	—	—	—	—	—
eacock Hill ...	113	p	8d	—	—	52 c	7¾d	38	10¼d	23 c	6½d	—	—	—	—
enrith ...	47	c	7¾d	4 c	†9¾d	13 c	7¼-7¾	12 c	†9⅓d	14 c	6½d	—	—	4 c	5¾d
en-y-lan ...	104	c	8⅓d	—	—	31 c	7¼d	58 c	9¾d	11 c	6½d	1 c	4¾d	3 c	6¼d
ngarawe ...	58	c	8¾d	—	—	35 c	7¾d	14 c	1/0½	9 c	6½d	—	—	—	—
rtmore ...	66	c	9d	—	—	20 c	8d	35 c	10¼d	11 c	†6¾d	—	—	—	—
,, ...	40	c	10¾d	—	—	9 c	9d	31 c	11¼d	—	—	—	—	—	—
rtree ...	96	p	11d	—	—	—	—	30 1	/3¼-1/5	66 c	9-9¾	—	—	—	—
yston ..	50	p	9¼d	—	—	—	—	14	1/1¾	36 c	8¼d	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Queensberry ...	102 p	9d	—	—	—	—	50 c	10d	43 c	8d	5 c	6½d	4	6½d
Ragalla ...	438 p	9¾d	—	—	173 c	9¼-9½	223	†11½d	21	7¾d	6 c	6¼d	15 c	6¾d
Ravenscraig ...	59	8½d	—	—	39	7¾d	20	10¼d	—	—	—	—	—	—
Raxawa ...	68 c	8d	—	—	17 c	8d	18 c	10d	33 c	7d	—	—	—	—
Rothschild ...	40 c	9¾d	10 c	1/1¾	30 c	8¼-8¾	—	—	—	—	—	—	—	—
Salawe ...	71	7¾d	—	—	21	7½d	22	†9d	28	6¾d	—	—	—	—
Sandringham ...	116 c	9¼d	—	—	35 c	8¾d	61 c	10¼d	20 c	7½d	—	—	—	—
Saumarez ...	98 p	7¼d	18	10¾d	51 c	6¾d	14 c	8¾d	11 c	6d	—	—	4 c	5¾d
Somerset ...	95 p	9½d	—	—	37 c	9¼d	33	1/2	—	—	17 c	7d	8 c	7½-8
St. Clair ...	153 c	9½d	—	—	51 c	9½10¼	31 c	1/1½	65 c	7¾d	2 c	6¼d	4 c	6¼-6½
S. Leonards-on-S	30 c	8¼d	—	—	13 c	7¼d	17 c	†8¾d	—	—	—	—	—	—
Stockholm ...	86 p	9¾d	4[b]	1/1	—	—	—	—	34 c	7¾d	—	—	4 c	5¾d
Stonycliff ...	68 c	10½d	—	—	36 c	8½d	32 c	1/0½	—	—	—	—	—	—
Theresia ...	65 p	11¼d	—	—	18 c	11½d	28	1/2¾	16 c	9d	1 c	6½d	2 c	6½d
Tunisgalla ...	97 p	7¼d	—	—	42 c	7¼d	16 c	9½d	35 c	6½d	—	—	4	6d
Tyspany ...	52 c	8¼d	—	—	25 c	7d	27 c	9¼d	—	—	—	—	—	—
Udaveria ...	7 c	7¾d	—	—	5 c	6½-†7½	2 c	†9d	—	—	—	—	—	—
Ugieside ...	79 c	6¾d	—	—	38 c	†5¾-6½	21 c	8¼d	8 c	6¼d	13 c	5d	—	—
Uva ...	228	10½d	—	—	89	10¼d	63	1/1¼	68	8¾d	3	8d	5	7¼
Venture ...	67 p	9¾d	—	—	26 c	9d	24	1/2	17 c	7¾d	—	—	—	—
Verelapatna ...	84 p	8¾d	—	—	23 c	†8¾d	41	†10½d	20 c	6¼ †7¼	—	—	—	—
Vicarton ...	53 c	7¼d	15	9¾d	—	—	—	—	23	6¾d	15	5¼d	—	—
Warleigh ...	121 c	7¾d	—	—	59 c	7½d	33 c	†9d	23 c	6½d	2 c	4¼d	4 c	6½
Wariagalla ...	50 c	8½d	—	—	14 c	8½d	23 c	9¾d	12 c	6¾d	—	—	1 c	5½
Windsor Forest	188 c	8¼d	—	—	55 c	7¾d	65 c	9¾d	68 c	6¾-7	—	—	—	—
Wewelmadde ...	27 c	9d	—	—	12 c	8d	15 c	10d	—	—	—	—	—	—
Woodend ...	39 c	7¾d	—	—	20 c	7¼d	14 c	9d	5 c	5½d	—	—	—	—
X ...	54 p	6½d	—	—	—	—	—	—	32 c	6¾d	14	4¾d	8	6½

JAVA. 2,307 chests. Average 7¼d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Ardja Sarie ...	246 c	6d	—	—	35 c	8¼d	—	—	155 c	5¾ 6	56 c	5¼5½	—	—
Bagelen ...	876 c	7¼d	—	—	415 c	6¾9½	49 c	5½d	412 c	5¾6¼	—	—	—	—
Jasinga ...	154 c	7d	—	—	39 c	7¼1/1¾	12 c	†5¼d	19 c	6¾d	65 c	5½d	19 c	5¼
Jonlapa ...	44 c	5½d	5 c	6½7¼	10 c	6d	8 c	4¾d	16 c	5¼d	5 c	4¾d	—	—
Panoembangan	58 c	9½d	—	—	58 c	9½d	—	—	—	—	—	—	—	—
Passier-Moending	156 c	7½d	—	—	34 c	8¼d	103 c	7½7¾	19 c	6½d	—	—	—	—
Perbawattie ...	140 c	9½d	—	—	44 c	9¼d	96 c	9½9¾	—	—	—	—	—	—
Tjiboengoer ...	87 c	9d	29 c	11d	—	—	—	—	—	—	—	—	58 c	8 8½
Tjikembang ...	137 c	6¾d	—	—	50 c	7½d	38 c	†6½d	32 c	5¾ †6¼	17 c	5¾d	—	—
Tjogreg ...	99 c	7¼d	—	—	52 c	†7¾d	19 c	†7¾d	28 c	†6¼d	—	—	—	—
Waspada ...	310 c	7d	33 c	10½d	88 c	7½d	123 c	6½d	—	—	—	—	66 c	6

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marke thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weig to one chest.

GOW, WILSON & STANTON, Brokers

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *September 4th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	155,900 packages.	200,057 packages.	14,223 packages.
1891-1892.	181,144 ,,	243,483 ,,	17,913 ,,

During the week

4,668 packages Indian
9,276 ,, Ceylon } Total 55,843 packages have been offered in public auction.
899 ,, Java

As will be seen from the figures given below the deliveries of all Teas during last month show satisfactory increase over those of the corresponding period last year.

By wire we learn that the export from Calcutta during August was about 14 million lbs., and that om Ceylon a little over 4½ million lbs. against 6½ millions for June and a little over 5½ millions r July.

NDIAN. The improved quality in the bulk of the offerings noticed last week has been aintained; many excellent invoices have been offered and some high quotations recorded. During e last day or so some irregularity has been noticeable in the bidding for Teas over 1/- per lb., and many instances the best prices of last week have scarcely been realised. Teas with useful uors under 10d. per lb. have well maintained their prices. The following averages are worthy of te:—"Hukanpukri," of the Jokai T Co., 2/4½; "Dooteriah," 2/0½; and "Moabund T Co.," 1/6¼.

This weeks average price of New Season's Teas sold on Garden Account. Total 20,867 pkgs. average 11d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	10375 p	1/	Chota Nagpore ..	97 c	6¾d	Kangra Valley ..	367 p	9¼d
Cachar and Sylhet..	1477 p	8¾d	Darjeeling & Terai	4321 p	11¾d	Neilgherry.. ..	49 p	7½d
Chittagong	457 p	8¾d	Dooars	3545 p	9¼d	Travancore	179 p	7¾d

s an idea of the comparative prices of Indian Tea in London we quote:—

UST.	(Fair ordinary, dark liquor)	1891,	5½d.	1890,	6¼d.	1889,	4¼d	1888, 4½d.
ANNINGS.	(Red to brown, strong rough liquor)	,,	6½d.	,,	6¾d.	,,	4¾d.	,, 6d.
ROKEN TEA.	(Brownish to blackish, strong liquor)	,,	8¼d.	,,	8¼d.	,,	5¾d.	,, 7½d.
EK. SOUG.	(Blackish greyish, useful liquor)	,,	8½d.	,,	9d.	,,	8½d.	,, 8½d.
EKOE.	(Greyish to blackish some tip, useful liquor)	,,	10d.	,,	10¼d.	,,	10½d.	,, 9¼d.
EK. SOUG.	(Blackish greyish, inferior liquor)	,,	6¾d.	,,	7½d.	,,	6d.	,, 7¼d.
EKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7¾d.	,,	8½d.	,,	7¼d.	,, 8¼d.

EYLON. The market just now is in a very sensitive position and it is principally a matter of ality that will rule prices in the immediate future; unless the Teas very shortly improve a ther fall will doubtless take place as buyers are fully stocked with the class of Tea that has been ering for some two or three months past. The demand for good medium and fine descriptions is w very strong, dealers having little or none of these classes in hand. The 17,782 packages ought to auction on Tuesday last were offered in 722 lots. At the risk of repetition we must ain impress upon producers the fact that it is impossible for buyers to value so many breaks in e day. The following averages may be mentioned:—"Bogawantalawa," "Glendevon," of the BEC., and "Portswood," 1/3½. Average for the week under 9¼d.

AVA. There were only 899 packages offered, these were from the "Parakan Salak," "Tjiomas," d "Tjikembang" estates, the latter being grown from Assam seed. Some of the Teas from the Tjiomas" estate, realized high prices, as much as 3/4 being paid for a little lot of Flowery Pekoe.

MOVEMENTS OF TEA IN LONDON (in lbs). DURING AUGUST.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
AN	5,639,145	6,468,591	8,988,165	6,030,387	6,861,027	7,268,049	16,993,374	15,667,851	20,314,389
LON.....	1,716,628	3,508,780	6,019,994	3,200,918	3,793,038	5,156,082	5,896,976	10,596,034	17,146,520
.....	161,560	105,770	358,260	206,350	385,560	390,600	904,960	623,560	844,550
A, etc.	13,242,346	12,973,481	10,851,134	5,934,779	7,315,869	7,113,093	44,220,333	42,074,710	32,329,995
TOTAL lbs,	20,759,679	23,0566,622	26,217,553	15,372,434	18,355,494	19,927,824	68,015,643	68,962,155	70,635,454

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5½d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price	Quantity	Price
ASSAM	**8484 p**	**1/0½**												
AssamFrontierCo	229 c	11¾d	42 c	1/5¼-2/3¼	152 c	9¾-10¾	—	—	35 c	8¼d	—	—	—	—
Balijan T Co ...	89 p	7¾d	—	—	17 c	8½d	22	10½d	50 c	7d	—	—	—	—
Bargang T Co ...	50 c	1/2¾	—	—	25 c	1/5	—	—	25 c	1/0¼	—	—	—	—
Belguri ...	41 c	7½d	—	—	—	—	—	—	13 c	7¾d	28 c	6¾-7¾	—	—
Borbarrie ...	98 c	10d	—	—	25 c	11d	17 c	† 1/0¾	30 c	9d	25 c	8¼d	1 c	6¾
Borelli T Co ...	222 c	1/0¾	—	—	93 c	1/0¾-1/8	25 c	1/5¾	79 c	9¾ 10½	25 c	9½d	—	—
BrahmapootraTC	696 c	10¼d	—	—	197 c	9¾-11¾	102 c	1/-1/4½	276 c	8-9¾	121 c	7¼-10	—	—
,, ...	447 c	10d	12 c	1/2	121 c	10¼11¼	49 c	1/1¼-1/2	200 c	8½ 9	65 c	8¼8¾	—	—
British Assam Co	292 p	11½d	—	—	88 c	11½d	78 p	1/ 2¾2/1¾	104 c	8½d	22 c	8d	—	—
Choonsali Co C...	108 c	9¾d	16 c	1/3¾	20 c	9¼d	25 c	10¼d	27 c	7½d	20 c	7¼d	—	—
,, S	160 c	9½d	—	—	55 c	9½d	35 c	1/1½	—	—	70 c	7¼d	—	—
Chubwa T Co ...	85 c	10¼d	20 c	1/3	31 c	10d	—	—	30 c	8d	—	—	4 c	5¼
Corramore ...	126 c	9¾d	—	—	36 c	11d	20 c	1/0¼	70 c	8½d	—	—	—	—
Dhoolie ...	100 c	10½d	—	—	25 c	1/0¼	15 c	1/4½	40 c	8¾d	15 c	8¼d	5 c	5¾
Doom Dooma B	226 p	1/0¾	74	1/5¾	92 c	11½d	24 c	†1/4	36 c	8¼d	—	—	—	—
,, H	334 p	11¼d	44 p	†1/1¾-1/8	183 c	9¾ 11¼	46 c	†1/4	61 c	8½d	—	—	—	—
,, S	25	1/8½	25	1/8½	—	—	—	—	—	—	—	—	—	—
Eastern AssamC	111 p	11¼d	63	1/2-1/3½	26 c	9½d	—	—	22 c	8¾d	—	—	—	—
GellahattingTC	103 p	1/4	33	2/3	31 c	1/3¼	20 c	1/2¼	22 c	11¼d	—	—	—	—
GreenwoodTC D	112 c	1/4	42 c	2/	—	—	—	—	48	11½d	22 c	10d	—	—
Hapjan ...	57 c	1/1	17 c	1/8	40 c	†9¼10¾	—	—	—	—	—	—	—	—
Hunwal T Co ...	254 p	11d	70 p	1/0¼-1/8	52 c	10¼ 11	40 c	1 1¼ 1/2¼	—	—	78 c	8¼ 9	8 c	0
Jhanzie T Assoc	145 p	1/3¾	—	—	40 c	1/2	30 c	2/1-2/2½	44 c	10¾d	—	—	31 p	7½ 1/
JokaiTCo Bokel	402 p	10d	15 c	2/2¾	222 c	9½ 10½	—	—	81 c	8¾d	15 c	8¼d	69 p	6¾
,, Hukanpukri	95 p	2/4½	73 p	2/5½-†6/	22 c	1/6¾	—	—	—	—	—	—	—	—
,, Jamira ...	316 p	9d	31	1/6¾-1/7	72 c	9 10½	14 c	10¾d	63 c	8d	81 c	7¼8¼	55	6½7
,, Joyhing ...	165 c	10¾d	—	—	45 c	11¼d	37 c	1/3	59 c	8¾d	24 c	5¾8¼	—	—
,, Muttuck ...	236 c	10¾d	42 c	1/8¼	61 c	9¼10	—	—	116 c	8 8¼	—	—	17 c	8
,, Panitola ...	214 c	1/3¼	72 c	1/9¾2/2¼	40 c	1/5½	—	—	—	—	81 c	8d	21 c	7¾
,, Tippuk ...	191 c	1/4¾	51c	†1/8½2/0¾	85 c	1/3¼1/6¾	—	—	43 c	1/0¼	—	—	12 c	7
KamroopTAsso A	80 p	8½d	—	—	26	11d	—	—	24 c	8½d	30 c	7½-7¾	—	—
Kettela T Co ...	76 p	1/2½	—	—	27 c	1/2½	24	2/0½	25 c	10d	—	—	—	—
Khongea ...	150 p	1/2¼	—	—	39 c	†9½1/9½	111 p	10-1/10	—	—	—	—	—	—
Khonikor ...	68 p	8¾d	—	—	21	10¾d	—	—	27 c	8¼d	—	—	20	7½
LuckimporeTC ..	207 p	1/	16	1/9½	90 c	1/0¼-1/2	—	—	60 c	10d	41 c	9 10¼	—	—
,, ...	86 p	11¾d	16	1/6	50 c	11½d	—	—	20 c	10d	—	—	—	—
Majuli T Co. G	107 p	1/0½	35 p	1/2-1/8¼	41 c	11½d	15 c	1/	—	—	16 c	9½d	—	—
,, K	78 c	1/2¾	—	—	26 c	1/6½	17 c	†1/4½	24 c	11½d	11 c	9½d	—	—
,, M	125 c	10¼d	—	—	46 c	11½d	—	—	54 c	9d	—	—	25 c	10
Medla ...	64	8½d	—	—	38	9d	—	—	26	7¾d	—	—	—	—
Meleng ...	150 c	1/1	20 c	1/8½	60 c	11¾d	22 c	1/4¼	—	—	48 c	9¾d	—	—
Moabund T Co	187 c	1/6¼	27	2/9½	60 c	1/ 6½2/0¼	26	1/10½	51 c	1/	23 c	10¾d	—	—
Mungledye T Co	116 c	1/1	—	—	27 c	1/1¾	29 c	1/8	37 c	9¾d	23 c	8¼d	—	—
Naga Dhoolie ...	83 p	11½d	26	†1/6-1/8½	28 c	11d	14 c	8¾d	10 c	9d	—	—	5	6
Nonoi ...	86 c	9½d	15 c	†11½d	25 c	9¾d	16 c	9¾d	30 c	8¼d	—	—	—	—
Rungaghur ...	44 c	11¾d	—	—	30 c	1/0¼	—	—	14 c	7½d	—	—	—	—
Salonah T Co	141 p	1/1	25	1/8¾	41 c	1/1¼	19	1/7¼	34 c	10½d	22 c	8-9½	—	—
ScottishAssamC	141 c	10d	—	—	22 c	1/2¾	28 c	10¼d	37 c	9½d	54 c	8d	—	—
Sealkottee ..	177 p	1/3	80	1/4-2/8¾	51 c	10d	20 c	1/8¾	—	—	26 c	9d	—	—
Shakomato ...	64 c	1/2	—	—	43 c	1/3¼	—	—	21 c	11½d	—	—	—	—
Singlijan ...	51 p	8d	—	—	23	9½d	—	—	28 c	7¼d	—	—	—	—
Upper Assam C	311 p	11½d	25	1/9¼	76 c	11¼d	55 c	1/5	123 c	8¼9¼	32 c	10d	—	—
Wilton T Co D	89 p	9¼d	18	1/3	46 c	9d	—	—	25 c	8d	—	—	—	—
,, W	74 c	10¼d	—	—	36 c	9¾d	12 c	1/3½	26 c	8½d	—	—	—	—
CACHR& SYLHT	**3701 p**	**8½d**												
Amo ...	239 p	8¼d	—	—	72 c	8¼ †8¾	82 c	8 11	64 c	7 7¼	—	—	21	5
B&Co Eraligool	163 p	7d	12 c	8d	33 c	7¼d	30 c	7¾d	30 c	7d	52 c	5¾-6¼	6	5
,, ,, ...	229 p	7d	16 c	9¼d	70 c	7d	44 c	8d	35 c	6½d	49 c	5¾d	15	
,, Hingajea ...	177 c	8¾d	35 c	10¼10¾	44 c	9d	37 c	8½d	61 c	7½d	—	—	—	—
,, Mookham ...	215 c	8d	24 c	1 0¼ 1/0¼	81 c	†8d	25 c	9d	65 c	6¾-7	17 c	7d	3	5
,, Singla ...	460 c	8d	48 c	10¼10¾	164 c	7-8	63 c	8¾d	158 c	7¼d	23 c	6-7	4 c	5
Borokai T Co.	131 c	11¼d	—	—	47 c	11d	14 c	1/11	27 c	8¾d	43 c	9½d	—	—
Chatlapore ...	208 c	9¼d	—	—	107 c	10¼d	17 c	8¼d	54 c	8½d	30 c	8d	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Cheerie Valley	69 c	9½d	—	—	21 c	9¾d	20 c	11¾d	28 c	8d	—	—	—	—
Craigpark ...	82 c	9d	—	—	31 c	9¾d	18 c	10¼d	19 c	8¼d	14 c	7¼d	—	—
Dulcherra ..	156 c	8d	—	—	26 c	8½d	47 c	9-9½	33 c	7½d	50 c	7d	—	—
Indian T Co ...	178 c	11¼d	—	—	39 c	11¾d	19 c	2/	30 c	9¼d	90 c	7¾ 10¼	—	—
Lungla T Co ...	322 p	7¾d	25 p	9-1/	110 c	8-8¼	60 c	8¼d	59 c	7¼d	68 c	7d	—	—
NSTC Degachera	70 c	8¼d	—	—	32 c	8¾d	11 c	9½d	27 c	7¼d	—	—	—	—
,,Jafflong	88 c	9d	21 c	10½d	16 c	9¼d	15 c	9¾d	18 c	†7¾d	18 c	7¾d	—	—
,, ,, ...	121 c	8¼d	36 c	†9d	30 c	†8¼d	21 c	8½d	17 c	7½d	17 c	7¼d	—	—
,,Lallakhal ...	82 c	8¾d	23 c	10½d	41 c	8¼d	—	—	13 c	7½d	—	—	5 c	6d
Phoenix T Co	154 c	7¾d	—	—	44 c	8d	25 c	9d	75 c	7¼d	10 c	†7¼d	—	—
SSTCoAmrail ..	115 p	8½d	19 c	† 10½d	45 c	†8d	12 c	10d	34 c	†7¼d	—	—	5	5½d
,,Dukingole ...	65 c	9d	—	—	30 c	†9½d	15 c	†9¾d	20 c	7¼d	—	—	—	—
,,Hollicherra ...	100 c	8d	—	—	42 c	†8d	22 c	†9½d	23 c	†7½d	13 c	7d	—	—
,, Sagurnal ...	237 c	8¼d	19 c	9¼d	82 c	8½d	45 c	†9½d	63 c	7½d	28 c	7d	—	—
Subong ...	40 c	8¼d	—	—	20 c	†9d	20 c	7½d	—	—	—	—	—	—
SHITTAGONG	**457 p**	**8¾d**												
Shandpore ...	93 p	9d	—	—	22 c	9¾d	30 c	11½d	41 c	7½d	—	—	—	—
Suttickcherra ...	175 c	8¾d	—	—	98 c	8½-10	20 c	11d	57 c	7¼d	—	—	—	—
Sornafuli ...	44 c	8½d	—	—	12 c	8¾d	12 c	9¾d	20 c	7¾d	—	—	—	—
Sodaleah ...	87 c	9d	12 c	1/1½	45 c	9d	—	—	20 c	7½d	—	—	10 c	7¼d
Suttiya ...	58 c	9¼d	—	—	18 c	9d	20 c	11d	20 c	7¾d	—	—	—	—
SHOTA NAGPRE	**97 c**	**6½d**												
Sallyhat ...	67 c	6¼d	—	—	40 c	5½- †6½	12 c	†7-7¾	—	—	12 c	5½d	3 c	3¾-4¾
SHTCB ...	30 c	7d	—	—	13 c	†7d	—	—	17 c	6¾d	—	—	—	—
SRJELNG&TERI	**2482 p**	**1/1¾**												
Darjeeling Co	520 p	1/1¾	25	10½d	174 c	10½ 1/7	90 c	1/4¾ 1/10	179 c	7½- 11½	26 c	9d	26 c	6-8¼
Sooteriah ...	119 c	2/0½	—	—	57 c	2/	31 c	2/8¾	31 c	1/5½	—	—	—	—
Soomtee ...	78 p	1/4¼	37p 1/7	¾ †1/11	½ 41 c	1/1	—	—	—	—	—	—	—	—
SndianTeraiTCo	96 c	8¾d	—	—	41 c	8¾d	14 c	1/1	29 c	7¼d	—	—	12 c	7¼d
Salabarrie ...	122 p	9½d	—	—	50 c	8¾d	50	†1/1	22 c	7d	—	—	—	—
Sebong T Co ...	625 c	1/1¼	157c 1/	4¼ 2/1½	246 c	11-1/4	—	—	222 c	8½-9¾	—	—	—	—
Sim T Co ...	90 p	1/3½	—	—	25 c	1/7¾	15 c	2/0¾	25 c	10½d	—	—	25 p	7½ 10½
Surmah Co ...	39	1/10¼	39 1/	8¼ 2/0½	—	—	—	—	—	—	—	—	—	—
Suxalbarrie ...	147 c	9¾d	17 c	1/0½	41 c	10d	13 c	1/3¾	60 c	8d	—	—	16 c	7¾d
Sushok ...	101 p	10d	30 c	9¾d	20 c	9d	20	1/7	31 c	8d	—	—	—	—
Soobong ...	136 p	1/6	45 2/	1¼-2/4	48 c	1/8½	—	—	23 c	11d	—	—	20 c	10¼d
Selimbong ...	124	11½d	—	—	50	1/	24	1/5¼	30	9¼d	20	7¼d	—	—
Soom T Co ...	96 c	1/3½	16 c	1/11	50 c	1/4½	—	—	30 c	9½d	—	—	—	—
Sukvar T Co ...	189 p	1/3	101c †1	/4¾-2/0	¼ —	—	—	—	61 c	11d	—	—	27	8¾d
SOARS	**3365 p**	**9¼d**												
Sbheel ...	112 c	10d	21 c	10¾d	27 c	9¼d	21 c	1/1½	43 c	8¼d	—	—	—	—
Salouni ...	80 c	1/4¼	—	—	19 c	1/2½	37 c	1/8½	24 c	11d	—	—	—	—
SoarsBamandng	235 c	9¼d	—	—	76 c	9d	85 c	10¼d	31 c	8¾d	—	—	43 c	6-9¼
,, Ghatia ...	185 c	9¼d	—	—	70 c	9¼d	34 c	11d	49 c	8¼d	15 c	9d	17 c	9d
,, Indong ...	73 c	9d	—	—	51 c	8¾d	22 c	9¼d	—	—	—	—	—	—
,, ,, ...	114 c	7¾d	12 c	9¼-1/	—	—	35 c	†7½ †8¼	47 c	†6¼- 7½	—	—	20 c	5¼-8¼
,, Tondoo ...	174 c	10¾d	23 c	1/7	50 c	†9½d	40 c	10¼d	47 c	8½d	—	—	14 c	8¾d
,, Nagrakatta	136 c	9¼d	—	—	82 c	9d	54 c	†9½d	—	—	—	—	—	—
Slenbarrie ...	72 c	11¾d	45 c	1 0¼ 1/5¾	—	—	—	—	27 c	8d	—	—	—	—
Sahai Patha ...	93 c	11d	37 c	10½ 1/8	22 c	8¾d	—	—	21 c	7¾d	—	—	13 c	5 9¼
Sunabarrie ...	325 c	9d	116 c	9½ †11¾	—	—	—	—	178 c	7½-8¼	—	—	31 c	7d
Seenglas ...	138 c	10d	19 c	1/	41 c	9½d	13 c	1/5¾	53 c	8d	—	—	12 c	9½d
Sundani ...	36 c	9½d	—	—	—	—	—	—	36 c	9½d	—	—	—	—
SSTC Bytagool	149 c	7½d	—	—	62 c	†7d	59 c	8½d	28 c	7d	—	—	—	—
Dam Dim ...	339 p	9d	20 b	2/4¼	195 c	†8½d	84 c	†10d	28 c	†7¾d	—	—	12 c	6½d
,, ...	229 p	9d	30 b	2/4	98 c	7¼-8¼	73 c	8-†9	17 c	6-†7	—	—	11 c	6½d
Nakhati ...	49 p	8¾d	3 c	10d	15 c	8½d	27 c	†9d	--	—	—	—	4	6d
Nowrea Nuddy	86 p	8½d	—	—	28 c	†8½d	21 c	†9½d	22 c	†8d	—	—	15	7d
Rungamuttee	244 p	8½d	51 b	†1/0¾	70 c	8½d	93 c	†8¼d	15 c	7¼d	—	—	15	4¼-5
Soolbarrie T Co	323 c	8d	22 c	11¼d	111 c	8-8½	40 c	9½d	66 c	7¼d	84 c	6¾-7	—	—
Stharjhora ...	173 c	9¾d	24 c	1/0¾	47 c	10½d	—	—	54 c	9¼d	48 c	8d	—	—
SUNGRAVALEY	**333 p**	**9¼d**												
Sunode ...	82	8¾d	21	9½d	34	8¼d	13	11d	14	7d	—	—	—	—
Sount Somerset	135	7¾d	56	†8¼-9¼	39	7¼d	—	—	40	7d	—	—	—	—
Sassau T Co.	116 p	10¾d	25 b	1/9	30 c	10d	20 c	1/2¼	25 c	8½d	16 c	7½d	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
TRAVANCORE	179 p	7¾d												
Isfield ...	53 c	7½d	—	—	35 c	7d	12 c	10¾d	—	—	6 c	5¾d	—	—
Penshurst ...	67 c	8¼d	—	—	49 c	7½d	18 c	10½d	—	—	—	—	—	
Seenikali ...	59	7¼d	—	—	26	7¼d	17	8¼d	—	—	15	6d	1	4

CEYLON. Average 9¼d.

Abbotsford ...	109 p	9¾d	18	1/3¾	39 c	8¼d	38 c	10¾d	14 c	7d	—	—	—	—
Agra Ouvah ...	90	8d	10	9d	27	7½d	34	8¾d	19	6¾d	—	—	—	—
Agra Oya ...	71 c	8d	—	—	43 c	6¾-7¾	28 c	9½d	—	—	—	—	—	
Allagalla ...	104 c	7¾d	—	—	20 c	8¼d	19 c	9½d	55 c	7¼d	6 c	7d	4 c	6
Alma ...	162	10¾d	—	—	94	10d	64	10¼	—	—	—	—	4	6¼
Alnwick ...	120 c	1/1½	—	—	60 c	11½d	43 c	1/3¾	14 c	8¼d	—	—	3 c	1 6
Amunamulle ...	212	9d	—	—	32	9¼d	92	9¾-10	38	7¾d	5	8¼d	—	—
Annfield ...	100	8¼d	—	—	46 c	7¾d	36 c	9¾d	13 c	6¾d	5 c	4¾d	—	—
Ardlaw ...	51 p	7¾d	—	—	11 c	7½d	30	8¾d	5 c	6¼d	—	—	5	5
Barnagalla ...	112 c	10d	—	—	—	—	112 c	10-10¼	—	—	—	—	—	—
Belgravia ...	50 c	9¼d	—	—	17 c	9d	23 c	10d	10 c	7½d	—	—	—	—
Bogawantalawa	46 p	1/3½	—	—	21 c	1/1¾	14 c	1/11	9 c	9¼d	1 c	7d	1	6½
Brae ...	204	7¾d	—	—	51	8d	37	10d	85	7¼d	26	4-6	5	5½
Broad Oak ...	46	9¾d	2	1/2	21	8¾d	20	11d	1	6¼d	2	5¼d	—	—
Brunswick ...	1 lb	8/	1 lb	8/	—	—	—	—	—	—	—	—	—	—
Burnside ...	48	10¼d	—	—	23	9¼d	21	10¼	3	7½d	—	—	1	5¼
Campion ...	109 p	9¼d	—	—	10 c	9¾d	28 c	10¼	21 c	8½d	24 c	7d	26	7
Castlemilk ...	98 c	8¼d	—	—	34 c	8d	32 c	10d	32 c	7d	—	—	—	—
Chapelton ...	145 p	1/0¾	—	—	43 c	11½d	63	1/6	32 c	8¼d	—	—	7	6
CLPC. NPeradn.	150 c	9d	—	—	50 c	8¾-9	50 c	10½-11	50 c	7¾d	—	—	—	—
,, Rickarton ...	97 p	1/1	49 p	1/1½	17 c	11¾d	—	—	22 c	9¾d	4 c	6-8¼	5	8
Clunes ...	128	9¼d	—	—	58	9d	45	10½d	25	7¾d	—	—	—	—
Coolbawn ...	50 c	7¼d	—	—	14 c	7¼d	17 c	8¾d	12 c	6¾d	7 c	4½-5½	—	—
CTPCEstHolyod	96	9¼d	—	—	48 p	8½d	44 c	10¾d	4	6½d	—	—	—	—
,,Scrubs ...	117 p	11½d	—	—	34	10d	71 p	1/1-1¼	12 c	7¾d	—	—	—	—
,,Tillyrie ...	81 c	11d	—	—	28 c	9¾d	40 c	1/0¾	13 c	8¼d	—	—	—	—
,,Wallaha ...	43 c	7½d	—	—	—	—	—	—	20 c	7½d	12 c	8d	11 c	7
,,Waverley ...	87 p	1/	—	—	41 p	10½-11	42 c	1/1¼	2 c	8¾d	—	—	2	6¼
Dalleagles ...	182	9¼d	—	—	77	8½d	66	10¾d	39	7¾d	—	—	—	—
Dawatagas ...	84 c	9d	—	—	36 c	7½d	36 c	9¼d	12 c	6½d	—	—	—	—
Deeside ...	185 p	8¾d	—	—	77 c	8½d	82	10¼d	—	—	12 c	6½d	14	7
Diyana Kaele ...	139 c	9¾d	—	—	49 c	9-9¾	60 c	11¼d	23 c	8d	3 c	5½d	4 c	7
Drayton ...	75 p	1/0¼	39 p	1/1½	2 c	10¼d	7	1/5¼	21 c	8¼d	4 c	6½d	2	7
Duckwari T P Co	70 c	7¼d	—	—	41 c	6½-7½	9 c	9¾d	15 c	6½d	—	—	5 c	5¼-5
Dunnottar ...	87 p	9¼d	57	10¼d	9 c	8¼d	18 c	9¼d	2 c	5¾d	—	—	1 c	5½
Dunsinane ...	194 p	11d	65	1/3¾	80 c	10¾d	—	—	41 c	8½d	—	—	8 c	9
Eadella ...	96 c	7½d	—	—	37 c	7½d	25 c	9d	34 c	6¾d	—	—	—	—
Emelina ...	129 c	9¾d	—	—	56 c	9¾d	32 c	1/0¾	28 c	8d	12 c	6½d	1 c	5½
EP&ECo Arapo.	72 c	8d	—	—	27 c	7½d	30 c	9¼d	15 c	6¾d	—	—	—	—
,,Condegalla ...	99 p	8½d	—	—	56	8d	21 c	10½d	19 c	7¼d	—	—	3 c	8½
,,Doombagastala	66 c	8¼d	—	—	—	—	22 c	10½d	44 c	7d	—	—	—	—
,,Meddecombra	101 c	8¾d	—	—	29 c	7½d	49 c	10¼d	23 c	7½d	—	—	—	—
Fairlawn ...	91	9¾d	—	—	48	9¼d	27	1/	11	7¼d	2	6d	3	6¼
Fassifern ...	34 c	7¾d	—	—	15 c	7½d	8 c	10¼d	11 c	6½d	—	—	—	—
Ferndale ...	60 c	8¾d	—	—	38 c	8¼d	19 c	10d	—	—	1 c	5¾d	2 c	5¾
Fernlands ...	105 p	10¼d	—	—	38 p	8¼ 10¼	46	1/1	17 c	8d	4	5½-6	—	—
Fordyce ...	97 p	9d	43	11½d	20 c	9d	—	—	22 c	7½d	5	5¾d	7	6
Fruit Hill ...	173 p	8¾d	83	10¾-11	41 c	8¼d	—	—	27 c	7d	9	7¾d	13	6¼
Galaha ...	155 c	8¼d	—	—	9 c	7½d	111 c	8½-8¾	17 c	7½d	—	—	18 c	6½
Galata ...	74 p	7¾d	—	—	43 p	4¼-7¾	22 p	9¼d	8 p	6d	—	—	1	5¼
Gallawatte ...	195	7¼d	—	—	74	6¾-7¼	42	8¾d	66	6¾d	—	—	13	5¼
Gallebodde ...	118 c	8d	—	—	34 c	7¾d	32 c	9¼d	32 c	6¾d	—	—	20 c	8¼
,, ...	73 c	8d	—	—	24 c	8d	23 c	9½d	26 c	7d	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Galloola ...	150	8¾d	22	10¾d	38	8½d	50	9½d	40	6¼-7¼	—	—	—	—
Geddes ...	56 p	1/0¾	—	—	29 c	9-10¾	22 c	1/5	1 c	7½d	—	—	4	7d
Gikiyanakanda ...	95 c	9½d	—	—	32 c	9½d	28 c	11½d	35 c	8d	—	—	—	—
Glasgow ...	122 p	10¼d	—	—	47 c	9¼d	68 p	11¼11¾	—	—	7 c	6¾d	—	—
Glen Alpin ...	265 p	11d	—	—	146 c	10½d	54 c	1/3	46 c	9d	4 c	7¼d	15	7¼d
Glencorse ...	98 c	8½d	20 c	10¼d	25 c	5-8½	15 c	9¾d	35 c	7¼d	—	—	3 c	6d
Glentaaffe ...	103 c	8d	—	—	56 c	8d	23 c	9¾d	22 c	7d	—	—	2 c	5½d
,, ...	199 c	7¾d	—	—	91 c	7½-7¾	43 c	9¼-9½	64 c	6½-6¾	—	—	1 c	5¼d
Glentilt ...	205 p	9¾d	66	1/0½	55 c	10¾d	—	—	43 c	8½d	22 c	7d	19	6½d
Gonakelle ...	69 c	9¼d	17 c	11d	17 c	10¼d	—	—	35 c	8d	—	—	—	—
Gonamotava ...	34 c	8d	—	—	13 c	7½d	17 c	9d	—	—	3 c	6¾d	1 c	5½d
Gorthie ...	139 p	10½d	—	—	52 c	9½d	54	1/3	28 c	8¼d	—	—	5	8¾d
Happugahalande	112 c	9½d	—	—	40 c	9¼d	33 c	1/0¼	33 c	8d	1 c	6d	5 c	6¾d
Harmony ...	49 p	7¾d	—	—	18 c	8d	15	10d	10 c	6¼d	4	5½d	2	5¾d
Hardenhuish & L.	74 p	7¾d	—	—	—	—	29 c	8½d	45	6½d	—	—	—	—
Heatherley ...	64 c	8¼d	—	—	32 c	7¾d	22 c	9¾d	10 c	6½d	—	—	—	—
Heatherton ...	98 p	7½d	—	—	26 c	6¾-†7¼	46	7-†9½	22 c	6¼-6¾	1	4d	3	†5d
Helbodde ...	131 p	8⅓d	13 p	7½-†9¾	38 c	9d	20 c	11d	43 c	7½d	12 c	6½d	5	6½d
Hemingford ...	85 c	8d	—	—	31 c	7¾d	25 c	9¾d	18 c	7d	2 c	5d	9 c	5½-7
Hoolankande ...	74 p	8d	30	10½d	10 c	9¾d	—	—	34 c	6¼-7½	—	—	—	—
Kabragalla M	205	9d	—	—	65	8½-8¾	70	10¾d	50	7½d	8	6d	12	6¼-7¼
Kaloogala ...	49 c	8¼d	—	—	22 c	7¾d	19 c	9½d	—	—	—	—	8 c	6d
Kandal Oya ...	384	8¼d	115	9-9¼	143	7½-7¾	75	9½d	31	6¾d	—	—	20	6d
Kandapolla ...	101 c	1/0¾	26 c	1/1	26 c	1/4¾	—	—	24 c	10d	—	—	25	8½d
KAW ...	258 c	8d	—	—	152 c	7¼-9	63 c	6¾-10¼	—	—	43 c	6¾d	—	—
Keenagaha Ella	41 p	8½d	—	—	12 c	9d	7 c	10½d	20 c	7¾d	1	5½d	1	6¼d
Kelaneiya ...	70 c	10¼d	—	—	34 c	8½d	34 c	1/	—	—	1 c	6d	1 c	5½d
Kelani Valley D	130 p	7¼d	—	—	44 c	7½d	35 c	8¾d	40 c	6½d	1 c	3¾d	10	4d
Kinlock ...	27 p	9d	10	1/0¾	13 c	8¼d	—	—	3 c	6¾d	—	—	1	6¼d
Kintyre ...	59 p	10⅓d	—	—	28 c	9¾d	12 c	1/1	6 c	7½d	—	—	13 p	6-10
Kirrimattia ...	32 c	11¼d	—	—	20 c	9½d	12 c	1/2¼	—	—	—	—	—	—
Kirkoswald ...	97 c	1/0¼	—	—	30 c	11½d	39 c	1/2¾	28 c	9¼d	—	—	—	—
Kottagalla ...	104 c	11d	—	—	53 c	9¾d	38 c	1/1½	13 c	8¾d	—	—	—	—
Lagalla ...	102	8½d	—	—	55	7¾d	34	10d	—	—	12	4-6¼	1	5¼d
Lindoola ...	37 c	9d	—	—	17 c	8d	20 c	9¾d	—	—	—	—	—	—
Llan Thomas ...	30 c	8d	—	—	10 c	8¼d	7 c	10½d	7 c	7d	5 c	6d	1 c	6¼d
Lynsted ...	173	9¼d	—	—	55	8½d	90	10½d	22	7¼d	4	5d	2	5½d
Macduff ...	67 c	10d	—	—	21 c	10¼d	20 c	†1/1	20 c	8d	—	—	6 c	6½d
Mahacoodagalla	194 c	9d	14	†9d	67 c	8½d	84 c	10¼d	29 c	6¾d	—	—	—	—
Mahatenne ...	74 p	8¼d	—	—	19 c	8½d	25	10½d	30 c	7d	—	—	—	—
Maria D ...	43 c	10¼d	—	—	13 c	9¾d	17 c	†1/	13 c	8¼d	—	—	—	—
Maryland ...	43 c	7½d	19 c	8-9	—	—	—	—	19 c	6¾d	3 c	5d	2 c	6¾d
Meddetenne ...	22 c	8½d	—	—	12 c	8¼d	8 c	9½d	—	—	—	—	2 c	5½d
Minna ...	83 p	8d	—	—	24 c	8¼d	16 c	†10½d	34 c	7d	2 c	4¼d	7	7½d
Morton ...	47 c	7½d	—	—	22 c	7¼d	16 c	8½d	8 c	6¼d	—	—	1 c	5d
Narangalla ...	188 p	9¼d	—	—	81 c	8½d	78 c	10½d	19 c	7¼d	—	—	10	6d
Nartagalena ...	70	6⅔d	—	—	40	7d	—	—	20	6¼d	10	5½d	—	—
Nartakande ...	68 c	7½d	—	—	18 c	7¾d	17 c	9d	33 c	6½d	—	—	—	—
NewDimbula D	115 c	10¼d	—	—	42 c	10d	54 c	11¼d	19 c	8½d	—	—	—	—
Newton ...	122	10¾d	—	—	58	9¼d	45	1/2	16	7d	2	6¼d	1	5½d
New Valley ...	159 c	8¾d	41 c	10½d	79 c	8½d	—	—	39 c	7¼d	—	—	—	—
N.I.T. ...	51 c	5¾d	—	—	—	—	—	—	—	—	28 c	4¼-5¾	23 c	6¼d
Nugagalla ...	176	10d	52	1/1	110	9d	—	—	7	6½d	—	—	7	5¾d
OBECCraigieLea	86 c	9¼d	—	—	34 c	†8¾d	24 c	1/0¼	28 c	7½d	—	—	—	—
,, Glendevon ...	122 c	1/3½	—	—	33 c	1/2½	37 c	1/9½	52 c	11¾d	—	—	—	—
,, Havilland ...	144	8d	—	—	44	10d	42	9¼d	38	7d	—	—	20	7¼d
,, Kuda-Oya ...	92 c	10¾d	—	—	45 c	8¾d	36 c	1/2¼	11 c	7d	—	—	—	—
,, Loolecondera	78 c	1/0¾	—	—	18 c	1/0¼	24 c	1/5	18 c	9¾d	18 c	11d	—	—
,, Nilloomally...	71 c	8¼d	—	—	26 c	7¾d	22 c	9½d	23 c	7¾d	—	—	—	—
,, Vellai-Oya ...	174	8½d	54 c	11d	94 c	7½-7¾	—	—	26	6¾d	—	—	—	—
Orwell ...	59 c	8½d	—	—	26 c	8¾d	13 c	10d	15 c	7½d	3 c	4-5½	2 c	5¼d

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pekoe Sou., Bro. and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Ottery ...	42 c	9¾d	—	—	22 c	8½d	20 c	11¼d	—	—	—	—	—	—
Ovoca ...	112 p	9¼d	—	—	38 c	8¾d	48 p	11 11½	26 c	7¾d	—	—	—	—
Panmure ...	113 c	8½d	—	—	44 c	8½d	31 c	†10¼10½	31 c	7 7¼	5 c	5d	2 c	5½d
Pantiya ...	68 c	10d	14 c	10½d	29 c	9d	12 c	1/2½	13 c	7½d	—	—	—	—
Parusella ...	144 p	7¼d	—	—	55 c	7¼d	46	9d	43 c	6¾d	—	—	—	—
Peacock Hill ...	89 p	8d	—	—	29 c	8¼d	24	11¾d	14 c	6¾d	12	4¾d	10	6¼d
Penrith ...	125 c	8¾d	13 c	†11¾d	44 c	8¼d	29 c	†10d	39 c	7¼d	—	—	—	—
Peradenia ...	177 c	8¼d	—	—	25 c	9¼d	39 c	11d	46 c	7¾d	22 c	6¾d	45 c	6¾7½
Pine Hill ...	152	9¼d	28	1/1	46	9¾d	—	—	42	8¼d	18	6¾d	16	6¾d
Pittawella ...	46	8½d	—	—	20	7¾d	18	10½d	8	6½d	—	—	—	—
Poengalla ...	133 c	7¼d	33 c	8¼d	41 c	6-7	33 c	7¼7½	26 c	6¼d	—	—	—	—
Portmore ...	81 c	9¼d	—	—	49 c	8 9¼	23 c	11¾d	9 c	8d	—	—	—	—
Portswood ...	117	1/3½	—	—	68	1/2½	29	1/8½	20	11d	—	—	—	—
Putupaula ...	138 c	8¾d	—	—	34 c	8¾ 9	39 c	1/	60 c	7d	3 c	3¾5¾	2 c	5½d
Rajatalawa ...	114 p	9½d	—	—	23 c	9½d	66	10¾d	25 c	8½d	—	—	—	—
Raxawa ...	43 c	8¼d	—	—	12 c	8¼d	12 c	10d	19 c	7d	—	—	—	—
,, ...	29 p	7d	6 p	8½d	10 c	7½d	—	—	7 c	6½d	5 p	5¾d	1 c	5¼d
Rangbodde ...	157 c	9d	—	—	44 c	9¼d	41 c	11d	72 c	7¾d	—	—	—	—
Relugas ...	124 p	7½d	—	—	38 c	7¼d	50	9¼d	33 c	6¾d	—	—	3 p	5¼5½
Richlands ...	72 c	9½d	43 c	9¾-1/1	—	—	—	—	28 c	7½d	—	—	1 c	6d
Riverside ...	58 c	8¾d	—	—	13 c	8¾d	24 c	†9¾d	21 c	7½d	—	—	—	—
Robgill ...	36 p	8¾d	—	—	15 c	8d	19	10d	—	—	—	—	2	5¾d
Rothes ...	31 b	11¾d	—	—	31 b	11¾d	—	—	—	—	—	—	—	—
Rothschild ...	34 c	7¾d	—	—	34 c	7¾d	—	—	—	—	—	—	—	—
Ruanwella ...	60	7¾d	—	—	20 c	7¾d	20 c	9d	20 c	6¾d	—	—	—	—
SctshCyCStrathn	218 p	8¾d	—	—	44 c	8¼d	112	10¾d	51 c	7d	5	4½d	6	6d
Selegama ...	78 p	8d	15	†10½d	—	—	19 c	9½d	44 c	6¾d	—	—	—	—
Shannon ...	90 p	6¾d	—	—	18 c	6½d	37	8¾d	25 c	6d	6	4½d	4	5½d
Sheen ...	193 p	10½d	68	1/2	79 p	10 10¾	—	—	34 c	8d	—	—	12	7½d
Situlaganga ...	91	7½d	—	—	54	7d	30	8½d	6	5¾d	—	—	1	5d
St. John Del Rey	189 p	10½d	—	—	95	10¼d	60	1/1¼	34 c	8½d	—	—	—	—
Sunnycroft ...	114 c	7¼d	52 c	7½8¾	35 c	6¾d	—	—	27 c	6d	—	—	—	—
Tangapoo T. ...	62 p	7¼d	—	—	—	—	30 p	7¾ 9	18	6¾d	14 p	4¾5¼	—	—
Upper Haloya	60 p	7½d	17 p	8¾d	43 c	7d	—	—	—	—	—	—	—	—
Waltrim ...	47 c	9¼d	—	—	18 c	9¼d	12 c	1/0¼	16 c	7½d	—	—	1 c	5¾d
Warriapolla ...	118 c	8¾d	37 c	9¼ 1/1½	—	—	—	—	68 c	7½7¾	11 c	5¾d	2 c	5¾d
Wattegodde ...	108 p	9¾d	—	—	41 c	9¼d	46 c	†11¼d	17 c	7¾d	—	—	4 c	7½d
Wewebedde ...	45 c	10d	—	—	11 c	8¾d	17 c	1/0¾	7 c	7¾d	—	—	10 c	6 †9
Wewelmadde ...	61 c	9d	—	—	16 c	7¾d	31 c	9¾ 10½	14 c	7¼d	—	—	—	—
Wiltshire ...	80 p	7¼d	—	—	36 c	7d	35 p	8½d	—	—	5 c	4½d	4	5d
Wootton ...	103 p	11¾d	27	1/11	42 c	10¾d	—	—	20 c	8½d	3	5d	11	6½d
Yahalakelle ...	125	8¼d	—	—	35	8¼d	40	9¼d	50	7¼d	—	—	—	—

JAVA. 899 pkgs. Average 7¼d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Parakan Salak	546 c	6½d	—	—	50 c	7½d	200 c	7¼7½	—	—	100 c	6½6¾	196 c	5 6½
Tjikembang ...	166 c	8¼d	—	—	61 c	†8¼d	80 c	†8½d	25 c	7¼d	—	—	—	—
Tjiomas ...	187 p	8¾d	3	3/4	39 c	7½-1/1	52 c	6¾ 11¼	81 c	†6¼ 9½	5 c	5¾d	7 c	5¼d

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *September 11th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	178,018 packages.	209,514 packages.	14,223 packages.
1891-1892.	211,814 ,,	258,381 ,,	18,561 ,,

During the week
30,670 packages Indian
4,898 ,, Ceylon } Total 46,216 packages have been offered in public auction.
648 ,, Java

Referring to the table given below showing re-exports of Tea from this country for the last three months, it is satisfactory to note that not only has the total amount shipped materially increased compared with the same period last year, but that the increase has been almost entirely made up of Indian and Ceylon growths.

Export of Tea from Great Britain for the three months ending 31st August, 1891, compared with same period, 1890.

	1890.	*per centages.*	1891.	*per centages.*
Indian	394,356	5	635,137	7
Ceylon	380,092	4	723,974	8
China, etc.	7,613,123	91	7,839,360	85
Total lbs.	8,387,571		9,198,471	

INDIAN. Great uncertainty exists amongst buyers as to the probable course of the market during the next few months and prices during the week have been irregular except where the liquors have possessed any special point and character. This uneasy feeling has doubtless been caused by the greatly increased estimate of crop as given by the Indian Tea Association in Calcutta at the outset of the season, and by the exceptionally early arrival of the crop in quantity. Judging from figures which we have obtained, giving actual production to the 31st ultimo as wired by many of the representative estates in each of the producing districts, the yield to that date—say for two thirds of the manufacturing season—shows an increase of only 7% to 8% as against an estimated increase of about 13% all round.

This weeks average price of New Season's Teas sold on Garden Account. Total 21,663 pkgs. average 10d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	8051 p	11½d	Chota Nagpore ..	—	—	Kangra Valley ..	103 p	10d
Cachar and Sylhet..	10241 p	8½d	Darjeeling & Terai	1974 p	11d	Neilgherry.. ..	182 p	8¼d
Chittagong	26 c	7d	Dooars	1013 p	8¾d	Travancore	73 c	8¼d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	5½d.	1890,	6¼d.	1889,	4¾d	1888, 4½d.
FANNINGS.	(Red to brown, strong rough liquor)	,,	6½d.	,,	6¾d.	,,	5d.	,, 6d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	8¼d.	,,	8¼d.	,,	6¼d.	,, 7½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	8½d.	,,	9d.	,,	9d.	,, 8½d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	10d.	,,	10¼d.	,,	10¾d.	,, 9¼d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	7d.	,,	7½d.	,,	5¼d.	,, 7¼d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7¾d.	,,	8½d.	,,	7¼d.	,, 8¼d.

CEYLON. Supplies this week have shown a material decrease and the attention of buyers has in consequence been more concentrated; hence a steadier tone has prevailed in the auctions and there is more regularity in prices. The presence of many improved invoices has also helped to stimulate the demand, and many of the higher quotations recorded are attributable entirely to this cause. Average for the week 9¼d.

JAVA. All the Teas brought to auction were from the "Bagelen" Estate. They possessed useful characteristics and were well competed for both by the home and foreign trades.

MOVEMENTS OF TEA IN LONDON (in lbs). FROM 1st JUNE TO 31st AUGUST.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
INDIAN	9,903,381	10,961,055	14,826,441	20,664,942	22,782,993	21,172,590	16,993,374	15,667,851	20,314,389
CEYLON.....	8,249,324	12,344,752	18,229,124	9,546,536	11,339,092	16,057,496	5,896,976	10,596,034	17,146,520
JAVA	707,210	716,590	1,270,710	1,036,070	1,157,870	1,277,220	904,960	623,560	844,550
CHINA, etc	26,029,864	23,279,973	23,420,667	19,154,795	21,195,372	19,532,763	44,220,333	42,074,710	32,329,995
Total lbs.	44,889,779	47,302,370	57,746,942	50,402,343	56,475,327	58,044,069	68,015,643	68,962,155	70,635,454

BANK RATE. 2½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 15/32d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity	Price
ASSAM	**7860 p**	**11½d**												
AssamFrontierCo	323 c	1/0¼	84 c	1/4¾ 1/9¾	123 c	10½ 11	—	—	88 c	8 8¾		—	28 c	9¾d
,, ...	377 c	11¾d	98 c	1/2½-2/4	158 c	9-10½	—	—	67 c	8½d	—	—	54 c	5¾ 7¼
Bamgaon ...	148 c	11½d	—	—	53 c	1/0½	29 c	1/3¼	31 c	9½d	35 c	8¼d	—	—
Bargang T Co ...	75 p	1/3½	—	—	25 c	1/3¼	25	2/2	25 c	10½d	—	—	—	—
Beheating ...	122 c	8¾d	—	—	27 c	1/0½	—	—	35 c	7¾d	60 c	7-8½	—	—
Bishnauth T Co	192 p	1/3¼	40	2/0¼-2/5	80 c	1/3¼	—	—	50 c	11½d	—	—	22 c	1 1¼
BITCo Mancotta	20 c	7½d	—	—	—	—	—	—	20 c	7½d	—	—	—	—
,, Sessa ...	85 c	10½d	—	—	45 c	9¼-10¼	20 c	1/3¼	20 c	7¾d	—	—	—	—
Borpani Valley .	24 c	8¾d	—	—	12 c	9d	6 c	9d	6 c	7¾d	—	—	—	—
Bungalagor F ...	63 c	8½d	—	—	21 c	9¾d	—	—	19 c	8d	23 c	7¼7¾	—	—
Chubwa T Co ...	85 c	8½d	—	—	25 c	9¼d	22 c	9d	33 c	7¾d	—	—	5 c	6d
Cooliekoossie ...	61 c	8d	—	—	—	—	7 c	10d	—	—	54 c	7·8	—	—
Dahingeapar ...	92 p	1/0¾	—	—	26 c	10½-1/-	40	1/4¼-1/9	26 c	9½d	—	—	—	—
DebrooghurCo ...	77 c	10¾d	—	—	32 c	10¼d	16 c	1 3¾	29 c	8¾d	—	—	—	—
Dejoo T Co ..	289 c	10¾d	—	—	137 c	11¼11½	37 c	1/1¼1/8½	61 c	8¾-9	42 c	8¾d	12 c	6¾d
Doloi Co ...	310 c	8d	30 c	9½d	91 c	8½d	41 c	9¼d	135 c	†7½d	13 c	6¾d	—	—
Doolahat ...	75 c	1/0¼	—	—	30 c	11¼d	20 c	1/5	25 c	9¼d	—	—	—	—
Doom Dooma B	194 p	1/1	105	1/4¾1/10	½ 57 c	10¾d	—	—	32 c	8¼d	—	—	—	—
Dooria ...	95 c	9¼d	—	—	75 c	8½ 10¾	—	—	—	—	20 c	8d	—	—
Eastern AssamC	232 p	1/0¼	151	11¼1/11¼	45 c	9-10¼	—	—	36 c	7¾-8¼	—	—	—	—
Gotoonga ...	60 c	1/3¾	—	—	24 c	1/2¼1/9½	12 c	2/1¼	—	—	24 c	8½-9¾	—	—
GreenwoodTC B	55 c	1/0¼	—	—	35 c	1/1	—	—	20 c	10¾d	—	—	—	—
,, D	101 c	1/1½	30 c	1/11	—	—	—	—	40 c	10d	22 c	9¾d	9 c	6¾d
Harmutty ...	166 c	10¼d	—	—	49 c	11¾d	18 c	1/4¾	74 c	8¼d	25 c	8½d	—	—
Hattigor ...	180 c	9¾d	—	—	99 c	10d	20 c	1/2½	20 c	8¾d	41 c	7¾-8	—	—
Jhanzie T Assoc	143 c	1/1	—	—	45 c	1/1¼	22 c	1/11¼	69 c	9¾d	—	—	7 c	1 1
Jorehaut T Co	708 c	11d	—	—	234 c	10-1/4	54 c	1/1½1/4¼	420 c	8¼-10¾	—	—	—	—
Kamar Koochee	70 c	8¾d	—	—	27 c	9d	13 c	10½d	17 c	8¼d	13 c	7¼d	—	—
Khongea ...	97 c	1/1¼	—	—	20 c	1/4¼	77 c	9½-1/6	—	—	—	—	—	—
Koliabur Factory	111	9¼d	—	—	21	10¾d	—	—	67	9¼d	23	8d	—	—
Lepetketta ..	91 p	1/0½	37 p	1/4-2/1¾	42	8¾-9¼	12 c	8d	—	—	—	—	—	—
Lukwah ...	66 p	1/	12	1/8¼	15 c	10½d	18	1/5½	11 c	9d	10 c	8d	—	—
Mahmarah T P D	89 c	11¼d	—	—	26 c	1/1¼	—	—	—	—	50 c	9d	13 c	1 1
Majuli T Co. G	88 c	1/0¼	12 c	1/5¼	44 c	11½d	12 c	1/1¼	20 c	10d	—	—	—	—
,, K	100 c	1/4¼	19 c	2/3	48 c	1/1½-1/4	—	—	20 c	11½d	13 c	11d	—	—
,, M	77 c	10½d	—	—	31 c	1/1	—	—	25 c	9d	—	—	21 c	8¾d
Mandakatta ...	34 c	8½d	—	—	12 c	9d	10 c	9½d	12 c	6¼-7½	—	—	—	—
Mokalbari ...	75	1/2¾	37	1/8¼	—	—	38	9¾d	—	—	—	—	—	—
Moabund T Co	124 c	1/3¼	—	—	62 c	1/4-1/8¾	—	—	40 c	1/0½	22 c	11¼d	—	—
Nahor Kutia ...	112 c	10¼d	—	—	19 c	1/2	—	—	37 c	10d	—	—	56 c	1 4
Noakacharee Co	355 c	10d	—	—	143c	11-1/10½	20 c	1/1¾	151 c	7¾8½	41 c	7¼7¾	—	—
,, ...	105 c	10¼d	—	—	40 c	11d	20 c	1/2	25 c	7¾d	20 c	7½d	—	—
Rajmai T Co ...	150 c	1/2	—	—	76 c	1/1¾-1/2	28 c	1/9	—	—	46 c	10d	—	—
Salonah T Co	453 p	11½d	34	1/4	178 p	11½-1/	84	1/2¾-1/6	92 c	9½ 10½	65 c	7¼ 9	—	—
ScottishAssamC	187 p	10¼d	33 p	1/6¼1/7½	35 c	10¾d	12 c	11¼d	107 c	8d	—	—	—	—
Sealkottee ..	75 p	11¼d	35	1/3½	40 c	9¼d	—	—	—	—	—	—	—	—
Seconne ...	65 c	11¾d	—	—	24 c	11¼d	16 c	1/4¾	25 c	9d	—	—	—	—
Singlijan ...	118 p	10¼d	34 b	2/3	36 c	10½d	—	—	48 c	7½d	—	—	—	—
Tiok ...	45 p	10¼d	—	—	—	—	9	1/5	13 c	9½d	14 c	8¼d	9	1 0¼
Titadimoro ..	56 p	1/2¾	—	—	13 c	1/2½	30	1/6¾	13 c	10½d	—	—	—	—
Upper Assam Co	711 p	1/2	190	1/6½2/5¼	125 c	8½-1/1	178c	1 1¾2/0½	163 c	8 10½	54c	11-1/0¼	—	—
Wilton T Co W	54 c	9⅓d	—	—	32 c	10¼d	—	—	22 c	8½d	—	—	—	—
CACHR&SYLHT	**9946 p**	**8⅓d**												
B&CoChargola C	400 c	7½d	55 c	9¾11	150 c	7 7¼	70 c	8d	100 c	7d	25 c	6d	—	—
,, ,, H	604 p	8d	67 c	10½d	127 c	†8¼d	82 c	†8¼8½	293 c	†7 7¼	21 c	6¾d	14	5¾d
,, ,, S	352 c	8½d	52	10½†10½	109 c	8¼d	68 c	8¾d	110 c	7½d	13 c	†6d	—	—
,, Muddanpore	113 c	6¼d	—	—	61 c	6¾d	—	—	—	—	52 c	5¾d	—	—
,, Singla ...	229 c	7¾d	51 c	10 10½	194 c	8d	60 c	9d	178 c	†6¾d	31 c	†6½d	15 c	6½d
Baraoora ...	190 c	8¾d	30 c	9¾1/1¼	70 c	8½d	30 c	9¼d	60 c	†7d	—	—	—	—
BITCoDwarbund	186 c	7¾d	—	—	63 c	7¾d	42 c	9¼d	20 c	6¾d	61 c	6¾-7	—	—
,, Urrunbund	288 c	8d	—	—	123 c	8¼8½	36 c	11¼d	—	—	129 c	6¾d	—	—
Borokai T Co.	115 c	11½d	—	—	39 c	11½d	14 c	1/8¾	24 c	8½d	38 c	10¼d	—	—
Budderpore ...	81 c	9¼d	—	—	28 c	11d	—	—	—	—	53 c	8¼d	—	—
Chandkhira ...	291 p	8d	—	—	77 c	7⅝-8	114 c	9d	100 p	7d	—	—	—	—

Garden.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
hatlapore ...	183	p	10¼d	39	1/1¼ 1/3¾	87	c 10½d	13	c 8½d	27	c 8¼d	17	c 7½d	—	—
oodputlee ...	132	c	8½d	—	—	67	c 8½d	17	c 11½d	—	—	48	c 7¾d	—	—
ndianTCofCachr	79	c	1/1	—	—	21	c 1/	13	c 2/0¼	25	c 9¾d	20	c 11d	—	—
,, ,, ...	158	c	11½d	—	—	40	c 10¾d	25	c 1/8½	40	c 9d	53	c 10d	—	—
aline ...	358	c	10¼d	—	—	117	c 11d	54	c 1/3¾	—	—	160	c 7¾8¼	27	c 9½d
,, ...	153	c	8¾d	—	—	63	c 10 10¼	—	—	—	—	59	c 8d	31	c 7¼d
apnaphar ...	60	c	7¾d	12	c 8¼d	22	c 7¾d	10	c 8½d	16	c 7d	—	—	—	—
oyah ...	246	p	8¾d	15	c 10¾d	69	c 8½d	85	p 7¾ 1/0¾	41	c 7¼d	36	c 7d	—	—
F&Co ...	74	c	8¼d	—	—	21	c 9d	16	c 10d	21	c 7½d	16	c 6¾d	—	—
uayuni ...	50	c	8¼d	—	—	20	c 8½d	10	c 10d	15	c 7¾d	—	—	5	c 6d
ferringa ...	45	c	8¼d	—	—	32	c 8d	13	c †9¼d	—	—	—	—	—	—
STCo Burjan	193	p	8¼d	12	c 1/3½	85	c †7¾d	65	c †8½d	16	c †7d	—	—	15	6d
,,Degaicherra	76	c	8½d	—	—	30	c 8¾d	21	c 10d	14	c 7¼d	11	c 6½d	—	—
,,Jafflong	576	p	8½d	214	c 9-1/1½	118	c †8d	55	c 9d	98	c †7d	49	c †6½d	42	7d
,,Khadim ...	295	p	8d	60	c 8¾ †1/1½	101	c †7¼d	47	c 8¾d	47	c 6¾d	36	c 7d	4	5½d
,,Lallakhal ...	136	c	9d	38	c 1 0-1/6¼	39	c 8d	12	c 10¼d	18	c †7d	29	c 6¾d	—	—
atrakola ...	125	p	8½d	18	1/0½	45	c 8¼d	32	c 8¾d	30	c 7¼d	—	—	—	—
ajnagar ...	87	c	8½d	—	—	36	c 8¼d	31	c 9¾d	—	—	—	—	20	c 7d
ampore ...	112	c	8½d	—	—	29	c 8½d	41	c †9¼d	31	c 7½d	11	c 7½d	—	—
cotporeTCo P	265	c	8½d	19	c 1/0¼	64	c 9¼d	20	c 8¾d	103	c 7½7¾	59	c 6½ 7	—	—
,, S	108	c	8¾d	—	—	40	c 8¾d	22	c 10¾d	34	c 7½d	12	c 7½d	—	—
ephinjuriBhTCo	129	c	6¾d	—	—	62	c 6½d	20	c 8¾d	21	c 6¾d	26	c 5¾d	—	—
ldoobie ...	137	c	7d	—	—	—	—	29	c 8½d	101	c 6¾d	7	c 5¾d	—	—
narupa ...	160	c	9d	—	—	43	c 10½d	31	c † 10½d	43	c 8¼d	43	c 7½d	—	—
STCoAmrail ..	182	p	8d	40	c † 9 †1/0½	50	c 7¾d	19	c 9½d	65	c 6¾d	—	—	8	5¼d
Balisera ..	311	c	8½d	62	c 9½ †1/3¾	101	c 8¼d	40	c 9½d	82	c 7¼d	26	c 6½d	—	—
Chundechera C	230	c	7¾d	—	—	147	c 8 8¼	51	c 6¾d	32	c 7d	—	—	—	—
,, L	268	p	7d	24	9¼10	106	c †7½d	28	c †7¼d	85	c †6¼d	—	—	25	c 6¼d
Deanston ...	216	c	9¼d	56	c 1 0-1/4¼	80	c 8½d	21	c 10¼d	41	c 7½d	8	c 6½d	10	6d
Dukingole ...	70	p	8¾d	—	—	25	c †8½d	15	c 1/0½	25	c †7d	—	—	5	5d
Jagcherra ...	203	p	8d	31	c † 9-1/1½	48	c 8¼d	27	c 8½d	63	c †7d	21	c 6¾d	13	6½d
Pulcherra ...	153	c	8d	20	c †9d	42	c 8¼d	31	c 8¾d	31	c 7½d	29	c 6¾d	—	—
Rajghat ...	782	p	8½d	212	c † 8¼ 1/1½	241	c †8d	208	c 8½ †8¾	41	c 7½d	12	c †6½d	68	6¼d
rrapore TCo ..	490	c	9¾d	—	—	122	c 9½ 11½	82	c 1/ 0½ 1/1¾	108	c 8¼ 9	178	c 6¾-8¾	—	—
F&Co ...	122	p	8½d	21	c 10¼d	30	c 9d	47	p 8¼ 9	20	c 7d	4	c 6¼d	—	—
esternCachr Co	133	c	8¾d	—	—	41	c 10¼d	20	c 1/	—	—	72	c 6½-7¾	—	—
RJELNG&TERI	**1932**	**p**	**11d**												
nnockburn ...	79	p	9d	—	—	20	c †9¼d	30	b 1/4¾	29	c 7d	—	—	—	—
ong TongTAss.	112	p	1/0¼	—	—	45	c 1/2	22	1/6¼	45	c 9d	—	—	—	—
rjeeling Co	62	c	1/1	—	—	30	c 1/4½	—	—	32	c 9½d	—	—	—	—
najea ...	88	c	9¾d	—	—	79	c †8¼10½	9	c †1/1¼	—	—	—	—	—	—
ppy Valley ...	106	c	8½d	—	—	46	c 9¼d	15	c 8½d	30	c 8½d	15	c 7d	—	—
petownTCo	163	p	1/1	—	—	26	c 1/0½	111	1/3¼	14	c 9d	—	—	13	c 8d
dianTeraiTCo	88	c	8¼d	—	—	41	c 8¾d	16	c 10½d	31	c 7d	—	—	—	—
el ...	60	c	9¾d	—	—	20	c 10d	20	c 10¾d	20	c 8½d	—	—	—	—
ngia ...	82	c	9¾d	—	—	36	c 11¾d	—	—	22	c 8¾d	24	c 7¼d	—	—
halderam ...	100		8d	—	—	30	9¾d	20	9¼d	30	6¾d	20	6¼d	—	—
rgaret's Hope	100	c	1/3¼	35	c † 1/5¼	15	c 1/4	14	c † 1/10	36	c 10¼d	—	—	—	—
ST Co Blomfild	79	p	1/1¼	16	c 1/3½	15	c 1/1¾	21	c † 1/2¾	26	c 10½d	—	—	3	6¾d
xalbarrie Co	128	c	9d	20	c 1/0¾	33	c 9½d	—	—	58	c 7½d	—	—	17	c 7¾d
shok ...	120	p	9¼d	40	c 9¾d	20	c 8¼d	20	1/3¾	40	c 7½d	—	—	—	—
sheehot ...	100	p	1/0½	25	1/5	25	c 1/7¾	25	11½d	25	c 7¾d	—	—	—	—
nglee Rungliot	115	p	10½d	40	c † 11½d	20	c †9¼d	20	1/7	35	c 7½d	—	—	—	—
om T Co ...	95	c	1/1¾	15	c 1/8½	50	c 1/3	—	—	30	c 8½d	—	—	—	—
kvar T Co ...	184	p	1/0½	102	c † 1/1- † 1/8¾	—	—	—	—	55	c 9¼d	—	—	27	† 8¼d
rzum ...	71	p	10d	—	—	42	11¼d	—	—	27	8¼d	—	—	2	c 5¾d
OARS	**1013**	**p**	**8¾d**												
ogotpore ..	423	p	9d	73	11d	90	c †8¾d	153	† 10d	107	c 7¾d	—	—	—	—
ngua Jhar ...	95	p	8d	21	9½d	22	c 7¾d	13	c 9¾d	18	c 7d	—	—	21	c 5-7½
oars Co Nagra.	169	c	8¾d	27	c 1/1¼	—	—	28	c 9½d	60	c 7½d	—	—	54	c 7½d
hai Patha ...	3		3/2	3	† 3/2	—	—	—	—	—	—	—	—	—	—
sh River Co	170	c	8d	—	—	60	c 8d	53	c 9d	57	c 7d	—	—	—	—
TC Rungmute	153	p	9¾d	51	b † 1/3	45	c 8½d	42	c 8½d	—	—	—	—	15	7d
NGRAVALEY	**103**	**p**	**10d**												
agra Valley G	63	p	10¾d	48	b 1/0¼	15	c †9½d	—	—	—	—	—	—	—	—

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unasserted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Soongul ...	40 p	9d	—	—	—	—	20	11½d	20 c	7¾d	—	—	—	—
NEILGHERRY	**142 p**	**9¼d**												
Kodanaad ...	110 p	9¾d	40	1/	—	—	20	1	20 c	9¼d	30 c	7¾d	—	—
Red Hill ...	32	6½d	4	†5¾d	12	7¼d	—	—	16	6d	—	—	—	—
TRAVANCORE	**73 c**	**8¼d**												
Arnakel ...	41 c	8¾d	—	—	39 c	9d	—	—	—	—	—	—	2 c	4¾d
Venture ...	32 c	7½d	—	—	27 c	7¼d	5 c	9¼d	—	—	—	—	—	—

CEYLON. Average 9¼d.

Aadneven ...	24 c	8¾d	—	—	10 c	8¼d	10 c	9½d	4 c	7½d	—	—	—	—
Aberdeen ...	200	7d	80	8 8¼	120	6¼6½	—	—	—	—	—	—	—	—
Aberfoyle ...	50 p	7¾d	21	†9¼d	26 c	7½d	—	—	—	—	1 c	†4d	2	†5¾d
Aigburth ...	57 c	8¾d	—	—	18 c	†7¾d	27 c	10½d	12 c	6¾d	—	—	—	—
Albion ...	86 p	9½d	—	—	21 c	9¼d	27 c	1 0¾	26 p	7½ 8	3 c	5½ 8	9	6d
Amblamana ...	80 c	8¼d	—	—	—	—	49 c	9d	16 c	7½d	12 c	6¾d	3 c	6½d
Amherst ...	56 p	9½d	—	—	25 c	9¼d	18 c	†10¾d	6 c	9d	3 c	7½d	4	5½d
Ampittiakande ...	92 p	9¾d	31	1/3½	53 c	8¼8½	—	—	—	—	3 c	6d	5	5¾d
Amuna Mulle ...	200	9d	—	—	68	8d	71	9¼d	56	9d	—	—	5	7d
Arslena ...	111	7d	—	—	49	5¾6½	50	8½d	—	—	7	3¾d	5	5d
Attabage ...	84 p	8½d	—	—	31 c	8½d	27	11d	15 c	6¾d	7	5¼d	4	6¼d
Balmoral ...	104 c	9d	—	—	30 c	9¼d	42 c	10¼d	28 c	7½d	—	—	4 c	6¼d
Bambrakelly&D.	54 c	10½d	—	—	27 c	9¼d	27 c	11½d	—	—	—	—	—	—
Barnagalla ...	192 c	8d	—	—	51 c	8d	67 c	9½d	47 c	7d	—	—	27 c	6¼ 7
Bearwell ...	68 p	9d	—	—	25 c	9d	27 c	10¼d	15 c	6¾d	—	—	1	5d
Binoya ...	96 c	8¼d	—	—	65 c	7¾8¼	18 c	10 11	—	—	13 c	6¼ 7	—	—
Bogahawatte ...	153 p	7¾d	32	11½d	35 c	8¼d	—	—	9 c	7d	59 c	7¼d	18 c	6¼d
Bromley ...	58 c	10¼d	—	—	20 c	9¾d	20 c	1/1¼	16 c	8d	—	—	2 c	7d
Brunswick ...	84 p	10¼d	57	1/	24 c	8¾d	—	—	—	—	—	—	3 c	7½d
,, ...	2 b	1/10	2 b	1/8¼-2/	—	—	—	—	—	—	—	—	—	—
Bunyan ...	76 c	9d	—	—	38 c	9d	78 c	†11¼d	20 c	7¼d	—	—	—	—
Campion ...	80 c	11d	—	—	22 c	†10½d	35 c	1/0¾	23 c	8¾d	—	—	—	—
Castlemilk ...	64 c	8½d	—	—	24 c	8d	25 c	9¾d	15 c	7d	—	—	—	—
Castlereagh ...	123 p	9¾d	37	1/2¼	86 c	8¾ 9	—	—	—	—	—	—	—	—
Chapelton ...	151 p	10½d	—	—	43 c	10d	63	1/3½	35 c	8d	10 c	7¼d	—	—
CL&PC Andngdie	68 c	8¾d	—	—	25 c	8¾d	12 c	1/	31 c	†7¼d	—	—	—	—
,, Fetteresso ...	168 p	9¼d	—	—	29 c	10d	97	10¼d	31 c	8d	5 c	6¾d	6	5½d
Cottaganga ...	100 c	7½d	—	—	24 c	8d	25 c	9¼d	23 c	6d	14 c	6d	14 c	5¾d
Crurie ...	64 c	10½d	—	—	12 c	9¾d	34 c	11-1/2	18 c	8d	—	—	—	—
CTPCo Alton ...	252 p	9¾d	—	—	131 p	9¼†9¼	59 c	1/	14 c	7¾d	—	—	48 p	6¾8d
,,Dunedin ...	234 p	8½d	55 b	10¾d	96	8 8¼	45 c	9d	38 c	7d	—	—	—	—
,,EastHolyrood	81 p	9½d	—	—	45 p	8½8¾	36 c	10d	—	—	—	—	—	—
,,Mariawatte	264 p	7¾d	—	—	81	8 8¼	31 c	9¾d	152 p	6¾ 7	—	—	—	—
,,Tangakelly	167 c	11d	—	—	50 c	11¼d	77 c	1/0¾	37 c	7¾d	—	—	3 c	6d
,,Tillyrie ...	81 c	11½d	—	—	36 c	10¼d	32 c	1/2	13 c	8¾d	—	—	—	—
Culloden ...	142 c	9½d	—	—	70 c	†8¾d	30 c	1/2¼	42 c	7½d	—	—	—	—
Dalleagles ...	101	9½d	—	—	45	9¼d	36	11d	20	7½d	—	—	—	—
Dambulagalla ...	64 c	7½d	—	—	14 c	6¾d	30 c	8½d	20 c	6¼d	—	—	—	—
Daphne ...	48 p	7¼d	—	—	21 c	7¼d	11 c	8¾d	13 c	6½d	2 p	3½4½	1 c	5d
Dedugalla ...	114 c	7¾d	—	—	51 c	7½7¾	33 c	8¼d	30 c	7d	—	—	—	—
Delta ...	73 c	9¼d	—	—	32 c	8½d	41 c	9¾d	—	—	—	—	—	—
Denegama ...	87	9¼d	—	—	63	8½d	21	†11½d	—	—	1	6½d	2	6d
Denmark Hill ...	70 c	1/1	15 c	1/5	27 c	1/1½	—	—	18 c	10½d	9 c	9½d	1 c	8½d
Deviturai ...	79 c	8½d	—	—	30 c	8d	31 c	9¾d	—	—	17 c	6¾d	1 c	5¼d
Digalla ...	102 p	7½d	—	—	28 c	7½d	30 c	†9d	34 c	6½d	7 c	5¾d	3	5½d
Dig Dola ...	62 p	7½d	—	—	30 c	7d	29 p	8½d	—	—	—	—	3 c	6¼d
Donside ...	64 p	7½d	5 c	6 7¼	—	—	14 c	10¾d	36 c	6¼6½	8 c	6d	1	4¼d
Dunottar ...	59 p	11¼d	33	1/0¾	7 c	8½d	16 c	11d	1 c	7d	2 c	1/1	—	—
Edinburgh ...	90 p	10½d	—	—	38 c	9¼d	52 p	11½d	—	—	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Ekolsund ...	47 c	7½d	—	—	14 c	7d	23 c	8¾d	3 c	6½d	3 c	5½d	4 c	5¼d
Elchicho ...	123	8¾d	—	—	20	8¼d	44	11d	59	7¼d	—	—	—	—
Elkadua ...	112 c	8½d	—	—	32 c	8¾d	24 c	11½d	56 c	7d	—	—	—	—
Elston ...	125 c	9¼d	—	—	55 c	8¾d	40 c	11¼d	30 c	7¼d	—	—	—	—
Eltofts ...	75 p	11½d	—	—	14 c	11½d	34	1/3¼	21 c	9½d	4 c	6¾d	2	4¾d
Engurukande ...	124 c	7½d	—	—	48 c	7¾d	21 c	9¼d	44 c	6¾d	—	—	11 c	6d
Ernan ...	116 c	8¼d	—	—	43 c	7¾d	48 c	9¼d	25 c	7d	—	—	—	—
Excelsior ...	48	1/0¼	—	—	13	11¼d	17	1/4¾	16	8¾d	1	7d	1	5¾d
Friedland ...	56	10½d	—	—	18	10¾d	20	1/	18	8¼d	—	—	—	—
Galkadua ...	12 c	6½d	—	—	—	—	—	—	12 c	6½d	—	—	—	—
Gallaheria ...	116 p	8½d	30	10d	33 c	7½d	31 c	9¾d	22 c	6¾d	—	—	—	—
Gallamudina ...	111 c	8½d	—	—	28 c	8d	42 c	10½d	—	—	41 c	7d	—	—
Gallebodde ...	173 c	7½d	—	—	32 c	8¼d	30 c	9¾d	34 c	7d	36 c	6¼d	41 c	6 8½
Gammadua ...	54 c	10½d	—	—	22 c	9½d	22 c	1/0½	9 c	8d	—	—	1 c	6½d
Gartmore ...	1 b	£1	1 b	†£1	—	—	—	—	—	—	—	—	—	—
Glencairn ...	106 c	8½d	—	—	28 c	9d	30 c	10½d	44 c	7¼d	—	—	4 c	5½d
Glengariffe ...	72 c	8d	—	—	21 c	8d	22 c	9½d	29 c	6¾d	—	—	—	—
Glenugie ...	136 p	10¾d	—	—	71 c	9¼d	50	1/4¾	15 c	7¼d	—	—	—	—
Goat Fell ...	148 p	1/1¼	—	—	44 c	1/3	20 c	1/8¾	35 c	11¼d	16 c	9¼d	33	7¼d
,, ...	75 c	1/3¾	—	—	46 c	1/3¾	12 c	1/9	17 c	1/0¼	—	—	—	—
Gona Adika Co G	75 p	9¼d	—	—	37 c	8½d	38	10½d	—	—	—	—	—	—
Goomera ...	28 c	8¾d	—	—	14 c	†7¾d	14 c	†9½d	—	—	—	—	—	—
Gouraville ...	64 c	9¼d	29 c	10¼d	35 c	8¼d	—	—	—	—	—	—	—	—
Hardenhuish & L.	31 p	8¾d	—	—	—	—	20 c	†9d	11	7½d	—	—	—	—
Hauteville ...	142 p	10¼d	—	—	48 c	9¾d	50 c	1/1	23 c	7½d	—	—	21 c	6¾d
Heatherley ...	97 c	8½d	—	—	63 c	7¾-9½	25 c	9¾d	6 c	6¾d	2 c	4½d	1 c	5d
Heatherton ...	108 p	8d	—	—	25 c	7¾d	54	9¾d	24 c	6¾d	1	4¾d	4	5½d
Heeloya ...	67 c	8½d	—	—	33 c	†8d	25 c	9¾d	9 c	7¼d	—	—	—	—
Hethersett ...	47 p	11¼d	—	—	13 c	10½d	23	1/2¾	10 c	8½d	—	—	1 c	8¼d
mboolpittia ...	280 p	8¾d	—	—	97 p	9 9¾	61 c	10¾d	116 p	7½7¾	—	—	6	6d
ndian Walk ...	112	7¼d	—	—	67	5½-7	24	9½d	11	6d	10	5¼d	—	—
ndurana ...	145 c	7d	—	—	41 c	7d	34 c	8¾d	65 c	6¼d	—	—	5 c	5½d
ngestre ...	117 p	9½d	—	—	49 c	9d	46	†1/0¾	10 c	7½d	6	5¾d	6	6d
Kaloogala ...	31 c	8½d	—	—	14 c	7¾d	17 c	9¾d	—	—	—	—	—	—
Kaluganga ...	31 p	8¼d	—	—	13 c	7¾d	8 c	11d	9 c	6¾d	—	—	1	5¼d
Kandapolla ...	86 c	1/0¼	27 c	1/1¾	22 c	1/3	25 c	10¼d	—	—	12 c	8¼d	—	—
Katookella ...	92	10¼d	—	—	30	10½d	18	1/2¼	42	8½d	—	—	2	9½d
KAW ...	109 c	8¼d	—	—	71 c	6¼-9	23 c	10¼d	—	—	15 c	6¾d	—	—
Kelburne ...	61 c	8¾d	—	—	14 c	8½d	28 c	9¾d	16 c	7½d	—	—	3 c	5½d
Kelvin ...	131 c	8d	—	—	40 c	7¼d	54 c	9½d	29 c	7d	—	—	8 c	5½d
Kirklees ...	80 p	9¼d	—	—	22 c	9¾d	20 c	11½d	24 c	7¾d	—	—	14	7½d
Knuckles Group	240 c	7½d	—	—	66 c	7½d	78 c	8¾d	92 c	6¾d	—	—	4 c	6d
Kotiyagalla ...	74 p	1/1¾	—	—	27 c	11¼d	47	1/4¾	—	—	—	—	—	—
Kottiagalla ...	40 c	6¼d	—	—	20 c	6¼d	11 c	5½-7½	9 c	4½-5	—	—	—	—
Lawrence ...	121 c	9d	29 c	11d	66 c	8¾d	—	—	26 c	7d	—	—	—	—
Laxapana ...	202 p	8¾d	30	11d	57 c	8½-8¾	51	10¾-11	24 c	7¼d	—	—	40	6¾d
Laxapanagalla ...	168	8¼d	—	—	50	7½d	100	9d	18	6¾d	—	—	—	—
Le Vallon ...	383 p	8½d	—	—	137	8½d	168	9¾-10	61 c	8d	—	—	17 c	5¼d
Lindoola ...	34 c	9¼d	—	—	16 c	8½d	18 c	10d	—	—	—	—	—	—
Little Valley ...	55 p	8d	—	—	31 c	7½d	18 c	9¼d	6	6½d	—	—	—	—
Loinorn ...	51 p	1/0¾	22	1/6¼	—	—	—	—	29 c	10¾d	—	—	—	—
Longford ...	112	7½d	—	—	27	7¾d	30	9d	55	6¾d	—	—	—	—
Lynsted ...	91	7¾d	—	—	53	8¼-8¾	—	—	36	6¾d	—	—	2	4¾d
Mahacoodagalla	40 c	10d	—	—	20 c	9d	20 c	11d	—	—	—	—	—	—
Maha Eliya ...	116 p	9½d	—	—	38 c	9¼d	54	11-11¼	7 c	7½d	2 p	5¼d	15	7½d
Mahatenne ...	95 p	8d	—	—	26 c	8¼d	30	†9¾d	39 c	7d	—	—	—	—
Marlborough ...	47 c	9¾d	—	—	21 c	9¾d	12 c	1/1	7 c	7½d	5 c	5¼-5¾	2 c	6¼d
Maskeliya ...	67 p	10¼d	30	1/1¼	25 c	9½d	—	—	12 c	7¾d	—	—	—	—
Mattakelly ...	135 c	10¼d	—	—	66 c	8½-11¼	51 c	9¾ 1/2¼	15 c	7¼d	—	—	3 c	7d
Melrose ...	121 p	8d	—	—	37 p	7¾d	50	10d	34	6¾d	—	—	—	—
Midlands ...	74 p	8¼d	—	—	34 c	8d	98	9½d	42 c	7¼d	—	—	—	—
Moray ...	124 p	1/0½	—	—	57 c	9 11	44 c	1/5¼	7 c	8¾d	—	—	16	7¾d

CEYLON.—Continued.

Garden.	Total.		Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Mount Vernon ...	193	p	10½d	49 p	1/3½	84 c	9½d	—	—	36 c	7½d	3	4½d	21	5¼-6¼
Mousagalla ...	79	c	7¾d	—	—	17	8½d	13	10d	49	7d	—	—	—	—
Narangalla ...	90	p	10d	—	—	43 c	9¾d	31 c	1/	22 c	7½d	—	—	2	5¾d
,, ...	68	c	7¾d	29 c	8-9	—	—	—	—	35 c	6¾d	—	—	4	9½d
New Forest ...	108	p	10d	—	—	44 c	9d	42 c	1/-†1/0½	—	—	—	—	25 p	6¼-6½
Nilambe ...	163	c	8¾d	—	—	41 c	8½d	101 c	9¼d	21 c	7d	—	—	—	—
OBECCraigieLea	89	c	9¾d	—	—	38 c	9¼d	24 c	1/1¼	27 c	7¼d	—	—	—	—
,, Darrawella ...	114	p	10¼d	—	—	66 c	7¼-10¾	33 c	9-1 2	13 c	7¼d	10 p	5¼-6½	—	—
,, Glendevon ...	100	c	1/4¼	—	—	30 c	1/3¾	32 c	1/0½	33 c	7¾d	5 c	10d	—	—
,, Sinnapittia ...	69	c	9d	—	—	28 c	8½d	30 c	10¾d	—	—	—	—	11 c	6¼-6½
,, Wattawella	47	c	8½d	—	—	16 c	8d	16 c	10½d	15 c	6¾d	—	—	—	—
Old Madegama	77		10d	38	11¼d	—	—	—	—	39	8¾d	—	—	—	—
Olipnant ...	76	p	9¾d	—	—	25	9½d	13 c	1/1	26	8¾d	9 c	7½d	3	7½
Oononagalla ...	125	p	8½d	24	11¾d	35 c	8d	17 c	10d	48 c	7½d	—	—	1 c	5¼
,, ...	131	p	8½d	26	11½d	32 c	7¾d	19 c	10½d	51 c	7¾d	—	—	3 c	5½
Opalgalla ...	67	c	9d	—	—	22 c	8¾d	20 c	11d	25 c	7½d	—	—	—	—
Osborne ...	120	p	8½d	—	—	45 c	8d	38 c	†10d	25 c	7d	—	—	12	7d
Ovoca ...	63	c	9½d	—	—	32 c	9¼d	13 c	1/0½	18 c	8d	—	—	—	—
Penrith ...	92	c	9d	15 c	10½d	32 c	8½d	19 c	10½d	25 c	7¼d	—	—	1 c	5¼
Pine Hill ...	150		9¾d	30	1/1¾	62	9¾d	—	—	58	7¾d	—	—	—	—
Putupaula ...	54	c	9¾d	—	—	13 c	10½d	16 c	1 1¼	23 c	7½d	1 c	4¼d	1	6
Rangalla ...	85	p	10d	—	—	30 c	9¾d	27 c	1/0¼	16 c	7½d	12 p	5-6¼	6	7
Riseland ...	38	c	7d	—	—	17 c	7d	6 c	8¾d	—	—	15 c	6d	—	—
Rowley ...	45		9¾d	—	—	25	8¾d	20	11¼d	—	—	—	—	—	—
Salawe ...	82		7¾d	—	—	21	7½d	25	9¾d	36	6¾d	—	—	—	—
Salem ...	74	c	7¾d	—	—	35 c	†6¾d.	37 c	9d	—	—	—	—	2 c	5¼
Sanquhar ...	132	c	8d	—	—	66 c	8d	30 c	9½d	29 c	7½d	4 c	4-6	3 c	5½
Sapu ...	52	c	8¾d	—	—	29 c	7¾d	23 c	10d	—	—	—	—	—	—
Saumarez ...	118	c	7d	—	—	69 c	6-7	29 c	8¾d	11 c	5¾d	6 c	4¾d	3 c	5½
SBR ...	158	c	7d	47 c	7½d	49 c	6¾d	1 c	6½d	58 c	6¾d	—	—	3 c	6½
Scarborough ...	253	c	8¾d	—	—	83 c	8½-8¾	74 c	11½d	47 c	7¼d	7 c	6½d	42 c	6¼
SCTC MncngLne	71	p	11¼d	—	—	26 c	10¼d	33	1/2¾	12 c	8¼d	—	—	—	—
Stamford Hill	26	c	10d	—	—	13 c	8½d	13 c	11¼d	—	—	—	—	—	—
St. Johns ...	123	p	9½d	—	—	42 c	9¾d	34 c	1/0¼	13 c	8¼d	21 p	6¼d	13 c	7
Strathspey ...	61	p	10¾d	—	—	26 c	10d	19 c	1/2	13 c	8½d	1	6d	2 c	6¾
Summerville ...	37	c	1/0¼	—	—	19 c	9¼d	18 c	1/3¼	—	—	—	—	—	—
Sunnycroft ...	120	c	7¼d	52 c	7½-†8½	50 c	6¾d	—	—	16 c	6d	2 c	4½d	—	—
Talawakelle ...	42	p	1/0¼	—	—	17 c	10d	16 c	1/3½	—	—	—	—	9	7-10
Tellisgalla ...	20	p	8d	—	—	6 c	8d	9	10d	4 c	6¾d	—	—	1 c	5½
Tommagong ...	88	p	11½d	5 b	1/9½	20 c	11½d	27	1/3½	25 c	9½d	11	8d	—	—
Tyspany ...	58	c	9½d	—	—	31 c	8d	27 c	11d	—	—	—	—	—	—
Vicarton ...	15		5¼d	—	—	—	—	—	—	—	—	9	5¼d	6	5¼
Wattegodde ...	86	c	8¾d	—	—	32 c	8¼d	36 c	10¼d	12 c	7d	—	—	6 c	6
Wewelmadde ...	29	c	10¼d	—	—	15 c	8½d	14 c	1/	—	—	—	—	—	—
Windsor Forest	69	c	8¾d	—	—	23 c	8d	32 c	10¼d	—	—	14 c	7d	—	—
Ythanside ...	86	p	10½d	17 c	1/5½	—	—	27 c	9½d	27 c	8½d	6 c	7d	9	6½

JAVA. 648 pkgs. Average 7¾d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Di	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Pric
Bagelen ...	648	c	7¾d	—	—	265 c	7½-11	57 c	6 6¼	326 c	6¼-7¾	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices mark thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weig to one chest.

GOW, WILSON & STANTON, Brokers

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *October 23rd*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	380,407 packages.	270,580 packages.	22,982 packages.
1891-1892.	427,432 ,,	345,850 ,,	25,038 ,,

During the week
4,613 packages Indian
5,541 ,, Ceylon } Total 60,762 packages have been offered in public auction.
608 ,, Java

With Tea production continuing to increase in India and Ceylon, the expanding Home consumption in this country, upon which we commented last week, is satisfactory. But the importance of discovering fresh outlets is by no means lessened on that account. The work of opening new markets was to some extent curtailed in the early part of this year, owing to the high range of prices then ruling; but the lower rates which gradually became established, first for Ceylon, and then for Indian Teas, have induced demand from foreign markets. Exports have thus been upon a larger scale, and for the last of the three quarters noted in the following table, they show a most encouraging increase over last year's figures.

With prices of Indian and Ceylon Teas at their present low level, reason exists for hoping to see a further recognition of the merits of these Teas, both in countries where they are now beginning to gain popularity, and in other markets where as yet their qualities are comparatively unknown.

Exports of Indian and Ceylon Tea from Great Britain.

	INDIAN.				CEYLON.		
	1st Jany. to 31st March.	1st Apr. to 30th June.	1st July to 30th Sept.		1st Jany. to 31st March.	1st Apr. to 30th June.	1st July to 30th Sept
90	805,224	638,770	433,099	1890	306,419	345,549	426,913
91	619,605	583,383	692,853	1891	248,989	600,159	564,984

Exports from 1st January to 30th September.

INDIAN.		CEYLON.	
1890 lbs. 1,877,093	1891 lbs. 1,895,841	1890 lbs. 1,078,881	1891 lbs. 1,414,123

INDIAN. Auctions comprised 44,613 packages, against 33,579 last week, the majority being brought to auction on Monday, when 23,262 packages were catalogued—this auction slightly exceeding any previous sale. The market bore the weeks pressure without strain, prices remaining unchanged for all except poorest liquoring Teas which are a trifle easier. The following averages are worthy of note:—"Balijan," 1/5; "Panitola" of the Jokai T Co., 1/4; "Moondakotee" of the Land Mortgage Bank, and "Hapjan," 1/2½.

This weeks average price of New Season's Teas sold on Garden Account. Total 34,008 pkgs. average 9¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	19707 p	11d	Chota Nagpore ..	40 p	5¾d	Kangra Valley ..	126 p	8¼d
Cachar and Sylhet..	7370 p	7¾d	Darjeeling & Terai	2464 p	10¾d	Neilgherry.. ..	235 p	6¼d
Chittagong	456 p	8¾d	Dooars	3610 p	8¼d	Travancore.. ..		

For an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	4½d.	1890,	6d.	1889,	5¼d	1888,	4¾d.
CANNINGS.	(Red to brown, strong rough liquor)	,,	5½d.	,,	6¾d.	,,	6d.	,,	6d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7¾d.	,,	8¼d.	,,	8d.	,,	7½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	8d.	,,	8¾d.	,,	9¾d.	,,	8½d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9d.	,,	9¾d.	,,	10½d.	,,	9½d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	6d.	,,	7¾d.	,,	7d.	,,	7¼d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7d.	,,	8½d.	,,	8¾d.	,,	8¼d.

CEYLON. Auctions were some 3,000 packages in excess of last week and passed with good sale for all desirable kinds. Commonest liquoring Teas alone have given way about a halfpenny per lb. The demand for high quality is stronger, and all parcels that approach this description are keenly competed for at harder rates. Quality generally continues unaltered, arrivals from many districtes being very good. The following averages may be mentioned:—"Rahatungoda," 1/4½; "Heathersett," 1/3¾; "Frotoft," 1/2¾; "Moray" and "Warwick," 1/2. Average for week 9¾d.

JAVAS were represented by only 608 packages, and of these not more than 499 were of direct import. The market remains much as noted last week.

BANK RATE. 3 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 3/32d.

Garden.	Total. Quantity.	Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Price	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price.	Pekoe Souchong. Quantity	Price	Broken and Souchong. Quantity	Price	Fannings, Dust and Various. Quantity	Price
ASSAM	**19707p**	**11d**												
Assam Co ...	1221 p	10½d	194 p	1/3-1/6½	315 c	9¼ 1/0¾	80 c	1¼ 1/7½	—	—	652 p	9¼ 1 10	—	—
AssamFrontierCo	432 c	1/1¼	141 c	1/4½-2/5	172 c	10-11¼	—	—	109 c	8¼-8½	—	—	—	—
,, ...	876 p	1/1¼	246 c	1/5-3/1¾	464 c	9½-10¾	19 c	1 1¼	61 c	8¼d	—	—	86 p	4¼ 9
Attarec KhatTCo	327 p	9½d	27 c	1/3½	100 c	10½ 10¾	43	11¼d	96 c	8½-8¾	58 c	7¼d	23 c	4 6
Badulipar ...	230 c	9¼d	—	—	60 c	11¼d	—	—	—	—	80 c	8¼ 8½	6 c	4 6
Balijan T Co ...	83 p	11d	—	—	14 c	11 1	—	—	43 c	9¾d	—	—	26	1 1
,, ...	114 p	1/5	31	2/9¾	45 c	1/3	18 c	1/6¾	20 c	10¼d	—	—	—	—
Bargang ...	124 p	9d	10	1/9¼	48 c	10¼d	—	—	66 c	†7d	—	—	—	—
Beheating ...	188 p	10¾d	25	2/1	35 c	11¼d	36	1/4¼	35 c	8¾d	57 c	6½-7¾	—	—
Behora ...	121 c	1/	—	—	28 c	1/2¾	26 c	1/4¾	—	—	67 c	9d	—	—
Bishnauth T Co	578 p	10¾d	84 p	1/4¼ 1/7½	200 c	10¼ 10¾	20 c	1 3½	163 c	8¼-9	64 c	6½-6¾	47 c	1 1¼-1
BITC Mancotta	50 c	8¼d	—	—	25 c	9d	—	—	25 c	7½d	—	—	—	—
,, Sessa ...	90 p	10d	—	—	30 c	9½d	40 p	1/-1/0½	20 c	7d	—	—	—	—
Borbarrie ...	147 p	1/1	30	3/	33 c	10½d	25 c	1/1¼	40 c	8¼d	19 c	8¼d	—	—
BrahmapootraTC	454 c	9¾d	—	—	117 c	10-11	c	c 1 0¾ 1 4¾	181 c	7¼-9	87 c	6¼-8½	—	—
,, ...	661 c	9¾d	30 c	1/3½	197 c	9½-10¾	85 c	1/1¾ 1/4¼	254	7¾-8½	83 c	6¾-7¾	12 c	5½
British Assam Co	453 c	9d	—	—	142 c	9¾-10	60 c	1/4-1/5	108 c	7-7¼	143 c	6½-6¾	—	—
,, ...	370 c	8½d	—	—	64 c	9¼9½	53 c	1/3½	208 c	7d	35 c	6d	—	—
Chubwa T Co ...	215 p	10d	47	1/6½ 1/11	71 c	†9¼d	33 c	8¾d	54 c	7¼d	—	—	16	5
,, ...	157 p	8½d	20	1/4¾	53 c	9d	30 c	8d	47 c	7d	—	—	7	4½
Chunderpore K	75 c	8¼d	9 c	1/2¼	18 c	7½d	20 c	8½d	10 c	†6½d	18 c	6¼d	—	—
Dahingeapar ...	114 p	1/1¼	—	—	25 c	1/2¼	31	2/0½	58 c	9¾d	—	—	—	—
Dejoo T Co ..	249 c	10¾d	—	—	78 c	10d	89 c	10½ †1/4¼	50 c	7¼d	24 c	7¼d	8 c	5¼
Dekhari ...	40 c	9¼d	—	—	20 c	10⅜d	—	—	20 c	8d	—	—	—	—
Digloy T Co ...	42 c	1/1½	—	—	30 c	11½d	12 c	1/6¼	—	—	—	—	—	—
Doolahat ...	91 c	11d	—	—	20 c	11d	23 c	1/5¼	29 c	8d	19 c	7½d	—	—
Doom Dooma B	323 p	11¾d	81	1/4¾-2/1	161 c	10-11¼	31 c	1/2	40 c	8¾d	—	—	10 c	6
,, H	307 p	11¾d	94	1/3-1/7	116 c	9¾-11	45 c	1/3½	52 c	8¾d	—	—	—	—
Eastern AssamC	553 p	1/1½	283	1/0½ 2/3¼	117 c	9-11½	20 c	10d	133 c	8-8¼	—	—	—	—
Ghoir Allie ...	45 c	10½d	—	—	20 c	1/1	—	—	25 c	8½d	—	—	—	—
Gotoonga ...	130 c	9½d	—	—	60 c	†11¼d	—	—	—	—	70 c	†7¼-8½	—	—
Hapjan ...	54 c	1/2½	20 c	1/8¾	34 c	10⅜d	—	—	—	—	—	—	—	—
Harmutty ...	105 c	9¼d	—	—	55 c	11d	—	—	—	—	50 c	7½d	—	—
Hattigor ...	210 c	10¼d	—	—	75 c	1 0¼ 1/3½	15 c	1/3½	70 c	8½d	50 c	8d	—	—
Hazelbank ...	88 c	1/1	—	—	22 c	1/2½	17 c	1/9¼	33 c	9½d	16 c	9¾d	—	—
Jetookia ...	300 c	9½d	60 c	†1/0¾	110 c	†9d	35 c	†10¼d	—	—	80 c	8d	15 c	†4
Jhanzie T Assoc	223 c	9¾d	—	—	—	—	50 c	1/4¼	173 c	8d	—	—	—	—
Jokai T Co Bokel	16 c	2/2¼	16 c	2/2¼	—	—	—	—	—	—	—	—	—	—
,, Jamira ...	154 p	6½d	—	—	43 c	†8-†8¾	—	—	32 c	6½d	55 c	5¾-6	24	4¼
,, Joyhing ...	48 c	8½d	—	—	11 c	9½-9¾	8 c	1/2¼	8 c	6½d	21 c	6½d	—	—
,, Panitola ...	315 c	1/4	124 c	1/7½-2/0	¼ 92 c	1/2¼	—	—	82 c	11½d	—	—	17 c	8¾
Jorehaut T Co	1650 c	11¾d	24c	1/1 0¼ 1/10	¾546 c	10 1/11	¼132 c	1 2½-1	7¾ 87 6c	7¼-10¾	—	—	72 c	8½-1
Khobong T Co	140 p	11d	20	1/7¾	85 c	8 10¾	35	1/3¼	—	—	—	—	—	—
,,	206 p	10½d	46	1/4½	125 c	7¾-10¼	35	†1/1¼	—	—	—	—	—	—
Kuttalgoorie ...	175 p	9¼d	51	1/1½ 1/2¼	44 c	9½10	—	—	60 c	7½7¾	20 c	7½d	—	—
Lepetketta ..	64 p	1/0¼	33 p	1/0¼ 2/2¼	31 c	7¾d	—	—	—	—	—	—	—	—
LMB Latakoojan	450 c	9½d	100 c	1/2¼	100 c	10¼d	—	—	150 c	8d	100 c	5¾d	—	—
,,Latakoojan	408 c	11½d	—	—	158 c	10½ 10¾	100 c	1/4½	150 c	8¾d	—	—	—	—
Lung Soong ...	86 p	9d	6	1/5½	24 c	9½d	20 c	10¼d	24	7¼d	12 c	6½d	—	—
LuckimporeTC ..	299 c	10¼d	—	—	130 c	10¼ 10¾	42 c	1/1¼ 1/4¾	72 c	7¾ 9	55 c	7 7¾	—	—
Luckwah Co ...	133 p	8d	—	—	55 c	†9d	—	—	21 c	7½d	27 c	6¼-†6¾	30	†5½
Majuli T Co. G	169 p	1/0¼	49 p	1/3-2/0¼	76 c	10¾d	15 c	11¼d	29 c	8¾d	—	—	—	—
Medla ...	90 p	1/0¾	40 b	2/4½	30 c	10½d	—	—	20 c	8¼d	—	—	—	—
Mesai Jan ...	235 c	9¾d	—	—	50 c	10¾d	41 c	1/4	77 c	7¾d	53 c	6¾d	14 c	9
Mungledye T Co	140 c	11¼d	—	—	38 c	11d	21 c	1/7¾	60 c	9d	21 c	9d	—	—
Naga Dhoolie ...	148 c	1/0¼	—	—	38 c	1/3¾	22 c	†1/6	37 c	9¾d	43 c	9½d	8 c	5
Naharanee ...	36 c	9¾d	—	—	14 c	9½d	—	—	—	—	—	—	22 c	10
Nahor Habi T Co	128 p	9½d	—	—	47 c	†9¼d	27	1/6¼	30 c	7¼d	24 c	7¾d	—	—
Nahor Rani ...	213 c	1/0½	—	—	94 c	10⅝ 1/6½	60 c	1/1¼ 1/8½	—	—	59 c	7¾d	—	—
NoakachareeCoK	200 c	8d	—	—	70 c	9d	—	—	90 c	7d	—	—	40 c	8½
,, T	158 p	1/	20	2/0¼	46 c	11¼d	20 c	1/7¼	72 c	8½-8¾	—	—	40 c	8½
Noanuddy ...	125 c	7½d	—	—	39 c	†7¾d	22 c	10d	37 c	†6¾d	27 c	6¼d	—	—
Ohat ...	94 c	11d	—	—	56 c	10¾d	15 c	1/2¾	—	—	—	—	23 c	8¾
Rungajaun ...	73 c	9d	—	—	27 c	8¼-10¼	15 c	†10½d	19 c	7½d	—	—	12 c	8

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
ASSAM														
Salonah T Co K	390 p	10¾d	92	1/4¼ 1/9½	100	9½d	88	1/0½	58 c	8d	52 c	6¾d	—	—
,, K	353 p	10d	63	1/6-1/9½	100 c	9-9¼	88	11¾d	56 c	7¾d	46 c	6¼d	—	—
,, K	276 p	10¾d	49	1/3¼	73 c	†10½d	61	1/3¼	44 c	8¼d	41 c	6½-8½	8	4¼d
,, S	988 p	1/0¼	172	1/1 0¼ 2/3½	263 c	11½-1/	133	1/4¼ 1/5¼	185 c	9½9¾	160 c	8¼8½	75 c	9¼ 1/0½
Sealkottee ...	148 p	1/	20	1/1¼	72 c	†8¾ 11¼	36	1/11¼	20 c	8¼d	—	—	—	—
Seconne ...	140 c	9¾d	—	—	30 c	8¾d	18 c	1/4½	40 c	7¼d	52 c	10d	—	—
Shakomato ...	105 c	8¾d	—	—	50 c	†9¾d	—	—	35 c	8d	20 c	8d	—	—
Tiphook T Co ...	300 c	10¼d	—	—	60 c	11¾d	30 c	1/8¼	180 c	8d	30 c	10d	—	—
Titadimoro ...	52 c	11¾d	—	—	17 c	10¾d	21 c	1/3½	14 c	7¾d	—	—	—	—
,, ...	64 c	11½d	—	—	15 c	†11d	28 c	† 1/2¾	12 c	8¼d	—	—	9 c	5¾d
Upper Assam Co	563 p	1/0¼	15	1/6¾	223 p	9-1/3¼	150 p	9½ 1/8¼	103 p	8-9½	72 c	7¼-8¼	—	—
Wilton T Co D	120 p	11d	23	2/2¼	53 c	10d	—	—	30 c	7¾d	14 c	8¾d	—	—
,, D	60 p	11¾d	20	1/7	26 c	10¾d	—	—	14 c	8d	—	—	—	—
,, W	50 c	10¾d	—	—	30 c	11¾d	—	—	20 c	9d	—	—	—	—
CACHR & SYLHT	**7370 p**	**7¾d**												
Arrang ...	301 p	7¾d	—	—	80 c	8¼d	80	10¾d	18 c	7d	87 c	6½d	36	4¾d
B&CoChargola	257 p	8¼d	27 c	1 0½ 1/4¼	69 c	8½d	41 c	8¾d	105 c	7d	—	—	15	5d
,,Mookham	170 c	7¾d	19 c	10¾d	54 c	7¾d	32 c	8¼d	65 c	6½d	—	—	—	—
Bicrampore H	150 p	8¼d	—	—	42 c	8-9½	38	1 0½ 1/3½	—	—	70 c	6½d	—	—
Chandpore ...	321 c	7½d	—	—	162 c	6½-8	110 c	6¾ 9¼	49 c	6¼d	—	—	—	—
Cherra Co Balla	162 c	7d	62 c	†7½d	49 c	7½d	—	—	—	—	25 c	†6¼d	26 c	†6½d
Dhamai ...	143 p	7½d	16	8¾d	49 c	7½d	36 c	8½d	—	—	42 c	6¼d	—	—
Dilkoosha ...	99 c	8¼d	—	—	23 c	9d	22 c	10½d	25 c	6¼-7	29 c	6¾d	—	—
Indian T Co ...	194 c	11d	—	—	63 c	10d	26 c	1/10½	53 c	7½d	52 c	9¾d	—	—
Iringmara ...	169 p	7¾d	—	—	41 c	8½d	29	1/	70 c	6¾d	29 c	7½d	—	—
JMB Salgunga	240 c	7¾d	—	—	50 c	8¾d	20 c	1/0¼	120 c	6¾ 7	50 c	6¾ 7	—	—
,,Salgunga ...	162 c	8d	—	—	50 c	8½d	20 c	1/	50 c	7d	42 c	6¾d	—	—
,,Shabazpore ...	75 c	7¼d	—	—	—	—	25 c	9¼d	50 c	6¼d	—	—	—	—
Longai ...	114 p	6½d	—	—	—	—	51 c	6½d	63	6¾d	—	—	—	—
Lungla T Co ...	413 p	7½d	80 p	8½ 1/5¼	75 c	†7½d	88 c	8d	170 c	6 6¼	—	—	—	—
Luskerpore ...	213 c	6¼d	—	—	53 c	7d	50 c	7d	26 c	5¾d	60 c	†5¾d	24 c	4d
NSTCo Borpani	69 p	8d	10	1/5½	20 c	8d	15 c	†8d	17 c	†6¼d	3 c	5¼d	4	4¼d
,,Burjan ...	272 p	8¼d	12 c	1/7	140 c	8d	67 c	†7¾d	27 c	6¾d	—	—	26	4¾d
,,Jafflong	218 p	8d	74 c	9¼-1/-	33 c	7¾d	25 c	8¼d	32 c	7d	35 c	6d	19	5¼d
,,Khadim ...	170 p	8½d	13 c	1/5½	83 c	7¾d	55 c	8d	12 c	6¼d	—	—	7	4½d
,,Lallakhal ...	104 c	7¾d	25 c	†9½d	48 c	†7¾d	—	—	—	—	31 c	6½d	—	—
,,Rungamuttee	116 c	7½d	—	—	39 c	7½d	21 c	10¼d	27 c	6¾d	29 c	6¼d	—	—
,,Sagmootia	100 c	10d	—	—	26 c	10½d	12 c	1/3	22 c	8¾d	40 c	7-11½	—	—
Phoenix T Co	137 c	7d	—	—	32 c	8d	27 c	9¼d	52 c	6¼d	17 c	†5½d	9 c	4d
Phooltullah ...	151 c	8¼d	—	—	38 c	8¼d	40 c	11¼d	73 c	6½d	—	—	—	—
Pildoobie ...	378 c	6d	—	—	—	—	39 c	6-7¼	289 c	†5¾-6	51 c	5¼-6	—	—
PSTCoAmrail ..	142 c	8¾d	41 c	9¾-†1/-	57 c	8¼d	44 c	†8d	—	—	—	—	—	—
,Balisera ..	291 p	7d	12 c	1/3¾	111 c	7¼d	52 c	7½d	11 c	6¼d	—	—	105	4¼d
,Holicherra ...	116 c	8d	—	—	37 c	8d	29 c	10½d	38 c	6¾d	12 c	6d	—	—
,Phulcherra ...	181 p	8¼d	46 c	10¼d	48 c	7d	63 c	8½d	—	—	—	—	24	4½d
,Rajghat ...	338 p	7¾d	136 c	7¾ 1/4½	61 c	7¼d	101 c	†7¼ †7½	—	—	—	—	40	†4¾d
,Sagurnal ...	158 c	8d	22 c	†9¼d	61 c	7¾d	31 c	9¾d	44 c	6½d	—	—	—	—
SF&Co ...	371 p	8¼d	94 p	8¾-11½	101 c	8¼-8½	110 c	8¼d	48 c	6¾d	18 c	5¾d	—	—
SHITTAGONG	**456 p**	**8¾d**												
Shandpore ...	87 c	9¼d	—	—	27 c	9½d	20 c	1/1¾	—	—	40 c	6¾d	—	—
Sittickcherra ...	131 c	8½d	—	—	81 c	8½ 10¼	—	—	50 c	7d	—	—	—	—
SHOTA NAGPRE														
Sillyhat ...	20 c	6½d	—	—	14 c	†7d	—	—	—	—	6 c	5¾d	—	—
SURJELNG&TERI	**2464 p**	**10¾d**												
Sunnockburn ...	104 p	7½d	—	—	14 c	8¼d	30 b	†1/3½	60 c	6¼d	—	—	—	—
Surjeeling T Co	420 p	10¼d	—	—	180 c	8¾ 1/0¼	75 p	1/4¼ 1/5¼	155 c	6½8½	—	—	10 c	4d
Tabong T Co ...	135 c	11d	41 c	1/3¼	54 c	9¾d	—	—	40 c	8d	—	—	—	—
Tezziepore ...	65 p	10½d	—	—	25 c	10¼d	27	1/1¼	13 c	8d	—	—	—	—
TMB ChongTong	216 c	10½d	—	—	103 c	11d	42 c	1/1¼	50 c	8d	21 c	8d	—	—
,MineralSpring	110 c	8d	—	—	60 c	9 9¼	—	—	50 c	6½6¾	—	—	—	—
,Mocndakotee	140 c	11¼d	—	—	70 c	11½d	20 c	†1/4¾	50 c	8½d	—	—	—	—
,, ,, ...	100 c	1/2½	—	—	75 c	1/1¼ 1/1½	25 c	1/6	—	—	—	—	—	—
Margaret's Hope	100 c	1/6½	37 c	1/9½	21 c	1/4¼	17 c	2/2½	25 c	10½d	—	—	—	—

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong		Fannings, Dust and Values.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price
DRJELNG&TERI														
Munjha ...	101 p	6¾d	—	—	31 c	7½d	22	8½d	35 c	6¼d	—	—	13 c	5½
NST Co Blomfild	98 p	1/	17 c	†1/2	15 c	†1/0¼	21 c	1/3¼	40 c	†9¾d	—	—	5	4¼
Nurbong ...	128 p	9½d	36	1/3	40 c	9¾d	—	—	40 c	7½d	12 c	6½d	—	—
Pashok ...	133 p	9½d	30 c	10¼d	20 c	9d	42	11¾d	30 c	7½d	—	—	11	7½
Selim Hill ...	49 p	11d	—	—	29 c	10¼d	20	1/1	—	—	—	—	—	—
Singell T Co ...	61 c	1/	19 c	†1/3	42 c	10¾d	—	—	—	—	—	—	—	—
Teendarrea ...	72 c	7¼d	—	—	—	—	30 c	9d	30 c	6d	—	—	12 c	6¼
Turzum ...	66	10½d	—	—	42	10½d	—	—	24	8½d	—	—	—	—
Tumsong ...	63 c	1/0½	—	—	27 c	1/	14 c	1/7½	22 c	8½d	—	—	—	—
DOOARS	**3610 p**	**8¼d**												
Aibheel ...	129 c	8¼d	25 c	9-1/4¼	16 c	†7d	25 c	8¼d	63 c	6¼d	—	—	—	—
Dangua Jhar ...	70 c	6¾d	—	—	30 c	7½d	—	—	26 c	6d	—	—	14 c	7½
DooarsBamandng	197 c	9d	17 c	1/4¼	70 c	8½d	52 c	†8¾d	39 c	7d	—	—	15 c	7½
,, Indong ...	101 c	8¾d	12 c	1/2½	30 c	8d	34 c	8½d	13 c	7½d	—	—	12 c	7½
,, Nagrakatta	62 c	8¾d	—	—	—	—	62 c	8¾d	—	—	—	—	—	—
,, Tondoo ...	200 c	8¾d	23 c	† 1/0¼	57 c	8½d	49 c	8¾d	55 c	7¾d	—	—	16 c	7½
Hahai Patha ...	77 c	6¾d	—	—	44 c	7¼d	—	—	30 c	6¼d	—	—	3 c	4
Jiti ...	23 c	7½d	—	—	—	—	—	—	—	—	23 c	7¼d	—	—
Killcott T Co ...	114 p	7¼d	—	—	34 c	7½d	30 c	8¾d	41 c	6½d	—	—	11 p	4½ 5
Leesh River Co	172 c	8d	—	—	65 c	7½d	55 c	9½d	52 c	6¾d	—	—	—	—
Lethajhora ...	81 p	6¼d	—	—	—	—	—	—	—	—	68 c	6½d	13	4¼
LMB Kolabarrie	200 c	8¼d	—	—	100 c	8¾d	—	—	—	—	100 c	7½d	—	—
Manabarrie ...	103 c	7¾d	29 c	†9 10½	—	—	—	—	61 c	7d	—	—	13 c	6¼
Meenglas ...	307 c	9¼d	41 c	10¼d	158 c	7¼8½	42 c	1/3½	—	—	—	—	66 c	4½8¼
Mundani ...	23 c	7¾d	—	—	—	—	—	—	23 c	7¾d	—	—	—	—
NSTC Dam Dim	280 p	8d	30 b	† 1/10½	145 c	7¾d	89 c	9d	—	—	—	—	16 c	5
,, Nakhati ...	271 p	7¼d	—	—	80 c	7¼d	137 c	7¾d	22 c	6¾d	—	—	32	5¼
,,Nowrea Nuddy	444 p	8d	58 b	2/0¼	133 c	7¼d	179 c	8d	39 c	6¾d	—	—	35	5
,,Rungamuttee	372 p	8½d	18	1/8¾	119 c	8½d	117 c	9d	83 c	7¾d	—	—	33	5¼
Putharjhora ...	270 c	8¼d	52 c	1 0-1/6¼	74 c	†8 †8½	—	—	78 c	†7¼d	39 c	6d	27 c	4 8
Washabarrie ...	69 c	9d	—	—	43 c	8d	26 c	† 10½d	—	—	—	—	—	—
KANGRAVALEY														
Mount Somerset	105	8½d	45	9½11	32	7½8¾	—	—	28	6¼7¾	—	—	—	—
NEILGHERRY	**235 p**	**6¼d**												
Lovedale ...	178 p	6d	—	—	—	—	—	—	176 p	†5¾†6¾	2 c	†6d	—	—
Mountain Glen	15 c	5¾d	8 c	6½d	—	—	—	—	6 c	5½d	—	—	1 c	5¾
TCM ...	42 c	7¼d	—	—	—	—	9 c	10¼d	30 c	†6½d	—	—	3 c	4½

CEYLON. Average 9¾d.

Albion ...	49 c	11d	—	—	15 c	11d	17 c	1/2¼	17 c	7½d	—	—	—	—
Amherst ...	47 p	11¾d	—	—	19 c	11½d	15 c	1/2¾	10 c	8¾d	—	—	3	7
Ardross ...	105 c	7½d	—	—	25 c	7½d	36 c	9d	44 c	6d	—	—	—	—
Arslena ...	139	7¼d	—	—	78	6½ 7	50	8½d	—	—	3	3d	8	6
Bambrakelly&D.	67 c	1/1	—	—	33 c	11¼d	34 c	1/2¾	—	—	—	—	—	—
Berragalla ...	53 c	10¼d	—	—	12 c	10¼d	28 c	†1/	13 c	7d	—	—	—	—
Beverley ...	210	7½d	—	—	122	7¼d	55	8¾d	33	6d	—	—	—	—
Binoya ...	23 c	7d	—	—	15 c	7d	4 c	†8¾d	—	—	4 c	5½d	—	—
,, ...	26 c	5¾d	—	—	12 c	6½d	—	—	—	—	14 c	5d	—	—
Blackwood ...	188	7¾d	—	—	134	6¼7½	54	9 9¼	—	—	—	—	—	—
Bon Accord ...	39 p	1/	—	—	16 c	†9¾d	23	1/3	—	—	—	—	—	—
Charley Valley ...	306 b	11¾d	—	—	56 b	1/1¼	60 b	1/5¼	190 b	9½d	—	—	—	—
Chrystler's Farm	102 c	1/1¼	—	—	47 c	11½-1/	30 c	1/7½ 1/7¾	25 c	8d	—	—	—	—
CL&PC Fettereso	95 p	11¾d	—	—	16 c	11½d	55	1/2½	21 c	8¾d	1 c	5d	2 c	5¾d
,, Rickarton	74 p	1/0½	—	—	31 c	1/	19	1/9½	16 c	9½d	4 c	5¾ 8	4	6½d
Coodugalla ...	42	7½d	—	—	23	7¼d	12	9½d	6	5¼d	—	—	1	4¾d
Coombewood ...	46 c	11½d	—	—	23 c	10d	23 c	1/0¾	—	—	—	—	—	—
CTPCo Alton ...	152 c	9¾d	—	—	84 p	9¼10	26 c	1/1	16 c	7¾d	—	—	26 p	6¼8½
,,Balgownie ...	51 c	7¼d	—	—	19 c	6¾d	15 c	9¼d	16 c	5¾d	—	—	1 c	4¾d
,,Mariawatte	319 p	7½d	—	—	142 p	7½7¾	67 c	10 10¼	110 c	†5¾ 6	—	—	—	—
,,Rosita ...	91 p	11¼d	17 c	1/7¼	29	1/1¼	—	—	45 c	7¾d	—	—	—	—
,,Wallaha ...	188 p	1/1¼	—	—	105 p	1-1/3¼	42 p	1/3¼ 1/4¼	41 p	9½ 10¼	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Culloden ...	181 c	10½d	—	—	98 c	9¾-10	35 c	1/3¾	48 c	7½d	—	—	—	—
Dalleagles ...	186	9½d	—	—	93	9½d	56	11¼d	37	6¾d	—	—	—	—
Damblagolla ...	26 c	8d	—	—	26 c	8d	—	—	—	—	—	—	—	—
Deanstone ...	89	8½d	34	11d	38	8d	—	—	—	—	10	5½d	7	5d
Dehigalla ...	68	9¾d	—	—	26	10¼d	9	†1/2¼	27	8¼d	5	6½d	1	4¾d
Delta ..	51 c	9d	—	—	27 c	8¼d	24 c	†10d	—	—	—	—	—	—
,, ...	112 c	8d	—	—	54 c	†7¾d	30 c	10d	28 c	6¾d	—	—	—	—
Densworth ...	57 c	8½d	—	—	16 c	7½d	41 c	8¾d	—	—	—	—	—	—
Derby ...	43 p	8d	—	—	15 c	8¼d	7 c	9½d	13 c	7¾d	7 c	6d	1	4¾d
Devituraí ...	66 c	8d	—	—	35 c	7d	27 c	9¾d	—	—	4 c	5½d	—	—
Devonford ...	35 p	1/1	—	—	11 c	11½d	23	1/2½	—	—	1	8¾d	—	—
Digalla ...	83 p	8½d	—	—	25 c	8d	27 c	11¼d	22 c	6½d	7 c	5¼d	2	6¾d
Dig Dolla ...	48 c	7½d	—	—	31 c	†6¾d	17 c	9d	—	—	—	—	—	—
Duneside ...	75 c	7d	—	—	—	—	75 c	6¾-8¾	—	—	—	—	—	—
Elangapitiya ...	86 c	8d	42 c	9-10¼	—	—	—	—	40 c	6¾d	—	—	4 c	5¾d
Elston ...	128 c	8¾d	—	—	50 c	8¾d	40 c	11¼d	38 c	6½d	—	—	—	—
Engurukande ...	181 c	7¼d	—	—	46 c	8½d	26 c	†10¾d	59 c	6½d	43 c	4½-5½	7 c	5¾d
Erlsmere ...	115 c	10¾d	48 c	11 1/3¼	62 c	9¼-9¾	—	—	—	—	1 c	5½d	4 c	6d
Fairfield ...	56 c	10¾d	—	—	28 c	10d	28 c	11½d	—	—	—	—	—	—
Frotoft ...	76	1/2¾	—	—	19	1/2½	30	1/5½	27	1/	—	—	—	—
Gallewatte ...	100	7½d	44	9½d	29	†6½d	—	—	23	†5d	—	—	4	4½-†4¾
Galgawatte ...	48 p	6¼d	10	7½d	12 c	6d	14	7½d	12 c	5½d	—	—	—	—
Gallamudina ..	98 c	9d	—	—	38 c	8¾d	33 c	11d	—	—	27 c	6½d	—	—
Glassaugh ...	78 p	1/0¼	—	—	30 c	1/0½	20	1/8¼	28 c	9d	—	—	—	—
Glassel ...	68 c	8¾d	—	—	35 c	8½d	19 c	10¾d	14 c	†6½d	—	—	—	—
Glencorse ...	85 c	8¾d	16 c	11¼d	19 c	8¾d	18 c	10¼d	30 c	6¾d	—	—	2 c	5¾d
Glendon ...	128 p	7¾d	—	—	65 p	†7d	49 c	†9¼d	12 c	6d	—	—	2 c	4½d
Glengariffe ...	63 c	8¼d	—	—	20 c	8d	20 c	10½d	23 c	6¼d	—	—	—	—
Glenorchy ...	100	11d	—	—	50	10½d	38	1/1	12	7½d	—	—	—	—
Glenugie ..	127 p	1/	—	—	74 c	11d	48	1/3¾	—	—	—	—	5	6½d
Gona Adika Co G	63	10¾d	—	—	44	9½d	19	1/1¼	—	—	—	—	—	—
Goomera ...	47 c	7¼d	—	—	20 c	6¾d	15 c	9d	12 c	5¾d	—	—	—	—
Goorookoya ...	99 c	7¾d	—	—	24 c	8¼d	22 c	10½d	53 c	6½d	—	—	—	—
,, ...	50 c	8¼d	—	—	13 c	8½d	16 c	10½d	21 c	6½d	—	—	—	—
Gonamotava ...	95 c	10¼d	—	—	38 c	8½-9¾	54 c	10-1/-	—	—	2 c	7¾d	1 c	5d
,, ...	39 p	8¾d	—	—	17 p	8¼d	19 p	9¾-1/-	—	—	2 c	7d	1 c	4¾d
Hangran Oya ...	40 c	8½d	—	—	12 c	9¼d	11 c	10¼d	17 c	6½d	—	—	—	—
Hayes ...	300	7d	—	—	63	†6½d	55	9¼d	141	5¾ 6	—	—	41	7¾d
Hautville ...	93 c	11½d	—	—	27 c	10¼d	46 c	1/2	20 c	7¾d	—	—	—	—
Heatherley ...	86 p	8¾d	—	—	62 p	7-9¾	14 c	11¾d	9 c	7d	—	—	1	4½d
Hethersett ...	102 p	1/3¾	39	1/7¾	39 c	1/3¾	—	—	24 c	1/0½	—	—	—	—
Hindagalla ...	178 p	10¾d	—	—	114 c	10¼d	35 c	1/2¼	21 c	7¼d	—	—	8	8½d
Hunasgeria ...	80 c	8½d	—	—	25 c	8¼d	30 c	10½d	25 c	6½d	—	—	—	—
Hunugalla ...	75 p	8d	—	—	50 c	7¼d	25	10½d	—	—	—	—	—	—
Imboolpittia ...	147 p	10d	19 c	1/2¼	44 p	9¾d	25 c	1/	59 p	7½d	—	—	—	—
Kabragalla M	126	9¼d	—	—	35	9½d	45	11¼d	28	7½d	5	4¾d	13	6½-7
Kahagalla ...	31 p	5¾d	—	—	15 c	5¼d	12 c	6¾d	—	—	4 c	2¾-5	—	—
Kandapolla ...	101 p	1/1¼	52	1/2	—	—	18 c	1/4¼	31 c	11d	—	—	—	—
Katookella .	79	11¼d	—	—	38	1/	14	1/2¾	24	9d	2	6¼d	1	7d
KelaniValAsso D	118 p	8½d	—	—	44 c	9d	23 c	11d	40 c	6½d	1	5d	10	5¼d
Kelburne ...	44 c	8½d	—	—	11 c	8d	18 c	10d	8 c	8d	5 c	5¾d	2 c	5¼d
Kellie ...	108 c	7¾d	—	—	27 c	5½ 8	29 c	10d	40 c	6½d	12 c	5½d	—	—
Kowlahena ...	53 c	10½d	—	—	22 c	11d	13 c	1/2	18 c	7½d	—	—	—	—
Lebanon ...	103 c	5½d	—	—	21 c	5½d	20 c	7¼d	62 c	5d	—	—	—	—
Lippakelle ...	82 c	1/0½	—	—	47 c	9¼-11½	31 c	1/4	—	—	—	—	4 c	6d
Liskilleen ...	39 c	7½d	—	—	20 c	6¾d	15 c	9½d	—	—	3 c	†4½d	1 c	4¼d
Loinorn ...	58 p	1/0½	21	1/4¾	—	—	—	—	35 c	11¾d	2 c	†2-4½	—	—
Loonagalla ...	118	10¾d	65	1 1-1/1½	53	9d	—	—	—	—	—	—	—	—
Mahanilu ...	113 p	11d	52	1/3¼	45 c	9¾d	—	—	13 c	7¼d	1 c	4d	2	6d
Maskeliya ...	54 p	11d	20	1/2¾	20 c	11½d	—	—	14 c	7½d	—	—	—	—
Mattakelle ...	89 c	10¾d	—	—	26 c	10½d	35 c	1/1½	26 c	7¾d	—	—	2 c	7d
Mayfield ...	47 c	10¾d	—	—	15 c	10d	20 c	†1/1¼	12 c	7¼d	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price.	Quantity	Price	Quantity	Price
Meria Cotta ...	58 c	1/1	—	—	28 c	1/1¼	14 c	1/5	16 c	9d	—	—	—	—
Moray ...	77 c	1/2	—	—	41 c	11 1/0¼	36 c	1/4½	—	—	—	—	—	—
Mossville ...	115 c	8d	—	—	24 c	9¾d	28 c	8¾-10¾	56 c	7d	6 c	3½-6	1 c	5d
Mooloya ...	23 c	1/5	—	—	—	—	23 c	1/5	—	—	—	—	—	—
Mottingham ...	61 p	8½d	22 c	11¾d	1 c	8½d	—	—	32 c	6¾d	4 p	4d	2 l	4¾d
Narangalla ...	198 p	11½d	—	—	82 c	11¼d	64 c	1/2¼	40 c	8½d	4 c	5d	8	8d
Narangoda ...	57 p	7¼d	6 c	9¼d	9 p	7¼-8½	—	—	37 c	6¾d	2 c	4½d	3	4½d
OBECCraigieLea	94 p	9½d	—	—	34 c	10d	23 c	1/1	30 c	7d	3 c	4-5¼	4	6¼-7½
,, Dangkande...	106	9½d	—	—	30	10d	39	11½d	27	7¾d	8	5¾d	2	5d
,, Kuda-Oya ...	67 c	8¾d	—	—	20 c	8½d	15 c	1/1½	32 c	6¾d	—	—	—	—
Old Madegama	47	9½d	23	10¼d	22	9d	—	—	—	—	1	6¾d	1	4½d
Oliphant ...	118 p	10¼d	—	—	38	11d	26 c	1/1	40	8¼d	14 c	6½d	—	—
Orion ...	107 p	10¾d	—	—	101 b	11¼d	—	—	—	—	3	6½d	3	7¼d
Osborne ...	102 c	8½d	—	—	33 c	8d	40 c	10½d	21 c	6½d	—	—	8 c	5d
Ovoca ...	59 c	11¾d	—	—	32 c	11¼d	12 c	1/4¾	15 c	9d	—	—	—	—
Parusella ...	46	5¾d	—	—	—	—	—	—	46	†5¾-6	—	—	—	—
Penrith ...	50 c	10½d	—	—	15 c	10d	20 c	1/1¼	13 c	7½d	—	—	2 c	5¼d
Pen-y-lan ...	87 c	9¼d	—	—	31 c	8½d	43 c	10½d	11 c	6¾d	1 c	5d	1 c	5¼d
Queensberry ...	68 p	9d	—	—	—	—	30 c	11½d	33 c	7¼d	3 c	5¼d	2	5½d
Poolbank ...	44	9¾d	25	11d	19	8d	—	—	—	—	—	—	—	—
Rahatungoda ...	36 c	1/4½	—	—	15 c	1/3	21 c	1/5½	—	—	—	—	—	—
Raxawa ...	46 c	9d	—	—	12 c	9½d	12 c	10½d	22 c	7¾d	—	—	—	—
Relugas ...	41 c	8d	—	—	16 c	7¾d	12 c	10d	13 c	6½d	—	—	—	—
Ruanwella ...	92	7¼d	—	—	24	†7d	28	9¾d	22	6d	16	5d	2	5½d
Sandringham ...	66 c	1/0¼	—	—	24 c	11½d	31 c	1/2¼	11 c	8¾d	—	—	—	—
Saidewatte ...	219 c	8¾d	62 c	† 11¼11¾	71 c	8d	36 c	10½-10	23 c	6d	24 c	3¼-6¼	3 c	4¼d
Sanquhar ...	94 c	8½d	—	—	31 c	8¾d	23 c	10¾d	40 c	7d	—	—	—	—
SCTC MncngLne	64 p	1/0¼	—	—	23 c	1/	26	1/4¾	12 c	8¾d	2	5d	1	5½d
Somerset ..	53 p	11¾d	—	—	29 c	10½d	24	1/2¾	—	—	—	—	—	—
St. Clair ...	139 c	9½d	—	—	40 c	10¾11½	26 c	1/1½ 1/1½	67 c	7-7¼	3 c	5d	3 c	5¾-6¼
St. Leys ...	36 c	8¾d	—	—	23 c	7½d	13 c	10¾d	—	—	—	—	—	—
St. Vigeans ...	41 p	10¾d	—	—	19 c	10½d	14 c	1/4	6 c	6¾d	2	4¾d	—	—
Summerville ...	40 c	1/1¼	—	—	19 c	11½d	21 c	1/3	—	—	—	—	—	—
Theresia ...	71 p	11d	—	—	24 c	9¾d	43	1/1¼	—	—	2 c	5¼d	2 c	5¾d
Tommagong ...	76 p	1/0¼	—	—	22 c	1/1½	24	1/3½	22 c	10¼d	—	—	8	8d
Tunisgalla ...	62 c	7½d	—	—	34 c	7d	13 c	10¼d	15 c	6d	—	—	—	—
Tyspany ...	62 c	8½d	—	—	39 c	7¼d	23 c	10¾d	—	—	—	—	—	—
Udabage ...	315	7¼d	—	—	155	6¾d	122	8d	38	5¾-6	—	—	—	—
Ugieside ...	44 c	6½d	11 c	8¾d	27 c	6d	—	—	—	—	6 c	4½-4½	—	—
Venture ...	145 p	10¾d	—	—	46 c	11d	62	1/2¼	31 c	7¾d	—	—	6	5¼d
Warleigh ...	46 c	11½d	—	—	33 c	10d	13 c	1/3	—	—	—	—	—	—
Warwick ...	69	1/2	35	1/4	34	1/	—	—	—	—	—	—	—	—
Wellekelle ..	73	1/0¼	—	—	49	11¼d	23	1/2½	1	7¾d	—	—	—	—
Wewebedde ...	45 p	10½d	4	11½d	12 p	10¼d	21 p	1/0¼	2 c	7½d	2 c	4¾-6¼	4 p	4¾-6½

JAVA. 499 chests. Average 6d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Ardja Sarie ...	375 c	6d	—	—	—	—	—	—	375 c	†5½-6½	—	—	—	—
Dramaga ..	91 c	6¼d	—	—	10 c	7½d	10 c	7¾d	19 c	6¾d	40 c	5¾d	12 c	4½d
Sinagar ...	33 c	5½d	—	—	—	—	33 c	5½d	—	—	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *October 30th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	415,136 packages.	278,349 packages.	23,841 packages.
1891-1892.	473,394 ,,	359,173 ,,	25,038 ,,

During the week

5,962 packages Indian
3,323 ,, Ceylon } Total 59,285 packages have been offered in public auction.
— ,, Java

INDIAN. During the last fortnight 90,000 packages of Indian Tea have been offered in public ale. Heavy auctions are again advertised for next week. Figures of such magnitude are unusual this period of the season, and this unaccustomed pressure might have seriously affected prices, ere it not that a brisk business was in progress at the time, thus permitting London buyers to perate with considerable freedom. How long the market can sustain a similar pressure is roblematical, but it has borne the recent test without any but poorest liquoring Teas feeling the rain—and even these have only yielded in price to a fractional extent.

Heavy arrivals of Tea this season no doubt increase the difficulty always felt in attempting a gulation of supplies, and with a crop estimated at 112 million pounds, available for London, e difficulty does not seem likely to decrease. Natural causes have recently facilitated large uctions, the brisk demand for home trade, during the past few weeks, aided by some export uying, having enabled Importers to dispose of a far greater quantity of Tea than was practicable the corresponding period of last season. The following averages are worthy of note:—"Hukanpukri" of the Jokai T Co., 1/6½; "Samdang" division of the Doom Dooma T Co., 1/3¼; "Selimbong" 1/2¾.

This weeks average price of New Season's Teas sold on Garden Account. Total 30,260 pkgs. average 9½d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	14360 p	10¼d	Chota Nagpore ..			Kangra Valley ..	40 p	6¾d
Cachar and Sylhet..	7995 p	8¼d	Darjeeling & Terai	3696 p	10½d	Neilgherry.. ..		
Chittagong	287 c	9d	Dooars	3810 p	8d	Travancore .. ,,	72 c	7¾d

s an idea of the comparative prices of Indian Tea in London we quote:—

UST.	(Fair ordinary, dark liquor)	1891,	4¼d.	1890,	6d.	1889,	5¼d	1888, 4¾d.
ANNINGS.	(Red to brown, strong rough liquor)	,,	5¼d.	,,	6¾d.	,,	6d.	,, 6d.
ROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7½d.	,,	8¼d.	,,	8d.	,, 7½d.
EK. SOUG.	(Blackish greyish, useful liquor)	,,	7¾d.	,,	8¾d.	,,	9¾d.	,, 8½d.
EKOE.	(Greyish to blackish some tip, useful liquor)	,,	8¾d.	,,	9¾d.	,,	10½d.	,, 9½d.
EK. SOUG.	(Blackish greyish, inferior liquor)	,,	6d.	,,	7¾d.	,,	7d.	,, 7¼d.
EKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	8½d.	,,	8¾d.	,, 8¼d.

EYLON. One of the most noticeable features in the Ceylon Tea market during the past few onths has been the gradually increasing divergence between values of good and bad liquoring as. While Teas with quality and flavor have steadily improved in value, undesirable liquoring sorts ve as steadily declined—the margin between the prices widening every week.

This weeks auctions were only 13,323 packages, comprising a fair selection as regards quality. mand ran chiefly on good liquoring Teas, especially Pekoes and Broken Pekoes; an occasional vance of a halfpenny to a penny being paid. Inferior liquoring grades were neglected at a rther decline of fully a farthing per lb. Export orders appear to be more plentiful, and pping demand to run considerably upon fine flavoured kinds as well as Medium Teas. The owing averages are worthy of note: "Waverley" of the CTPCo., 1/3½; "Bogawantalawa," ¾; "Goatfell" and "Kotiyagalla," 1/2¼. Average for week 9¾d.

AVAS were not represented and so far no catalogues are issued.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 30th SEPTEMBER.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
AN	22,123,797	23,805,819	28,975,845	28,579,746	30,653,331	29,676,573	21,298,986	20,642,277	25,959,810
LON.....	10,922,822	15,589,554	22,942,314	12,447,254	15,299,532	21,334,916	5,669,756	9,880,396	16,582,290
.....	829,360	968,310	1,496,670	1,352,050	1,468,390	1,727,530	711,130	564,760	620,270
A, etc	37,129,613	29,280,961	32,784,253	26,442,272	30,568,637	25,738,259	48,032,605	38,702,333	35,488,085
Total lbs.	71,005,592	69,644,644	86,199,082	68,821,322	77,989,890	78,477,278	75,712,477	69,789,766	78,650,455

BANK RATE. 4 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5 1/16d.

Garden.	Total. Quantity.	Total. Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Broken Org. Pekoe or Flowery Pekoe. Price	Pekoe and Unassorted. Quantity.	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity.	Broken Pekoe. Price.	Pekoe Souchong. Quantity.	Pekoe Souchong. Price.	Broken and Souchong. Quantity	Broken and Souchong. Price	Pannings, Dust and Various. Quantity	Pannings, Dust and Various. Price
ASSAM	**14360p**	**10¼d**												
Assam Co ...	1031 p	9¾d	—	—	245 c	8½-10¼	201 p	1/3-1/10¾	60 c	8d	525 c	7-1/3	—	—
AssamFrontierCo	742 c	11½d	219 c	1/2-1/6	423 c	9¼-10	—	—	44 c	8¼d	—	—	56 c	8¼d
,, ...	760 c	10¼d	137 c†	1/-†3/1	459 c	†8½†9½	—	—	119 c	7-8	—	—	45 c	7-8¼
Attaree KhatC B	137 p	10½d	—	—	34 c	11d	62	1/1¼	21 c	8¼d	20 c	8d	—	—
Badulipar ...	147 c	9½d	—	—	40 c	10½d	—	—	—	—	51 c	7¾d	56 c	8¾ 1/1
Bamgaon ...	180 c	8¾d	—	—	72 c	8¼-10½	41 c	11½d	35 c	7¾d	42 c	6¼d	—	—
Bishnauth T Co	390 p	9¾d	42 p	1/4½ 1/7¾	154 c	9-9¾	20 c	1/2¾	95 c	7 7¾	59 c	6¾d	20 c	11¼d
Borelli T Co ...	391 c	8¾d	—	—	126 c	9 1/3½	50 c	1/0¼	124 c	7¼d	61 c	7¼7½	—	—
Borpukri T Co	238 c	9d	—	—	101 c	9-11	26 c	†1/3	48 c	7d	30 c	6½d	33 c	8d
BrahmapootraTC	110 c	8¼d	—	—	35 c	9d	15 c	1/0¼	40 c	7d	20 c	6¾d	—	—
British Assam Co	255 c	8½d	—	—	51 c	8¾-9	33 c	1/1¼	68 c	6¾-7	103 c	6¼-6¾	—	—
Bungala Gor ...	100 c	7d	—	—	35 c	7¾d	—	—	35 c	6¾d	30 c	6d	—	—
Choonsali Co C...	147 c	9¼d	13 c	1/9¼	23 c	9¼d	46 c	9½d	42 c	7d	23 c	6¼d	—	—
,, S	175 c	8d	30 c	11½d	45 c	9d	—	—	—	—	100 c	6½-6¾	—	—
Corramore ...	200 c	9¾d	20 c	1/10¼	55 c	9-11¼	20 c	9½d	55 c	7½d	50 c	6¼-6¾	—	—
Dahingeapar ...	162 p	1/0¾	45	1/11½	47 c	1/0¾	—	—	45 c	9¼d	25 c	10d	—	—
Dejoo T Co . .	101 c	9¾d	—	—	32 c	9¼d	40 c	10¼ †1/1¾	28 c	7¼d	1 c	7d	—	—
Dhendi ...	125 c	9d	—	—	77 c	8½-11¾	—	—	48 c	7¼d	—	—	—	—
Dhoolie ...	141 c	9¼d	—	—	44 c	10½d	26 c	†1/	50 c	7¼7½	21 c	7d	—	—
,, ...	113 c	10d	—	—	31 c	11d	20 c	1/3¾	48 c	7¼d	14 c	7¼d	—	—
Doom Dooma B	149 c	1/0½	33 c	1/4	85 c	9½-10½	29 c	1/3¾	—	—	—	—	—	—
,, H	257 p	11½d	76 p	1/1¾ 1/6¼	92 c	†8¾10¾	37 c	1/3¾	34 c	8¼d	18 c	6¾d	—	—
,, S	115 p	1/3¼	55	1/5¼	40 c	1/1¾	20 c	†1/4	—	—	—	—	—	—
Eastern AssamC	120 p	1/1¾	68	1/7 1/11½	—	—	—	—	52 c	7¾-9	—	—	—	—
Gellahatting ...	175 p	11¾d	53	1/5¼ 1/11	47 c	10¼d	25 c	1/0¾	34 c	8¼d	16 c	8¼d	—	—
Hattigor ...	160 c	10¾d	—	—	60 c	11 1/4¼	15 c	1/4	45 c	9d	40 c	7¼d	—	—
Hunwal T Co ...	317 p	9¼d	71 p	1 0-1/6¾	74 c	8½d	60 c	11d	86 c	7d	—	—	26 c	4¼
Jokai T Co Bokel	320 c	9¾d	40c	†1/ 10¾ 1/1	1½	80c †8-9¼	—	—	61 c	6¾d	—	—	3 c	6
,, Hukanpukri	156 p	1/6½	30 b	3/0¼	26 c	1/5¾	—	—	100 b	1/2	—	—	—	—
,, Jamira ...	139 p	6½d	—	—	33 c	7¾-9	—	—	23 c	6½d	50 c	5¾-6	33	4½-7
,, Muttuck ...	164 c	9d	23 c	1/7	86 c	7½-8¾	—	—	37 c	6¼d	—	—	18 c	†6
,, Tippuk ...	221 c	11d	74 c	† 1/1-1/2	107 c	†9¾†11	—	—	40 c	8d	—	—	—	—
Jorehaut T Co	990 p	10d	18	2/1¼	288 c	8¾ 1/1½	138 c	1/1¼-1/8	468 c	7-8¾	—	—	78 c	7-9
Kamar Koochee	70 c	9d	—	—	27 c	9½d	13 c	1/0½	17 c	7¼d	13 c	6½d	—	—
Kellyden ...	228 p	10¾d	104	1 1½ 1/7½	60 c	†8¾d	24 c	† 10¾d	28 c	†6¾d	—	—	12 c	†7
Kettela T Co ...	80 c	9¼d	—	—	43 c	10½d	—	—	37 c	7½d	—	—	—	—
Khobong T Co	201 p	9½d	50	†1/1½	121 c	†7¼†9¼	30	†1/0½	—	—	—	—	—	—
Khonikor ...	152 p	10½d	54 b	2/4	35 c	10d	—	—	33 c	7¼d	—	—	30 p	4¼6
Koliabur Factory	113 c	8d	—	—	18 c	†9¼d	15 c	†10d	60 c	7½d	20 c	6½d	—	—
Kolony	59 c	11d	—	—	18 c	11d	20 c	1/2¾	21 c	7½d	—	—	—	—
LMB Hatticoolie	234 c	9d	—	—	84 c	8¾d	50 c	1/1½	100 c	7d	—	—	—	—
,,Latakoojan	250 c	1/0½	—	—	50 c	10¾d	100c	1/5¼ 1/5½	100 c	8½d	—	—	—	—
,, ,, ...	349 c	9¾d	100c	1/1½ 1/1¾	100 c	9½d	—	—	149 c	7-7¼	—	—	—	—
LuckimporeTC ...	230 c	10¼d	—	—	100 c	10½d	40 c	1/1½ 1/3¼	50 c	7¾-8½	40 c	7½-8	—	—
Malijan T Co ...	125 c	8¾d	—	—	51 c	8-10	20 c	1/2	34 c	†6½d	20 c	6½d	—	—
Majuli T Co. K	97 c	1/	21 c	1/5¼	42 c	11¾d	—	—	34 c	9¼d	—	—	—	—
,, K	115 c	1/1	27 c	1/8¾	53 c	10¾d	17 c	1/0½	—	—	18 c	9¼d	—	—
,, M	124 p	9d	—	—	41 c	10½d	—	—	42 c	7¼d	—	—	41	9¼
Mesai Jan ...	257 c	9½d	—	—	45 c	10¼d	43 c	1/5¾	89 c	7¾d	62 c	6½d	18 c	4¼8
Moran T Co ...	141 p	1/0½	41 p	1/5-2/2¾	19 c	1/	14 c	1/3½	47 c	8½d	20 c	7¾d	—	—
Mungledye T Co	137 c	10½d	—	—	35 c	10½d	22 c	1/5¼	60 c	8½d	20 c	8½d	—	—
Naharani ...	45 c	8½d	—	—	—	—	—	—	—	—	20 c	6½d	25 c	10
Oaklands ...	110 p	1/1¼	70 b	2/1	—	—	—	—	40 c	8¼d	—	—	—	—
Ohat ...	191 c	10d	—	—	88 c	10d	22 c	1/2¼	40 c	7¾d	14 c	7¼d	27 c	11¼
Romai . .	100 p	9¾d	—	—	33 c	9½d	30	1/4¾	37 c	7¼d	—	—	—	—
Rungli Ting ..	35 c	1/	—	—	20 c	1/2¼	—	—	15 c	9¼d	—	—	—	—
Salonah T Co K	238 p	11¾d	48	1/5¼	74 c	1/	39	1/3	43 c	9¼d	34 c	6¾-8¾	—	—
ScottishAssamC	157 c	8¼d	51 c	10½ 11	34 c	8d	20 c	7¾d	—	—	52 c	6¼d	—	—
,, . .	232 p	9¼d	54	1/4½ 1/6¼	30 c	10½d	46 c	8½d	27 c	8d	75 c	6½d	—	—
Tingri T Co ...	325 p	1/	24	1/10¼	99 c	1 1¼ 1/0¾	44 c	1/7¾ 1/9¾	136 c	8¾-9¼	22 c	7¾d	—	—
Tokankata ...	65 c	10¾d	—	—	20 c	9½d	23 c	1/3¼	22 c	7d	—	—	—	—
Wilton T Co D	233 p	9d	33	1/7½	91 c	9d	—	—	82 c	7d	27 c	9¼d	—	—
,, W	192 p	11¾d	30	2/3½	91 p	1 0¾†10¾	—	—	40 c	9½d	31 c	8¾-10½	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
CACHR & SYLHT	**7995 p**	**8½d**												
Allynugger ...	200 c	9d	26 c	1/-1/8½	83 c	†8¾d	34 c	8½d	37 c	7d	20 c	6½d	—	—
Arrang ...	234 p	8½d	—	—	81 c	8¾-9	73	1/	12 c	7d	40 c	6½d	28	4¾d
Baraoora ...	499 p	10¼d	171 c	1 0½ 1/7¼	130 c	8½-8¾	64 c	10¼d	130 c	7¾d	—	—	4	4¾d
B&CoChargola M	198 c	8¼d	28 c	1 0 1/7½	60 c	7¾d	30 c	8¼d	50 c	6½d	20 c	6¼d	10 c	5¾d
,, ,, S	164 c	8½d	13 c	1/2¼	59 c	8¼d	37 c	9¾d	42 c	7¼d	13 c	6¼d	—	—
,,Singla T Co	277 c	8½d	34 c	1 0¾ 1/2½	95 c	8¼d	33 c	10½d	89 c	7d	14 c	6½d	12 c	7½d
,,Mookham Co	255 c	8d	28 c	1 1½d	121 c	7¾-8	21 c	9¼d	73 c	6½d	12 c	6¼d	—	—
BITCoDwarbund	385 c	9½d	—	—	131 c	6¾d	98 c	1/7¼ 1/7½	120 c	5¾d	36 c	5¾d	—	—
,, Urrunbund	131 c	7¼d	—	—	48 c	7¾d	15 c	10¾d	—	—	53 c	5¾-6½	15 c	5d
Borokai T Co.	156 c	10½d	—	—	58 c	9¾d	14 c	1/10¼	35 c	7¾d	49 c	10¼d	—	—
Chandkhira ...	62 c	7½d	—	—	17 c	8d	—	—	30 c	6½d	—	—	15 c	9d
Chatlapore ...	250 c	1/	25 c	1/9½ 1/10	162 c	11-11¼	33 c	10d	30 c	9¾d	—	—	—	—
Clevedon ...	219 c	6¼d	—	—	31 c	†7¼d	47 c	8¼d	—	—	62 c	5¾d	79 c	3¾ 6
Craigpark ...	116 c	8¾d	—	—	50 c	8½-8¾	28 c	11½d	13 c	7½d	25 c	6¾d	—	—
Dhamai ...	119 p	7d	9 c	8½d	16 c	8¼d	15 c	8½d	29 c	6¼d	35 c	6d	15	5d
Digun ...	98 c	7¾d	—	—	—	—	—	—	43 c	4¼-6	55 c	9¼d	—	—
Doloi T Co ...	300 c	8¼d	42 c	10½ 1/8	93 c	8d	38 c	9¼d	107 c	6¾-7	20 c	6¼d	—	—
Dulcherra ...	106 c	7½d	—	—	31 c	8¼d	19 c	9¾d	27 c	6½d	29 c	6¼d	—	—
Indian C of Cachr	236 c	11d	—	—	67 c	10¼d	36 c	1/10¼	59 c	7½d	74 c	9d	—	—
Jingmara ...	156 c	7½d	—	—	40 c	8d	22 c	11¼d	67 c	6½d	27 c	†6¾d	—	—
Kallkhira ...	94 c	6¾d	—	—	38 c	7d	22 c	7¾d	34 c	6d	—	—	—	—
Karsingah ...	100 p	9d	27 c	†10d	22 c	†6¾d	51 b	†11d	—	—	—	—	—	—
KMB Morapore	204 p	7d	—	—	66 c	7 7¼	59	9½d	59 c	6d	20 c	6d	—	—
KSTC Jafflong	130 p	7¼d	—	—	59 c	7¾d	24 c	8d	30 c	6½d	—	—	17	5¾d
Kathecherra ..	269 p	8¼d	80	10d	80 c	7¼d	90 c	8½d	19 c	6½d	—	—	—	—
Katrakola ...	330 p	7¾d	18	1/10	90 c	†7½d	90 c	8¼d	80 c	6½d	27 c	6¼d	25	5½d
Kookeenee ...	78 c	7d	—	—	—	—	60 c	7¼d	—	—	18 c	5¾d	—	—
KSTCo Deanston	737 p	9¼d	299 c	9¼-1/8	192 c	7½-7¾	191 c	9¼-9½	—	—	—	—	55	5¼d
,Phulcherra ...	407 p	7¼d	59 c	9¼d	153 c	†6½d	131 c	8d	—	—	—	—	64	4½d
,Rajghat ...	264 p	7¾d	130 c	7¼-1/2	47 c	6½d	79 c	7½d	—	—	—	—	8	5¼d
Lubong ...	120 c	7½d	—	—	43 c	†7d	57 c	†8-†8¼	20 c	7d	—	—	—	—
CHITTAGONG	**287 c**	**9d**												
Kornafuli ...	87 c	9½d	—	—	45 c	9d	13 c	1/4½	17 c	7d	—	—	12 c	7d
,, ...	200 c	8¾d	—	—	100 c	8-8¼	35 c	1/1¾	32 c	6¾d	—	—	33 c	7¼d
DARJELNG&TERI	**3696 p**	**10½d**												
Darjeeling T Co	142 c	11¼d	44 c	11½ 11¾	38 c	10d	28 c	1/4	32 c	8d	—	—	—	—
Doomtee ...	82 p	1/1½	48	1/3¼-1/7	34 c	11¼d	—	—	—	—	—	—	—	—
Dungaram ...	74 c	8½d	—	—	22 c	9¾d	12 c	1/0¼	37 c	†6¾d	—	—	3 c	†4¼d
Galabarrie ...	126 p	9d	—	—	51 c	8½d	50	1/	25 c	6½d	—	—	—	—
Gebong T Co ...	348 c	10½d	85 c	† 11½ 1/6	133 c	9-10¾	—	—	130 c	7-8	—	—	—	—
,, ...	485 c	10¼d	225 c	9¾ 1/6½	95 c	7¼-1/	—	—	165 c	6¼ 8	—	—	—	—
KMB Chong Tong	302 c	10d	—	—	160 c	10½d	52 c	1/1¼	50 c	8 8¼	40 c	6¾d	—	—
,,Lebong ...	115 c	9¼d	—	—	60 c	10½d	—	—	55 c	7¾d	—	—	—	—
,,Moondakotee	142 c	1/0¼	—	—	80 c	1/1¼ 1/1½	12 c	1/7¼	—	—	50 c	8¾d	—	—
Marionbaree ..	100 c	7¼d	—	—	40 c	7d	20 c	11d	40 c	5¾d	—	—	—	—
Nim T Co ...	98 c	1/1½	—	—	45 c	1/1¾	15 c	9¾d	23 c	9¾d	—	—	15 c	1/10¼
Nurbong ...	230 p	9½d	70	1/3¼ 1/3½	78 c	9¼ 10½	—	—	66 c	7d	16 c	6d	—	—
Nuxalbarrie Co	131 c	9½d	34 c	1/2	36 c	9¼d	—	—	—	—	29 c	7¼d	32 c	7½d
Poobong ...	70 p	1/4¾	25	2/0½	25 c	1/5¾	—	—	20 c	10½d	—	—	—	—
Pusheet ...	90 p	10d	—	—	30 c	9¼d	30	1/4½	30 c	7½d	—	—	—	—
Singmook ...	98 p	11d	—	—	60	1/2	—	—	20	8¾d	18 c	8¼d	—	—
Silimbong ...	96	1/2¾	—	—	46	1/4	22	1/7	28	9d	—	—	—	—
Tingell T Co ...	141 c	11d	41 c	†1/1¾	86 c	10¼d	14 c	8¼d	—	—	—	—	—	—
Toom T Co ...	95 c	1/0¼	15 c	1/7¼	50 c	1/0¾	—	—	30 c	8¼d	—	—	—	—
Tukvar T Co ...	286 c	1/	181 c	1/0½-1/5	¾ —	—	—	—	84 c	9d	—	—	21 c	9½d
DOARS	**3810 p**	**8d**												
Bhogotpore ..	313 p	8¼d	69	11d	53 c	8½d	2	1/1½	129 c	7¾d	—	—	60	7¼d
Bingua Jhar ...	128 p	8¾d	29	10d	30 c	7d	23	1/4½	27 c	6d	—	—	19 c	3¾-7
DoarsTC Baman	520 c	8¼d	30 c	1/3½	133 c	8d	127 c	8¾d	123 c	7d	—	—	107 c	† 7¾
,, ,,	295 c	8½d	25 c	1/5½	100 c	†7¾d	70 c	8¾d	35 c	7d	20 c	6¾d	45 c	4¾-7
,, Ghatia ...	151 p	9d	23	1/6¾	48 c	8½d	20 c	9¾d	31 c	7½d	—	—	29 c	7d

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
DOOARS														
DooarsTC Indong	117 c	8¼d	12 c	1/2¾	31 c	7¾d	36 c	8½d	13 c	7d	18 c	6¾d	7 c	4¼
Ellenbarrie ...	161 c	9d	77 c	†9 1/3¾	—	—	—	—	84 c	†7½d	—	—	—	—
Hahai Patha ...	215 c	8d	48 c	9¼ 1/5¾	80 c	7d	—	—	53 c	6d	—	—	34 c	4½
NSTC Dam Dim	992 p	7¾d	25 b	2/11½	473 c	7½7¾	339 c	8d	105 c	6¼d	—	—	50 c	4¼
Phoolbarrie T Co	436 c	7¼d	—	—	131 c	8d	85 c	9¼d	104 c	6¼d	116 c	6d	—	—
Rungdong ...	173 p	6½d	—	—	—	—	—	—	—	—	155 c	6½6¾	18	4¼
KANGRAVALEY														
Kanyara ...	40 p	6¾d	—	—	—	—	11 c	†7½d	29	†6¼d	—	—	—	—
TRAVANCORE	**72 c**	**7¾d**												
Bison Valley ...	31 c	7½d	—	—	—	—	9 c	11d	21 c	6¼d	—	—	1 c	4¾
Neddumpara ...	11 c	8d	—	—	4 c	6¾d	4 c	10½d	3 c	6d	—	—	—	—
Venture ...	30 c	8d	—	—	10 c	6¼ 7	10 c	11¼d	8 c	6¼d	2 c	5¼d	—	—

CEYLON. Average 9¾d.

Abbotsford ...	142 p	11d	21	1/4	41 c	9¾d	63 c	1/0½	17 c	6½d	—	—	—	—
Abbotsleigh ...	40 c	1/1½	—	—	15 c	10¾d	25 c	1/3¼	—	—	—	—	—	—
Aigburth ...	55 c	9¼d	—	—	16 c	8¾d	25 c	10¾d	14 c	6¾d	—	—	—	—
Aldie ...	60 p	1/	—	—	18 c	11¼d	27 c	1/2	13 c	8¾d	—	—	2	8¼
Amblamana ...	45 c	8¾d	—	—	—	—	31 c	9d	14 c	6¾d	—	—	—	—
Atherfield ...	69 c	10¼d	—	—	24 c	9¼d	27 c	1/0½	18 c	7½d	—	—	—	—
Attabage ...	86 p	8¾d	—	—	31 c	8¾d	26	1/0½	20 c	6¾d	5	4¾d	4	7
Battalgalla ...	107 p	10½d	51 p	1/0¼ 1/4¼	35 c	10d	—	—	14 c	7¼d	—	—	7	6
Beverley ...	108	8¼d	—	—	61	8d	23	10½d	24	6¾d	—	—	—	—
Binoya ...	68 p	6¾d	—	—	30 c	6¾d	15 c	9¼d	—	—	20 c	4¾-5½	3	5
,, ...	64 p	7¼d	—	—	31 c	7d	16 c	9 9¾	—	—	13 c	5¼5½	4	5
Bitterne ...	59 c	7½d	—	—	24 c	7d	20 c	9½d	5 c	6d	2 c	4½	8	5½
Bogawantalawa	60 p	1/2¾	—	—	27 c	1/2¼	16 c	1/8¾	13 c	10¼d	1 c	6¾	3	7
Brae ...	145	8½d	—	—	29	9¾d	28	1/0¼	72	7¼d	12	4 5¾	4	5½
Buñyan ...	49 c	11½d	—	—	22 c	11¼d	15 c	1/2½	12 c	8d	—	—	—	—
Calsay ...	86 c	10d	48 c	11½d	34 c	8¼d	—	—	—	—	—	—	4	6
Campion ...	124 c	1/	—	—	45 c	11½d	55 c	1/1¾	24 c	8¾d	—	—	—	—
Castlemilk ...	106 c	8¾d	—	—	39 c	9d	30 c	11d	37 c	6¾d	—	—	—	—
Cattaratenne ...	37	9½d	—	—	11	7½d	26	10¼d	—	—	—	—	—	—
Chapelton ...	147 p	1/	—	—	50 c	1/	55	1/5¼	42 c	8¾d	—	—	—	—
CL&PC Andngdie	138 c	8½d	—	—	52 c	†8¾d	30 c	11¼d	53 c	†6¾d	3 c	5d	—	—
Come Away ...	61 p	11½d	—	—	31 c	10d	29	1/3¼	1 c	5¼d	—	—	—	—
Cottaganga ...	81 c	8d	—	—	26 c	8d	29 c	9¼d	26 c	6¼d	—	—	—	—
Ceylon T PlantCo														
,,Dewalakanda	237 p	7½d	22 c	8¾d	160 p	7-8½	28 c	8¾d	27 c	6d	—	—	—	—
,,Mariawatte	225 p	7½d	—	—	82	8d	35 c	11d	88 c	6-6¼	—	—	20	5½
,,Wallaha ...	77 p	1/1	—	—	34 p	10½ 1/0½	29 c	1/4	14 c	9¼d	—	—	—	—
,,Waverley ...	144 p	1/3½	—	—	82	1/2½	54 c	1/5	4 c	9¾d	—	—	4 c	8
Dambulagalla ...	119 c	7¼d	—	—	46 c	6¾d	35 c	9d	38 c	6 d	—	—	—	—
Dammeria ...	186	1/0½	67	1/1½-1/3	½116	8¾-11¾	—	—	—	—	3	7¾-8¾	—	—
Dea Ella ...	60	6¾d	—	—	60	†6¾d	—	—	—	—	—	—	—	—
Debatgama ...	87 c	7¼d	—	—	17 c	†7d	56 c	†7¾d	14 c	†6d	—	—	—	—
Delta ...	60 p	8½d	—	—	16 c	8½d	17 c	10¾d	12 c	6¾d	—	—	15	5½
,, ...	54 c	7½d	—	—	54 c	†7½d	—	—	—	—	—	—	—	—
Derryclare ...	38 c	11½d	—	—	15 c	10½d	15 c	1/2¾	8 c	7¼d	—	—	—	—
Dig Dolla ...	58 c	7¼d	—	—	32 c	6¼d	25 c	8½d	—	—	—	—	1 c	3½
Dotala ...	42 p	1/1¾	22	1/6½	20 c	11d	—	—	—	—	—	—	—	—
Dotel-Oya ...	125 c	9¼d	—	—	42 c	8d	65 c	11d	13 c	6¾d	—	—	5 c	5¾
Dromoland ...	102	1/	—	—	77	†11½d	25	1/1¼	—	—	—	—	—	—
Dunnottar ...	1 b	4/3	1 b	4/3	—	—	—	—	—	—	—	—	—	—
,, ...	33 p	1/0½	21	1/2¾	4 c	9¾d	8 c	11¼d	—	—	—	—	—	—
Ederapolla ...	111 p	9d	—	—	33 c	9d	61	10½d	17 c	6½d	—	—	—	—
Edinburgh ...	56 c	1/1	—	—	27 c	11½d	29 c	1/2¼	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Eilandhu ..	43 c	8¼d	—	—	24 c	7d	19 c	9¾d	—	—	—	—	—	—
Ekkie Oya ...	72 c	7½d	—	—	33 c	7¼d	20 c	9¾d	18 c	6d	—	—	1 c	5d
Ekolsund ...	70 c	8d	—	—	23 c	7½d	37 c	9d	4 c	5½d	3 c	+½d	3 c	4¾d
Erroll ...	70 p	1/0½	—	—	25 c	1/	33	1/3¼	8 c	9d	—	—	4	6½d
Elkadua ...	24 c	11d	—	—	—	—	24 c	11d	—	—	—	—	—	—
Ellagalla ...	79 c	8¼d	—	—	8 c	8½d	28 c	10d	35 c	7¼d	2 c	5¼d	6 c	5¾d
EP&ECo Arapo.	57 c	9¼d	—	—	30 c	9d	15 c	11½d	12 c	7d	—	—	—	—
,,Kirrimattia	59 c	10¼d	—	—	27 c	10¼d	15 c	1/2	—	—	17 c	6¾d	—	—
,,Meddecombra	74 c	10¼d	—	—	25 c	9¾d	27 c	1/1	22 c	7½d	—	—	—	—
,,Sogama ...	58 c	11½d	17 c	1/3¼	37 c	9½-11½	—	—	—	—	4 c	6d	—	—
Faithlie ..	37 c	9d	—	—	16 c	†9¼d	9 c	11½d	12 c	†6¾d	—	—	—	—
Fassifern ...	29 c	8½d	—	—	14 c	8¼d	8 c	11d	7 c	6d	—	—	—	—
Fordyce ...	101 p	10¾d	40	1/2¾	30 c	11d	—	—	25 c	8d	—	—	6	7¼d
Fruithill ...	78 p	10½d	36	1/2½	22 c	10d	—	—	16 c	7d	—	—	4	8½d
Galaha ...	127 c	9d	—	—	—	—	82 c	9¾-10	45 c	7¼d	—	—	—	—
,, ...	141 c	9d	—	—	—	—	88 c	9¾-10	53 c	7¼d	—	—	—	—
Gallaheria ...	44 p	9½d	15	11½d	13 c	9d	8 c	1/	8 c	6¼d	—	—	—	—
Gallebodde ...	94 c	9½d	—	—	32 c	9½d	30 c	11d	32 c	7¾d	—	—	—	—
Galloola ...	86	8d	—	—	29	8¾d	20	†9½d	30	7d	4	5½d	3	5d
Glenalla ...	45 c	7¾d	9 c	11½d	35 c	6¾d	—	—	—	—	—	—	—	—
Goatfell ...	64 c	1/2¼	—	—	47 c	1/3	—	—	17 c	1/0¼	—	—	—	—
Goomera ...	63 c	7¾d	—	—	24 c	7¼d	27 c	9d	12 c	5¾d	—	—	—	—
Gordon ...	43 p	7d	—	—	13 p	6-6½	16 p	8-8¾	13 p	5¼-5½	—	—	1	4¾d
Great Western ...	142 c	9¾d	7 c	1/1¼	47 c	10¼d	37 c	11½d	—	—	51 c	7¾d	—	—
Hattanwella ...	108	7¾d	—	—	82	7½d	16	11d	—	—	8	3½4½	2	4¾d
Hautville ...	104 c	11¾d	—	—	45 c	10¾d	44 c	1/2¼	15 c	7¾d	—	—	—	—
Hayes ...	112	5¾d	—	—	—	—	—	—	112	5½5¾	—	—	—	—
Henfold ...	141 c	1/1¾	—	—	68 c	1/	57 c	1/5¼	16 c	9¼d	—	—	—	—
HGA ...	65 c	8½d	21 c	10¾d	20 c	8½d	—	—	24 c	6¾d	—	—	—	—
Hoolankande ...	59 p	9¼d	28	1/0¼	31 c	7-8¾	—	—	—	—	—	—	—	—
Hoonoocotua ...	74 c	8½d	—	—	21 c	8¼d	30 c	10d	22 c	6½d	—	—	1 c	5½d
Hope ...	133 c	11¼d	—	—	37 c	11¼d	52 c	1/1	—	—	44 c	8¼-9	—	—
Hunasgeria ...	47 c	6d	—	—	—	—	—	—	12 c	6½d	26 c	3¾-6¼	9 c	5¾d
Hunugalla ...	75 p	7¼d	—	—	50 c	6¾d	25	9½d	—	—	—	—	—	—
Iddequodda ...	45	7½d	—	—	14	6½d	16	10½d	15	5½d	—	—	—	—
Ingrogalla ...	53 c	9¾d	—	—	15 c	9¾d	12 c	1/3¾	26 c	7¼d	—	—	—	—
Kallebokka ...	30 c	9d	—	—	15 c	7¾d	14 c	10½d	1 c	5d	—	—	—	—
Kalupahani ...	81 p	1/0¼	—	—	16 c	11¾d	49	1/2¾	16 c	8¾d	—	—	—	—
Kandapolla ...	95 p	1/1¾	44	1/3	—	—	17 c	1/4½	16 c	11¾d	—	—	18	9d
Katooloya ...	101 c	8¼d	—	—	24 c	9d	25 c	10½d	52 c	6¾d	—	—	—	—
KAW ...	87 c	9¾d	—	—	48 c	9-1/0¼	13 c	1/3	—	—	26 c	7d	—	—
Kinagodde ...	45 p	8¾d	—	—	13 c	9½d	14 c	10½d	16 c	6¾d	—	—	2	7½d
Kirkoswald ...	131 p	1/1¾	26	1/9¼	40 c	1/1¾	35 c	1/2¾	30 c	9¾d	—	—	—	—
Kotiyagalla ...	80 p	1/2¼	—	—	27 c	1/0½	53	1/4	—	—	—	—	—	—
Lagalla ...	124	8¼d	—	—	71	7¼d	40	10¾d	11	5½d	1	4d	1	+½d
Lauderdale Co ...	69 c	7¼d	—	—	19 c	7½d	12 c	10½d	38 c	6d	—	—	—	—
Laxapana ...	98 p	10½d	21	1/1¼	35 c	9¾d	28	1/1¾	14 c	7d	—	—	—	—
Leangapella ...	44 c	8½d	27 c	†9d	17 c	†7½d	—	—	—	—	—	—	—	—
Lebanon ...	223 c	5d	—	—	89 c	†5d	53 c	†6½d	81 c	†4d	—	—	—	—
Lippakelle ...	86 c	1/0¾	—	—	51 c	9½-1/-	32 c	1/4	—	—	—	—	3 c	7d
Mahacoodagalla	43 c	8½d	—	—	19 c	8¾d	12 c	9¾d	12 c	6¼d	—	—	—	—
Mahatenne ...	107 p	7¾d	—	—	30 c	8d	35	10¾d	42 c	6½d	—	—	—	—
Mahaousa ...	77 p	9d	40 c	9¾ 10¾	22 c	8½d	—	—	12 c	6¾d	—	—	3	5½d
Marske ...	29	1/	—	—	14	9¼d	14	1/3¼	—	—	—	—	1	6d
Mattakelley ...	101 c	11d	—	—	30 c	10¾d	43 c	1/1¾	26 c	7½d	—	—	2 c	6d
Melfort ...	68 c	1/1¼	45 c	1/ 1¼ 1/2¼	23 c	1/	—	—	—	—	—	—	—	—
Midlands ...	81 p	8½d	—	—	13 c	8d	44	10d	14 c	7d	—	—	10	7¾d
Moray ...	42 p	11¼d	—	—	17 c	9½ 10¾	12 c	1/3½	6 c	7¾d	—	—	7	8d
Mottingham ...	75 c	8¼d	27 c	11d	—	—	—	—	43 c	6¾d	1 c	4¼d	4 c	4¾d
Narangalla ...	72 c	8d	35 c	9-10½	—	—	—	—	35 c	6½d	—	—	2 c	5½d
NewDimbula D	68 c	1/1¼	—	—	26 c	1/0½	32 c	1/2¾	10 c	10½d	—	—	—	—
North Cove ...	77 p	11¼d	—	—	39 c	10¼d	37	†1/2	1 c	5½d	—	—	—	—
OBECNilloomaly	65 c	9¾d	—	—	25 c	9¾d	19 c	1/0¼	21 c	7¼d	—	—	—	—
Dodewelle ..	87 c	8½d	—	—	29 c	7¾d	39 c	10d	19 c	6½d	—	—	—	—

CEYLON.—Continued.

Garden.	Total.		Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Various.	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Oonoonagalla ...	109	p	8¾d	18	1/1¼	29 c	8d	21 c	1/1	40 c	6¼d	—	—	1 c	5d
Pantiya ...	53	c	11d	12 c	11¾d	23 c	9¾d	12 c	1/3¾	6 c	5¾d	—	—	—	—
Pen-y-lan ...	104	c	9¼d	—	—	36 c	8¼d	54 c	10½d	12 c	6½d	1 c	5½d	1 c	5¼d
Peradenia ...	118	c	10¼d	—	—	28 c	10¾d	39 c	1/0¾	51 c	8¼d	—	—	—	—
Pita Ratmalie	85	p	1/1	—	—	45 c	1/	28 c	1/3¾	—	—	6	8d	6	6½d
Polgahakande	63	c	9d	12 c	9¾d	37 c	7½d	14 c	1/	—	—	—	—	—	—
Putupaula ...	40	c	8¾d	—	—	—	—	12 c	1/1	12 c	8d	14 c	4⅛6½	2	5¼d
Rajatalawa ...	107	c	10d	—	—	31 c	10¼d	40 c	11½d	36 c	8½d	—	—	—	—
Raxawa ...	45	c	8¼d	9 c	10½d	12 c	8d	—	—	15 c	5¾d	8 c	5d	1	5¼d
Rillamulla ...	137	p	10¾d	—	—	48	11½d	30	1/4	52	8¼d	—	—	7	7¼d
Rothschild ...	41	c	1/0¾	12 c	1/5½	28 c	9¾ 1/0¼	—	—	—	—	—	—	1	6¼d
Sapu ...	46	p	6d	—	—	—	—	—	—	—	—	41 c	6d	5	4¼d
Stamford Hill	35	c	10¼d	16 c	9½d	—	—	13 c	1/1½	—	—	6 c	5¼d	—	—
St. John Del Rey	162	p	11¾d	—	—	52 c	11¾d	58 c	1 5¾	58 c	6¼d	—	—	14 c	6¼d
St. Johns ...	50	c	1/1¾	—	—	27 c	1/0¼	23 c	1/3½	—	—	—	—	—	—
St. Leys ...	49	c	8¾d	—	—	24 c	8¼d	18 c	11d	4 c	5¾d	3 c	4¼d	—	—
St. Martins ...	44		7½d	—	—	34	6¾d	—	—	10	9½d	—	—	—	—
Stonycliff ...	88	c	9¾d	—	—	44 c	9d	31 c	1/0¼	10 c	6½d	—	—	3	5¼d
Sunnycroft ...	94	c	7¼d	48 c	7¼ 9	32 c	6½d	—	—	10 c	5½d	4 c	4¼d	—	—
Taprobana ...	38		8¾d	—	—	22	7¾d	13	10¾d	1	5d	—	—	2	6¼d
Tellisgalla ...	43	p	8½d	—	—	17	7¾d	16 c	9½d	10	6d	—	—	—	—
Templestowe ...	153	p	7d	58	†9¼d	35 c	†6¾d	—	—	32 c	6¼d	28	5¾d	—	—
Upper Haloya	132	p	6¼d	24	9¼d	49 c	6·7	13 c	6¾d	46 c	5d	—	—	—	—
Valamaly ...	79	p	9d	—	—	29 c	9¼d	25	1/1¼	25 c	6¼d	—	—	—	—
Vallambrosa ...	35	p	1/0¼	25 p	1/ 1¾ 1/3½	—	—	—	—	8 c	9d	1 c	5½d	1	6¼d
Waltrim ...	39	c	1/0¼	—	—	17 c	11d	10 c	1/7½	11 c	8d	—	—	1	7d
Wangie Oya ...	83	p	9¼d	10	1/2¾	27 c	9¼d	16 c	11¾d	30 c	6 16¾	—	—	—	—
Wellekelle ...	64		1/0½	—	—	42	1/	18	1/3¼	2	7¾d	—	—	2	5½d
Weyweltalawa	136		9¾d	21	†10d	64	9d	51	10¼ 10½	—	—	—	—	—	—
Whyddon ...	28	c	7¼d	—	—	16 c	†6½d	12 c	8½d	—	—	—	—	—	—
Wiltshire ...	84	p	6½d	—	—	37 c	6d	23 c	†7½d	—	—	—	—	24	5¼d
Yapane ...	62	p	9¾d	—	—	18 c	10¼d	17 c	1/	24 c	7¾d	—	—	3	6¾d
Yarrow ...	34		7d	—	—	34	†7d	—	—	—	—	—	—	—	—
Yellebende ..	38	c	10d	—	—	14 c	9¾d	11 c	1/1	13 c	7½d	—	—	—	—
Ythanside ...	135	p	11¾d	25 c	1/7¼	—	—	42 c	1/	40 c	9½d	21 c	4 7½	7	7d

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *November 6th*, 1891.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	455,645 packages.	283,057 packages.	25,515 packages.
1891-1892.	516,395 ,,	373,182 ,,	25,038 ,,

During the week

3,001 packages Indian
4,009 ,, Ceylon } Total 57,010 packages have been offered in public auction.
— ,, Java

Except that low prices appear to be forcing Indian and Ceylon Teas into consumption both at home and abroad, statistics for the past month call for no special comment.

Deliveries of British Grown Tea exceed any previous record, except during Budget excitement. China deliveries are poor in spite of reduced prices.

INDIAN. With another week of heavy auctions the prolonged strain has somewhat depressed the market, causing irregular quotations and a further drop in price for poorer grades. Calcutta telegrams report an early closing of the season owing to want of rain, and give a reduced estimate of 108 to 110 million pounds for the season, available for London. The following averages are worthy of note:—"Margaret's Hope," 1/8¾; "Hapjan," 1/3¾; "Moabund" T Co., 1/1¾; and "Kalej," 1/1½.

This weeks average price of New Season's Teas sold on Garden Account. Total 34,399 pkgs. average 8¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	16139 p	9½d	Chota Nagpore ..			Kangra Valley ..		
Cachar and Sylhet..	9846 p	7¾d	Darjeeling & Terai	3871 p	10d	Neilgherry.. ..	354 p	6¾d
Chittagong	158 p	8½d	Dooars	3051 p	8d	Travancore	980 p	7¼d

As an idea of the comparative prices of Indian Tea in London we quote:—

DUST.	(Fair ordinary, dark liquor)	1891,	4¼d.	1890,	6d.	1889,	5¼d	1888, 5d.
FANNINGS.	(Red to brown, strong rough liquor)	,,	5d.	,,	6¾d.	,,	6d.	,, 6¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7¼d.	,,	8½d.	,,	7¾d.	,, 7½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	7½d.	,,	8¾d.	,,	9¼d.	,, 8½d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8½d.	,,	9¾d.	,,	10d.	,, 9¼d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¾d.	,,	8d.	,,	6¾d.	,, 7¼d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	8½d.	,,	8¾d.	,, 8¼d.

CEYLON. Fine flavoury Teas and all good liquoring descriptions continue firm. Teas with poor quality, or anything approaching to common, have dropped a farthing to a halfpenny per pound, during the week. Exports from Ceylon during October are cabled as four and a quarter million pounds. The following averages may be mentioned:—"Alnwick," 1/3¾; "Glendevon" of the BEC, 1/3½; "Mooloya," 1/3; "Glen Alpin," 1/2½. Average for week, 9¾d.

JAVAS have not been represented. 1,566 packages are printed for next and the following week.

MOVEMENTS OF TEA IN LONDON (in lbs.) DURING OCTOBER.

	Imports.			Deliveries.		
	1889.	1890.	1891.	1889.	1890.	1891.
Indian	13,596,243	15,236,922	16,094,865	10,043,467	9,822,003	10,520,448
Ceylon.....	1,953,520	2,371,260	4,596,598	2,655,488	3,640,690	5,340,192
Java	289,170	574,770	195,930	305,900	343,770	290,570
China, etc.	11,204,534	6,946,980	7,130,679	9,482,905	7,426,431	6,786,849
Total lbs.	27,043,467	25,129,932	28,018,072	22,487,760	21,232,894	22,938,059

FROM 1st JUNE TO 31st OCTOBER.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
dian	35,720,000	39,042,741	45,070,710	38,914,000	40,475,334	40,197,021	24,561,000	26,057,196	31,534,227
ylon.....	12,876,000	17,960,814	27,538,912	15,103,000	18,940,222	26,675,108	5,105,000	8,610,966	15,838,696
va	1,119,000	1,543,080	1,692,600	1,658,000	1,812,160	2,018,100	695,000	795,760	525,630
ina, etc	48,334,000	36,227,759	39,914,932	35,952,000	37,995,068	32,525,108	49,758,000	38,222,882	35,831,915
Total lbs.	98,049,000	94,774,394	114,217,154	91,600,000	99,222,784	101,415,337	80,119,000	73,686,804	83,730,468

BANK RATE. 4 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. $5\frac{1}{32}$d.

INDIAN. Average 8¾d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price
ASSAM	**16139p**	**9½d**												
Assam Co ...	685 p	10½d	—	—	282 c	8¾-10¼	122 c	1/5-1/9½	—	—	281 p	7-11¼	—	—
Assam United TEs	76 p	10d	12 c	1/2¼	7 c	9¾d	9 c	11¼d	24 c	8¾d	12 c	8d	12	8¼d
Attaree Khat Co	275 c	7¾d	—	—	115 c	8½d	34 c	9¾d	96 c	6½-6¾	30 c	5½d	—	—
Balijan T Co ...	203 p	1/0½	40	2/7	51 c	†9¾d	24 c	1/3¾	68 c	†7¾d	—	—	20	1/1½
Bargang Co ...	148 p	9¾d	—	—	32 c	10¾d	62	1/0¾	30 c	7¾d	24 c	6½d	—	—
Bishnauth T Co	516 p	8¾d	51	11d	213 c	8¼-9	22 c	1/4¼	153 c	6¾-7¼	34 c	6¾d	43 c	11½d
,, ...	250 p	8½d	20	1/8	100 c	†8½†8¾	—	—	70 c	7d	40 c	6¾d	20 c	1/½d
,, ...	247 c	9¼d	—	—	70 c	8¾9¾	41 c	1/1¼1/2¼	49 c	7-7¾	66 c	6½6¾	21 c	11½d
BITC Mancotta	45 c	6d	—	—	—	—	—	—	20 c	6½d	25 c	5¾d	—	—
,,Sessa ...	214 p	9½d	30	2/	83 c	8-8¼	40	1/0¼	31 c	6¾d	30 c	5¾d	—	—
Borelli T Co ...	387 c	9d	—	—	91 c	9-1/3½	67 c	1/0½	131 c	7¼d	98 c	7¼d	—	—
,, ...	302 c	9¼d	15 c	1/8¼	87 c	8¾-1/2	45 c	1/	101 c	7d	54 c	6½d	—	—
Borjan ...	89 c	1/0½	—	—	44 c	†10½d	20 c	1/11½	25 c	7¾d	—	—	—	—
Borpukri ...	111 c	7¾d	—	—	51 c	9d	—	—	60 c	6¾d	—	—	—	—
Brahmapootra TC	215 c	7½d	—	—	60 c	8½d	35 c	9¾d	100 c	6¼-6½	20 c	6d	—	—
Bungala Gor ...	78 c	8¾d	—	—	15 c	10d	13 c	1/2¼	18 c	7¾d	16 c	6¾d	—	—
Choonsali Co C...	100 c	9½d	15 c	1/8	20 c	8½d	21 c	9d	24 c	6¾d	20 c	6½d	—	—
Chunderpore K	55 c	7¼d	—	—	21 c	7½d	19 c	8¼d	15 c	6d	—	—	—	—
Cooliekoossie ...	157 c	7½d	—	—	21 c	7½d	20 c	11¼d	31 c	7d	42 c	6d	43 c	7¼d
Corramore ...	390 c	9¼d	40 c	1/5¾	140 c	9-10½	40 c	8¼d	90 c	7-7¼	80 c	6½-6¾	—	—
Dahingeapar ...	123 p	11d	30	1/9½	30 c	10¾d	—	—	40 c	8¾d	12 c	†8d	11	5¾d
Dhoolie ...	170 c	8¼d	—	—	50 c	9¼d	24 c	11¾d	65 c	6¾d	31 c	6½d	—	—
Doolahat ...	150 p	9½d	—	—	45 c	10½d	48	†1/2	57 c	7d	—	—	—	—
Doom Dooma H	290 p	9½d	36	1/1¼	158 c	†8¼†9¾	36 c	1/3	41 c	8d	—	—	19 c	1/1¼d
,, S	112 p	11¼d	50	1/3¾-1/5	—	—	—	—	25 c	†8¼d	—	—	37 c	5-11d
Eastern Assam C	231 p	1/0½	175	11½ 1/9	30 c	9½d	—	—	26 c	7½d	—	—	—	—
Gellahatting Co	104 p	11½d	35	1/9	42 c	9½d	—	—	27 c	8¾d	—	—	—	—
Gotoonga ...	225 c	11¼d	—	—	139c	†9¼†1/5¾	15 c	2/2½	—	—	71 c	6¼-7	—	—
Hapjan ...	47 c	1/3¾	33 c	1/5½	—	—	—	—	—	—	—	—	14 c	11½d
Hattigor ...	125 c	9½d	—	—	55 c	1/1-1/2½	—	—	—	—	70 c	7d	—	—
Hunwal T Co ...	356 p	7½d	86	8¾ 1/0¾	81 c	7¼d	61 c	9d	—	—	117 c	6d	11 c	3¾d
Jhanzie T Assoc	215 p	8¾d	—	—	204 c	†8¾-†9	—	—	—	—	—	—	11	4¼d
Jokai TCo Jamira	131 c	8¼d	28 c	1/1-1/2½	21 c	7½d	20 c	8½d	24 c	6½d	38 c	5¼-5½	—	—
,, Panitola ...	399 c	10d	91 c	1/5-1/5¼	99 c	1/1½	52 c	1/8	157 c	10-11	—	—	—	—
Jorehaut T Co	576 c	9¼d	—	—	198 c	8½ 1/4¾	60 c	1/0¾ 1/4¼	264 c	6¾-7½	—	—	54 c	7-7¾
,,	486 p	10d	18	1/11	144 c	9¼ 1/4¼	60 c	1/3¾ 1/5¼	264 c	7¼-7½	—	—	—	—
Kellyden ..	245 p	8½d	52	10¼11½	90 c	8½d	45 c	9¼d	44 c	6¾d	—	—	14 c	6¾d
Kettela T Co ...	88 p	9½d	—	—	25 c	9¾d	25	1/5½	35 c	7d	—	—	3 c	4½d
Khobong T Co	221 p	8½d	30	†10d	141 c	6¾†8¾	50	†1/	—	—	—	—	—	—
Khongea ...	40 c	7d	—	—	40 c	†7d	—	—	—	—	—	—	—	—
LMB Latakoojan	376 c	9½d	—	—	200 c	9d	75 c	1/2¼	100 c	7d	—	—	—	—
Lower Assam C R	182 p	6¾d	30	1/1¼	30 c	6½d	30 c	6¾d	55 c	5¾-6	25 c	5d	12 c	5½d
Luckimpore TC ..	367 p	9½d	44	1/3¾ 1/8¼	165 c	7½10¼	20 c	1/2¼	54 c	8½d	84 c	6½7½	—	—
Majuli T Co. G	176 p	10d	52	p 1/-1/2¼	60 c	10d	17 c	10d	31 c	7d	16	5¾d	—	—
,, M	216 p	9¾d	25	1/4¾	58 c	9½d	—	—	54 c	7¼d	--	—	79	5-1/2
Meleng ...	300 c	8¾d	45 c	10½d	110 c	8½d	45 c	11½d	—	—	100 c	7¼d	—	—
Moabund T Co	301 c	1/1¾	—	—	126 c	1/2-1/4	26 c	1/11¾	104 c	11½d	45 c	9¼d	—	—
Moran T Co ...	152 p	10¾d	40	p 1/4½-2/1	40 c	9½d	—	—	72 c	8d	—	—	—	—
,, ...	211 p	11½d	62	p 1/5¾ 2/1¼	32 c	1/	—	—	75 c	8¼d	23 c	7½d	19	4½d
Naharani ...	90 c	8d	—	—	30 c	8¾d	—	—	22 c	6½d	13 c	6d	25 c	9d
Nahor Rani ...	270 c	9½d	—	—	62 c	9¾ 1/6¼	68 c	9½-1/7	122 c	7 7¼	18 c	6½d	—	—
Nahor Toli ...	240 c	8¾d	20 c	1/7¾	100 c	8¾ 9	20 c	†9¾d	70 c	6¾d	30 c	5½d	—	—
Namgaon ...	176 c	8d	—	—	74 c	8½-11	15 c	8d	65 c	6¾d	22 c	6¼d	—	—
,, ...	100 c	7¾d	—	—	30 c	9¼d	18 c	8d	52 c	7d	—	—	—	—
Noakacharee T Co	180 c	8d	—	—	43 c	8d	24 c	1/0½	113 c	7d	—	—	—	—
,, D	198 c	9¼d	—	—	64 c	10¾d	20 c	1/7¼	94 c	7d	20 c	5¾d	—	—
,, R	200 c	7½d	—	—	60 c	7½d	30 c	1/0¼	66 c	6¼6½	44 c	5¾d	—	—
,, T	186 p	10½d	20	2/0¼	75 c	11 11¼	—	—	91 c	8¼d	—	—	—	—
Nonoi ...	325 p	9d	90	11-1/4	150 p	7½-10	35 c	8d	50 c	6¼d	—	—	—	—
NSTC Sagmootea	110 c	7¾d	—	—	34 c	†7¾d	28 c	9-11¾	20 c	6½d	28 c	6¼d	--	—
Panbarry ...	40 c	9½d	—	—	26 c	† 10½d	—	—	14 c	†7¼d	—	—	—	—
Rungaghur ...	111 p	10½d	—	—	37 c	9d	32	1/10¼	27 c	7½d	15 c	7¼d	—	—
Rungajaun ...	156 c	7¾d	—	—	64 c	7¼-8	36 c	10d	44 c	†6½d	—	—	12 c	6¾d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Rungli Ting ..	50 c	9¼d	—	—	16 c	1/	12 c	9½d	22 c	†7d	—	—	—	—
Salonah T Co ...	995 p	10¾d	154 1/2	¾ 1/10¾	200 c	10¾d	161	1/3½ 1/3¾	220 c	8¼8½	150 c	7½ 8	110 c	7 11
ScottishAssamC	264 c	10½d	44 c	1/7¼ 1/11	36 c	1/0¼	65 c	8¼8½	56 c	8¼d	63 c	6½d	—	—
Shakomato ...	139 c	1/1¼	38c	1/3½-1/8½	55 c	10¾11¾	23 c	1/3	23 c	8¾d	—	—	—	—
Tingri T Co ...	222 p	10½d	44	1/6¼-1/9¾	74 c	9¾d	20 c	†1/2½	84 c	7¾d	—	—	—	—
Tiphook T Co ...	200 c	9¼d	—	—	40 c	10d	20 c	1/8¾	120 c	7¼d	20 c	9¼d	—	—
CACHR & SYLHT	**9846 p**	**7¾d**												
Allynugger ...	196 p	8d	18 c	11¼d	98 c	8¼d	37 c	8d	—	—				
,, ...	163 c	7½d	22 c	9¼ 1/	79 c	7½7¾	36 c	6¾d	—	—	21 c	6¼d	22	4¼d
Alyne ...	64 c	8¾d	24 c	8½d	22 c	7¾d	18 c	10¼d	—	—	26 c	6¼d	—	—
Amo ...	216 p	7¼d	—	—	42 c	7¾d	68 c	7½11¼	80 c	6¼6½	—	—	—	—
B&CoChargola M	201 p	8d	28	9¼ †1/5½	68 c	7¼d	30 c	9d	50 c	6¼d	—	—	26	4d
,,Mookham Co	210 p	8¼d	28c	1/0¼-1/7½	77 c	7¾d	19 c	9¼d	65 c	6¼d	19 c	6d	6	4½d
,,Singla T Co	214 c	9d	31 c	1 1-1/4¼	69 c	8½d	24 c	11d	66 c	7d	12 c	6d	9	4d
Borokai T Co.	193 c	11¼d	—	—	70 c	9¾d	19 c	2/0½	44 c	7½d	12 c	6½d	12 c	8d
Chandpore Co ...	362 c	7¼d	—	—	197 c	6¾7½	104 c	6½ 10¼	61 c	6d	60 c	11¼d	—	—
Cheerie Valley	169 c	7¼d	—	—	63 c	7¼d	34 c	9¾d	30 c	6¼d	—	—	—	—
Doloi T Co ...	135 c	9d	24c	1/4½-1/8½	—	—	—	—	83 c	7d	42 c	5¾d	—	—
Doloo ...	249 p	8¼d	89	11 11¼	—	—	123 c	7¾ 8	37 c	6¼d	16 c	6¼d	12 c	6d
Dulcherra ..	229 c	7½d	—	—	68 c	7½d	49 c	10¼10½	47 c	6¼d	—	—	—	—
Kaline ...	187 c	9½d	—	—	68 c	9½d	31 c	1/2½	—	—	44 c	6¼d	21 c	4¼6½
LMB Jalingah	240 c	7¼d	—	—	104 c	7¼7½	40 c	9¼d	96 c	6d	58 c	7¼d	30 c	8¾d
,,Morapore ...	244 p	7d	—	—	88 c	7 7¼	65	9½d	68 c	5¾ 6	—	—	—	—
Loobah Co Looba	159 p	9½d	17	1/11	34 c	10d	22 c	1/	61 c	7½d	23 c	6d	—	—
Luayuni ...	132 c	7¾d	—	—	74 c	7½d	26 c	10¼d	32 c	6d	—	—	25 p	4¾7¾
Madoora ...	123 p	7d	—	—	60 c	7d	25	11½d	31 c	6d	—	—	—	—
Mertinga ...	196 c	6¾d	—	—	80 c	7d	48 c	†7½d	68 c	5¾d	—	—	7 c	4¾d
NSTC Jafflong	290 p	7¼d	—	—	132 c	7½7¾	59 c	8¾d	59 c	6¼d	—	—	—	—
,,Khadim ...	92 c	7½d	—	—	50 c	7½d	28 c	8¼d	12 c	6½d	—	—	40	4¼d
,,Lallakhal ...	161 c	8¼d	36 c	9¾d	71 c	7¾d	23 c	9¾d	31 c	6½d	—	—	2 c	4d
Pathemara ...	101 p	8¾d	24	1/3¾	25 c	7¼d	52 c	8d	—	—	—	—	—	—
Parbutpore ...	49 c	8¼d	—	—	23 c	6½ 8	20 c	9½d	—	—	—	—	—	—
Phoenix T Co	284 c	6¾d	—	—	64 c	†7d	44 c	9¼d	149 c	†5¾ 6	27 c	5½d	6 c	5¼d
Phooltullah ...	121 c	8¼d	—	—	26 c	8½d	27 c	11½d	47 c	7d	—	—	—	—
Rookeenee ...	110 c	6¼d	—	—	—	—	75 c	6¾ 7	12 c	5¼d	23 c	5¼d	21 c	6¼d
Sathgao ...	284 c	9¼d	—	—	186 c	8½d	43 c	1/3¼	22 c	6¾d	—	—	—	—
SSTCoAmrail ..	114 p	8¼d	21 c	9½d	63 c	8d	8 c	10½d	—	—	—	—	33 c	7½d
,,Balisera . .	231 c	7¼d	—	—	113 c	7½d	94 c	7½d	24 c	†6d	—	—	22	5d
,,Deanston ...	285 p	9d	121 c	8½ 1/6¼	83 c	7¾d	61 c	8¾d	—	—	—	—	—	—
,,Dukingole ...	84 c	8¼d	—	—	35 c	8¼d	15 c	1/0½	30 c	6½d	4 c	5½d	20	5¼d
,,Goombira	482 p	7¾d	93 c	9¾ 11¼	110 c	7½d	81 c	8¼d	144 c	6½d	36 c	6¼d	—	—
,,Jagcherra ...	228 p	7¼d	100 c	7½d	—	—	64 c	7¾d	35 c	6¼d	—	—	18	4½d
,,Phulcherra ...	163 p	7½d	29 c	9¼d	51 c	6¼d	62 c	8d	—	—	—	—	29	4¼d
,,Rajghat ...	457 p	7¼d	202 c	7¼ 1/1¾	117 c	6½d	113 c	7¼d	—	—	—	—	21	4½d
Tarrapore ...	538 c	8¾d	—	—	176 c	7¾9¼	116 c	9½ 1/2¾	179 c	6¾7¼	67 c	6¼6½	25	4¾d
,, ..	458 c	7¼d	—	—	62 c	8¼d	58 c	10d	38 c	6¾d	300 c	5¾7¼	—	—
THITTAGONG	**158 p**	**8½d**												
Neptune ...	81 p	8½d	—	—	25 c	†7¾d	32	1/0¾	24 c	6¼d	—	—	—	—
Nuttiya ...	76 c	6¾d	—	—	28 c	7¾d	—	—	30 c	6½d	—	—	18 c	5¾d
ORJELNG&TERI	**3871 p**	**10d**												
Darjeeling T Co	600 p	9¼d	48 c	11½d	194 c	9†11¼	85c	†1/0½ 1/4¼	214 c	6¾7½	24 c	6¼6¾	25 p	6¼d
Dooteriah ...	155 c	11¾d	—	—	89 c	10½d	41 c	1/4¾	25 c	8¼d	—	—	—	—
Dyabaree T Co D	56 c	10¼d	11 c	10½d	17 c	8¾d	16 c	1/3	12 c	6d	—	—	—	—
Eindoo T Co ...	102 c	8½d	—	—	30 c	7¾d	24 c	1/2	30 c	6½d	18 c	6¼d	—	—
EdianTeraiTCo	64 c	7d	—	—	33 c	7½d	9 c	8d	22 c	6d	—	—	—	—
Falej ...	91 c	1/1½	—	—	34 c	1/0¼	27 c	1/8	30 c	9d	—	—	—	—
Fingia ...	84 c	10¾d	—	—	36 c	11d	20 c	1/2	28 c	8¼d	—	—	—	—
Fzziepore ...	108 p	9¾d	—	—	35 c	10¼d	43	1/0¾	17 c	7¼d	—	—	—	—
GMB ChongTong	221 c	11d	—	—	140 c	11d	50 c	1/1	31 c	7½d	—	—	13 c	6¼d
,,MineralSpring	115 c	7½d	—	—	60 c	8¼d	—	—	55 c	6½d	—	—	—	—
,,Moondakottee	143 c	1/0¼	—	—	70 c	1/1	23 c	1/6½	50 c	8d	—	—	—	—
,,Nagri ...	129 c	9¼d	—	—	69 c	9½d	20 c	1/2¼	40 c	6½d	—	—	—	—
,,Kurseong ...	109 c	9d	—	—	38 c	9½d	21 c	1/2¾	36 c	6½d	14 c	5½d	—	—

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Margaret's Hope	100 c	1/8¾	40 c	1/11½	22 c	1/6¼	18 c	2/4	20 c	11d	—	—	—	—
Marionbaree ..	100 c	7d	—	—	40 c	6¾d	20 c	10½d	40 c	5½d	—	—	—	—
NSTCo Blomfield	91 p	11¼d	15 c	1/0½	19 c	11¼d	19 c	1/2¾	33 c	†9¼d	—	—	5	6¼d
Nuxalbarrie Co	334 c	8¼d	27 c	†11½d	101 c	†7¾d	32 c	1/3¾	64 c	7¼d	110 c	6½d	—	—
Pashok ...	132 c	9d	30 c	10d	20 c	8d	42 c	11d	30 c	7d	10 c	6d	—	—
Runglee Rungliot	165 p	9¼d	55 c	10¾d	20 c	†8d	40	†10½	50 c	7d	—	—	—	—
Taipoo ...	94 p	9d	—	—	42 c	8d	17 c	1/4½	27 c	6½d	—	—	8	5d
Tumsong ..	78 c	10½d	—	—	28 c	10¾d	12 c	1/6¾	25 c	7¾d	13 c	7¼d	—	—
DOOARS	**3051 p**	**8d**												
Chalouni ...	133 c	9d	—	—	75 c	9d	16 c	†1/0½	42 c	7¾d	—	—	—	—
,, ...	145 c	9½d	—	—	57 c	9d	66 c	9¾†10¾	22 c	7¾d	—	—	—	—
Deomoni ..	85 p	6½d	—	—	24 c	6½d	14 c	8¾d	31 c	5¾d	—	—	16	5½d
Dooars Co Ghatai	142 c	7¾d	—	—	34 c	8d	26 c	10¼d	41 c	7d	17 c	7d	24 c	6¾d
,, Indong ...	111 c	8d	12 c	1/3	30 c	7d	38 c	7¾d	—	—	16 c	6d	15 c	7d
,, Nagrakatta	304 c	9½d	104 c	11-1/4	92 c	7¾d	108 c	6½d	—	—	—	—	—	—
,, Tondoo ...	218 c	7¾d	14 c	1/1½	63 c	8d	44 c	8½d	60 c	7d	—	—	37 c	4-7
Fagoo ...	83 p	8d	—	—	33 c	8d	15	1/1	25 c	6½d	—	—	10	6¼d
Gajilidoubah B	60 c	6¾d	—	—	—	—	—	—	39 c	7d	21 c	6½d	—	—
,, BS	105 c	7¾d	—	—	20 c	8¾d	—	—	50 c	6¾7¼	15 c	6¼d	20 c	10d
Hope ..	221 c	9¾d	12 c	1/8¾	143 c	9d	40 c	†10¼d	26 c	7½d	—	—	—	—
Jiti ...	104 c	6½d	—	—	—	—	—	—	—	—	104 c	6½d	—	—
Leesh River Co	272 c	7½d	23 c	9¾d	70 c	7¼d	60 c	9d	50 c	6½d	69 c	6¼d	—	—
Manabarrie ...	200 c	8d	36 c	†8½†10¼	—	—	—	—	102 c	7 7¼	—	—	12 c	6d
Meenglas ...	215 c	6¾d	—	—	79 c	†7¼d	—	—	136 c	6½d	—	—	—	—
Mundani ...	134 c	6¾d	—	—	—	—	—	—	134 c	†6¾d	—	—	—	—
NSTCo Bytagool	163 p	7d	—	—	65 c	6¾d	54 c	7¾d	25 c	6¾d	—	—	19	4¾d
,, Nakhati ...	147 p	8d	22	1/6½	39 c	7d	55 c	7¾d	14 c	6½d	—	—	17	4¼d
Putharjhora ...	78 c	7d	—	—	—	—	—	—	—	—	78 c	7d	—	—
Washabarrie ...	179 c	6¾d	—	—	41 c	7¼d	20	†10¾d	28 c	6¼d	90 c	5¾d	—	—
NEILGHERRY	**354 p**	**6¾d**												
Curzon ...	130	8½d	—	—	—	—	29	10½d	43	8¼d	40	6½8¼	18	8d
TCHS ...	113	6¼d	—	—	104	6½d	—	—	—	—	—	—	9	4¾d
Terramia ...	21 c	10¼d	—	—	23 c	10¼d	—	—	—	—	—	—	—	—
TRAVANCORE	**980 p**	**7¼d**												
Balamore ...	24	9d	—	—	22	9¼d	—	—	—	—	1	5¼d	1	5d
Belford ...	32	6¼d	—	—	31	6¼d	—	—	—	—	—	—	—	—
Braemore ...	56	6¾d	—	—	29	†6d	17	8½d	—	—	8	6d	2	4d
CMR ...	31	8¾d	—	—	30	8¾d	—	—	—	—	1	5¼d	—	—
Corrimony ...	132	7¼d	—	—	100	6½ 7	30	9½d	—	—	—	—	2	5d
Glenmore ...	40	6¾d	—	—	38	†6¾d	—	—	—	—	1	5¾d	1	3¾d
Invernettie ...	58	7d	—	—	17	7½d	18	8½d	20	6d	1	3d	2	4d
Nagamally Co N	60 c	7¼d	—	—	26 c	7d	15 c	9¾d	17 c	5¾d	2 c	5¾d	—	—
Neddumpara ...	19 c	7d	—	—	5 c	7d	6 c	9¼d	6 c	5¾d	2 c	4d	—	—
Parvithi ...	48	8d	17	9¼d	26	7½d	—	—	—	—	—	—	5	5d
Penshurst ...	72 c	7¾d	21 c	11d	50 c	6½d	1 c	9d	—	—	—	—	—	—
Perrintorra ...	22 c	6d	—	—	20 c	6d	—	—	—	—	2 c	4¾d	—	—
Poonmudi ...	11 c	8¾d	—	—	4 c	6d	6 c	11d	—	—	1 c	4½d	—	—
Seafield ...	119	7¾d	—	—	74	7d	39	9¼d	—	—	3	5¾d	3	4½d
Seenikali ...	79	6¾d	—	—	32	6½d	26	8½d	—	—	19	5¼d	2	5d
TPC ...	69 c	7d	—	—	27 c	7¼d	18 c	8¾d	23 c	5½d	—	—	1 c	4d
Vembenard ...	18 c	6½d	—	—	17 c	6½d	—	—	—	—	1 c	4¾d	—	—
Venture ...	41 c	7¼d	—	—	16 c	6¾d	10 c	11¼d	13 c	5½d	—	—	2 c	4d

CEYLON. Average 9¾d.

Adams Peak ...	119 c	10¾d	—	—	48 c	10¼d	48 c	1/1	19 c	8d	—	—	4 c	5¾d
Allagalla ...	81 c	8½d	—	—	32 c	8¾d	26 c	10¼d	18 c	7d	3 c	4d	2 c	6½d
Alnwick ...	50 c	1/3¾	—	—	34 c	1/2¼	16 c	†1/6½	—	—	—	—	—	—
Ambatenne ...	78 c	8¾d	—	—	26 c	8½d	40 c	9¾d	10 c	6¾d	—	—	2 c	5d
Amherst ...	19 p	1/0¾	—	—	8 c	1/0¼	6 c	1/3¾	4	10d	—	—	1	7d
Augusta ...	59 c	7¾d	—	—	21 c	†8d	12 c	11d	24 c	†6d	1 c	4¾d	1 c	4¾d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Bambrakelly&D.	45 c	1/1¼	—	—	20 c	11¼d	25 c	1/3	—	—	—	—	—	—
Beaumont ...	76 c	9½d	—	—	31 c	†9¼d	26 c	†11¼d	19 c	7¾d	—	—	—	—
Belgravia ...	43 c	9d	—	—	15 c	†8¼d	20 c	†11d	6 c	6½d	2 c	4½d	—	—
Bitterne ...	32 c	8½d	—	—	18 c	7½d	14 c	9½d	—	—	—	—	—	—
Blackwood ...	241	7¼d	—	—	175	5¾-7	66	†8¾-9	—	—	—	—	—	—
Blackstone ...	1 b	10/	1 b	†10/	—	—	—	—	—	—	—	—	—	—
,, ...	68 p	8¼d	—	—	14 c	9¼d	26	11¾d	—	—	28 p	5½-6	—	—
Bloomfield ...	71 p	1/1½	50	1/3¼	18 c	11¾d	—	—	—	—	—	—	3	7¾d
Brunswick ...	121 p	11¼d	85 p	11¾7/6	33 c	9½d	—	—	—	—	—	—	3 c	7d
Caskie Ben ...	40 c	11½d	21 c	1/0½	18 c	10¼d	—	—	—	—	—	—	1 c	6½d
Chapelton ...	142 p	1/0½	—	—	44 c	1/1¼	52	1/6¼	34 c	9d	12 c	7¾d	—	—
Charley Valley ...	255 b	1/	—	—	50 b	1/2	41 b	1/7	164 b	9½d	—	—	—	—
Chetnole ...	58 p	9½d	—	—	13 c	9½d	32	11¾d	13 c	7d	—	—	—	—
CeyLand&ProdC														
,, Eadella ...	53 c	7¾d	—	—	18 c	7¾d	12 c	10¾d	23 c	6d	—	—	—	—
Clunes ...	146	10¼d	—	—	68	9½d	58	1/0¼	20	6½d	—	—	—	—
Cocogalla ...	293 p	10d	31 p	1/2	80 p	9d	126 c	11d	46 c	7½d	—	—	—	—
Cocawattee ...	57	4¼d	—	—	—	—	12	6½d	27	†4¼d	4	†3½d	14	†3d
Coolbawn ...	48 c	7d	—	—	9 c	6½d	19 c	8½d	20 c	†5½d	—	—	—	—
Craig ...	65	1/0¼	—	—	30	1/0½	15	1/4¼	13	10¾d	5	6¼d	2	6½d
CTPCo Dunedin	221 p	8¼d	24 b	1/6¾	145	7½-7¾	22 c	9½d	30 c	6½d	—	—	—	—
,,Scrubs ...	91 p	11¾d	—	—	51 p	9¼-11	40 c	1/2	—	—	—	—	—	—
,,Tillyrie ...	93 c	1/	—	—	37 c	11d	36 c	1/3½	14 c	8¾d	—	—	6 c	6d
,,Wallaha ...	105 p	1/1¼	—	—	49 p	10¾ 1/1	37 c	1/4½	19 c	9¼d	—	—	—	—
Deemally ...	26 p	8¾d	—	—	—	—	7 c	7¾d	17 c	6½d	1	4¼d	1	5½d
Delpotonoya ...	61 c	8d	—	—	13 c	8¼d	21 c	†9½d	27 c	6½d	—	—	—	—
Detenagalla ...	84	10½d	—	—	36	†10½d	22	†1/1½	26	†8d	—	—	—	—
Donside ...	43 c	7½d	—	—	23 c	8d	8 c	9½d	—	—	12 c	5½d	—	—
Dunsinane ...	134 p	1/0¾	39	1/5½	56 c	1/1	—	—	31 c	10¼d	—	—	8 c	8¾d
Elbedde ...	124 c	1/	—	—	61 c	10¾d	39 c	†1/3¾	24 c	8½d	—	—	—	—
Elgin ...	49 p	1/1	—	—	21	11¼d	21 c	1/3½	6 c	8¾d	—	—	1 c	5½d
Elkadua ...	40 c	11¼d	—	—	—	—	40 c	11-11½	—	—	—	—	—	—
Elston ...	122 c	9d	—	—	55 c	8¼d	40 c	11½d	27 c	6½d	—	—	—	—
Eltofts ...	93 p	11½d	—	—	25 c	11¾d	48	†1/1½	20 c	†8¾d	—	—	—	—
Engurukande ...	207 c	7½d	—	—	85 c	7-7¼	61 c	9-9¼	61 c	6d	—	—	—	—
Ernan ...	105 c	7¾d	—	—	43 c	7½d	41 c	†9d	21 c	†5¾d	—	—	—	—
Friedland ...	54	11½d	—	—	18	11½d	18	†1/2¼	18	8½d	—	—	—	—
Galata ...	111 p	9d	—	—	38	8d	65 p	10-11½	—	—	2	3¾-5½	6	5½d
Gartmore ...	55 c	11d	—	—	36 c	10d	17 c	1/2	—	—	—	—	2 c	6¼d
Geddes ...	31 c	1/0¼	—	—	15 c	8¾-10½	12 c	1/4	—	—	2 c	8½d	2	7¾d
Glasgow ...	50 c	1/1	—	—	26 c	11¼d	24 c	1/3	—	—	—	—	—	—
Glen Alpin ...	149 p	1/2½	—	—	88 c	1/2¼	26 c	1/8	20 c	11¼d	6 c	9½d	9	8d
Glencoe ...	46 p	10d	—	—	16 c	9¾d	17 c	1/0½	10 c	6¾d	1 c	4½d	2	7d
Glendon ...	85 c	8d	—	—	42 c	7d	28 c	10½d	12 c	5¾d	—	—	3 c	5d
Glentaaffe ...	73 c	9d	—	—	39 c	8½d	21 c	11¼d	13 c	6½d	—	—	—	—
Glenugie ...	131 p	11½d	—	—	80 c	†10½d	45	1/4	—	—	—	—	6	6¾d
Goatfell ...	16 c	1/4½	—	—	—	—	16 c	1/3-1/5½	—	—	—	—	—	—
Gona Adika Co G	63	10¾d	—	—	42	9¼d	21	1/2	—	—	—	—	—	—
Gonamotava ...	37 c	11¼d	—	—	20 c	10¼d	17 c	1/0½	—	—	—	—	—	—
,, ...	32 c	11½d	—	—	15 c	10¼d	17 c	1/0½	—	—	—	—	—	—
Gorthie ...	149 p	11¼d	—	—	57 c	10½d	58	1/3¼	30 c	9d	—	—	4	7¾d
Harmony ...	42 p	7¾d	—	—	15 c	†7¼d	12	1/1	10 c	6d	3	4½d	2	6d
Heatherton ...	56 p	9d	—	—	12 c	8¾d	26	1/0¼	16 c	6½d	1	3¾d	1	4d
Heeloya ...	55 c	8¼d	—	—	31 c	7¼d	20 c	10½d	4 c	6¼d	—	—	—	—
Hoonoocotua ...	105 c	6½d	—	—	31 c	6¼d	42 c	6¾- †7¼	30 c	5¾d	—	—	2 c	5½d
Hopewell ...	48	6¾d	—	—	48	†6¾d	—	—	—	—	—	—	—	—
Hunugalla ...	75 p	8d	—	—	50 c	†6¾d	25	1/0½	—	—	—	—	—	—
Jabragalla M	91	9¼d	—	—	24	10½d	24	1/0¼	27	7½d	4	5d	12	4¾-6½
Jandapolla ...	105 p	1/1	49	1/2¾	—	—	17 c	1/3¾	27 c	10¾d	12	7¼d	—	—
Jataboola ...	64 c	10d	—	—	22 c	10¼d	17 c	1/2¼	25 c	7d	—	—	—	—
Jelani Valley D	144 p	7¾d	—	—	66 c	7¾d	26 c	10½d	43 c	6d	2	4¼d	7	5d
Jtulgalla ...	14 c	6½d	—	—	6 c	6¾d	3 c	8¼d	5 c	5½d	—	—	—	—
Juckles Group	103 c	7d	—	—	25 c	7d	30 c	8¾d	48 c	6d	—	—	—	—
Jottagalla ...	60 c	10½d	12 c	1/2½	36 c	10d	—	—	8 c	9d	—	—	4 c	5½d

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Kurulugalla ...	112 c	6d	—	—	36 c	5-5½	37 c	6½-8¼	24 c	5¼d	12 c	4¼d	3 c	3¼d
,, ...	39 c	7d	—	—	30 c	6½d	9 c	8½d	—	—	—	—	—	—
Lawrence ...	86 p	10½d	25 p	1/2	40 p	9½d	—	—	21 c	8½d	—	—	—	—
Leangawella ...	131 p	8½d	63	1/	68 c	†7d	—	—	—	—	—	—	—	—
Lebanon Group	83 c	5½d	—	—	16 c	6d	23 c	†6¼d	44 c	5d	—	—	—	—
Little Valley ...	74 c	7½d	—	—	44 c	7d	20 c	9¾d	10 c	6d	—	—	—	—
Longford ...	51	6½d	—	—	10	7d	13	8¾d	16	6d	11	4¼d	1	3d
Macduff ...	46 c	11½d	—	—	16 c	11½d	12 c	1/4¾	14 c	8¾d	—	—	4 c	6½d
Mahanilu ...	59 p	1/	24	1/5¼	26 c	11¼d	—	—	7 c	7½d	1	†3d	1	4½d
Maria ...	81 c	6¼d	—	—	39 c	6d	20 c	8¾d	17 c	5-5¼	2 c	3d	3 c	4¼d
Maskeliya ...	65 p	1/1¼	51 †1/	1¼ 1/4¾	14 c	†10½d	—	—	—	—	—	—	—	—
MK ...	34 c	6½d	—	—	13 c	7d	—	—	21 c	6d	—	—	—	—
Mooloya ...	32 c	1/3	—	—	15 c	1/1¼	17 c	1/4¾	—	—	—	—	—	—
Mount Vernon	178 p	10¾d	51 p	1/5¼ 1/8¼	70 c	9¾d	—	—	47 c	6¾d	—	—	10	5½d
Mousagalla ...	38	8d	—	—	9	9¾d	5	1/0½	24	6½d	—	—	—	—
Nartakande ...	62 c	7¼d	—	—	17 c	7¼d	16 c	9½d	29 c	6¼d	—	—	—	—
Nayabedde ...	99 c	7¼d	18 c	10¼d	19 c	8d	—	—	58 c	†6d	1 c	4d	3 c	7¼d
Nayapane ...	121 p	8d	—	—	44 c	8d	37	1/0½	29 c	6d	6	4½d	5	4½d
Needwood ...	127 p	6d	—	—	70 p	6-7	12	9¼d	—	—	21 c	4¼-4½	24 p	6-7¼
New Forest ...	39 c	1/0¼	—	—	23 c	11d	16 c	1/2¼	—	—	—	—	—	—
Nilambe ...	174 c	8d	—	—	35 c	7½d	105 c	8¾d	22 c	6¼d	—	—	12 c	5¼d
OBEC Dangknde	124	9¾d	—	—	35	9¼d	52	1/0¼	33	7d	—	—	4	5d
,, Darrawella	86 c	10d	—	—	47 c	8½-10¾	19 c	1/2½	20 c	6½d	—	—	—	—
,, Glendevon ...	133 c	1/3½	—	—	46 c	1 1½ 1/5¼	38 c	1/1¼-1/9	38 c	1/2	—	—	11 c	6¼d
,, Loolecondera	47 c	1/0½	—	—	15 c	1/0¾	14 c	1/4¼	12 c	10d	6 c	8¼d	—	—
,, Sinnapittia ...	85 c	8½d	—	—	29 c	8¼d	32 c	10½d	24 c	6¼d	—	—	—	—
PDM ...	47 p	1/2	—	—	15 c	1/	28	1/6	4 c	8d	—	—	—	—
Peacock Hill ...	65 p	8¾d	—	—	26 c	8½d	22	1/1	17 c	6½d	—	—	—	—
Penrith ...	69 c	10½d	—	—	24 c	10d	27 c	1/1	17 c	8d	—	—	1 c	4¼d
Pen-y-lan ...	86 c	9d	—	—	35 c	8½d	39 c	10½d	10 c	6d	1 c	5d	1 c	5½d
Poengalla ...	100 c	8¼d	24 c	9¼d	31 c	7¾d	29 c	9¼d	16 c	6d	—	—	—	—
Poyston ...	59 p	10¼d	—	—	11 c	10d	24	1/3	24 c	†7¾d	—	—	—	—
Portree ...	58 p	1/0¼	—	—	—	—	25	1/6¼	33 c	10d	—	—	—	—
Rangbodde ...	130 c	10¼d	—	—	47 c	10¼d	37 c	1/2	46 c	7¼d	—	—	—	—
Ravenscraig ...	51	7¾d	—	—	31	6¾d	20	9½d	—	—	—	—	—	—
Richlands ...	74 p	10d	63	9¾ 1/2¼	—	—	—	—	8 c	6d	—	—	3 c	4¾d
Rookwood ...	393	10¼d	—	—	111	9-11½	138	1/-1/1¼	84	7-7¼	45	10¼ 10½	15	8d
Saidewatte ...	73 c	7½d	21 c	9¼d	21 c	6¾d	12 c	8¼d	16 c	5¾d	—	—	3 c	4d
Salawe ...	93	7¼d	—	—	22	6½d	36	9d	35	5¾d	—	—	—	—
Saumarez ...	48 c	6½d	—	—	34 c	6d	13 c	†8¼d	—	—	—	—	1 c	4d
Scarborough ...	129 c	9½d	—	—	56 c	9½d	42 c	†11¾d	31 c	6¾d	—	—	—	—
St. Clair ...	76 c	9½d	12 c	1/	12 c	11d	14 c	1/1½	34 c	7d	3 c	5d	1 c	6½d
St. Clive ...	32 c	6¾d	—	—	12 c	†6d	12 c	8¾d	—	—	8 c	3-5	—	—
Sunnycroft ...	115 c	7d	51 c	7-9	12 c	6½d	—	—	21 c	5½d	1 c	4d	—	—
Talawakelle ...	73 c	11¼d	—	—	24 c	1/	12 c	1/6¼	25 c	8¾d	2 c	6d	10 c	7½-9¾
Torrington ...	59 c	10¼d	—	—	21 c	10¼d	24 c	11¾d	14 c	7½d	—	—	—	—
Udaradella ...	90 c	9½d	—	—	30 c	†9½d	29 c	1/0¼	31 c	7d	—	—	—	—
Udugama ...	30 c	6¾d	—	—	21 c	6d	9 c	8½d	—	—	—	—	—	—
Uva ...	231	11¾d	—	—	102	11¾-1/	57	1/2½	61	10¼d	4	7¾d	7	6¾d
Verelapatna ...	74 c	9d	—	—	30 c	9d	20 c	11½d	24 c	7d	—	—	—	—
Vicarton ...	17	10d	—	—	5	9¼d	5	1/3¼	7	6¾d	—	—	—	—
Wariagalla ...	60 c	9¼d	1 c	7¾d	15 c	8¾d	25 c	11½d	18 c	6¾d	—	—	1 c	4¾d
Weregalla ...	65 p	8d	—	—	21 c	8d	21 c	†10½d	21 c	6d	—	—	2	5d
Westhall ...	170 c	8½d	—	—	87 c	8¼d	43 c	†11d	—	—	38 c	6¼d	2 c	5d
Woodend ...	48 c	7¾d	—	—	24 c	7d	16 c	10d	8 c	5¼d	—	—	—	—

In these tables all packages are half-chest unless otherwise stated. b stands for boxes; c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *November 13th, 1891.*

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	492,549 packages.	288,778 packages.	26,407 packages.
1891-1892.	556,351 ,,	393,895 ,,	25,696 ,,

During the week

9,956 packages Indian
0,713 ,, Ceylon
658 ,, Java

Total 61,327 packages have been offered in public auction.

Auctions of Indian and Ceylon Tea together have this week exceeded any previous record.

The mass of Indian Tea lately brought forward has occasioned frequent comments upon regu-tion of supplies, but little practical result has followed as yet.

The present rule of devoting Mondays and Wednesdays to auctioning Indian Teas, Tuesdays Ceylon Tea, and Thursdays to both kinds, has now been in force more than three years. Since s institution the output from both countries has so vastly increased, that an alteration in the rrangement of public auctions is now generally recognized as likely to be beneficial to both industries.

Not only have Monday's auctions of Indian Tea of late been occasionally very heavy, but last uesday's Ceylon sale of 18,716 packages comprised so large a number of breaks (798) that it was mpossible for buyers to give careful attention to the entire sale—the result proving most unfortunate or importers.

The obvious course to pursue, now that Ceylon has grown so enormously since the present lan was adopted, seems to be to devote more days to the sale of Ceylon Tea. This would enable ealers to distribute their purchases over a longer time, instead of operating practically only once week, as they are now compelled to do, owing to the objection of Ceylon importers to sell late n Thursdays.

To facilitate this operation it may become necessary to hold auctions of Ceylon Tea in a eparate room from Indians—a result which might ultimately be advantageous to both industries, though perhaps at first attended with some slight inconveniences.

INDIAN. Last weeks rates have been fully maintained, except for poorest descriptions, which re slightly easier. Pekoes and Broken Pekoes of high character are dearer. Assam Teas continue est in quality.

This weeks average price of New Season's Teas sold on Garden Account. Total 28,298 pkgs. average 8½d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	12875 p	9¼d	Chota Nagpore ..			Kangra Valley ..		
Cachar and Sylhet..	7012 p	7¾d	Darjeeling & Terai	2211 p	10d	Neilgherry.. ..	213 p	6½d
Chittagong	151 p	8d	Dooars	5778 p	7½d	Travancore	58 c	8¼d

s an idea of the comparative prices of Indian Tea in London we quote :—

DUST.	(Fair ordinary, dark liquor)	1891,	4¼d.	1890,	6d.	1889,	5¼d	1888, 5d.
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	6½d.	,,	6d.	,, 6¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	7d.	,,	8¼d.	,,	7½d.	,, 7½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	7¼d.	,,	8½d.	,,	8¼d.	,, 8½d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8¼d.	,,	9½d.	,,	9¼d.	,, 9¼d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	7¾d.	,,	6½d.	,, 7¼d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	8¼d.	,,	8d.	,, 8¼d.

CEYLON. Tuesday's heavy auction of 18,716 packages represented by 798 breaks, altogether over-xed the market, and a general decline took place ;—thus showing the necessity of some change in ie arrangement of the auctions. Medium and common Pekoes and Pekoe Souchongs show a ll of fully a halfpenny, and higher grades a halfpenny to a penny per pound. Average for week, 9d.

JAVAS. Only 670 packages were brought forward ; and met with good competition.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 31st OCTOBER.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
DIAN	35,720,000	39,042,741	45,070,710	38,914,000	40,475,334	40,197,021	24,561,000	26,057,196	31,534,227
YLON.....	12,876,000	17,960,814	27,538,912	15,103,000	18,940,222	26,675,108	5,105,000	8,610,966	15,838,696
VA	1,119,000	1,543,080	1,692,600	1,658,000	1,812,160	2,018,100	695,000	795,760	525,630
INA, etc	48,334,000	36,227,759	39,914,932	35,952,000	37,995,068	32,525,108	49,758,000	38,222,882	35,831,915
Total lbs.	98,049,000	94,774,394	114,217,154	91,600,000	99,222,784	101,415,337	80,119,000	73,686,804	83,730,468

BANK RATE. 4 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 5d.

Garden.	Total. Quantity.	Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Price	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price	Pekoe Souchong. Quantity	Price	Broken and Souchong. Quantity.	Price	Fannings, Dust and Various. Quantity.	Price
ASSAM	**12875p**	**9¼d**												
Assam Co ...	1796 p	8½d	118 p	†9½ 2/1½	357 c	7-10¼	326 p	1¼ 1/6¾	—	—	945	6-1/-¾	—	
AssamFrontierCo	569 c	10d	171 c	11 1/6¼	395 c	8½-9	—	—	45 c	7⅞d	—	—	48 c	7½d
Badulipar ...	125 c	9½d	—	—	35 c	11d	20 c	1/1½	45 c	7¾d	25 c	7½d	—	—
Beheating ...	147 c	7d	—	—	37 c	9½d	—	—	35 c	6¾d	75 c	5¾-6¼	—	—
Bongong ...	87 c	8d	—	—	41 c	8½ 10½	15 c	9d	19 c	6¼d	12 c	5½d	—	—
Borbarrie ...	158 c	8¼d	—	—	35 c	9¼d	23 c	11¾d	6 c	7¾d	23 c	6-6¼	8 c	8¼d
Borelli T Co ...	195 c	8¾d	—	—	65 c	9¼-1/1	22 c	1/0¼	57 c	6¾d	51 c	6½d	—	—
BrahmapootraTC	905 c	8¼d	20 c	11¾d	270 c	8¼9½	129 c	10-1/1¾	347 c	6½ 7	139 c	5¾7¼	—	—
British Assam Co	193 c	8½d	—	—	57 c	8½8¾	23 c	1/4½	82 c	6¾ 7	31 c	6¼d	—	—
Chubwa T Co ...	114 p	8d	20	1/3¼	35 c	8¼d	20 c	11¾d	34 c	6¼d	—	—	7	11¾d
Corramore ...	179 c	8d	—	—	89 c	8½10	—	—	70 c	6¾ 7	—	—	20 c	5½d
Dejoo T Co . .	236 c	9¼d	—	—	113 c	9½d	62 c	9¾ 1/3¼	40 c	6¼d	21 c	6½d	—	—
Dekhari ...	85 p	1/1	20	2/3¾	—	—	20 c	1/5½	45 c	7½d	—	—	—	—
Dhendi ...	112 c	8¾d	—	—	45 c	9-1/1	12 c	10½d	30 c	6¾d	25 c	6d	—	—
Digloy T Co ...	68 p	1/0½	—	—	38 c	10¾11¾	18	1/11¾	12 c	8¾d	—	—	—	—
Doom Dooma B	224 p	10¾d	56	1/3¼	95 c	9-10	32 c	1/3¼	41 c	7¼d	—	—	—	—
,, H	203 p	10d	22	1/6	68 c	9¼-10¼	45 c	1/2	39 c	7¼d	11 c	6½d	18 c	4½-6
Eastern AssamC	311 p	10d	69	1/-1/10	94 p	8½-1/5	61 c	8-9	87 c	7-8¾	—	—	—	—
Greenwood Co D	162 c	10¾d	48 c	1/3¾	46 c	9¾d	—	—	68 c	7¾d	—	—	—	—
Harmutty ...	424 c	9¼d	—	—	116 c	†9¼-9½	82 c	1/3½	166 c	7¼d	60 c	6¾d	—	—
Hunwal T Co ...	220 c	7¾d	35 c	9d	58 c	7¼d	36 c	11d	—	—	24	6¼d	—	—
JokaiTCo Tippuk	291 c	10d	51 c	1 1¼ 1/0½	196 c	9¼ 1/0½	—	—	27 c	7½d	—	—	17 c	4¾d
Jorehaut T Co	258 c	9¼d	—	—	72 c	9-9½	60 c	1/2	126 c	6¾-7¼	—	—	—	—
KamroopTAssoA	147 p	10¼d	17	2/3½	35 c	10¼d	27	1/1¾	26 c	8¼d	42 c	6¾-7½	—	—
Kellyden ..	121 c	8d	—	—	57 c	8¼d	24 c	10d	28 c	6½d	—	—	12 c	6¼d
LowerAssamC B	130 p	8½d	24	1/9	30 c	7½d	28 c	8½d	30 c	6¼d	18 c	5½d	—	—
Meleng ...	300 c	8¼d	35 c	1/	100 c	8-8¼	45 c	10¼d	—	—	100 c	6¾d	20 c	3½
Moabund T Co	238 c	1/1½	—	—	106 c	1/-1/5¾	20 c	1/10¾	86 c	9¾10	26 c	10d	—	—
Mungledye T Co	129 c	10d	—	—	42 c	9¾d	17 c	1/5½	44 c	8d	—	—	26	8¼d
Naga Dhoolie ...	258 p	10d	—	—	63 c	1/0½	42 c	1/2	77 c	8d	70 c	7½d	6	4¾d
NSTCSagmootea	86 c	6¾d	—	—	26 c	7¾d	12 c	7½d	18 c	6¼d	30 c	5¾d	—	—
Oaklands ...	156 p	11¼d	112 p	1 0¼ 1/11	½ —	—	—	—	44 c	7½d	—	—	—	—
Panbarry ...	92 p	9¾d	12	10¾d	24 c	†1/	24 c	11d	20 c	†6¾d	12 c	†6¾d	—	—
Rajmai T Co ...	360 c	10¾d	—	—	125 c	10½11¼	74 c	1/3¾1/4¾	—	—	161 c	7¾-8¼	—	—
Romai . .	133 c	9d	20 c	1/3½	56 c	†7¾†9½	—	—	33 c	6½d	24 c	8½d	—	—
SalonahTCo Kon	358 p	9¾d	70	1/8-1/9	100 c	8¼-8½	91	1/0¼	57 c	7¼d	65 c	6¾d	—	—
,, Kot	291 p	10d	50	1/1¾	69 c	9½d	82	1/2½	48 c	7¾d	42 c	6¼-7¼	—	—
ScottishAssamC	371 p	9d	86 p	1 1 1/5¾	62 c	7½-10¼	47 c	10½d	24 c	8d	152 c	6-6¼	—	—
Sealkotee ..	147 p	11¾d	—	—	80 c	8-10½	45 c	1/5-2/3¼	—	—	22 c	6¾d	—	—
,, ...	90 p	10d	—	—	69 c	8¼-9¾	21	†1/3½	—	—	—	—	—	—
Seconne ...	146 c	9½d	—	—	44 c	9d	18 c	1/5	50 c	7¼d	34 c	9½d	—	—
Upper Assam Co	587 p	1/0¾	141 p	1/3¾ 2/2¼	126 c	11½-1/	151 p	9½ 1/+½	122 c	8 8¾	47 c	6¼-7	—	—
CACHR & SYLHT	**7012 p**	**7¾d**												
Allynugger ...	137 c	8d	25 c	9-1/1½	55 c	7½d	31 c	7¼d	26 c	6½d	—	—	—	—
B&CoChargola C	784 p	7d	98 c	10-1/1	297 c	6¾d	125 c	7 7¼	165 c	5¾d	52 c	4¾d	46	4¼d
,, ,, H	504 p	8¼d	70 c	1 0¾ †1/4	139 c	†8d	80 c	†8½d	167 c	†6¾d	19 c	6¼d	29	4¾d
,, ,, M	158 c	7½d	12 c	1/5	50 c	7¼d	23 c	8¼d	58 c	6¾d	15 c	5¼d	—	—
,, ,, S	260 p	8¾d	38 p	1 1¾ 1/2½	94 c	8¼d	45 c	10¼d	72 c	6¾d	—	—	11 c	4d
,,Mookham Co	266 c	7¾d	27 c	1/0¼	113 c	7¾d	33 c	8¾d	81 c	6d	12 c	5½d	—	—
,,Singla T Co	206 c	9¼d	32 c	1 1¼ 1/3¾	70 c	8½d	26 c	1/0¼	62 c	7d	12 c	6¾d	4 c	4d
BITC Urunbund	116 c	7¼d	—	—	50 c	7½d	16 c	11½d	—	—	50 c	5½-6	—	—
Budderpore ...	114 c	7¾d	—	—	37 c	9½d	—	—	—	—	77 c	6¾d	—	—
Burrumsal ...	192 p	1/1¼	56	2/0¼ 2/4½	57 c	10½d	24 c	1/3½	—	—	55 c	8¼d	—	—
Chandkhira ...	118 c	7¼d	—	—	33 c	7½d	34 c	9d	51 c	6d	—	—	—	—
Chin Joor ...	96 p	6½d	12 c	10¾d	12 c	7d	—	—	11 c	6d	50 c	5¼d	11	6¼d
Chundeecherra C	181 c	7½d	—	—	134 c	7½d	19 c	8½d	—	—	—	—	28 c	6½d
Kapnaphar ...	139 c	6¾d	25 c	†7¼d	50 c	6¾d	35 c	†7¼d	29 c	5¼d	—	—	—	—
Koyah ...	218 p	7½d	18 c	10d	58 c	7¼d	58 p	7¼-1/-	66 c	6-6¼	18 c	5½d	—	—
NSTCo Burjan	142 p	7d	—	—	100 c	7¼d	20 c	7¾d	12 c	6d	—	—	10	3¾d
,,Jafflong ..	147 p	7¾d	12 c	1/2¼	75 c	7½d	28 c	†7½	15 c	6½d	—	—	17	4¼d
,,Khadim ...	85 c	9¾d	15 c	1/7½	53 c	7½d	17 c	7¾d	—	—	—	—	—	—
Parbutpore ...	65 c	8d	—	—	30 c	8d	27 c	9d	—	—	—	—	8 c	5½
Phoenix T Co	290 c	6½d	—	—	88 c	†7d	54 c	†8-†8¾	118 c	†5¾d	24 c	†5¼d	6 c	†3½d

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Coopabally T Co	95 c	7½d	—	—	25 c	7d	40 c	9d	—	—	30 c	6¼d	—	—
CotporeTCoD ...	80 c	7¾d	—	—	32 c	7½d	19 c	10¾d	17 c	6d	12 c	6d	—	—
STC Goombira	195 p	8¼d	41 c	1/0-1/1¾	60 c	7½d	20 c	8½d	50 c	6½d	14 c	5¾d	10	4d
,,Holicherra ...	132 p	7½d	—	—	39 c	8¼d	31 c	8¾d	49 c	6½d	12 c	5½d	1	4d
Sylhet T Co ...	151 c	7¼d	24 c	8½d	23 c	7½d	34 c	8¼d	51 c	6d	—	—	19 c	6½d
Subong ...	40 c	7¼d	—	—	20 c	†6¾d	20 c	†7¾d	—	—	—	—	—	—
Tarrapore T Co	210 c	8¼d	30 c	9½ 1/4½	60 c	8d	30 c	8¾d	60 c	6½d	30 c	6¼d	—	—
,, ..	300 c	9d	—	—	105 c	9d	70 c	1/0½	60 c	7½d	65 c	7¼d	—	—
West Jalingah ...	134 c	9¼d	—	—	41 c	9d	36 c	1/0¾	31 c	7¼d	26 c	6½d	—	—
CHITTAGONG														
Chandpore ...	151 p	8d	—	—	50 c	8½d	40	1/1	51 c	6¼d	—	—	10 c	3¾d
CRJELNG&TERI	**2211 p**	**10d**												
Cooteriah ...	119 c	1/1	—	—	55 c	1/	34 c	1/6½	30 c	8½d	—	—	—	—
Coomtee ...	74 p	1/0½	53 1/	3¾ 1/5¾	—	—	—	—	21 c	7¾d	—	—	—	—
Cungaram ..	75 c	9d	—	—	23 c	9¾d	12 c	1/2	40 c	7d	—	—	—	—
Cappy Valley ...	101 c	8½d	—	—	40 c	9¼d	16 c	10½d	30 c	7½d	15 c	6½d	—	—
Cape Town ...	175 p	1/1¾	—	—	24 c	11¼d	139	1/3½	12 c	8d	—	—	—	—
Cebong T Co ...	347 c	11½d	183 c	9¾-1/7	58 c	11½d	—	—	106 c	7¼8¼	—	—	—	—
STC Bloomfield	77 p	1/	15 c	1/1¼	17 c	11½d	18 c	1/3¼	23 c	9¼d	—	—	4	†4¼d
Curbong ...	103 p	10d	30	1/2¼	37 c	10½d	—	—	36 c	7¾d	—	—	—	—
Disheehet ...	100 p	10½d	25	11½d	25 c	9¾d	25	1/5¾	25 c	7¼d	—	—	—	—
DOARS	**5778 p**	**7½d**												
DoarsTC Baman	291 c	7½d	29 c	1/2¾	89 c	7d	84 c	†7¼d	34 c	6¼d	—	—	55 c	4¾7¼
,, Ghatia ...	141 p	9¾d	42	1/6	36 c	7½d	38 c	9½d	25 c	6½d	—	—	—	—
,, ,, ...	138 c	7d	—	—	—	—	23 c	10¼d	—	—	32 c	6½d	83 c	6½d
,, Indong ...	307 c	7¼d	25 c	1/2¼	82 c	7d	86 c	7¼d	50 c	6d	25 c	5¾d	39 c	3¼6½
,, Nagrakatta	285 c	7¼d	—	—	55 c	7¾d	77 c	8¼d	—	—	66 c	6¼d	87 c	6¾d
Ellenbarrie ...	120 c	9¼d	60 c	9-1/2¼	—	—	—	—	60 c	6½-6¾	—	—	—	—
,, ...	265 c	7½d	88 c	8¼ 1/3½	—	—	—	—	177 c	6 6½	—	—	—	—
Fajilidoubah BO	127 c	8½d	13 c	1/7¾	30 c	8¾d	—	—	55 c	6¾7¼	16 c	6d	13 c	5¾d
Hope ...	100 c	10d	12 c	1/7¾	38 c	8¾d	30 c	9¾d	20 c	7d	—	—	—	—
Iti ...	192 c	6¼d	—	—	—	—	—	—	—	—	190	6-6¾	—	—
Killcott ...	197 c	6¾d	—	—	53 c	7¼d	51 c	8½d	68 c	5¾d	—	—	25 c	4-6
Koomlai ...	113 c	6½d	—	—	43 c	7½d	—	—	70 c	6d	—	—	—	—
Leesh River Co	165 c	7½d	—	—	65 c	7d	60 c	8¾d	40 c	6d	—	—	—	—
Matelli ...	260 p	11d	58 p	1/3¼ 1/3½	42 c	8½d	70	1/3½ 1/3¾	50 c	7d	—	—	40	8d
Meenglas ...	391 c	8d	111 c	9½ 1/1	78 c	7¼d	—	—	119 c	6-6¼	—	—	83 c	7¼d
STC Bytagool	204 p	6½d	—	—	73 c	6½d	72 p	7d	42 c	5¾d	—	—	17 c	3¾d
,Dam Dim ...	298 c	7¼d	—	—	141 c	7¼d	86 c	8¼d	60 c	6¼d	—	—	11 c	4d
,Nakhati ...	138 p	7d	—	—	50 c	7d	70 c	7¼d	—	—	—	—	18	4¼d
,Nowrea Nuddy	220 p	7¼d	24 b	2/3¼	57 c	7¼d	70 c	8d	53 c	6¼d	—	—	16	4½d
,Rungamuttee	632 p	8d	27	1/7¾	203 c	7½d	232 c	8½8¾	103 c	7d	—	—	67	4¾d
Noolbarrie T Co	335 c	6¼d	—	—	80 c	7¼d	103 c	6½-8	56 c	6d	67 c	5½d	29 c	3¾d
Nitharjhora ...	182 c	6¼d	—	—	38 c	7¼d	—	—	72 c	6½d	72 c	5½d	—	—
Nungdong ...	65 c	6¼d	—	—	—	—	—	—	—	—	65 c	6-6¼	—	—
,, ...	87 c	5¾d	—	—	—	—	—	—	—	—	87 c	5½ 6	—	—
Nithkyah ...	301 p	6¾d	48	11¼d	84 c	†6¾d	23 c	†8¼d	146 c	5¾d	—	—	—	—
Pashabarrie ...	119 c	7d	—	—	20 c	7d	21 c	1/	58 c	5¾d	—	—	20 c	†6d
PEILGHERRY	**213 p**	**6½d**												
Arzon ...	132	7d	—	—	—	—	30	9½d	26	†6¼d	65	†5½†6¼	11	7d
Prospect ..	81 c	6¼d	—	—	49 c	6¾7¼	27 c	5¼6¼	—	—	—	—	5 c	3¾d
TRAVANCORE	**58 c**	**8¼d**												
Hope ...	31 c	7¾d	—	—	16 c	7¼d	9 c	10¼d	—	—	4 c	5d	2 c	4½d
Mfield ...	27 c	8¾d	—	—	13 c	6¾d	14 c	10¾d	—	—	—	—	—	—

CEYLON. Average 9d.

Abbotsleigh ...	70 c	11¼d	—	—	48 c	9½d	22 c	1/2¾	—	—	—	—	—	—
Agrakande ...	37 c	11½d	—	—	23 c	10d	14 c	1/2	—	—	—	—	—	—
Agra Oya ...	26 c	7½d	—	—	15 c	5¾-7	11 c	8¾d	—	—	—	—	—	—
Albion ...	41 c	10¾d	—	—	—	—	29 c	1/	12 c	7½d	—	—	—	—
Aldie ...	48 p	10¼d	—	—	12 c	9¾d	21 c	1/1	13 c	6½d	—	—	2	8¾d
Ambatenne ...	72 c	7¾d	—	—	21 c	7½d	27 c	9½d	13 c	6½d	6 c	4-5½	5 c	4¾d
Amblamana ..	46 c	7½d	—	—	9 c	7¼d	23 c	8¾d	14 c	6d	—	—	—	—
Amnfield ..	104 c	9¼d	—	—	49 c	8d	41 c	1/	14 c	6¼d	—	—	—	—
Arisawella ...	85 c	7¾d	—	—	23 c	7¼†7¾	17 c	1/	39 c	6¼d	6 c	5½d	—	—
Arnagalla ..	154 p	8¼d	—	—	28 c	8¼d	48 c	†10d	31 c	6¾d	—	—	47 p	6-†8½

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price.
Bathford ...	49 c	11d	—	—	22 c	10¾d	20 c	1/0½	7 c	8d	—	—	—	—
Bearwell ...	86 p	9¼d	—	—	42 c	†7½d	34 c	1/	8 c	5¾d	—	—	2	5¼d
Beaumont ...	73 c	8¾d	—	—	24 c	†8½d	25 c	11d	24 c	†7d	—	—	—	—
Beauvais ...	25 p	6½d	—	—	16 p	5-6½	7	9d	—	—	1	†2d	1	4½d
Belgravia ...	35 c	9¾d	—	—	15 c	8¼d	20 c	10¾d	—	—	—	—	—	—
Berragalla ...	43 c	10¾d	—	—	13 c	11d	19 c	1/0¼	9 c	8½d	—	—	2 c	6¾d
Binoya ...	29 c	6¼d	—	—	13 c	6d	7 c	8¾d	—	—	9 c	4¾-5	—	—
Bitterne ...	25 c	10¼d	—	—	13 c	8¾d	12 c	11¾d	—	—	—	—	—	—
Blair Athol ...	105	10¼d	56	1 0¾ 1/1½	40	9d	—	—	7	6¾d	2	4d	—	—
Bogahawatte ...	83 p	9¾d	32	1/2	51 c	8½d	—	—	—	—	—	—	—	—
Bramley ...	233	10¼d	—	—	53	10½d	100	11½d	78	8¼d	—	—	2	5¼d
Broad Oak ...	37	9¾d	—	—	7	7d	30	10¼d	—	—	—	—	—	—
Broughton ...	97 p	10¼d	42 p	1/1½	22 p	9½d	—	—	33 p	7d	—	—	—	—
Brunswick ...	3 b	1/8	3 b	1/8	—	—	—	—	—	—	—	—	—	—
Bukanda ...	59 c	7¾d	—	—	25 c	6d	34 c	9d	—	—	—	—	—	—
Carney ...	30	7d	—	—	7	6½d	11	8¼d	12	6d	—	—	—	—
Choisy ...	101 c	8½d	—	—	27 c	9¼d	30 c	11¼d	36 c	6¼d	—	—	8 c	6¾d
CL&PC Fettereso	100 p	10d	—	—	29 c	†10½d	40	1/2	26 c	†7d	2 c	5½d	3 c	6¼d
,,NewPeradeniya	109 c	7½d	—	—	47 c	8d	20 c	10¾d	30 c	5¾d	10 c	5½d	2 c	5d
Claverton ...	52 c	8¾d	15 c	1/0½	18 c	8½d	—	—	16 c	6¼d	1 c	4d	2 c	4¼d
Clova ...	58	7d	—	—	18	6½-7¼	9	9-9¾	31	5¾-6¼	—	—	—	—
Come Away ...	75 p	11½d	—	—	38 c	10¼d	37	1/1¾	—	—	—	—	—	—
CTPCo Alton ...	252 p	8½d	—	—	136 p	8½-9¼	37 c	11½d	34 c	5¾-6½	—	—	45 p	5-7¾
,,EastHolyrood	103 p	9d	—	—	17 c	8¼d	51 c	†10d	35	7¼d	—	—	—	—
,,Mariawatte	523 p	7¼d	—	—	154	7-8	64	10d	85 p	5½5¾	20	†4¾d	—	—
,,Sembawatte	110	6¾d	—	—	40	6d	50	†7¾d	20	5¼d	—	—	—	—
,,Tangakelly	117 p	11¼d	—	—	55	10d	44 c	1/1¾	16 c	7½d	—	—	2 c	8d
,,Wallaha ...	117	1/	—	—	49	9¾ 1/0¼	48	1/3	20	8¼d	—	—	—	—
,,Waverley ...	65 c	1/2¾	—	—	27 c	1/1¼	35 c	1/4½	1 c	10d	—	—	2 c	10¾d
Coombewood ...	25 c	11d	—	—	12 c	9¾d	13 c	1/	—	—	—	—	—	—
Cooroondawatta	34	9¾d	—	—	—	—	34	9¾d	—	—	—	—	—	—
Culloden ...	125 c	8¼d	—	—	47 c	8½d	38 c	†10d	40 c	6¼d	—	—	—	—
Damblagolla ...	54 c	7¾d	—	—	30 c	†7½d	12 c	10d	12 c	†5¾d	—	—	—	—
Debagama ...	19 c	6d	—	—	14 c	6¼d	—	—	5 c	5¼d	—	—	—	—
Debatgama ...	83 c	7¾d	—	—	13 c	†5¾d	62 c	8½d	8 c	5¾d	—	—	—	—
,, ...	31 c	5½d	—	—	17 c	†5½d	—	—	14 c	5¾d	—	—	—	—
Dedugalla ...	58 c	7¼d	—	—	19 c	7¼d	13 c	9¾d	26 c	6d	—	—	—	—
Dehiowita ...	52 c	7d	—	—	27 c	6¾d	13 c	9½d	12 c	5¼d	—	—	—	—
Delta ..	110 c	8½d	—	—	20 c	8¼d	53 c	10½10¾	18 c	6¼d	19 c	5¾d	—	—
Denegama ...	67	11½d	—	—	47	9¾d	20	1/3¼	—	—	—	—	—	—
Denmark Hill ...	93 c	1/1¾	20 c	1/8¼	38 c	1/1¾	—	—	23 c	10¾d	11 c	8½d	1 c	8½d
Densworth ...	72 c	7¾d	—	—	18 c	7¼d	40 c	8¾d	14 c	5¾d	—	—	—	—
Dessford ...	105 c	10d	—	—	44 c	9¾d	41 c	11⅜d	20 c	7¼d	—	—	—	—
Devonford ...	51 p	11d	—	—	15 c	10½d	30	1/1	6 c	7d	—	—	—	—
Deviturai ...	63 c	7d	—	—	29 c	6¼d	29 c	8¼d	—	—	4 c	5¼d	1 c	4d
Digalla ...	182 p	7½d	—	—	53	†7½d	57	†9¾d	62	6d	7 c	4½d	3	6¼d
Dikmukalana ...	65	8d	—	—	19	†7¼d	28	9¼d	18	†6½d	—	—	—	—
Dimbuldanda ...	51 c	7¾d	—	—	34 c	7d	17 c	9½d	—	—	—	—	—	—
Diyanallekelle	50 c	10½d	—	—	20 c	10d	21 c	1/0¾	9 c	6½d	—	—	—	—
Drayton ...	230 p	10¾d	134 p	1¾ †1/4 ¾	—	—	—	—	55 c	6½d	5 p	3½-4½	6	5d
Edinburgh ...	51 c	1/	—	—	26 c	10¼d	25 c	1/2	—	—	—	—	—	—
Eilandhu ..	40 c	7½d	—	—	26 c	6½d	14 c	9½d	—	—	—	—	—	—
Elangapitiya ...	103 c	7¼d	53 c	8-9½	—	—	—	—	43 c	6d	7 c	4¼d	—	—
Elchicho ...	76	8¾d	—	—	20	8d	36 c	10¾d	20	6d	—	—	—	—
Elfindale ...	339	6¼d	—	—	159	5¾-†5¾	87	8-8¼	75	5-5¼	4	3¼d	14	3½-4¾
Elkadua ...	110 c	8d	—	—	30 c	8d	30 c	10¾d	50 c	6¼d	—	—	—	—
Ellagalla ...	59 c	8¼d	—	—	7 c	8½d	22 c	11d	26 c	6¾d	2 c	5d	2 c	5¼d
Emelina ...	85 c	9¼d	—	—	42 c	9¼d	20 c	†1/0¾	15 c	7½d	7 c	4½d	1 c	5½d
Engurukande ...	116 c	7¼d	—	—	51 c	7d	33 c	7-9¾	30 c	5¾d	—	—	2 c	3½-4
EP&ECo Arapo.	60 c	8¼d	—	—	20 c	8¾d	14 c	11d	26 c	6½d	—	—	—	—
,,Asgeria ...	63 c	8½d	—	—	48 c	7¼d	15 c	1/0½	—	—	—	—	—	—
,,Doombagastala	45 c	8d	—	—	—	—	14 c	11½d	31 c	†6½d	—	—	—	—
,,Dromoland ...	77	6½d	—	—	77	†6½d	—	—	—	—	—	—	—	—
,,Ingurugalle ...	79 c	9¼d	13 c	†11d	66 c	9d	—	—	—	—	—	—	—	—
,,Labukelle ..	104 p	1/2¼	—	—	77	1/1	27 c	1/4	—	—	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
EP&ECMdecmbr	86 c	8¾d	—	—	22 c	8¼d	30 c	11¾d	34 c	6½d	—	—	—	—
,,Norwood ...	50 c	1/3	—	—	29 c	1/1¼	21 c	†1/5½	—	—	—	—	—	—
,,Sogama ...	73 c	10¾d	22 c	1/1¾	49 c	8¾ 10½	—	—	—	—	2 c	5¾d	—	—
,,Vellai-Oya ...	130 c	10¼d	53 c	1/2	60 c	8d	—	—	17 c	6¼d	—	—	—	—
Excelsior ...	85	1/0½	—	—	24	1/0½	28	1/4	29	9¾d	2	7½d	2	7¾d
Friedland ...	54	11d	—	—	18	10¾d	18	1/1½	18	8¾d	—	—	—	—
Gallamudina ..	159 c	8d	—	—	60 c	7½d	53 c	10½d	46 c	5¾d	—	—	—	—
Gallebodde ...	92 c	9d	—	—	30 c	9d	33 c	11d	29 c	6¾d	—	—	—	—
Gangwarily ...	66 p	7¼d	—	—	40 c	†6¾d	22 c	8½d	—	—	—	—	—	—
Gingranoya ...	49 c	8d	—	—	23 c	7d	20 c	10d	—	—	—	—	4	4¾d
Glassel ...	66 c	8d	—	—	23 c	7¾d	22 c	10½d	21 c	6d	5 c	4¼d	1 c	3½d
Glenalla ...	109 c	7½d	38 c	9 11¼	37 c	7d	—	—	13 c	6d	—	—	—	—
Glencorse ...	63 c	9½d	15 c	11¾d	16 c	4¼9¼	16 c	11½d	15 c	6¾d	5 c	3¾4¾	16 c	3¾ 5
Glentilt ...	104 p	10½d	30	1/2¾	35 c	11¾d	—	—	23 c	8½d	—	—	1 c	4½d
Glenugie .	128 p	10½d	—	—	76	†9¾d	37	1/4½	15 c	7¼d	16 c	6½d	—	—
Goomera ...	68 c	7½d	—	—	31 c	6¾d	25 c	9¼d	12 c	5½d	—	—	—	—
Hallowella ...	48 c	9¼d	12 c	11¾d	24 c	8¼d	—	—	12 c	8¼d	—	—	—	—
Hantane ...	63 p	8½d	—	—	22 c	9d	19	1/	21 c	6½d	—	—	1 c	4¼d
Hardenhuish & L.	128 p	7¾d	—	—	66 c	8¾d	62	5¾d	—	—	—	—	—	—
Hatale ...	153 c	6¾d	21 c	7½d	—	—	36 c	9d	59 c	6¼d	37 c	5¼d	—	—
Hattangalla ...	41 c	7¼d	—	—	14 c	†6¾d	12 c	†10d	15 c	5¾d	—	—	—	—
Hauteville ...	124 c	11d	—	—	52 c	10½d	46 c	1/2	26 c	7¼d	—	—	—	—
Heatherley ...	84 p	8¼d	—	—	51 c	†7¼d	24 c	11d	9 c	6d	—	—	—	—
Heatherton ...	63 p	8¼d	—	—	12 c	8d	27	1/0½	21 c	6¼d	3	3¾d	—	—
Hemingford ...	136	7¼d	—	—	57	6½d	43	9½d	24	5½d	6	3¾4½	6	4¼5½
Henfold ...	118 c	1/2¼	—	—	55 c	1/0½	48 c	1/6¼	15 c	8¼d	—	—	—	—
Hoolankande ...	85 p	6¾d	27	10½d	15 c	7d	—	—	39 c	5½d	—	—	4	4½d
Hornsey ...	82 c	8½d	25 c	11¾d	46 c	7½d	—	—	11 c	6d	—	—	—	—
Hunasgeria ...	86 c	8d	—	—	32 c	7d	29 c	11d	25 c	6d	—	—	—	—
Hunugalla ...	120 c	7½d	—	—	95 c	6 6¼	25 c	1/0¼	—	—	—	—	—	—
Hyndford ...	73 c	7¼d	—	—	23 c	7¼d	18 c	10¼d	30 c	5¾d	—	—	2 c	6d
Imboolpittia ...	188 p	8¾d	23 c	11½d	54 p	8½ 9	25 c	11d	79 p	6¼ 7	—	—	7	5d
IMP ...	116 p	8¾d	12 p	6½ 9	33 c	10d	18 c	†10¾d	50 c	7½d	—	—	3 c	4¾d
Indurana ...	94 c	6½d	—	—	28 c	6¾d	27 c	8¾d	36 c	5d	—	—	3 c	4¼d
Ingiriya ...	36 c	8¾d	—	—	36 c	8¾d	—	—	—	—	—	—	—	—
Ivanhoe ...	47 p	7¼d	—	—	15 c	7½d	14	11½d	10 c	5¾d	6 c	5d	2 p	3 5¼
Kaloogala ...	47 c	8d	—	—	16 c	7½d	16 c	10½d	15 c	6¼d	—	—	—	—
Kabragalla M	87	8d	—	—	21	9½d	20	11¼d	22	6¾d	12	4¼5½	12	5¼ 7
Katookella .	34 p	9¾d	—	—	—	—	14 c	11¼d	16 c	8½d	—	—	4	7½ 10¾
Katooloya ...	102 c	8d	—	—	32 c	7¾d	33 c	10¼d	37 c	6½d	—	—	—	—
Kandapolla ...	85 p	1/2	47	1/2½	—	—	20 c	1/4¼	18 c	10½d	—	—	—	—
KAW ...	149 c	8¾d	—	—	82 c	7¾d	44 c	†6½ 1/4	—	—	23 c	6¼d	—	—
Kelani Valley D	114 p	7¾d	—	—	48 c	7½d	30 c	10¼d	27 c	5¾d	1 c	4d	8	4¼d
Kelvin ...	69 c	8d	—	—	24 c	6¾d	30 c	10d	15 c	5¾d	—	—	—	—
Kinloch ...	35 p	8¼d	10	†10½d	20 c	†8d	—	—	4 c	5¾d	—	—	1	5d
Kirkoswald ...	128 p	1/0¾	26	1/7¾	40 c	1/0¾	31 c	1/1⅓	31 c	9¼d	—	—	—	—
Kotiyagalla ...	88 p	1/1¼	—	—	32 c	11½d	56	1/3¼	—	—	—	—	—	—
Kowlahena ...	54	10¾d	—	—	21 c	10d	17 c	1/2	16 c	7d	—	—	—	—
Lebanon Group	155 c	5¾d	—	—	25 c	6d	40 c	7¼d	46 c	5½d	44 c	†¾d	—	—
Le Vallon ...	141 c	8¾d	—	—	40 c	8½d	62 c	10¼d	39 c	6½d	—	—	—	—
Lippakelle ...	90 c	11¾d	—	—	52 c	8¼11	36 c	1/2½	—	—	—	—	2 c	5¾d
Lynsted . .	211	10½d	—	—	54	11¾d	54	1/1¾	87	8½d	9	5d	7	5d
Loinorn ...	66 p	1/	34	1/3¾	—	—	—	—	32 c	9¾d	—	—	—	—
,, ...	1 b	9/	1 b	†9/	—	—	—	—	—	—	—	—	—	—
Liskilleen ...	76 c	7d	—	—	53 c	†6 6½	21 c	9d	—	—	1 c	3¾d	1 c	3¾d
Maha Eliya ...	105 p	10d	—	—	49 c	9¼d	56	11¼d	—	—	—	—	—	—
Mattakelley ...	106 c	10¾d	—	—	33 c	11¼d	45 c	1/1	26 c	6¼d	—	—	2 c	5d
Meria Cotta ...	58 c	11¼d	—	—	27 c	11½d	14 c	1/3¼	17 c	†7¼d	—	—	—	—
Meriskettiya ...	58 c	7¼d	—	—	29 c	†7d	12 c	†9¼	17 c	6d	—	—	—	—
Minna ...	87 c	8d	—	—	29 c	8½d	17 c	11d	41 c	6¼d	—	—	—	—
Mipitiakande ...	142 c	9d	—	—	67 c	9d	28 c	1/1¼	41 c	6½d	1 c	4½d	5 c	4¾d
Mooloya ...	37 c	1/3	—	—	17 c	1/1¼	20 c	1/4½	—	—	—	—	—	—
Mottingham ...	39 c	7¾d	14 c	10d	—	—	—	—	23 c	6¾d	1 c	3d	1 c	4d
Mousaheria ...	54	8d	—	—	30	7d	18	10d	—	—	6	5¾d	—	—
Morav ...	51 c	1/	—	—	25 c	8¼ 10½	26 c	1/2⅛	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity	Price	Quantity	Price
Mount Vernon	110 p	11½d	36 p	1/5½	47 c	10d	—	—	27 c	6¾d	—	—	—	—
Nartakande ...	56 c	7¼d	—	—	16 c	8d	13 c	9¼d	27 c	6d	—	—	—	—
Newton ...	114	10½d	—	—	51	9½d	47	1/1	14	6½d	1	6d	1	4½d
Nicholaoya ...	130	8d	—	—	72	6½d	58	10d	—	—	—	—	—	—
Nilambe ...	132 c	7¼d	—	—	31 c	6½d	76 c	8¼d	25 c	5¾d	—	—	—	—
North Cove ...	77 p	11½d	—	—	38 c	10½d	39	1/1¾	—	—	—	—	—	—
Norton ...	96	8¾d	—	—	43	8d	26	1/0¼	23	6¼d	—	—	4	5½d
OBECCraigieLea	109 p	9¼d	—	—	36 c	9d	33 c	1/1	30 c	6½d	4 c	4¼d	6	5-8
,, Darrawella	42 c	1/1¼	—	—	—	—	42 c	1/0½ 1/1¾	—	—	—	—	—	—
,, Kuda-Oya ...	96 c	8¾d	—	—	33 c	†6¾d	34 c	1/1¼	29 c	5¾d	—	—	—	—
,, Sinnapittia ...	80 c	8¼d	—	—	30 c	8d	26 c	10¾d	24 c	6d	—	—	—	—
Oolanakande ...	42	7d	—	—	27	6d	12	9¾d	—	—	3	4d	—	—
Ooragalla ...	48 c	7½d	—	—	—	—	30 c	†8½d	18 c	5¾d	—	—	—	—
Ouvah Kellie B	27 c	1/3¼	—	—	15 c	1/	12 c	1/7¼	—	—	—	—	—	—
Panmure ...	47 c	8¼d	—	—	18 c	8¼d	14 c	10½d	15 c	6¼d	—	—	—	—
Panslatenne ...	24 c	8d	—	—	12 c	6¾d	12 c	9d	—	—	—	—	—	—
Parusella ...	116 p	7¾d	28 b	10¼d	35	6½d	20 c	9½d	33	5¾d	—	—	—	—
Pine Hill ...	114	9¾d	27	1/2½	43	9¾d	—	—	44	7d	—	—	—	—
Poolbank ...	47	9d	27	10¼d	20	7d	—	—	—	—	—	—	—	—
Portswood ...	143 p	1/4	—	—	64	1/4¾	50	1/8½	20 p	1/0¼-1/1	—	—	11 c	11¼d
Rahatungoda ...	42 p	1/1	—	—	15 c	1/1	19 c	1/2¾	3 c	8¾d	1	4¼d	4	7d
Raxawa ...	49 c	9d	—	—	12 c	9¼d	14 c	1/0¼	23 c	6¾d	—	—	—	—
Rookwood ...	154 p	9¼d	—	—	48	8½-9⅝	55	11d	27	7d	20	†7¾d	4 c	7¼d
,, ...	200	9¾d	—	—	50	8¾-10¾	79	1/	50	6¾d	21	9½d	—	—
Rothes ...	30 b	11¾d	—	—	30 b	11¾d	—	—	—	—	—	—	—	—
Sanquhar ...	82 c	7¾d	—	—	29 c	8d	18 c	10¼d	28 c	6¾d	2 c	4½d	5 c	4½d
SCTCo Invery ...	102 p	1/2½	—	—	34 c	1/2	44	1/8½	19 c	9½d	5	6d	—	—
,,Mincing Lane	72 p	10⅝d	—	—	26 c	10½d	26	1/4	16 c	†7½d	4	5d	—	—
Shannon ...	19 c	5½d	6 c	8d	13 c	†4½d	—	—	—	—	—	—	—	—
Sheen ...	110 p	11½d	45	1/3¾	47 c	11¼d	—	—	18 c	7½d	—	—	—	—
Situlaganga ..	69 p	6¼d	16 b	†7d	28	5¾d	19	†7¼d	5	4¾d	—	—	1	4d
Spring Valley ...	186 p	1/1	—	—	58 c	1/1¼	64 c	1/3¼	49 c	10d	—	—	15	7¾-9
Somerset ..	90 p	9d	—	—	40 c	8½d	34	1/1¼	—	—	16 c	5¾d	—	—
Strathspey ...	59 c	10¾d	—	—	30 c	10¼d	16 c	1/3	11 c	7d	—	—	2 c	6d
Sunnycroft ...	68 c	6½d	31 c	6½-8½	28 c	5¾d	—	—	9 c	4¾d	—	—	—	—
Sutton ...	24 p	11½d	—	—	10 c	10¼d	12 c	1/1¼	1	7½d	—	—	1	5d
Theberton ...	71 c	6¼d	—	—	—	—	39 c	7d	32 c	5½d	—	—	—	—
Tyspany ...	56 c	7½d	—	—	32 c	6¼d	24 c	9¼d	—	—	—	—	—	—
Udabage ...	125	7¼d	—	—	57	6½d	53	8½d	15	5½d	—	—	—	—
Waltrim ..	89 c	10¾d	—	—	20 c	10d	55 c	1/0½ 1/2½	14 c	7¼d	—	—	—	—
Warriapolla ...	55 c	8¾d	24 c	10-1/2	—	—	—	—	27 c	6¼d	4 c	5¼d	—	—
Wellekelle ..	57 p	1/0¾	—	—	36	1/	18	1/3	2	7½d	—	—	1 b	5d
Westhall ...	114 c	8¼d	—	—	53 c	8d	18 c	1/2	41 c	6d	—	—	2 c	5d
Weyweltalawa	139	7¾d	20	10d	38	8d	23	10d	46	†6d	4	4d	8	5½d
Windsor Forest	145 c	7¾d	—	—	42 c	7¼d	45 c	10½d	58 c	5¾d	—	—	—	—
Woodstock ...	81	7¾d	—	—	39	6¾d	42	†8½d	—	—	—	—	—	—
Wootton ..	67 p	1/1	24	1/8½	30 c	1/	—	—	13 c	8d	—	—	—	—
Yarrow ...	39	9d	—	—	24	7½d	10	1/2¼	5	5½d	—	—	—	—

JAVA. 658 chests. Average 7¼d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Nangoeng ...	384 p	7½d	—	—	232 b	7¼-1/-	51 b	8¼-8½	101 c	5⅝-6	—	—	—	—
Waspada ...	274 c	7d	55 c	†9d	72 c	8d	88 c	†6d	—	—	—	—	59 c	5½-6¼

In these tables all packages are half-chest unless otherwise stated b stands for boxes, c for chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *January 1st*, 1892.

When our supply of Tea was drawn from China, the Public may well have regarded the Tea trade with indifference. At the present time so much British Capital is invested in Tea property in India and Ceylon that the welfare of the industry is a matter of National importance.

HOME CONSUMPTION. Our own possessions now contribute some 75 % of the tea we drink, only 25 % being supplied by China. Under these circumstances it is matter for general congratulation that the Home Consumption for 1891 has exceeded any previous record. In 1889 we only consumed 185 million lbs. of Tea; in 1891 we have used about 202 million lbs

So long as the weaker Teas of China were being rapidly displaced by the stronger Teas of India and Ceylon, the increase in consumption of dry leaf was hardly appreciable, although a larger quantity of liquid tea was gradually being used. The displacement of China Tea during the last two years has not been very marked; hence the greater weight of Tea required to supply the gradually expanding liquid consumption. This, with the reduction of duty last year to 4d. is doubtless answerable for the heavy increase in the use of dry Tea.

There is another feature which is remarkable in the Home Consumption during the past year. It is the first time in which Ceylon Tea has been more largely drunk than China Tea (estimating figures for December). If we go back to 1887 we find only ten million lbs. of Ceylon Tea were drunk to 90 million lbs. of China. Only four years afterwards the use of Ceylon Tea has increased to about 50 million lbs., while the quantity of China Tea has been reduced by about 40 million lbs., Indian Tea supplying the bulk of the Home Consumption.

The year 1891 will also be remembered for the extraordinarily low range of prices current during the last few months for the lower grades of Indian and Ceylon Tea. These grades constitute the main portion of Tea drunk in this country, and have recently been obtainable at a lower price than was ever previously known.

FOREIGN MARKETS. The export trade in China Tea shows a considerable falling off, but Indian and Ceylon Teas both show substantial increase. The importance of this branch of the trade is now so great, that it is necessary to bring all possible influence to bear upon such foreign governments as impose duties which are almost prohibitive.

INDIAN. The year opened with very high prices for low grade Teas; short supplies being anticipated both from India and China. Prices gradually fell off till towards the close of the year when this grade reached its recent unprecedentedly low level. Fine flavoured Teas and Teas of exceptional quality have been somewhat scarce and commanded full rates. The general quality of the crop has not been equal to that of last year.

CEYLON. The early months of 1891 were marked by high prices for the low grades. The abnormally wet weather which prevailed in Ceylon occasioned so rapid a growth of the Tea leaf that production fairly outran any previous record. The London market in consequence became somewhat flooded with unexpected supplies. The result of this was a gradual shrinkage in values to the recent low level. Perhaps the only consolation to be drawn from the late depression is the stimulus which it has given to the consumption of Ceylon Tea both at home and abroad. It is remarkable that about 50 % more Ceylon Tea was used in Great Britain in 1891 than in 1890.

JAVA. The supply of Java has not been much, and the course of the market has mainly followed that of Indian and Ceylon Teas. Owing to the recent low prices of these, Java Tea has not been in so much demand for Home Consumption, and has in consequence been taken freely for export markets.

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1891,	4¼d.	1890,	6d.	1889,	5¼d	1888, 6¼d.
FANNINGS.	(Red to brown, strong rough liquor)	,,	5d.	,,	6½d.	,,	6d.	,, 6¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6¾d.	,,	8d.	,,	7½d.	,, 7½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	7¼d.	,,	8½d.	,,	8¼d.	,, 8d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8¾d.	,,	9¼d.	,,	9d.	,, 9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¾d.	,,	7¾d.	,,	7d.	,, 7¼d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7d.	,,	8¼d.	,,	8d.	,, 7¾d.

BANK RATE. 3½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. $4\frac{29}{32}$d.

IMPORTS.	1888-9	1889-90	1890-1.	1891-2
	(1888)	(1889)	(1890)	(1891)
June	2,139,242	3,649,132	3,693,204	6,480,184
July	2,040,094	2,883,564	5,142,768	5,728,946
August	2,412,362	1,716,628	3,508,780	6,019,994
September	1,452,408	2,673,498	3,244,802	4,713,190
October	1,691,792	1,953,520	2,371,260	4,596,598
November	1,588,964	2,519,050	3,056,966	3,915,472
December	2,015,462	2,746,054	2,888,626	
	(1889)	(1890)	(1891)	(1892)
January....	2,660,244	2,573,914	2,885,804	
February	1,971,772	3,051,404	4,726,980	
March	2,476,842	3,008,554	4,765,346	
April	3,257,796	3,403,832	5,941,264	
May	2,681,694	4,067,074	5,178,902	
Total for Season	26,389,632	34,246,224	47,404,702	23,830,564

DELIVERIES.	1889-90	1890-1.	1891-2
	(1889)	(1890)	(1891)
June	2,667,890	3,613,768	5,480,572
July	3,677,728	3,932,286	5,420,842
August	3,200,918	3,793,038	5,156,082
September	2,900,718	3,960,440	5,277,420
October	2,655,488	3,640,690	5,340,192
November	2,177,092	3,162,432	4,787,596
December	1,889,324	2,772,302	
	(1890)	(1891)	(1892)
January....	2,215,670	3,565,962	
February	2,126,498	2,884,300	
March	2,081,078	2,769,972	
April	1,334,678	3,942,242	
May	5,019,890	4,578,406	
Total for Season	31,946,972	42,615,838	

STOCK.	1888-9	1889-90	1890-1.	1891-2
	(1888)	(1889)	(1890)	(1891)
June	1,594,208	8,175,430	9,669,810	15,974,506
July	2,266,106	7,381,266	10,880,292	16,282,606
August	2,116,702	5,896,976	10,596,034	17,146,528
September	1,873,396	5,669,756	9,880,396	16,582,296
October	1,885,440	5,105,266	8,610,966	15,838,696
November	1,689,480	5,447,224	8,505,500	14,966,576
December	1,408,134	5,129,978	6,303,954	8,621,824
	(1888)	(1889)	(1890)	(1891)
January....	1,945,932	5,844,290	6,662,198	7,941,666
February	1,915,114	5,900,948	7,587,104	9,784,346
March	2,137,838	6,239,952	8,514,580	11,779,720
April	2,105,016	7,405,692	10,543,190	13,778,742
May	2,893,198	7,194,188	9,590,374	14,974,892
Total for Season	23,830,564	7,194,188	9,590,374	14,974,892

This Table can be obtained printed on Cardboard.

GOW, WILSON & STANTON,
Brokers, 13, Rood Lane, London, E.C.

Table showing movements of **INDIAN TEA** (in lbs) in London during the Season years 1888-9 to 1892-3.

	IMPORTS.					DELIVERIES.					STOCK.				
	1888-9	1889-90	1890-1	1891-2	1892-3	1888-9	1889-90	1890-1	1891-2	1892-3	1888-9	1889-90	1890-1	1891-2	1892-3
	(1888)	(1889)	(1890)	(1891)	(1892)	(1888)	(1889)	(1890)	(1891)	(1892)	(1888)	(1889)	(1890)	(1891)	(1892)
JUNE	1,397,829	825,246	457,587	1,561,734		5,360,919	7,256,436	8,630,442	6,759,819		20,149,773	21,323,745	19,316,934	21,462,453	
JULY	3,325,743	3,438,990	4,034,877	4,276,542		5,923,545	7,378,119	7,291,524	7,144,722		17,551,971	17,384,616	16,060,287	18,594,273	
AUGUST ...	9,822,483	5,639,145	6,468,591	8,998,165		6,440,949	6,030,389	6,861,027	7,268,049		20,933,505	16,993,374	15,667,851	20,314,389	
SEPTEMBER	10,674,126	12,220,416	12,844,764	14,149,404		7,494,951	7,914,804	7,870,338	8,503,983		24,112,680	21,298,986	20,642,277	25,959,810	
OCTOBER ..	15,563,913	13,596,243	15,236,922	16,094,865		8,926,065	10,334,121	9,822,003	10,520,448		30,761,211	24,561,108	26,057,196	31,534,227	
NOVEMBER	11,437,035	16,322,379	14,526,522	18,870,030		8,622,891	9,699,849	9,606,153	10,041,987		33,575,355	31,183,638	30,977,565	40,362,270	
DECEMBER	13,459,059	15,376,368	14,354,883			7,003,338	8,745,714	8,955,555			40,031,076	37,814,292	36,376,893		
	(1889)	(1890)	(1891)	(1892)	(1893)	(1889)	(1890)	(1891)	(1892)	(1893)	(1889)	(1890)	(1891)	(1892)	1893)
JANUARY ...	12,282,363	13,367,724	13,258,320			8,931,927	8,831,223	10,570,794			43,381,512	42,350,793	39,064,419		
FEBRUARY...	8,669,115	8,912,076	10,098,585			8,007,009	8,187,293	9,031,506			44,043,618	43,081,176	40,131,498		
MARCH	5,456,388	6,684,921	5,953,848			8,143,899	7,141,953	7,223,670			41,356,107	42,624,144	38,861,676		
APRIL	2,449,266	4,214,772	2,381,283			7,726,908	5,155,941	8,061,642			36,078,465	41,527,833	33,181,317		
MAY	416,967	453,984	263,049			8,786,385	14,492,028	6,783,828			27,754,935	27,489,789	26,660,538		
INDIAN.	94,954,287	101,052,264	99,879,231			91,368,786	101,167,868	100,708,482			27,754,935	27,489,789	26,660,538		
CEYLON.	26,389,632	34,246,224	47,404,702			23,830,564	31,946,972	42,615,838			7,194,188	9,590,374	14,974,892		
JAVA.	4,169,200	3,107,700	3,780,700			3,862,880	3,279,690	3,994,480			1,233,820	1,064,840	851,060		
CHINA.	98,696,104	90,096,227	69,755,713			105,665,544	87,652,676	81,382,057			37,349,932	39,990,303	28,341,426		
TOTAL for SEASON	224,209,223	228,502,415	220,820,346			224,727,774	224,047,206	228,700,857			73,532,875	78,135,306	70,827,916		

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BROKERS, 13, Rood Lane, London, E.C.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

upplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *January 8th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	707,966 packages.	353,969 packages.	29,168 packages.
1891-1892.	823,303 ,,	477,556 ,,	28,269 ,,

uring the week

,573 packages Indian
,746 ,, Ceylon
626 ,, Java

Total 63,945 packages have been offered in public auction.

December's statistics call for very little comment. Deliveries of Indian and Ceylon Tea are good.

After about a fortnight's intermission, sales recommenced this week, the aggregate amount of dian and Ceylon Tea catalogued being heavier than in any previous week. The auctions opened th fairly spirited bidding, but prices gave way slightly towards the close of the week.

NDIAN. Monday's auction of 24,796 packages was heavier than any previously held in one day; it a still larger sale is advertised for the 11th inst., catalogues for 25,852 packages being already sued. The market opened at about the closing rates of last year, buyers however not evincing eat keenness. Prices, later on in the week, showed irregularity, and poor liquoring Teas must quoted fully ¼d. below closing rates of last year.

This weeks average price of New Season's Teas sold on Garden Account. Total 35,858 pkgs. average 9d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	16813 p	9½d	Chota Nagpore ..			Kangra Valley ..	363 p	7¼d
Cachar and Sylhet..	12600 p	8d	Darjeeling & Terai	2026 p	1/1	Neilgherry.. ..		
Chittagong	200 c	8¼d	Dooars	2914 p	8d	Travancore	942 p	7¼d

Comparative prices of Indian Tea in London:—

UST.	(Fair ordinary, dark liquor)	1892,	4¼d.	1891,	6½d.	1890,	5½d.	1889, 6d
ANNINGS.	(Red to brown, strong rough liquor)	,,	5d.	,,	7d.	,,	6d.	,, 6d.
ROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6½d.	,,	8½d.	,,	7½d.	,, 7½d.
EK. SOUG.	(Blackish greyish, useful liquor)	,,	7d.	,,	9¼d.	,,	8¼d.	,, 8¼d.
EKOE.	(Greyish to blackish some tip, useful liquor)	,,	8¾d.	,,	10½d.	,,	9¼d.	,, 9¼d.
EK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	8¼d.	,,	7d.	,, 7¼d.
EKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	9¼d.	,,	8d.	,, 7¾d.

EYLON. The average price of all the Ceylon Tea sold on Garden Account during 1891 was d. per lb. against 11d. in 1890, 11¼d. in 1889, and 11½d. in 1888.

At the opening auction on Tuesday, last year's prices were rather more than maintained; en competition caused an occasional advance of ¼d. to ½d. on Medium Grades. Average 10d.

Comparative prices of Ceylon Tea in London:—

EKOE SOUG.	(Ordinary leaf; fair liquor)	1892	7	1891	9¼	1890	10¼	1889 9¼
EKOE	(Ordinary leaf; little twist; fair liquor)	,,	9½	,,	10¾	,,	11	,, 10¼
EKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5½	,,	8¾	,,	9¾	,, 8½
EKOE	(Somewhat bold leaf; indifferent liquor)	,,	6¾	,,	9¾	,,	10¼	,, 9¼

AVA. Only one sale was held, at which the bidding was good and prices were firm. Average 6½d.

MOVEMENTS OF TEA IN LONDON (in lbs.) DURING DECEMBER.

	Imports.			Deliveries.		
	1889.	1890.	1891.	1889.	1890.	1891.
Indian	15,376,368	14,354,883	14,416,506	8,745,714	8,955,555	9,283,992
Ceylon.....	2,746,054	2,888,626	4,756,240	1,889,324	2,772,302	4,282,924
Java	108,290	252,070	125,510	134,960	202,720	108,920
China, etc.	12,572,480	9,462,127	5,269,191	6,542,487	5,200,359	4,665,543
Total lbs.	30,803,192	26,957,706	24,567,447	17,312,485	17,130,936	18,341,379

FROM 1st JUNE TO 31st DECEMBER.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
IAN	67,418,787	67,924,146	78,357,246	57,359,430	59,037,042	59,523,000	37,814,292	36,376,893	45,495,678
LON.....	18,141,446	23,906,406	36,210,624	19,169,158	24,874,956	35,745,628	6,303,954	8,621,824	15,439,888
.....	1,347,620	2,000,600	1,961,340	2,038,870	1,300,970	2,339,260	542,150	764,470	474,670
NA, etc	71,352,084	54,669,645	50,543,915	50,884,459	49,919,645	42,873,207	57,811,525	44,740,232	36,115,177
Total lbs.	158,259,937	148,500,797	167,076,125	129,451,917	135,132,613	140,481,095	102,471,921	90,503,419	97,525,413

BANK RATE. 3½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 4 13/16d.

INDIAN. Average 9d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
ASSAM	**16813p**	**9½d**												
Assam Co ...	1114 p	9	—	—	360	8½ 1/0¼	167	1/0¾ 1/3½	—	—	571	5-1/5½	10½c	6¾
AssamFrontierCo	782	10¼	194	1/1¼ 1/7¼	432	9-10	—	—	140	7-7¼	—	—	16	6
Attaree Khat Co	642 p	10½	—	—	246 p	7-1/3	71	1/3¼ 1/5½	187	8-9½	113	6½-7¾	25	5¼
Balijan T Co ...	252 p	10¾	44½c	1/11¾	160	9¾ 10¼	—	—	48	7¼		—	—	—
Beheating ...	135	7½	—	—	30	10¾	—	—	35	7¼	70	6¼	—	—
Bishnauth T Co	284 p	10¼	21½c	1/9	100	11¾	—	—	80	8¼	60	7	25	1-1¼
Borjan ...	190	10¼	30	†1/1¾	58	†8¾	23	1/6¼	79	†7½	—	—	—	—
Borpani Valley ...	167 p	7	20½c	1/2¼	50	†7	30	7¼	20	6	24	5½	5½c	5¾
Brahmapootra Co	718	9½	—	—	215	9¾ †11¼	105	1/0¾-1/4	297	6¾7¾	101	5¾ 7	—	—
British Assam Co	487 p	8¾	—	—	114	9½	66 p	1/5-1/7½	142	7	165 p	6-6¼	—	—
Choonsali T Co C	142	8¾	15	1/5½	20	8½	40	9¼	41	6¾	26	6	—	—
Chubwa T Co ...	257 p	8¼	103½c	1/0¼-1/2	¼ 80	8¼	44	6¾	29	6¼	—	—	1½c	3
Corramore ...	218	1/1½	20	2/1	80	1/2¼ 1/6½	20	1/0¼	39	9¾	39	7½ 7¾	20	9
Dekhari ...	71	11	—	—	—	—	24	1/7½	20	7	20	7	7	4¼
Doom Dooma B	149	10½	—	—	85	9½-11½	29	1/2	35	7½	—	—	—	—
,, H	210 p	10½	42½c	1/3¼	92	10-11½	29	1/1½	31	7½	—	—	15	6
Dooria ...	395 p	1/	—	—	240 p	9½ 1/2½	125 b	1/5	—	—	50	7½	—	—
DebrooghurCo ...	184	7½	—	—	23	9¼	15	1/4	124	6¼-6½	22	6	—	—
Gellahatting Co	133 p	1/2¼	53½c	1/5¾ 2/0½	28	11½	27	1/3½	25	9	—	—	—	—
Hunwal T Co ...	362 p	7¾	83 p	9¾-1/3	91	7¾ 8	35	9½	—	—	158	6	15	4
Jhanzie T Assoc	462 p	9½	—	—	176	9-9¼	83	1/2¾	163	7-7¼	—	—	40 p	5¾ 6¼
JokaiTCo Jamira	92	6¾	—	—	38	7-†7¾	29	†6	25	6½	—	—	—	—
,, Muttuck ...	116	8½	18	1/6¼	51	7-7¾	—	—	31	6¼	—	—	16	5½
,, Panitola ...	425	1/2½	150	1/5½ 1/8½	106	2½ 1/2¾	—	—	169	11¼	—	—	—	—
,, Tippuk ...	241	10	78	1/1¾ 1/2¼	98	9¾-1/-	—	—	36	†7¾	4	5¾	25	3
Jorehaut T Co	350	10	30	1/2-1/4¼	84	9 11½	54	1/1½ 1/5¾	146	6¾8½	—	—	36	7¼ 8
Khobong T Co...	408 p	7	36½c	11¼	132	6¾-8½	46½c	10¾	138	5¾	—	—	50	†4¾
Khongea ...	243 p	8½	27 b	2/2¼	47	†8¾ 9½	169 p	†6½ 11¼	—	—	—	—	—	—
Kobira ...	159 p	6¼	—	—	78	7	—	—	31	6	50	5 5¼	—	—
LuckimporeTCo	90	10¼	—	—	30	11½	20	1/2¾	—	—	40	7-7¼	—	—
LMB Diffloo ...	351	7	—	—	80	†7¼	125	†8¾	110	6-6¼	—	—	36	4
,, Latakoojan	575	9¾	—	—	275	9¾	100	1/3½	200	7¼	—	—	—	—
Medla ...	74 p	11½	36 b	1/11¼	19	9¼	—	—	19	8	-	—	—	—
Mesai Jan ...	370	8½	—	—	60	10	71	1/1¼	124	6¾-7	91	6¼	24	7¼
Mungledye T Co	269	11½	—	—	80	11-11¼	59	1/6	60	9	70	9	—	—
Nahor Rani ...	270	10¾	—	—	70	1/0½ 1/7½	54	1/1½ 1/6¼	126	7-7¼	20	7½	—	—
Nahor Toli ...	130	9½	30	1/6	30	8¼	—	—	50	6½	—	—	20	6¼
NoakachareeCoK	345	7½	—	—	116	7¾-8¼	70	10	129	5¾-6¼	25	6	5	3¾
,, Rajoi ...	250	6¾	—	—	60	7½	40	8¾	90	6	60	5½	—	—
,, Teok ..	98	9¼	—	—	43	11¼	—	—	55	7¾	—	—	—	—
Nonoi T Co ...	518 p	9	70 p	1/2½ 1/2¾	282	8¼-11	36	11½	113	6¼-6½	—	—	17½c	3¾
Ohat ...	191	10½	—	—	80	11½	12	1/4½	57	7½-7¾	14	9	28	11
Rajmai Co. ...	370 p	8¾	—	—	90	10	89½c	1/1½	—	—	142	6¾-7	39	8
ScottishAssamC	110	8½	—	—	17	11	19	10	45	8	29	7¼	—	—
Sealkotee ..	165 p	9¾	—	—	100	7¾-10	40½c	1/5¾	—	—	25	5¾	—	—
Shakamato ...	171 p	1/2¼	20½c	1/11½	52	1/2¼ 1/6¼	25	1/4½	38	10½	36½c	8½	—	—
Sillonee Baree	170	9¼	—	—	60	9½	30	1/1	37	7	21	7	22	10¼
Sonajulie ...	433	7¾	—	—	141	9-1/0¾	42	†8½	101	†7¼	85	†6¼	64	†6
Tingri T Co ...	273	9¾	27	1/5¾	70	10¼	43	1/0¼	133	6¾-7	—	—	—	—
Tiphook T Co ...	299	8½	—	—	70	9	30	1/5¾	169	6½6¾	30	8	—	—
Titabur ...	128	9	—	—	42	9¼	20	11¾	45	7	—	—	21	10
CACHR & SYLHT	**12600p**	**8d**												
Allynugger ...	400	8½	41	1/0¾ 1/5¼	209	8¼8½	60	†8	60	6½	30	5¾	—	—
Baraoora ...	380	10½	65	1/2-1/8¾	150	9¾	65	10¼	100	7½	—	—	—	—
Bicrampore H	160 p	8¼	—	—	40	7¾-9½	39½c	1/0½ 1/7¾	—	—	66	†6¾	15	4
B&CoChargola C	408 p	7½	46	1/1¼ †1/3	140	7½	51	7½	88	6½	10	4¾	73½c	4¼
Borokai T Co.	173	11¾	—	—	68	10¾	16	2/1¼	35	7¾	54	11¾	—	—
BITCoDwarbund	169	6¾	—	—	40	6½	69	8¼ †8¼	60	4¾-5½	—	—	—	—
,, Urrunbund	178	6¾	—	—	94	7½	—	—	—	—	84	5¾-6¼	—	—
Chatlapore ...	251 p	9½	28	1/5-1/7¼	110	9¾	26	7½	43	7½	24	6½	20½c	4
Cheerie Valley	270	7½	—	—	79	7½-7¾	44	11¼	71	6¾-7	76	5½-5¾	—	—
Craigpark ...	130	8¼	—	—	63	8¾	35	9¼	17	6¼	—	—	15	5½
LF&Co ...	173	8¼	—	—	41	8¾	39	1/	40	†6¾	53	6	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
LMB Jalingah	150	7½	—	—	70	7½	30	9½	50	6¼	—	—	—	—
Longai ...	180 p	6¾	27½c	†10½	25	†7	33	7½	83	6	12	5¾	—	—
Lungla T Co ...	338 p	7¼	57 p	†8¼ 1/5¼	84	6½ †7¼	68	7¾	129	6	—	—	—	—
NSTCo Burjan	245 p	9	20	1/8½	65	8¼	65	9	45	7	35	6½	15½c	5½
NrthWstrnCachr	106 p	1/0½	22½c	2/-	41	10½	20	1/3	23	8¼	—	—	—	—
Pathini ..	500	7¼	90	9¼-11	220	7-7¼	110	6½6¾	80	5¾	—	—	—	—
Patrakola ...	330	8¼	12	1/8½	79	8¼	125	8¾	102	6½6¾	12	6	—	—
Phoenix T Co	260	6½	—	—	94	7	60	†7½	79	†5½	27	5¼	—	—
Puttareah ...	160	7¼	—	—	70	7½7¾	20	10½	70	5¾	—	—	—	—
Scottpore T Co...	389	7½	19	1/4½	104	7¾	59	9	207	6 6¼	—	—	—	—
,, P	149	7	—	—	92	7¾	—	—	—	—	57	5¾	—	—
,, S	166	7½	—	—	52	8 8¼	30	10	60	6½6¾	24	5¾	—	—
Shumshernugger	507	9	50	1/5	238	8¾ 9	69	9	110	7	40	6¼	—	—
SSTCoAmrail ..	294 p	8¾	12	1/3¾	72	9¼	83	9½	66	7¾	36	6¾	25½c	5¼
,,Balisera . .	693 p	7¾	24	1/6	267	7½-7¾	238	7¾ 8	110	6¾	—	—	54½c	4½
,,Deanston ...	577 p	8½	30	†1/4¼	222	8½-8¾	155	8¼	130	7½	—	—	40½c	5
,,Jagcherra ...	554 p	7½	179	7½ 1/4¾	—	—	165	7¾	145	6¼	—	—	65½c	4¾
,,Phulcherra ...	436 p	7¾	15	1/7¼	135	7½-7¾	154	†7¾	83	6¾	—	—	49½c	4½
,,Rajghat ...	430 p	7¾	16	1/5	138	7½-7¾	130	7¾ 8	96	6¾	—	—	50½c	5
Sylhet T Co ...	155	7	33	7¾	28	†6½	49	8¼	29	5¾	—	—	16	5¼
Tarrapore T Co	186	9¼	—	—	59	10	29	1/3½	72	7 7¼	26	6¼	—	—
THITTAGONG	**200 c**	**8¼d**												
Tantmara ...	110	8½	15	1/2¼	31	8¾	—	—	40	7	—	—	24	7½
Tuttiya ...	90	8	—	—	32	8¼	17	10	41	6¾	—	—	—	—
TRJELNG&TERI	**2026 p**	**1/1**												
Talasun Co ...	86 p	1/5	64½c	†1/6½-†1/	6¾22	†1/2½	—	—	—	—	—	—	—	—
Tarjeeling T Co	225	10¼	—	—	72	11 11¼	48	1/1¼	105	8 8¼	—	—	—	—
Tungaram . .	77	9¼	—	—	19	11¼	12	1/3½	43	7	—	—	3	4¼
Talej ...	56	1/8¾	—	—	19	1/11¾	17	2/2	20	1/1¾	—	—	—	—
Margaret's Hope	89	2/1½	35	2/4¾	20	2/	18	2/7	16	1/2½	—	—	—	—
TSTC Bloomfield	92 p	1/	15	1/4½	21	1/2	16	1/4	35	7¼	—	—	5½c	4¼
Turbong ...	245 p	9½	71½c	1/ 1½ 1/3¼	67	10½	—	—	73	8 8¼	20	6½	14	†5½
Tuxalbarrie ...	130 p	9½	20	1/1	30	9¼	25½c	1/2	43	7½	12	7	—	—
Tahar Goomirah	112	11	—	—	26	11½	31	1/5½	55	7¼	—	—	—	—
Toobong ...	105 p	1/5	40½c	1/ 10 2/0½	40	1/5½	—	—	25	10¼	—	—	—	—
Tunglee Rungliot	105 p	1/1⅛	40	1/3¾	20	1/	20½c	1/5¾	25	9	--	—	—	—
Tukvar T Co ...	185 p	1/2¼	110	1/4-1/6	—	—	—	—	51	10½	—	—	24½c	9¾
Turzum ...	80½c	1/8¼	24½c	1/11	54½c	1/ 7½ 1/7¾	—	—	—	—	—	—	2½c	6¼
TOOARS	**2914 p**	**8d**												
Thalouni ...	232	10½	—	—	69	10¼	96	1/0¾	67	7¾	—	—	—	—
TooarsTC Indong	134	8¾	13	1/3¾	33	8½	42	8¾	23	7	12	6¾	12	7
,, ,, ...	135	8¾	12	1/4¼	46	8½	40	8¾	17	6¾	14	6½	6	4
,, Nagrakatta	472	8¼	45	1/3¾	141	8¼	103	9½9½	158	6½	—	—	25	
,, Tondoo ...	197	7¼	—	—	56	7¾	51	8½	75	†6¼	—	—	15	6½
Ullenbarrie ...	146	10¾	83	10½ 1/7	—	—	—	—	63	7¾	—	—	—	—
Wajilidoubah BS	105	9¼	—	—	—	—	12	1/3¼	30	7½	16	6¾	47	6¾11
Wope ...	227	9¾	24	1/7½	38	9¼	71	10¼10½	69	7¼	—	—	27	7½
Willcott T Co ...	159 p	6½	—	—	32	6¾	41	8	57	6	—	—	29 p	3¾5¼
Yeesh River Co	225	8	22	1/1¼	50	7¾	45	9¼	40	6½	68	6¼	—	—
Yethujhora ..	71	5½	—	—	—	—	—	—	—	—	57	6	14	3¾
Yanabarrie ...	273	7¼	71	8½ 11¼	—	—	—	—	158	6½6¾	—	—	44	5½
Yundani ...	54	6¾	—	—	—	—	—	—	54	6¾	—	—	—	—
,, ..	156 p	6¼	—	—	—	—	—	—	135	6½	—	—	21½c	4
Yoolbarrie Co ...	279	5½	—	—	66	6¼-6½	74	5¼-7	46	5¼	70	4¾-5	23	3½
Yungdong ...	49	6½	—	—	—	—	—	—	—	—	49	6½	—	—
ZANGRAVALEY	**363 p**	**7¼**												
Zandla T P ...	118	6½	25	8¾	—	—	—	—	48	6¼	45	5½	—	—
Zangra Valley G	117 p	8¾	72 p	†8½ 1/1	13	8½	13	8½	19	†6	—	—	—	—
ZRAVANCORE	**942 p**	**7¼d**												
Zelford ...	80½c	7	—	—	79½c	7	--	—	—	—	1½c	4	—	—
Zson Valley ...	33	9	—	—	19	8½	10	11½	—	—	3	5½	1	4¼
Zon Accord ...	66½c	7	—	—	33½c	6½	18½c	10	—	—	14½c	4¾	1½c	3¼
ZMR ...	112½c	7½	—	—	108½c	7½	—	—	—	—	1½c	5	3½c	3⅓

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price
Glenbrittle ...	36½c	6¼	—	—	19½c	6½	7½c	8¾	—	—	8½c	4¾	2½c	3½
Great Valley ...	16½c	6½	—	—	16½c	6½	—	—	—	—	—	—	—	—
Home ...	64½c	6¾	—	—	63½c	6¾	—	—	—	—	—	—	1½c	3¼
Invernettie ...	40	8	—	—	12	7¾	15	9½	12	6½	—	—	1	3½
Kinmylies ...	80½c	6½	—	—	73½c	†6¾	—	—	—	—	5½c	4½	2½c	3
Linwood ...	86½c	6	—	—	79½c	6¼	—	—	—	—	4½c	3¾	3½c	3½
Mount ...	54	6½	—	—	—	—	15	†8¾	39	5½	—	—	—	—
Poonmudi ...	51 p	8¼	—	—	21	†7¾	18	10½	—	—	9	5½	3½c	4
Rockwood ...	138½c	6½	—	—	129½c	6¾	—	—	—	—	3½c	3½	6½c	3¼
Seenikali ...	20½c	7½	—	—	9½c	7¼	6½c	9¼	—	—	5½c	5¾	—	—
Stagbrook ...	25	8	—	—	—	—	6	10¾	19	7	—	—	—	—
TPC ...	41	7¾	—	—	12	8½	10	10	19	6¼	—	—	—	—

CEYLON. Average 10d.

Aldie ...	61 p	9¼	—	—	18	9½	20½c	1/1¾	23	6¼-7¼	—	—	—	—
Allagalla ...	79	9¼	—	—	24	10	19	1/0¾	28	7¾	5	5¼	3	4
Annfield ...	106	10¾	—	—	53	9¾	38	1/1½	15	7	—	—	—	—
Avisawella ...	105 p	8¾	19 b	1/5¾	24	6¾-9½	18	11½	44	6½	—	—	—	—
,, ...	100	8¾	—	—	28	†6 10¾	19	1/1½	49	6¾	4	4¾	—	—
Barnagalla ..	108	9¾	—	—	28	9	46	1/	34	7¼	—	—	—	—
Beaumont ...	74	10¼	—	—	25	10	28	1/0¼	21	8	—	—	—	—
Becherton ...	50	7½	—	—	29	6½	21	†9	—	—	—	—	—	—
Blackstone ...	83 p	9	—	—	20	9½	38½c	1/0½	25	6	—	—	—	—
Blair Athol ...	135½c	10¾	58½c 1/	1¼ 1/1¾	45½c	10	—	—	28½c	7½	4½c	4½	—	—
Blairavon ...	58	9	—	—	25	9½	16	11¼	15	6½	—	—	2	5
Brae ...	83½c	8½	—	—	24½c	9½	18½c	1/	30½c	7	9½c	2½-5¼	2½c	4
Broad Oak ...	67½c	10½	—	—	29½c	9¾	33½c	11¾	4½c	6½	1½c	4	—	—
,, ...	61½c	10¾	42½c 1/		16½c	9	—	—	—	—	3½c	5	—	—
Bromley ...	63	11½	—	—	22	11½	19	1/4	19	8¼	—	—	3	5¾
Brownlow ...	38	9¼	—	—	16	9¼	12	†11¾	10	†6	—	—	—	—
Brunswick ...	91 p	1/0¼	62½c 1/	2-1/2¼	26	10½	—	—	—	—	—	—	3	7½
Campion ...	115	11¼	—	—	39	10¾	53	1/1¼	23	8	—	—	—	—
Caskie Ben ...	45	10¾	23	1/0½	20	9¼	—	—	—	—	—	—	2	7¾
Choisy ...	48	9¼	—	—	17	9	13	1/1	18	6½	—	—	—	—
Chrystler's Farm	68	1/	—	—	28	11	21	1/5¼	19	7¾	—	—	—	—
CL&PC Fettereso	91 p	11¼	—	—	25	1/	37½c	1/2¾	25	8½	2	7¾	2½c	5½
,, Rickarton ...	79 p	1/2¼	14 p 1/	4-†5/1	20	1/2	18½c	2/0½	18	10	4	4-8¼	5½c	8
Claremont ...	82½c	8¼	—	—	33½c	7	44½c	9¾	—	—	3½c	3¼	2½c	4
Coombewood ...	48	11¼	—	—	21	9-10¼	27	1/0¼	—	—	—	—	—	—
Cottaganga ...	73	8¼	—	—	18	8	25	10¾	30	6½	—	—	—	—
CTPCo Alton ...	138 p	9½	36½c	11¼	50	9½	20	1/1	18	†6¼	—	—	14	5½
,,EastHolyrood	134 p	10¼	—	—	74	9¼-9½	60	10¾	—	—	—	—	—	—
,,Rosita ...	73 p	10	23½c	1/2	27	10¼	—	—	23	7¾	—	—	—	—
,,Tillyrie ...	77	11¾	27	1/3	37	10¾	—	—	8	8	—	—	5	7½
,,Waverley ...	86	1/2¾	—	—	36	1/1	47	1/4½	1	9½	—	—	2	10¼
Daphine ...	63 p	7½	—	—	27	7½	16	9¾	17	5½	1½c	1¾	2	4¼
Deeside ...	136	11¼	—	—	53	9¼	83	1/0½	—	—	—	—	—	—
Densworth ...	82 p	8½	—	—	22	8½	40	9¼	20½c	6	—	—	—	—
Dessford ...	75	11¼	—	—	32	10½	31	1/1¼	12	8¼	—	—	—	—
Detenagalla ...	85½c	10½	—	—	42½c	11	20½c	1/0¾	23½c	8	—	—	—	—
Devonford ...	56 p	9¾	—	—	15	9¾	35½c	†10¾	6	7¼	—	—	—	—
Deyanella ...	36 p	9¼	18½c	1/2¼	17	6¾	—	—	—	—	1	4¼	—	—
Drayton ...	147 p	1/1¼	107 p 1/	0¾-1/9	½ —	—	—	—	34	9¼	—	—	6½c	6¼
Ederapolla ...	114 p	8¾	—	—	28	8	63½c	11	23	6½	—	—	—	—
Eila ...	100	6½	—	—	51	6½	15	8¾	34	5½	—	—	—	—
Ekkie Oya ...	61	7¾	—	—	34	7½	14	10¼	13	5½	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Elangapitiya ...	66	6¾	—	—	33	8	—	—	25	6¼	8	3¾	—	—
Elfindale ...	159½c	5¾	—	—	100½c	6¼	—	—	53½c	†5¼	—	—	6½c	4½
Elgin ...	68 p	10½	—	—	22½c	10	30	1/0½	14	7¼	—	—	2	6¾
Emelina ...	81	10	—	—	42	9¾	15	1/3¼	15	7¾	7	4½	2	6¾
EP&ECMdecmbr	77	9¼	—	—	20	8¾	29	1/	28	6½	—	—	—	—
„Vellai-Oya ...	145	11	51	1/2¼	75	9½-9¾	—	—	19	7¾	—	—	—	—
Erlsmere ...	92	11	34	1 1¼ 1/4¾	55	8¾-10	—	—	—	—	—	—	3	6¼
Fairlawn ...	79½c	1/0¾	—	—	39½c	1/0¼	21½b	1/5	16½c	9¼	2½c	6½	1½c	5
Frotoft ...	159½c	1/1	—	—	38½c	1/0¼	62½c	1/4	51½c	10¼	8½c	9½	—	—
Galata ...	63½c	10	—	—	27½c	9½	34½c	†10¾	—	—	—	—	2½c	4½
Gallaheria ...	81 p	9¾	15½c	1/0¾	27	8½	25	11¾	14	7	—	—	—	—
Gallamudina ...	128	9¼	—	—	64	8¾	44	11¼	—	—	20	6	—	—
Gammadua ...	64	9½	—	—	27	9	23	†1/	12	6½	—	—	2	4¾
Glasgow ...	42	1/1½	—	—	20	11¼	22	1/3½	—	—	—	—	—	—
Glassaugh ...	90 p	1/	—	—	36	1/0¼	24½c	1/5¼	30	9½	—	—	—	—
Glen Alpin ...	114	1/1	—	—	49	1/1¼	34	1/4¼	22	9¼	3	7	6	7¼
Glencoe ...	92 p	8¾	—	—	21	8¾	31½c	11¾	18	6½	2	4-4½	—	—
Glencorse ...	60	9	—	—	13	10½	12	1/1	27	7¾	7	5½	1	4¼
Glendon ...	97	9¼	—	—	49	8½	39	11	8	†5	—	—	1	4½
Glengariffe ...	73 p	9	—	—	22	9½	23	11½	23	6½	3	6	2½c	4
Glentaaffe ...	101	10½	—	—	40	10½	25	1/2¼	35	7¾	—	—	1	7
Goorookoya ...	154	8¾	—	—	50	8½	51	11	53	6¾	—	—	—	—
Hallowella ...	49	10	12	1/2½	25	9	—	—	12	†7¼	—	—	—	—
Hopewell ..	62½c	8	—	—	17½c	7¼	25½c	10¼	20½c	†5¾	—	—	—	—
Hornsey ...	84 p	10	28	1/0¾	34	9½	—	—	10	6½	—	—	12½c	6
Iddegodda ...	85	9½	—	—	54	9¼-9½	14	1/1½	—	—	16	6¼	1	3¾
Imboolpittia ...	216 p	9¾	39	1/0¼	68 p	9-10¾	29	1/	72 p	6½	—	—	8½c	6¼
Inchstelly ...	47½c	8½	—	—	21½c	8½	12½c	11¼	14½c	†5¾	—	—	—	—
Ivanhoe ...	92 p	8½	—	—	24	8¼	40½c	1/	20	6½	8	5½	—	—
Kaipoogalla ...	42	10½	—	—	14	10½	16	1/1¼	10	7½	—	—	2	5
Kaloogala ...	42	9¾	—	—	14	9	16	1/	11	7¾	—	—	1	4
„ ...	41	9½	—	—	14	9½	15	†11¾	11	7	—	—	1	4
Kandapolla ...	94 p	1/2¼	40½c	1/2	—	—	21	1/7¼	15	10½	—	—	18½c	8¾
Karagastalawa	19	7¾	—	—	9	6½	10	9	—	—	—	—	—	—
Katooloya ...	108	9½	—	—	31	10¼	30	1/0½	27	7¾	20	6¼	—	—
KAW ...	185	10½	—	—	133	9-1/0¾	52	7-1/2½	—	—	—	—	—	—
Keenagaha Ella	34	8¾	—	—	21	9	9	9¼	4	6	—	—	—	—
Kelvin ...	49	8¼	—	—	19	7¾	20	10¼	10	5½	—	—	—	—
Kinloch ...	48 p	10	18	1/0¼	21	9	—	—	4	6	—	—	5½c	5½
Kirkoswald ...	128	1/0¼	—	—	50	1/0¾	38	1/2½	40	9½	—	—	—	—
Kotiyagalla ...	84 p	1/1¾	—	—	31	11½	53½c	1/4¼	—	—	—	—	—	—
Lawrence ...	102 p	11¾	74	11 1/2¾	—	—	—	—	28 p	9½	—	—	—	—
Lippakelle ...	106	1/0½	—	—	59	8¾ 11¾	41	1/3½	—	—	—	—	6	9¼
Lynsted ...	171½c	1/0¼	—	—	49½c	1/0¼	47½c	1/5¾	67½c	8¾	3½c	5¼	5½c	6¾-10
Macduff ...	54	1/	—	—	—	—	35	1 1¾ 1/3¾	14	9	—	—	5	7¼
Madooltenne ...	69	8	—	—	26	6¾	28	10¼	15	5¾	—	—	—	—
Mahatenne ...	80 p	8¼	—	—	24	8½	26½c	11½	30	6½	—	—	—	—
Maria ...	80	6¾	—	—	23	6¼	24	9¾	33	5	—	—	—	—
Marske ...	50½c	11¾	—	—	26½c	9¾	23½c	1/2½	—	—	—	—	1½c	4¼
Meeriabedde ...	30 p	7¾	—	—	10	7¾	7	10¾	11	6¼	1	4	1½c	3½
Mipitiakande ...	155 p	10	—	—	73	10¼	36	1/1¼	41	6¾	1	4¼	4½c	5
Morar ...	56 p	1/0½	—	—	14	1/0¼	25½c	1/5¾	17	9½	—	—	—	—
M' K' Oya ...	44 p	7¾	—	—	12	8½	10	9¾	13	6½	4	3¾	5½c	5
Needwood ...	118 p	8½	—	—	89 p	6½-8¾	29	11	—	—	—	—	—	—
NewDimbula ...	109	1/1	—	—	44	1/0½	44	1/3¾	21	9¼	—	—	—	—
New Forest ...	47	1/0¼	—	—	22	10¾	25	1/1½	—	—	—	—	—	—
Newton ...	147½c	11½	—	—	72½c	11	46½c	1/3	24½c	8	4½c	6½	1½c	4
Nicholaoya ...	94½c	9¾	—	—	59½c	8	35½c	1/0¾	—	—	—	—	—	—
North Cove ...	100 p	10¾	—	—	44	9¾	56½c	†1/0½	—	—	—	—	—	—
OBECSinnapittia	80	8¾	—	—	30	8½	26	11½	24	6¼	—	—	—	—
Orwell ...	100	8½	—	—	67	†7¼9½	14	11¼	16	7¾	—	—	3	5¼
Ottery ...	44	10½	—	—	20	10	12	1/1¾	12	7¾	—	—	—	—
Pambagama ...	124 p	8¾	—	—	63	8½	49½c	11	12	6	—	—	—	—
Panslatenne ...	76 p	8¼	—	—	20	8½	23	10¾	20	7	10	4¾	3½c	3¾

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price.	Quantity	Price	Quantity	Price
Pantiya ...	45	9	6	9¾	21	8¾	9	1/1	—	—	9	5¼	—	—
Parusella ...	117 p	8½	—	—	56½c	7 2 7¾	24	11½	37½c	6	—	—	—	—
Penla Cotta ..	59	6½	—	—	13	7	46	6¼	—	—	—	—	—	—
Penrith ...	47	11¾	—	—	18	10¼	19	1/3¼	10	8	—	—	—	—
Pine Hill ...	148½c	10½	18½c	1/5½	51½c	1/1	—	—	52½c	8¾	15½c	3 4¼	12½c	5½
Pita Ratmalie	115½c	1/1½	—	—	64½c	1/0¼	42½c	1/4¼	—	—	6½c	4 4 9¾	3½c	10
Portmore ...	32	1/1¾	—	—	15	1/	17	1/3¼	—	—	—	—	—	—
Pundaloya ...	110 p	1/0¼	46½c	1/5¼	42	11¾	—	—	19	8¼	—	—	3½c	4½
Queensberry ...	58 p	8¾	—	—	—	—	24	1/0¼	32	6½	1	5	1½c	4½
Rangalla ...	97 p	10	—	—	38	9¾	36	11¾	14	7¾	—	—	9½c	6
Rappahannock	24	1/2	—	—	12	11	12	1/5	—	—	—	—	—	—
Relugas ...	93	8¼	—	—	33	8¼	24	10½	33	7	—	—	3	4½5¼
Rillamulla ...	54½c	9¾	—	—	20½c	10	13½c	1/2	19½c	†6½	—	—	2½c	8¼
Riverside ...	88	9	—	—	40	†8	38	†10½	10	6¾	—	—	—	—
Rookwood ...	162½c	9½	—	—	43½c	10¼	49½c	1/0¼	69½c	7½	—	—	1½c	7
Saduganga ...	31	9¼	12 1	0-1/2¼	—	—	—	—	17	7½	2	4¾	—	—
Saidawatte ...	123	9¼	39	11 11½	48	8	24	9¾ 10	12	5¾	—	—	—	—
Salawe ...	100½c	7½	—	—	25½c	7	40½c	9½	35½c	5¾	—	—	—	—
Salem ...	45	7½	—	—	12	7½	12	10½	21	5½ 6	—	—	—	—
Sanquhar ...	115 p	8¾	—	—	31	9½	47½c	11¼	33	7	2	5	2	4¼
SCTCo Invery	105 p	1/2	—	—	35	1/2¼	42½c	1/7	—	—	28 p	5½ 10¼	—	—
,,Mincing Lane	67 p	10½	—	—	23	10¼	26½c	1/3½	15	8	2	4¼	1½c	4¼
,,Strathdon ...	427 p	9¼	—	—	112	9 9¼	200½c	11¾	97	6¾ 7	8½c	4¾	10½c	6
Situlaganga ..	68 p	8	10 b	10¼	29½c	7	25½c	9	2½c	4¼	—	—	2½c	5
Stamford Hill	61	10	—	—	32	10	12	1/1¾	17	7¾	—	—	—	—
St. Andrews TNC	95½c	10¼	21½c	1/3¼	52½c	8½	22½c	9¾	—	—	—	—	—	—
Stonycliff ...	138	10¼	—	—	42	10¾	37	1/2	59	7½	—	—	—	—
St. Vigeans JG ...	43 p	10	—	—	19	9¾	18½c	1/1	5	6½	—	—	1½c	4
Summerville ...	50	11	—	—	—	—	22	1/2	28	8¾	—	—	—	—
Sunnycroft ...	77	7¾	35	8¼ 10½	27	6¾	—	—	14	5½	—	—	1	3¼
Taprobana ...	69 p	7¾	—	—	26	7	38½c	9¼	2	4¾	—	—	3	6½
Theresia ...	73 p	11½	—	—	26	9¾	44½c	1/2½	—	—	2	†5½	1	6
Theydon Bois ..	115	7	30	10	75	†6	—	—	—	—	10	5¾	—	—
Torwood ...	63 p	9¾	—	—	16	10½	20½c	1/0¾	27	8	—	—	—	—
Upper Haloya	124 p	6½	17½c	9	70	5 5 7¼	17	†6¾	20	5¼	—	—	—	—
Warriapolla ...	71	8¼	18	10 1/1¾	—	—	—	—	45	7¼	7	5	1	6¼
Wattakelly ...	58	9½	—	—	30	8	26	11½	—	—	1	4	1	5½
Wattegodde ...	103 p	1/1¼	—	—	40	11¾	33	1/5¼	25½c	8½	—	—	5½c	7¾
Wereagalla ..	80 p	9¼	—	—	26	9	34	1/0½	18	6¾	2 p	2	—	—
Weyweltalawa	119½c	9½	18½c	11¾	38½c	9½	20½c	9½	43½c	7	—	—	—	—

JAVA. 626 packages. Average 6½d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantit.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Jasinga ...	13	5½	—	—	13	5½	—	—	—	—	—	—	—	—
,, ...	71	5½	—	—	16	6¼	—	—	15	5¾	16	5½	24	4¾
Montana ...	150	6¾	—	—	24	7	58	7½	—	—	68	†5¾	—	—
Perbakti ...	69 p	8	12 b	1/2½	11	9	10	8½	10	7½	16	6½	—	—
Tendjo Aijoe ...	54	7	—	—	14	8¾	9	7	12	6½	13	6¼	6	4½
Tjiloear ...	93 p	6¾	31 b	1/0½	23	6¾	9	6	14	†5¾	16	5½	—	—
Tjogreg ...	186 c	6½	—	—	85	6½7¼	35	6¼6½	57	6	9	5¾	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *January 15th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	752,628 packages.	365,309 packages.	30,928 packages.
1891-1892.	872,603 ,,	502,366 ,,	29,413 ,,

uring the week

,300 packages Indian
,810 ,, Ceylon } Total 75,254 packages have been offered in public auction.
,144 ,, Java

The Home Consumption of Tea per head of population in 1891 was 5·35 lbs., against 5·18 lbs. 1890, and 4·99 lbs. in 1889.

antity of Tea (in lbs.) on which Duty was paid at all Bonded Warehouses in the Kingdom from 1st Jany. to 31st Dec.

	1888.	*per centages.*	1889.	*per centages.*	1890.	*per centages.*	1891.	*per centages.*
ndian	86,210,000	46	96,000,000	52	101,961,686	52	98,941,931	49
eylon	18,553,000	11	28,500,000	15	34,516,469	18	51,227,602	25
hina, etc.	80,653,000	43	61,100,000	33	57,530,337	30	52,287,304	26
Total lbs.	185,416,000		185,600,000		194,008,492		202,456,837	

Quantity of Tea exported from Great Britain, from 1st January to 31st December.

	1888.	1889.	1890.	1891.
ndian	*Included with China.*	*Included with China.*	2,624,579	3,339,828
eylon	,,	,,	1,431,931	2,093,029
hina, etc.	37,956,842	35,661,901	32,910,627	27,550,477

The Chicago Exhibition is likely to exercise important influence upon the future of the Indian d Ceylon Tea Industries—It is therefore satisfactory to note that steps have been taken for their equate representation. The necessity for utilising this powerful agency for fostering a taste for dian and Ceylon Teas in the United States cannot be overrated.

NDIAN. The heaviest quantity ever brought to Public Auction in one week did not materially erstrain the market. At Monday's unprecedentedly large sale, the closing rates of last week were y supported with good all round bidding—at later sales commoner kinds suffered to a slight ent and were here and there a farthing cheaper. Quality of recent imports is better, especially m "Darjeeling," "Dooars," "Terai," and "Assam."

This weeks average price of New Season's Teas sold on Garden Account. Total 35,201 pkgs. average 8¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	18408 p	9½d	Chota Nagpore ..	467 p	5¾d	Kangra Valley ..	268 p	7¼d
Cachar and Sylhet..	10150 p	7½d	Darjeeling & Terai	2257 p	10½d	Neilgherry.. ..	107 p	7¼d
Chittagong	190 c	10¾d	Dooars	3124 p	7½d	Travancore	230 p	8d

Comparative prices of Indian Tea in London:—

UST.	(Fair ordinary, dark liquor)	1892,	4d.	1891,	6½d.	1890,	5½d.	1889, 6d
ANNINGS.	(Red to brown, strong rough liquor)	,,	5d.	,,	7d.	,,	6d.	,, 6d.
ROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6¼d.	,,	8¾d.	,,	7½d.	,, 7¼d.
CK. SOUG.	(Blackish greyish, useful liquor)	,,	6¾d.	,,	9½d.	,,	8d.	,, 8d.
CKOE.	(Greyish to blackish some tip, useful liquor)	,,	8½d.	,,	10¾d.	,,	9¼d.	,, 9¼d.
CK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	8½d.	,,	7d.	,, 7d.
CKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6½d.	,,	9½d.	,,	8d.	,, 7¾d.

EYLON. Tuesday's sale of 20,047 packages lasted from 12 o'clock, until almost 6 p.m. In e of this, bidding continued good throughout, the market remaining unaltered for all but poor ioring Teas. At Thursday's sale, Medium and poor Teas were again easier, these being now rly a halfpenny below last week's rates. Quality has continued fair, with a good proportion of ory Teas. 51,227,602 lbs. of Ceylon Tea were used for Home Consumption in 1891, against 516,139 lbs. of China Tea. Exports from Ceylon to the United Kingdom in 1891 were nearly 000,000 lbs. Average for week, 9½d.

Comparative prices of Ceylon Tea in London:—

KOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6½d.	1891,	9½d.	1890,	10¼d.	1889, 9d.
KOE	(Ordinary leaf; little twist; fair liquor)	,,	9d.	,,	11d.	,,	11d.	,, 10¼d.
KOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5¼d.	,,	9d.	,,	9¾d.	,, 8½d.
KOE	(Somewhat bold leaf; indifferent liquor)	,,	6½d.	,,	10d.	,,	10½d.	,, 9¼d.

VA. Competition has been animated and late rates were freely paid, the tendency being to ater hardness. Average, 7¾d.

BANK RATE. 3½ per cent. **EXCHANGE.** Calcutta on London three months sight 1s. $4\frac{17}{32}$d.

INDIAN. Average 8¾d.

Garden.	Total. Quantity.	Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Price	Pekoe and Unassorted. Quantity.	Price	Broken Pekoe. Quantity.	Price	Pekoe Souchong Quantity	Price	Broken and Souchong Quantity	Price	Pannings, Dust and Various Quantity	Price
ASSAM	**18408p**	**9½**												
AssamFrontierCo	447	10¾	142	1/2½ 1/6¾	201	9¼-9½	—	—	69	6½-6¾	—	—	35	10
,, ,, ...	387	10½	98	†1/1½ 2/3½	137	9½-10	—	—	69	7	—	—	83	8
Attaree Khat Co	119	1/0¼	—	—	60	1/-1/4¼	22	†1/6	37	6¾	—	—	—	—
Balijan T Co ...	160	8¼	—	—	43	11	—	—	117	6¾-8¾	—	—	—	—
Brahmapootra Co	899	8¾	16	1/3¾	256	10 11½	126	11 1/3¾	363	6¾ 7	123	5¾ 7	15	4¾
Dejoo T Co ..	170	8¼	—	—	79	†8¾	51	9½	40	†6¼	—	—	—	—
Digloy T Co D ...	93	10¾	—	—	42	10¾	21	†1/5¼	13	6¾	17	†5¼	—	—
Doolahat ...	170 p	7¼	—	—	40	†8¾	40½c	†10¾	65	†6	25	†4¾	—	—
Doom Dooma B	238 p	1/1¼	150	1/3-1/8	88	9½ 11¼	—	—	—	—	—	—	—	—
,, H	260 p	10¾	73½c	1/3¼ 1/9¼	117	9¼ 11½	18	1/1	52	7	—	—	—	—
,, S	55 p	11¼	25½c	1/0¾	30	†10½	—	—	—	—	—	—	—	—
Gotoonga ...	70 p	1/3¼	20½c	1/10¼	50	†9¼ 1/6½	—	—	—	—	—	—	—	—
GreenwoodTCo B	118	11	—	—	30	1/1	21	1/5	32	9	35	7¼	—	—
Hunwal T Co ...	274 p	8	69 p	1 0¼ 1/2¼	62	8½	20	10½	—	—	110	5¾-6¼	13	3¼
Jhanzie T Assoc	330 p	9¾	—	—	154	9¼	57	1/4½	87	6½6¾	—	—	32 p	4 9
JokaiTCo Joyhing	450	8¼	—	—	200	†7-9½	100	1/0¼ 1/0½	100	6	50	†5½	—	—
,, Hukanpukri	123 p	1/4¼	50 p	1/6¼ †2/0	¼ 53	1/2½ 1/2¾	—	—	20	1/	—	—	—	—
Jorehaut T Co	1110 p	9¾	114 p	1/1½-1/9	½264	8¼ 1/0½	162	†1/0½ 1/4¾	552	5¾8½	—	—	18	6½
Kettela T Co ...	78	10	—	—	40	1/0¼	—	—	35	7¾	—	—	3	3¼
Kelly Den ...	311 p	10¼	82½c	1/1¼ 1/8½	129	9½	38	10¾	—	—	34	7½	28	7
Khobong Co ...	257 p	8¼	81½c	10½	122	†6¾-8	54½c	†9	—	—	—	—	—	—
Kuttalgoorie ...	79	10¾	—	—	25	1/	17	1/4¾	37	7¼	—	—	—	—
Lepetketta ..	82 p	7¾	12	1/1	42	7½	—	—	—	—	15	†6	13½c	4½
LMB Diffloo ...	300	6½	—	—	—	—	80	†8½	220	5½5¾	—	—	—	—
,, ,, ...	420	6¼	—	—	99	6½-6¾	101	†7¾	121	5¾	99	5¼-5½	—	—
,,Lattakoojan	250	10¼	—	—	100	10½	50	1/4¼	100	7 7¼	—	—	—	—
Luckwah Co ...	314 p	7¼	—	—	73	7½	51½c	1/2½ 1/6¾	85	6	85	5½	20½c	5
Majuli T Co. G	162 p	11¾	53 p	1/1½-2/	38	11	21	†10½	20	†6¾	30½c	5¾	—	—
Malijan T Co ...	177	8½	—	—	66	8¾ 11¾	20	1/3	51	6½	40	5¾	—	—
Meleng ...	282	10¾	39	1/7	117	10¼	25	1/5	25	7½	70	6½	6	3½
Moabund T Co....	314	1/3	—	—	120	1/4¼ 1/9¾	29	1/11¾	121	11 11¼	44	9	—	—
Mohima ...	82	9¼	—	—	30	11	10	1/3	30	6¾	12	5½	—	—
Mokalbari ...	134 p	8¼	44½c	1/1½	40	7	—	—	—	—	50½c	5¼	—	—
Moran T Co ...	337	7¼	23	1/4½	89	9¼-9½	—	—	181	6½	44	5¾	—	—
Naharani ...	165	7½	—	—	37	8¾	—	—	25	6¼	42	5½	61	8½
Nahor Habi T Co	399	7½	—	—	114	†7¼	74	1/0¾	99	†5¾ †6	112	†5½	—	—
Nahor Kutia ...	97 p	1/0½	—	—	16	1/0¾	—	—	20	10	—	—	61 p	10 1/1½
NoakachareeCoD	180	7	—	—	35	8½	21	11¼	71	6-6¼	53	5¾	—	—
,, R	200	6¾	—	—	50	7	40	†9¾	60	5¾	50	5¼	—	—
NSTCSagmootea	147	7	12	10½	50	7½	15	8¾	24	6¼	46	5½	—	—
Oaklands ...	209 p	10¼	117 p	1 1¼ 1/9¼	—	—	—	—	74	7½	18	4½	—	—
Panbarry ...	94	10½	—	—	25	11¼	49	†11¼ 1/	20	7¼	—	—	—	—
Rungaghur ...	76 p	9¾	—	—	26	†9½	22½c	†1/4¾	28	7¼	—	—	—	—
Rungajaun ...	190	8	—	—	74	7¼-8¾	46	11¼	49	6¼	—	—	21	†5½
Rungli Ting ...	28	10½	—	—	28	9½ 11¼	—	—	—	—	—	—	—	—
,, ...	74 p	9¾	20½c	1/9¾	18	9¾	12	†5½	24	7	—	—	—	—
SalonahTCo Kon	265 p	11	55½c	1/8¼ 1/8½	100	11 11¼	30½c	1/0½	40	8¾	40	6½	—	—
,, Kot	284 p	11	50½c	1/4¼	83	11¾	67½c	1/4	46	7¼	38	5-6¾	—	—
,, Sal	533 p	1/1½	130½c	1/10	193	1/1¾-1/2	90	1/3¼	—	—	120	7½	—	—
ScottishAssamCo	176 p	1/0¼	40½c	1/10¾	36	1/3¼	20	11¾	80	7½ 10¾	—	—	—	—
,, ...	316 p	9½	53 p	1/1-1/7¾	85	8¼ 1/1¼	26	9	100	6¼-9¼	52	6½	—	—
Sealkotee ..	200 p	10	—	—	120	7-10	60½c	†1/4-1/4¾	—	—	20	6¼	—	—
Shakamato ...	153 p	1/2	—	—	47	1/4¾	28	1/6¼	26	11	32½c	9	20½c	†5½
Singlijan ...	189 p	9¼	43 p	†1/1-2/4	36	9½	—	—	75	6¼6½	20	†6½	15½c	9
Tingri T Co ...	178	8½	—	—	50	10	32	1/0¼	96	6½	—	—	—	—
Tiok ...	235 p	7½	30	1/2¼	30	8¼	30½c	1/0¼	60	†6¼ 6½	85	5¾-6	—	—
Titadimoro ...	100½c	8	—	—	30½c	7¼	40½c	9¾	30½c	6	—	—	—	—
Upper Assam Co	723 p	11	129p	1/0½ †1/8	½147	9½ 1/1½	186 p	1¾ 1/6¼	171	6¾-8	90 p	7-7¼	—	—
,, ..	280 p	11	48	1/5¼ 1/10	142	8½ 11½	42 p	1 0¾ 1/7¾	14	8	6 p	5¼5½	28	5
Wilton T Co D	132 p	10	20½c	2/2½	47	9¾	—	—	43	7¼	22	7¾	—	—
,, W	120	9	—	—	50	10	—	—	30	6¾	40	9¼	—	—
CACHR & SYLHT	**10150p**	**7½d**												
Allynugger ...	200	8½	26	†10¾ 1/6	78	8¼	41	8¼	31	6¼	24	5¾	—	—
.. ..	224 p	7¾	15	11¼	103	8-8¼	42	8¼	26	6	14	5¼	24½c	4

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
3&CoChargola C	313 p	7¾	75	11¼ † 1/2¼	—	—	78	7¼	107	5½	20	4¾	33½c	3¾
,, ,, H	204	8½	34	†1 0¼ 1/3½	46	†8¼	27	†8¾	82	6¾	15	6	—	—
Burrumsal ...	187 p	1/1¾	68½c	2/- †2/2	54	1/0¼	16	†1/2¼	—	—	49	7½	—	—
Cheerie Valley	189	5¾	—	—	53	7½	25	10¾	59	6¼	—	—	52	5
Cherra Co Heron	281 p	6¼	—	—	91	6½	50½c	9	101	5¾	—	—	39 p	3½5¼
,, Naren	252 p	6¾	—	—	79	7	40½c	1/	80	5¾	—	—	53 p	5½5¾
Cossipore ...	258	6¾	—	—	60	8¼	30	11½	—	—	130	5¼ †5¾	38	5¼
Dilkoosha ...	90	7¼	—	—	17	8½	32	9	—	—	41	5½	—	—
Doloo ...	212 p	7¼	64½c	8½ 10½	56	7	66	†6¾	20	5¾	6	5¼	—	—
Dulcherra ..	78	7	—	—	24	7¾	13	9¾	12	6	15	5¾	14	5½
Endogram T Co	432	6¾	54	†6½ †1/1½	144	6¾ 7	113	7 †7	73	5¾	—	—	48	5¾
Indian T Co ...	155	10	—	—	32	11¼	15	1/10¼	51	7½	57	8½	—	—
JetingaValleyTCo	55	7	—	—	—	—	17	9	23	5¾	15	6¼	—	—
Joori Valley Co	104	6¼	—	—	25	†6¾	26	†7	53	5¾	—	—	—	—
Kallacherra Co ...	63	6¾	—	—	31	6½	12	8¾	20	5¾	—	—	—	—
KF&Co ...	153	8¼	—	—	37	8¼	35	†1/0¼	36	†6¾	45	6	—	—
KMB Jalingah ...	150	6¾	—	—	65	6½6¾	35	8	—	—	50	5¾	—	—
,,Morapore ...	162	6¾	—	—	73	6¾ 7	20	9¾	50	5¾	—	—	19	5
,,Salgunga ...	120	7¾	—	—	50	8	20	11¼	50	6¼	—	—	—	—
,,Shabazpore ...	175	6¾	—	—	50	7¼	25	9	100	5¾ 6	—	—	—	—
Koobah Co I ...	108	9¾	36	1/0½-1/4¼	30	8¾	—	—	30	7	—	—	12	7
,, L ...	377 p	9½	33½c	†1/10	88	10½	64	†1/0½	165	7 7¼	—	—	27 p	4½7¾
Longai ...	252 p	6½	46½c	†9¼	53 p	6¾	62	†6½	71	5¾	—	—	20½c	4½
Luayuni ...	64	7¾	—	—	44	7	20	9¾	—	—	—	—	—	—
Lungla T Co ...	762 p	6½	114	†7¾ 1/5¼	160	6¾ 7	136	†6¾ †7	260	5½5¾	80	4¼	12½c	3½
Luskerpore ...	167	5½	—	—	26	6½	40	6½	29	5½	58	5	14	3½
Madoora	120	7	—	—	30	6¼6½	61	7¾	—	—	29	5½	—	—
Muddanpore ...	72 p	7½	—	—	32	7¼	20	11	20	6	—	—	—	—
NSTCBaitakhal	294 p	6¾	49	7¾	91	6½	56	8¼	45	5¾	37	5¼	16½c	4¾
,,Degaicherra	89	8	—	—	40	7½	25	10½	24	6¼	—	—	—	—
,,Jafflong	153 p	6½	31	7½	19	6½	30	8¼	35	5¾	18	5½	20½c	4½
,,Rungamuttee	130	9½	—	—	47	9¾	28	1/2	55	7 7¼	—	—	—	—
Narbutpore ...	209	7	—	—	41	7¾	41	8¾	113	6¼6½	—	—	14	†4¾
Najnagar ...	124	6½	—	—	32	7	29	8½	28	†6	—	—	35	†3¾ 5½
Noopabally ...	94	7	—	—	27	7	25	8½	20	5¾	22	6	—	—
Numshernugger	399 p	8½	64½c	†1/4	150	8½	—	—	96	6½	22	†5¾	—	—
Oldoobie ...	170	6	—	—	—	—	20	8	130	5¾ 6	20	5¼	—	—
Pngla T Co ...	405	9¼	59	1/0½-1/4¼	162	9 9¼	31	11¾	118	7¼	30	6¼	5	3¾
Panarupa ...	218	7	28	†9	54	7½	29	†8¾	26	6½	69	5½	12	†5¼
PSTCo Deanston	601 p	8	272	7¾ 1/5½	—	—	140	8¼	149	6¾	—	—	40½c	4¾
Pubong ...	120	7½	—	—	40	7¼	40	9	40	6¼	—	—	—	—
Pulhet T Co ...	134	6¾	19	8	43	6½	32	†7½	40	5¾	—	—	—	—
QuesternCachr Co	368	7¾	—	—	78	10½	40	1/2¼	—	—	250	5 6½	—	—
RHITTAGONG	**190 p**	**10¾d**												
Rantmara ...	73	8½	15	1/1¾	26	8½	—	—	30	6½	—	—	2	2¾
Rittickcherra ...	117	1/0¼	—	—	64	10½ 1/3	20	1/7¼	33	7¾	—	—	—	—
RIOTA NAGPRE	**467 p**	**5¾d**												
Sallyhat ...	72	6¼	—	—	28	7	15	7	12	5¾	12	5	5	2¾
SHTCB ...	48	5½	—	—	—	—	12	5¾	24	6	12	4	—	—
Sowdie Hill ...	180½c	5¼	—	—	120½c	5½5¾	—	—	—	—	60½c	4¾	—	—
Samgurh ...	167½c	6¼	—	—	100½c	6½	—	—	67½c	5¾	—	—	—	—
SRJELNG&TERI	**2257 p**	**10½d**												
Shannockburn ...	87 p	7	—	—	—	—	30 b	1/5	30	6	—	—	27	5¾
Sentral TeraiTCo	65	6¼	—	—	35	6¾	—	—	30	5½	—	—	—	—
Shong TongTAss	60 p	10¼	—	—	13 p	1/4	11½c	1/6	12	8½	—	—	24	5 7½
Darjeeling T Co	560 p	10½	50	1/1¾-1/4	172	9½-1/1	89	1/2½ 1/7½	185	7 9¾	14	6¼	50 p	4 6½
Syabaree D ...	138	11½	—	—	62	9½	50	1/4¼	26	7	—	—	—	—
TdianTeraiTCo	98	7¾	—	—	48	7½	18	11½	32	5¾	—	—	—	—
Tabong T Co ...	244	11	158	9¼ 1/7¼	48	9	—	—	38	6¼	—	—	—	—
Tezziepore ...	111 p	9½	—	—	48	9¾	44½c	11	19	7	—	—	—	—
TMB Kurseong ...	70	8	—	—	16	1/0¼	11	10½	22	6½	21	5	—	—
T,,Moondakotee	45	2/7½	—	—	34	2/7¼	11	2/8½	—	—	—	—	—	—
T,,Nagri ...	235	10½	93	1/	41	8¾	35	1/4½	13	6	53	6	—	—

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Lohagur ...	75	6	—	—	24	†6½	18	†7	24	5½	—	—	9	3¾
Mahalderam ...	80½c	7¾	—	—	25½c	†8¼	25½c	10	30½c	†5½	—	—	—	—
NSTC Bloomfield	93 p	1/2½	15	1/6¾	19	1/4¼	18	1/4½	37	11¼	—	—	4½c	7¾
Nurbong ...	84 p	9½	36½c	11¼	23	10¼	—	—	25	7½	—	—	—	—
Nuxalbarrie ...	153 p	8¾	22½c	1/	30	9¾	24½c	1/1	52	7½	—	—	25	6½
Pusumbing ...	139 p	10½	20½c	1/7¼	100½c	†9¾	—	—	19	8¼	—	—	—	—
Rungmook ...	99 p	1/0¾	20½c	1/8	59½c	1/1¼	—	—	20	8¼	—	—	—	—
Soom T Co ...	70	1/3½	15	1/8¾	35	1/4½	—	—	20	9½	—	—	—	—
DOOARS	**3124 p**	**7½**												
Aibheel ...	136	7¼	44	7¾ 11½	23	6½	14	6½	55	5½	—	—	—	—
Bagracote ...	264	5¾	—	—	51	†6¼	47	†6½	166	†5½	—	—	—	—
Baintgoorie ...	144	6¼	30	†6¾	38	†6¼	48	†6¼	28	†5½	—	—	—	—
Chulsa ...	368	6½	—	—	79	7¾	39	†7	250	†6	—	—	—	—
Dangua Jhar ...	140 p	7¼	23½c	10¼	44	7¼	15½c	1/4	36	5¾	—	—	22	12 5½
Ellenbarrie ...	135	9½	65	11	—	—	—	—	70	8¼	—	—	—	—
Hahai Patha ...	89	8¼	29	9¼ 1/4½	26	6½	—	—	19	5¾	—	—	15	6
Hope ...	429	9¼	24	1/8¾	103	9¼-9½	100	10¼	172	7½	—	—	24	7
Jiti ...	34	6¼	—	—	—	—	—	—	—	—	54	6¼	—	—
Koomlai ...	113	7¼	—	—	28	†7	20	11¾	65	6	—	—	—	—
Leesh River Co	110	7¾	—	—	40	7½	35	10	35	†6	—	—	—	—
Rungdong ...	71 p	7	—	—	—	—	—	—	—	—	56	7¼	15½	11
Meenglas ...	273	7¼	9	9½	89	7½-8½	—	—	128	6½6¾	—	—	47	5 4½
NSTC Bytagool	134 p	8¼	38	†9 1/7¼	—	—	20	8½	20	6	26	5¾	—	—
,,Nakhati ...	86	9¾	30	10 †1/6½	18	8¾	—	—	20	7¼	18	6½	—	—
,,Rungamuttee	420 p	8½	70	†9¼ 1/5	—	—	100	10	124	7¼	60	6¼	15½	11¾
Washabarrie ...	178	6½	—	—	63	†6¾	23	†10	20	5¾	72	†5½	—	—
KANGRAVALEY	**268 p**	**7¼d**												
Kangra Valley G	113 p	8¼	82 p	8 11	15	7	—	—	16	7	—	—	—	—
Mount Somerset	155½c	6½	80½c	†7 †7¼	45½c	†4 †5¼	—	—	30½c	5¼	—	—	—	—
NEILGHERRY	**107 p**	**7¼d**												
Prospect . .	62	6½	—	—	35	7-7½	17	6¼7¼	10	7¼	—	—	10	13¾
TRAVANCORE	**230 p**	**8d**												
Arnakel ...	15	9¾	—	—	—	—	6	†11½	9	8½	—	—	—	—
Bison Valley ...	35	7¼	—	—	20	†6½	12	†9	—	—	3	5¼	—	—
Fairfield ...	25	10	—	—	4	1/	3	1/2½	18	8¾	—	—	—	—
Glenmary ...	58	8¼	13	10¾	40	7¾	—	—	—	—	5	5½	—	—
Invercauld ...	37½c	7	—	—	20½c	7¼	10½c	8	—	—	6½c	4-5	1½	3
Nagamally Co N	60	7¼	—	—	22	7¼	13	9¾	21	5¾	4	5¼	—	—

CEYLON. Average 9½d.

Abbotsford ...	123 p	9½	18½c	1/1¼	42	8½	51	10¾	12	†5¾	—	—	—	—
Aberdeen ...	100½c	6½	—	—	50½c	5½	50½c	7¼	—	—	—	—	—	—
Aberfoyle ...	35 p	6½	17½c	8½	13	6	—	—	—	—	3	4	2½c	4
Agrakande ...	70	10	—	—	46	9	24	1/	—	—	—	—	—	—
Aigburth ...	58	9½	—	—	16	8½	26	11¼	16	6½	—	—	—	—
Aldie ...	30 p	9½	—	—	—	—	18½c	1/1	12	7	—	—	—	—
Alnwick ...	47	1/0¼	—	—	27	11½	13	1/4	3	7½	—	—	4	8¼
Ambatenne ...	50	8¼	—	—	16	7¾	20	10¾	11	5¼	—	—	3	4¾
Amblamana . .	50	9	—	—	8	7¾	29	10½	13	6¼	—	—	—	—
Ampittia ...	36 p	10¾	11½c	1/1¾	22	10½	—	—	—	—	1	4	2½c	5
Amunamulle . .	46 p	7¼	—	—	—	—	24½c	9¼	22	6¼	—	—	—	—
Annfield . .	101	10½	—	—	38	9½	46	1/0½	17	7	—	—	—	—
Ardross	166	7½	—	—	44	7¼	56	9¾-10	66	5¾-6	—	—	—	—
Attabage ...	99 p	8	—	—	26	8½	36½c	11	33	6	1	3¼	3½c	4
Augusta ...	62	8¼	—	—	24	9	12	1/0¼	25	5¾	—	—	1	3¾

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Balmoral ...	79	10¾	—	—	26	10¼	28	1/1½	25	8	—	—	—	—
Bambrakelly&D.	158	11	—	—	79	10	79	1/	—	—	—	—	—	—
,, ...	88	11	—	—	50	10	38	1/0½	—	—	—	—	—	—
Battalgalla Co ...	133	9¼	37	1/	56	9½	—	—	34	6½	—	—	6	4½
Beaumont ...	109	10	—	—	35	10	39	1/1	30	7½	—	—	5	4
Beverley ...	120½c	9	—	—	58½c	9	32½c	11	30½c	6¾	—	—	—	—
Binoya ...	98	7¾	—	—	59	7¼	27	9¾	—	—	12	5½	—	—
Bitterne ...	38	9½	—	—	20	8½	18	10¾	—	—	—	—	—	—
Blairavon ...	74	8½	—	—	28	8½	22	11¼	21	5¾	—	—	3	4½
Blackburn ...	60	8	—	—	27	6¾-7½	24	10 10½	7	5¼	—	—	2	3¾
Blackwater ...	174 p	8	40½c	1/-1/0¼	45	9¼	23	8½	46	6¼	17	3¼-5¼	3	4½
Bloomfield F ...	40 p	1/1½	27½c	1/3¼	12	1/0¼	—	—	—	—	—	—	1	5¾
,, UF ...	40 p	1/1½	27½c	1/3¼	12	1/0¼	—	—	—	—	—	—	1	6¾
Bogahawatte ...	87 p	10	33½c	1/2	42	9½	—	—	12	6	—	—	—	—
Brownlow ...	81	8½	—	—	41	†7¼	40	† 10	—	—	—	—	—	—
Bukanda ...	60	6¾	—	—	27	5½	29	8¼	—	—	—	—	4	4¼
Cabragalla ..	68	8	—	—	34	7¼	32	9	2	4¼	—	—	—	—
Castlereagh ...	90½c	11	30½c	1/2¾	60½c	9¼	—	—	—	—	—	—	—	—
,, ...	174½c	11	44	†1/1½	90½c	9½-9¾	—	—	—	—	—	—	—	—
Cattaratenne ...	63 p	9	—	—	20	7½	42½c	10½	—	—	—	—	1	5½
Chalmers ...	35	9¼	—	—	18	8	17	10¾	—	—	—	—	—	—
Chapelton ...	153 p	1/0¾	—	—	46	1/0½	68½c	1/5	39	9	—	—	—	—
Chetnole ...	59 p	10	—	—	10	9½	28½c	1/1¾	21	7¾	—	—	—	—
Choisy ...	77	7	—	—	34	†6	43	†8	—	—	—	—	—	—
,, ...	64	7½	—	—	17	8	17	† 10¼	18	6	3	4¾	9	4½
CL&PC Andngdie	128	7¾	—	—	47	8-8¼	30	10½	49	6	1	4½	1	3½
Clontarf ...	125	9¼	42	9½	52	†7	31	†1/1	—	—	—	—	—	—
Cocagalla ..	61 p	1/1½	6½c	†1/6	16	1/0½	25	1/3¼	14	10¼	—	—	—	—
Cocawattee ...	43½c	5	—	—	25½c	5½ †5½	3½c	†4½	11½c	4¾	3½c	4	—	—
Coorondawatte	80½c	8	—	—	40½c	7½	22½c	10	18½c	6¼	—	—	—	—
Craig ...	47½c	1/1¾	—	—	18½c	1/2½	12½c	1/4¼	15½c	1/0¼	—	—	2½c	5¾
Crurie ...	36	10½	—	—	12	10¾	12	1/0¾	12	8	—	—	—	—
CTPCo Alton ...	104	10½	—	—	42	9¾	41	1 1¼ 1/2½	14	6¼	—	—	—	—
,,Dewalakanda	257 p	7½	53	8-8¼	162	6½-8¾	24	8¾	18	5½	—	—	—	—
,,East Holyrood	211 p	10¼	—	—	113 p	9½	98	10¾ 11	—	—	—	—	—	—
,,Scrubs ...	100	1/	—	—	34	9¾	66	1/1¼	—	—	—	—	—	—
,,Sembawatte	135½c	6¾	—	—	50½c	6¼-6½	60½c	7¾	25½c	5¼	—	—	—	—
,,Tangakelly	201	10½	—	—	49	9¾	106	1/0½	40	7	—	—	6	6½
,,Tillyrie ...	77	1/	—	—	29	10¾	36	1/2½	7	5½ 7½	—	—	5	6
,, ,, ...	111	11½	48	1/2¼	43	10¼	—	—	10	7¼	—	—	10	8½
,,Wallaha ...	97 p	10¾	—	—	43 p	8¾-10	37	1/1½	17	6¾	—	—	—	—
,, ,, ..	132	10	—	—	62	8-10	62	1/	18	†6	—	—	—	—
,,Waverley ...	82 p	1/2¼	—	—	50½c	1/1¼	27	1/4¼	4	10	—	—	1	8
Culloden ...	119	9¾	—	—	60	9	39	1/0½	20	6½	—	—	—	—
Dambulagalla ...	142 p	6¾	—	—	57	6¼	38	8¾	47	5½	—	—	—	—
Dea Ella ...	73½c	8	—	—	36½c	8	18½c	10½	19½c	5¾	—	—	—	—
Dehigalla ...	57½c	1/2¼	—	—	22½c	1/4¼	8½c	1/7¼	21½c	1/	5½c	7½	1½c	5
Dehiowita ...	86	7½	—	—	50	6¾	22	11	14	5	—	—	—	—
Delta ...	97	7¾	—	—	35	8½	17	10¾	—	—	45	5¾-6	—	—
,, ...	105	8	—	—	40	†7¾ 10½	22	10½	—	—	43	†5½ 5¾	—	—
Denmark Hill ...	35	1/3	9	1/8½	15	1/2¾	—	—	10	10½	—	—	1	10½
Detenagalla ...	73½c	10	—	—	33½c	10	20½c	1/0¼	20½c	7¾	—	—	—	—
Deviturai ...	64	8	—	—	31	6½	26	10¼	—	—	4	5½	3	4½
Digalla ...	119 p	7¼	—	—	34	†6¾	40	10	33	†5½	8	5¼	4½c	5¼
Dickoya ...	87	8¼	—	—	54	†5¾ †8¾	17	11½	16	†6¼	—	—	—	—
Dimbula ...	167 p	10¼	—	—	53	10½	54½c	1/4¼	60	7¼	—	—	—	—
Diyanellakelle	60	10½	—	—	23	10	25	1/1	12	6¼	—	—	—	—
Dotel-Oya ...	94	10	—	—	33	†9½	47	† 11¼	10	7	1	5½	3	5
Drayton ...	118 p	1/	79 p	1/0½ †1/7½	—	—	—	—	32	†8½	—	—	7½c	7½
Dunnottar ...	47 p	11¼	26½c	1/3	7	8½	10	9	—	—	1	2¾	3	10½
Dunsinane ...	93 p	1/0¼	29½c	1/4½	40	1/0¼	—	—	24	9⅓	—	—	—	—
Edinburgh ...	55	1/0¾	—	—	25	11	30	1/2	—	—	—	—	—	—
Elangapitiya ...	89	7	—	—	40	†6¾	23	9½	22	†5¼	—	—	4	4½

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Elbedde ...	123	11½	—	—	65	11½	29	1/5¼	17	7	7	5¾	5	4½
Elgin ...	46	10¾	—	—	13	10	22	1/1	10	7½	—	—	1	4½
Elkadua ...	139	8	—	—	44	†8¼	37	10¾	58	†6¼	—	—	—	—
Ellagalla ...	63	8¼	—	—	6	7¼	22	11½	31	6¾	2	4¾	2	5
Elston ...	112	9	—	—	31	9	40	11¾	35	6¼	—	—	6	5½
Eltofts ...	106 p	11¼	—	—	22	11½	47½c	1/3¼	37	8¾	—	—	—	—
EP&ECDromold	90½c	8¾	—	—	67½c	7¾	23½c	†11¼	—	—	—	—	—	—
,,Ingurugalle ...	86	9	30	†9¾	56	8½	—	—	—	—	—	—	—	—
,,Labukelle ..	134 p	1/1½	—	—	97½c	†1/0¼	33	1/4	—	—	—	—	4	9½
,,Meddecombra	67	8½	—	—	18	8	28	11¼	21	5¾	—	—	—	—
,,Montefiore ...	102	8¾	32	1/	54	7¾	—	—	16	5¾	—	—	—	—
,,Norwood ...	65	1/3¼	—	—	41	1/1¾	24	1/5¾	—	—	—	—	—	—
,,Rothschild ...	74	11	20	1/2¾	54	8¾ 11¼	—	—	—	—	—	—	—	—
,,Sogama ...	71	10½	20	1/2	51	8½ 10	—	—	—	—	—	—	—	—
Ernan ...	82	8	—	—	29	7¾	34	9½	19	5¾	—	—	—	—
Errol ...	102 p	11	—	—	38	10¾	41½c	1/2¾	21	8½	—	—	2½c	4¾
Esperanza ..	41½c	7¾	—	—	40½c	†7¾	—	—	—	—	1½c	3½	—	—
Faithlie ..	56	8½	—	—	20	8¼	14	1/0¼	22	6¼	—	—	—	—
Fernlands ...	102 p	11¾	—	—	36	7½11¾	51½c	1/3½	9	7½	2½c	5¾	4½c	5¾
Frogmore ...	43 p	1/1	41 p	10½ 1/5	—	—	—	—	—	—	—	—	2½c	6½
Galaha ...	159	8¾	—	—	29	8½	80	10¼	35	6¾	15	5½	—	—
Galata ...	116½c	8½	—	—	47½c	†7¾	65½c	†9½	—	—	—	—	4½c	4½
Galella ...	82½c	10	—	—	42½c	9¼	40½c	11	—	—	—	—	—	—
Galkadua ...	32	7½	—	—	12	8¼	10	9½	10	4¾	—	—	—	—
Gallamudina ..	106	9	—	—	32	8¾	46	11	28	6	—	—	—	—
Gallebodde ...	70	10¼	—	—	28	9½	26	1/0¾	16	7¼	—	—	—	—
Gammadua ...	52	8¼	—	—	22	†8	17	11½	11	†5	—	—	2	3½
Gangwarily ...	109 p	7¼	—	—	65	6¼	40	9	—	—	—	—	4½c	3¾
,, ...	83	6½	—	—	54	†6	29	†7¾	—	—	—	—	—	—
Gartmore ...	54	11¼	—	—	35	9½	17	1/3	—	—	—	—	2	7
Gavatenne ..	105½c	10	—	—	60½c	9	45½c	11¼	—	—	—	—	—	—
Geddes ...	124 p	1/	92 p	9¾ †1/5	12	8¼	15½c	†11	—	—	—	—	5½c	6¼
Gikiyanakanda ...	74	1/0¼	—	—	28	1/0¼	27	1/2¾	19	8½	—	—	—	—
Glassel ...	57	9¼	—	—	22	9	23	11½	12	5¾	—	—	—	—
Glencairn ...	78	8¼	—	—	12	9¼	20	1/0¼	42	6½	—	—	4	5
Glenugie .	119 p	1/	—	—	81	10½	38½c	1/5¾	—	—	—	—	—	—
Goatfell ...	71	1/3½	—	—	36	1/4	15	†1/7	10	1/2	10	10	—	—
Gona Adika Co G	100 p	7¾	—	—	49½c	†7¼	27½c	†11¼	22½c	†5½	—	—	2	†4½
Good Hope ...	36 p	7½	—	—	6	5	28 p	8¾	—	—	1½c	4	1½c	3
Goomera ...	61	7½	—	—	18	7	25	9¾	16	5½	—	—	2	2½
Gorthie ...	136 p	10¾	—	—	47	10½	50½c	1/2¾	31	8¼	—	—	8½c	7
Hangran Oya ...	35	6¼	—	—	11	7¾	8	†7	10	5½	3	3½	3	4 5¼
Hantane ...	75 p	10	—	—	26	10¼	23½c	1/2	26	8	—	—	—	—
Harmony ...	42 p	7¾	—	—	11	7¾	15½c	1/	14	5¾	1½c	3¼	1½c	3¼
Hatale ...	138	7¾	—	—	47	7	60	9¼	31	5½	—	—	—	—
Hattangalla ...	42	8¾	—	—	12	9¼	12	11¾	18	6¼	—	—	—	—
Heatherton ...	69 p	9¾	—	—	17	9¾	34½c	1/1¼	12	6¾	2½c	4½	4	5½
Heatherley ...	98	10	—	—	54	9¾	20	1/2¼	22	6¾	1	†3¼	1	†3
Hemingfold ...	53	9¼	—	—	28½c	8	25½c	10¾	—	—	—	—	—	—
Henfold ...	122	1/2	—	—	58	1/1¼	47	1/5	17	9	—	—	—	—
Hethersett ...	52 p	1/0¾	20½c	1/6	17	1/0¾	—	—	13	9¾	1	7½	1	7¼
Hoonocotua ...	175	7¾	—	—	37	8½	45	10¾	89	6 6¼	—	—	4	4¾
Hunasgeria ...	139	9¼	—	—	54	8¾	47	1/	38	6½	—	—	—	—
,, ...	69	8½	—	—	19	8¼	24	11¼	23	6½	3	4¼	—	—
Hunugalla ...	64 p	7¼	—	—	—	—	30½c	11¼	—	—	34	5½	—	—
Hyndford ...	67	7¼	—	—	23	7	18	10¼	24	5¼	—	—	2	4¾
IMP ...	176 p	9	26 p	8¼ 11¼	46	10	21	1/	76	7¾	—	—	7	5½
Indurana ...	111	7	—	—	31	6½	36	9	40	5½	—	—	4	5
Ingestre ...	70 p	10	—	—	27	10¼	28½c	1/2	9	6	—	—	6½c	3¾
Kabragalla M	85½c	9½	—	—	18½c	11½	19½c	1/1	27½c	8¾	12½c	4¾ 5	9½c	5½6½
Kaloogala ...	58	9½	—	—	20	9¼	21	11¾	17	6½	—	—	—	—
Kandal Oya ...	226½c	7¾	45½c	9	89½c	7¼	51½c	†9 †9¼	22½c	†5½	—	—	19½c	4½
Kandapolla ...	71 p	1/0¾	31½c	1/1½	—	—	15	1/5½	13	10	12	9	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Katooloya ...	97	10	—	—	38	9½	35	1/0¾	24	6¾	—	—	—	—
Kelani ...	223½c	7¼	—	—	95½c	7½	45½c	10	83½c	5½	—	—	—	—
Kellie ...	129	9½	—	—	31	9	65	†8¾-1/	33	6¾	—	—	—	—
Kew ...	109 p	1/1	—	—	31	1/0¾	44½c	1/6¾	28	9½	—	—	6½c	8½
Kirklees ..	60½c	11¾	—	—	17½c	11½	20½c	1/2¼	23½c	9½	—	—	—	—
Kirkoswald ...	109	1/0¾	—	—	40	1/1¾	30	1/3¼	39	9½	—	—	—	—
Knuckles Group	95	7½	—	—	28	7¾	26	10	20	6	21	5	—	—
Kotiyagalla ...	106 p	1/1½	—	—	40	11¾	66½c	1/3½	—	—	—	—	—	—
Kottagalla ...	81 p	11½	39½c	1/3	30	11	—	—	12	†7½	—	—	—	—
Kowlahena ...	106	10½	—	—	32	9½ 10¼	40	1/1-1/2	33	7½	—	—	1	7
Kurulugalla ...	62	6	—	—	26	4-†6	17	†8	13	†5¼	6	3¼	—	—
Lankapura W	61 p	9	—	—	31	9	15	11¼	12	6	—	—	31½c	5
Lauderdale Co ...	49	7	—	—	12	7	12	10	25	5¾	—	—	—	—
Laxapana ...	151 p	9¾	28½c	1/1¼	51	†9	48½c	†1/0½	—	—	24	†6¼	—	—
Leangapella ...	68	8¾	43	10	25	†6½	—	—	—	—	—	—	—	—
Lindoola ...	33	11	—	—	9	10¼	14	1/0½	10	9½	—	—	—	—
Liskillen ...	59	7¼	—	—	34	6¼	24	9	—	—	1	4	—	—
Longford ...	80½c	6¾	—	—	22½c	6½	20½c	10	33½c	5½	5½c	3½	—	—
Loonagalla ...	120½c	9¾	65½c	1 0-1/0¾	55½c	7¾	—	—	—	—	—	—	—	—
Mahacoodagalla	58	7¾	—	—	21	7¾	13	9¾	24	5½	—	—	—	—
Mahagastotte ...	65	1/	—	—	25	9¾	40	1/1¼	—	—	—	—	—	—
Mahanilu ...	56 p	11¼	—	—	12	1/	16½c	1/3½	28	9¾	—	—	—	—
Mahaousa ..	146 p	8½	117 p	9½	15	8	—	—	12	6	—	—	2	3¼
Managalla ...	32½c	7½	—	—	17½c	7	11½c	9½	—	—	4½c	4¾	—	—
Maryland ...	48	6¾	—	—	19	†6½	11	10	13	†5¼	4	†3½	—	—
Mattakelle ...	134	9¾	—	—	41	9½	51	1/1	40	6¼	—	—	2	5½
Mattakelly ...	166	9¼	—	—	55	8¾	67	11¾	42	5¾	—	—	2	4¾
Melrose ...	24 p	1/0½	—	—	—	—	24 p	9¾-1/1	—	—	—	—	—	—
Middleton ...	60 p	11¼	—	—	18	9½	42½c	1/0¾	—	—	—	—	—	—
Minna ...	282 p	7	—	—	84½c	8¼-8½	49½c	1/0¾	131	5½-5¾	—	—	18 p	5¼
Mooloya ...	27	1/1¼	—	—	12	11¼	15	1/2¾	—	—	—	—	—	—
Moray ...	189 p	10¼	103 p	9¼-1/4	—	—	47½c	†10½	23	6½	—	—	16½c	7½
Mossville ...	188	6¾	—	—	14	8¼	43	9½10	117	5¾	13	4 5¼	1	3½
Mottingham ...	88	7½	—	—	12	8¼	31	10½	37	†5½	4	4¼	4	4¼
Mount Vernon ...	140 p	11¼	50 p	1/3¼ 1/11¼	—	—	52	9½	38	7¼	—	—	—	—
Mousagalla ...	46 p	8¼	—	—	23 p	6-7¼	23½c	10½	—	—	—	—	—	—
Nartakande ...	66	7	—	—	15	†7½	14	10¾	37	†5½	—	—	—	—
Nayapane ...	142 p	8¼	—	—	37	9	50½c	1/	47	6	3½c	3¼	5½c	4½
NewDimbulaD...	86	1/1½	—	—	35	1/1¼	36	1/3	—	—	15	10¾	—	—
New Peacock ...	222 p	8½	—	—	57	9¼	80½c	1/0½	73	5¾-6	4½c	3	8½c	5
New Valley ...	165	9¼	40	1/0¼	80	9	—	—	45	6¾	—	—	—	—
Nilambe ...	201	8	—	—	56	7½	102	9¼-9½	33	5¾	—	—	10	5
OBECCraigieLea	89 p	8¼	—	—	26	8¾	19	1/1	32	6	4	2¼	8½c	4-6½
,, Dangkande...	166½c	6¾	—	—	45½c	†6¼	70½c	†8½	36½c	†5	10½c	5	5½c	4¼
,, Nilloomally	70	7	—	—	29	†6½	21	†9	20	5¼	—	—	—	—
Old Madegama	70½c	11½	28½c	1/2	—	—	—	—	42½c	9¾	—	—	—	—
Oliphant ...	147 p	8¾	—	—	44½c	9¼	39	†11	51½c	†6½	13	5½	—	—
Oodewelle ..	112	8¾	—	—	30	9	35	1/	20	6¾	19	5½-6	8	4½
Oolanakande ...	79½c	8	—	—	47½c	6¾	26½c	11	—	—	—	—	6½c	3½
Oononagalla ...	154 p	7½	28½c	1/0½	44	6½	33	†10¼	46	5½	—	—	3	4½
Oonagaloya ...	30	7¾	—	—	17	†6½	12	9¾	—	—	—	—	1	3¾
Ooragalla ...	72 p	7½	—	—	9	7	39	8¾	17	5¾	5	4¾	2 p	4¾
Orion ...	176 p	9½	—	—	78 b	10¾	72 b	1/1	17	6½	6½c	6¼	3½c	4½
Osborne ...	67	10¼	—	—	25	10	26	1/1	16	6½	—	—	—	—
Ouvahkellie ...	12	9¼	—	—	—	—	—	—	12	9¼	—	—	—	—
,, B ...	37	1/2	—	—	19	11	18	1/5	—	—	—	—	—	—
Panmure ...	48	10½	—	—	21	11½	12	1/0¼	15	8	—	—	—	—
Pathragalla ...	93½c	8	—	—	69½c	7¼	21½c	11	—	—	2½c	4½	1½c	3¼
Patiagama ...	65	6¼	—	—	45	5½	20	7¾	—	—	—	—	—	—
Pen-y-lan ...	98	9	—	—	27	8½	52	10¼	15	6	2	5½	2	4¾
Peradenia ...	108	10¾	—	—	25	11	34	1/2¼	49	8	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pekoe Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Pingarawe ...	85 p	8¾	—	—	50	8¾	15	1/0½	8	5	—	—	12½c	5
Poengalla ...	99	8½	26	9¼	28	7¾	31	9½	14	5¾	—	—	—	—
Polgahakande	88	9	20	8¾	33	7	35	10¼	—	—	—	—	—	—
Poolbank ...	62½c	9¼	38½c	10	24½c	8	—	—	—	—	—	—	—	—
Portree ...	76 p	1/	—	—	—	—	37½c	1/4¾	39	10	—	—	—	—
Rahatungoda ...	47	11½	—	—	19	10	26	1/1	—	—	—	—	1	8
Rambodde ...	44 p	11½	—	—	11	11	12	1/4¼	17	9¼	2	6	2½c	4½
Raxawa ...	45	8½	—	—	12	†8½	12	1/	21	†6¾	—	—	—	—
,, ...	29	7½	8	8¾	14	8½	—	—	4	4¾	2	3½	1	4
Rookwood ...	106½c	11¾	—	—	37½c	11½	43½c	1/2	23½c	5	—	—	3½c	5
Rowley ...	48½c	10¼	—	—	26½c	9¼	22½c	11¾	—	—	—	—	—	—
Ruanwella ...	73½c	7	—	—	29½c	6¾	22½c	9¼	19½c	5½	3½c	3	—	—
Sandringham ...	102	1/	—	—	35	11¾	37	1/2¾	27	9¼	—	—	3½c	6¼
,, ...	86	11¾	—	—	33	11½	27	1/2¾	26	8¾	—	—	—	—
Sapu ...	30 p	5¼	—	—	—	—	—	—	—	—	12	5¼	18½c	5¼
SCTCo Invery	133 p	1/2	—	—	45	1/2¼	50	1/6¾	32	10¾	6	5½	—	—
Selegama ...	111 p	7¼	10½c	11	—	—	28½c	9½	66½c	6¼	4	4	3	4
Sheen ...	110 p	11¾	48½c	1/4¼	41	11¼	—	—	18	7½	—	—	3½c	3¾
Somerset ..	104 p	10	—	—	34	9¾	48½c	1/2	22	6¼	—	—	—	—
Springwod ...	84	6½	25	8¼	25	6	—	—	34	5¼	—	—	—	—
,, ..	140	6¼	32	8	57	6	—	—	51	5¼	—	—	—	—
St. Andrews ...	131½c	9¼	34½c	1/1½	68½c	7¼	29½c	9¾	—	—	—	—	—	—
St. Clair ...	86	9½	—	—	29	11	20	1/0½	31	7¼	3	5½	3	5
St. Leys ...	60	8	—	—	26	7½	21	10¾	9	5¼	4	4	—	—
Strathellie ...	186	7	—	—	59	†6	66	†8¾-9	61	5½-5¾	—	—	—	—
S. Wana Rajah...	77 p	11¾	46½c	1/3½	24	10	—	—	7	6	—	—	—	—
Sunnycroft ...	151	7	66	7¾9¾	42	6½	—	—	39	5½	4	2 3¼	—	—
Sutton ...	24	1/2¼	—	—	10	1/0¼	14	1/3½	—	—	—	—	—	—
Tellisgalla ...	33	7¾	—	—	12	6¼	17	9½	1	5½	—	—	3	4½
Templestowe ...	140 p	8¾	62½c	10½	34	7½	—	—	35	6¾	9½c	4½	—	—
Theresia ...	79 p	11¾	—	-	22	9¾	55½c	1/2	—	—	1	5½	1	4¾
Tunisgalla ..	96 p	9	—	—	32	9¼	28	11¾	29	6½	—	—	7½c	7
Tyspany ...	87	9	—	—	38	8¼	36	10¾	13	5¾	—	—	—	—
Udaradella ...	128 p	10½	72½c	1/1¼	30	10	—	—	23	7½	—	—	3	4¾
Ugieside ...	26	7	—	—	13	5¾	10	†9	3	5¼	—	—	—	—
Valamaly ...	85	9¼	—	—	49	7-10½	17	1/1	17	6¼	—	—	2	5½
Waltrim ..	85	11¾	—	—	27	1/	32	1/2½	24	8¼	—	—	2	7¼
Wangie Oya ...	75	7½	—	—	32	†7	24	†9¾	19	†5½	—	—	—	—
,, ...	110 p	7¾	44 p	9½ 1/0¼	47	†7	—	—	19	†5¼	—	—	—	—
Wariagalla ...	66	7½	—	—	19	7	30	9¼	15	5¼	—	—	2	3¾
Wattakelly ...	42	7	—	—	36	6½7½	5	9¼	—	—	—	—	1	3½
Wavendon ...	48½c	7¼	—	—	14½c	†6½	21½c	†8¾	13½c	†5¼	—	—	—	—
Westhall ...	127	8½	—	—	48	9½	21	1 1¼	55	6¼	—	—	3	4½
Wewelmadde ...	24	8	—	—	—	—	12	10	12	†5¾	—	—	—	—
Wiltshire ...	36 p	8	—	—	16	6¾	20½c	10¼	—	—	—	—	—	—
Windsor Forest	152	8¾	—	—	51	9½	48	11¼	—	—	53	6	—	—
Woodend ...	81	8	—	—	39	7½	28	10¼	14	5½	—	—	—	—
Wootton ..	77 p	1/	23	1/9	36	11½	—	—	18	7	—	—	—	—
Yahalakelle ...	75	7¼	—	—	20	8¼	32	7¾	23	5¾	—	—	—	—
Yellebende ..	33	9	—	—	12	10	9	11	12	†6¼	—	—	—	—
Ythanside ...	135 p	11¼	28	1/6	—	—	39	11	39	9½	22	6¾	7½c	6

JAVA. 1144 packages. Average 7¾d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Ardja Sarie ...	403 p	7	—	—	30	9	16½c	9½	300	6½-7¼	57	5	—	—
Nangoeng ...	271 p	7¼	—	—	127 p	7¾-11	47 b	8¾	97	5¾	—	—	—	—
Parakan Salak ...	200	6¼	—	—	—	—	100	6½-6¾	—	—	—	—	100	5¾
Perbawattie ...	235	10¼	—	—	97	9¾	138	10 11¼	—	—	—	—	—	—
Sindang Sarie ...	35	8½	—	—	35	8½	—	—	—	—	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *January 22nd*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	801,337 packages.	376,385 packages.	31,478 packages.
1891-1892.	909,589 ,,	517,519 ,,	29,458 ,,

During the week
6,986 packages Indian
5,153 ,, Ceylon } Total 52,184 packages have been offered in public auction.
45 ,, Java

Some relief has this week been afforded the trade through the comparatively light auctions.

The smaller quantity brought forward proved ample for requirements, the bidding being characterized by a lack of animation. The postponement of Wednesday's auction, on account of the Funeral of the Duke of Clarence, raised Thursday's catalogues to a heavy total, the valuing of which was considerably interfered with, owing to thick fog, prices in consequence showing considerable irregularity.

INDIAN. The quantity of Indian Tea brought to auction during the fortnight ending 15th inst. aggregated 97,873 packages.

Only 36,986 packages were catalogued against 49,300 last week. Fine and flavory kinds have about maintained values, but poor liquoring Teas are again easier. The following averages are worthy of note:—"Margaret's Hope," 2/1¾; "Mim T Co.," 1/7½; "Dooteriah," 1/7¼; "Turzum," 1/7. Average for week, 8¾d.

TRAVANCORE. This district is gradually increasing its output and some Estates are now showing improved quality.

This weeks average price of New Season's Teas sold on Garden Account. Total 24,687 pkgs. average 8¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	13362 p	9¼d	Chota Nagpore ..			Kangra Valley ..	354 c	6¾d
Cachar and Sylhet..	6364 p	7¼d	Darjeeling & Terai	967 p	1/0¾	Neilgherry.. ..	65 p	10d
Chittagong	270 c	7½d	Dooars	3078 p	8¼d	Travancore	227 c	7½d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	4d.	1891,	6½d.	1890,	5½d.	1889,	6d
TANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	7d.	,,	6d.	,,	5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6d.	,,	8¾d.	,,	7½d.	,,	7d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6¾d.	,,	9½d.	,,	8d.	,,	8d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8½d.	,,	10¾d.	,,	9¼d.	,,	9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	8½d.	,,	6¾d.	,,	6¾d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¼d.	,,	9½d.	,,	8d.	,,	7½d.

CEYLON. The lighter offerings were mostly sold at last week's rates, competition centring mostly upon good liquoring Pekoes and Broken Pekoes. Common Pekoes and Pekoe Souchongs were somewhat neglected and sold slowly. Telegrams from Colombo state that exports for January are not likely to exceed 5,000,000 lbs., which is 1,000,000 lbs. less than the general estimate. The following averages may be mentioned:—"Denegama," 1/2½; "Kandapolla," 1/2¼; "Waverley" of the CTP Co., 1/2; "Dammeria," 1/1¼. Average for week, 9¼d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6½d.	1891,	9¾d.	1890,	10d.	1889,	9d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9d.	,,	11d.	,,	10¾d.	,,	10¼d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9¼d.	,,	9½d.	,,	8½d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6¼d.	,,	10d.	,,	10d.	,,	9¼d.

JAVA was only represented by 45 packages of direct import. Arrivals have of late been very limited—the season's crop being considerably reduced through the prevalence of unfavourable weather in the island.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 31st DECEMBER.

	Imports.			Deliveries.			Stock.		
	1889.	1890.	1891.	1889.	1890.	1891.	1889.	1890.	1891.
INDIAN	67,418,787	67,924,146	78,357,246	57,359,430	59,037,042	59,523,000	37,814,292	36,376,893	45,495,678
CEYLON.....	18,141,446	23,906,406	36,210,624	19,169,158	24,874,956	35,745,628	6,303,954	8,621,824	15,439,888
JAVA	1,347,620	2,000,600	1,964,340	2,038,870	1,300,970	2,339,260	542,150	764,470	474,670
CHINA, etc	71,352,084	54,669,645	50,543,915	50,884,459	49,919,645	42,873,207	57,811,525	44,740,232	36,115,177
TOTAL lbs.	158,259,937	148,500,797	167,076,125	129,451,917	135,132,613	140,481,095	102,471,921	90,503,419	97,525,413

BANK RATE. 3 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 4[15]d.

INDIAN. Average 8¾d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price	Quantity	Price
ASSAM	**13362p**	**9¼d**												
Assam Co ...	1036 p	7¾	90½c	1/1¼-1/6	278	7¾-8¼	31	1/3¼	60	6¼	577 p	5¾ 11½	—	—
AssamFrontierCo	590	10¾	214	11½ †2/3¼	247	9½10	—	—	20	10½	—	—	99	†5½†7¾
Balijan T Co ...	417 p	10¾	105	p1/0½-2/1¾	89	10 10¼	41	1/3	122	7	—	—	60½c	11
Bamgaon ...	225	10	—	—	110	10 1/2¼	25	1 0½	60	7	30	5½	—	—
Bargang Co ...	73	1/2½	—	—	25	1/8¼	—	—	33	1/0¾	15	9	—	—
Behora ...	134 p	9	23½c	1/6¼	22	10	89	6½ 11¼	—	—	—	—	—	—
Bishnauth T Co	323 p	10	49½c	1/8 1/10¼	49	1/1½	23	1 2½	111	7-9	91	6-6¾	—	—
Borelli T Co ...	697	9¼	15	1/9	183	10½ 1/4¼	100	1 1-1 5½	249	6½-7¾	150	5½-6¾	—	—
Brahmapootra Co	521	8¾	—	—	172	9-11¼	62	9¾ 1 2¾	217	6¼-7½	70	5½-7¼	—	—
British Assam Co	584	8¼	—	—	148	†9¼	67	1 0¾	234	6½-6¾	135	5½	—	—
Chubwa T Co ...	443 p	8	142½c	11½ 1/4 ¼	127	8	45	†6	96	5¾	81	6	2½c	3¾
Coolie Koossie ...	156	7¼	—	—	20	8¼	14	11½	16	6¾	76	5¾-6	3	7¾
Dahingeapar ...	120	10½	30	†1/1¾ 1/9¾	30	9¾	—	—	35	7¼	20	8	5	4
DebrooghurCo ...	104	8	—	—	30	†7½	14	1 4	44	6½	16	5½	—	—
Dejoo T Co ...	271	7¾	—	—	91	8½8¾	40	†8¼ 1 3¼	100	6 6¼	40	†5¼	—	—
Dhendi ...	271	9¼	—	—	100	10¼ 1/3¼	31	11¾-1/-	100	6¾-7	40	5¾-6	—	—
Doom Dooma B	3 p	9	1½c	1/1¼	1	9	—	—	1	7	—	—	—	—
,, H	269 p	9	32½c	1/-1/8	82	9-9¼	39	1/0¾	64	7	28	5½	24	5¾
,, S	68 p	8¾	21½c	11¼-1/-	40	†8¾	—	—	—	—	—	—	7	3¾-4
GreenwoodTCoD	265	8¾	40	1/3½	77	8¾	—	—	104	6¾ 7	44	6½	—	—
,, G	210	7½	—	—	78	7¼7½	71	8¾ 9	47	5¾	14	5¼	—	—
Harmutty ...	142	10½	—	—	102	†7¼10¼	40	1 1½	—	—	—	—	—	—
Jokai Co Bokel...	307 p	8¾	72	1/1-1/5¾	112	7 8½	—	—	52	6	25	5½	40 p	4¼ 6
,, Jamira ...	139 p	6¼	26	10½ 11	15	7-8	5	5¾	21	5½	52	4½ 5	20½c	5½
,, Panitola ...	205	1/1¾	63	1/5¾ †1/7	39	1/2¼	—	—	95	11½	—	—	8	4½
,, Subansiri ...	165	6¾	—	—	60	†8	40	†7½	—	—	65	5	—	—
Jorehaut T Co	660	9¼	84	1/1¼ 1/4¾	126	8¾ 10½	54	1/1¾ 1/4½	372	6½7½	—	—	24	4¼
Kelly Den ...	248 p	9¾	81½c	1/1-1/8	99	8¾	30	10	38	6	—	—	—	—
Kettela T Co ...	106 p	11	—	—	26	1/2¾	27½c	1 6¾	25	8¾	23	6¾	5	4
Khongea ...	135	7¼	—	—	18	9½	117	†6¼†10½	—	—	—	—	—	—
Khonikor ...	298 p	8¾	77 b	2/1	76	9¼ 10¼	35	†7¾†9½	92	6 6¼	8	†4¼	10	3½
Koddom ...	51	9	—	—	30	10¾	—	—	21	6¾	—	—	—	—
LowerAssamCoB	100 p	7	20½c	†1/	20	7¼	22	6¾	38	5¾	—	—	—	—
LuckimporeTCo	180 p	9½	20½c	1/4¼	56	11¼	20	1/1½	22	7¼	62	5¾-7	—	—
Lung Soong ...	125	7½	—	—	42	9¾	18	9	41	†5½6¼	18	5¼	6	2¾
Majuli T Co. K	189	1/1	33	1/6-2/0¼	78	1/0½	20	1/0¾	36	9¼	22	8¼	—	—
,, M	64	11¼	—	—	32	1/1½	—	—	32	8¾	—	—	—	—
Medla ...	120 p	10¼	45 b	2/0¼	21	10¼	15	9¾	21	7¼	18	5½	—	—
Meleng ...	300	11	35	1/9½	110	10¼	30	1/7¼	55	7¼	70	6½	—	—
Mungledye T Co	182 p	10	—	—	64½c	10¼	53½c	1/3¼	30	8	35	7½	—	—
Namgaon ...	150	9½	—	—	65	10¼ 1/4¼	15	9¾	50	7	20	6	—	—
Nahor Rani ...	267	9¾	—	—	106	10½ 1/6½	32	10¼	117	6½	12	5¾	—	—
Noahbarrie ...	162 p	7¾	24½c	1/3¾	39	7½	32	9	67	†5¾	—	—	—	—
Oaklands ...	80 p	9¼	40p	11-†1/7½	—	—	—	—	40	†6½	—	—	—	—
Rajabhetta ...	125	7	25	11	42	6¾7½	27	5	31	5¾	—	—	—	—
Rajmai ...	306 p	8¼	—	—	96	9½	70½c	1/0½	—	—	140	6½	—	—
Romai ...	80 p	8¼	25½c	1/3½	23	8¼	—	—	32	5¾	—	—	—	—
ScottishAssamCo	122 p	1/	20½c	1/7¼	25	1/3	12½c	1/7¾	65	9	—	—	—	—
Sealkotee ..	60	8¾	—	—	60	7-10	—	—	—	—	—	—	—	—
Tarajulie ...	198	7¾	—	—	61	8	76	†5¾†1/0¾	—	—	61	5¼ †5¾	—	—
Tingri T Co ...	132	7¼	—	—	54	9	—	—	78	6¼-6¾	—	—	—	—
Tiok ...	110	8⅓	20	1/1½	40	8¾	—	—	50	6¼	—	—	—	—
CACHR & SYLHT	**6364 p**	**7¼d**												
Allynugger ...	200	8¼	23	11-1/4	100	8¼	44	7¾	33	6	—	—	—	—
Bicrampore A	456 p	8	—	—	114	8½	164½c	1/	48	6½	94	5½-5¾	36½c	4¼
Chandpore Co ...	368	7½	—	—	184	†6¼ †7	121	6-11	61	6	—	—	—	—
Chatlapore ...	434	9¼	34	1/3-1/6¼	240	9¾	44	7¼	80	7¼	36	6½	—	—
Cherra Co Balla	237 p	7¼	—	—	139	5¾6½	58½c	1/3½	—	—	—	—	40	†4½
Chundeecherra C	210	7¼	13	1/6	70	†6¾	92	†6¾	35	†5½	—	—	—	—
Craigpark ...	138	7¾	—	—	61	†8	35	9½	14	6	14	5¼	14	6

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
CACHR & SYLHT														
Dooloogram ...	181	6¾	—	—	51	7¼	25	10¼	45	5¾	60	5½	—	—
Kaline ...	363	7½	—	—	121	9¼-9½	26	1/1	—	—	196	5¾	20	7
Loobah Co L ...	202 p	9¾	17½c	†1/8¾	49	11	31	1/1½	87	7	—	—	18	8
Longai ...	349 p	6¾	25½c	10¼	63	6¼-6½	137 p	6¾-9	124	†5¼	—	—	—	—
Phœnix T Co	200	6¼	—	—	72	7¼	39	7½	40	5¼	49	†4¾	—	—
ScottporeTCo D	163	6½	—	—	61	†6¾	38	†8¾	16	†5¼	48	†5	—	—
,, S	190	7½	20½c	1/4¾	54	†7¾	26	9¼	56	6-6¼	34	5¼	—	—
Sonarupa ...	272	7¼	38	9¾	71	7¾	39	9	55	5¾	69	5¼	—	—
Subong ...	80	7	—	—	20	7	20	8½	40	6	—	—	—	—
Tarrapore T Co	681	8	—	—	192	9 11½	91	11-1/1	122	6½7¼	276	6 6¼	—	—
,, ...	529	7¼	40	9-1/1¾	119	7¾-8¼	81	8½-9¼	113	6-6½	176	5-6	—	—
WesternCachr Co	118	7¾	—	—	27	8¾	21	1/1½	—	—	70	4¾-6½	—	—
West Jalingah ...	142	6	—	—	42	†7½	—	—	38	†6	50	5½-5¾	12	†3
CHITTAGONG														
Chandpore ...	270	7½	—	—	85	7¾-8	65½c	1/0½	110	6	10	5½	—	—
DRJELNG&TERI	**967 p**	**1/0¾**												
Atal ...	62	11¾	—	—	34	1/0½-1/2	12	1/2	16	7¼	—	—	—	—
*Castleton ...	103	10¾	25	1/2½	55	10¼	—	—	23	7¾	—	—	—	—
Darjeeling T Co	105 p	1/0½	20	1/5	30	1/1½	15½c	1/6¼	25	8½	15½c	5¾	—	—
Dooteriah ...	99	1/7¼	—	—	50	1/6	29	2/3	20	11¾	—	—	—	—
Happy Valley ...	146	8½	—	—	30	10¼	26	1/0½	69	7 7¼	17	5¾	4	5¼
Margaret's Hope	100 p	2/1¾	31	2/6¼	21	2/2¾	19 p	2/10	13	1/4½	—	—	16	1/1
Mim T Co ...	48 p	1/7½	—	—	21	2/1¼	2	2/8¼	18	1/2½	—	—	7 p	7¾ 10½
Rungneel ...	116 p	9½	—	—	40	11	27½c	1/0½	17	7	—	—	32½c	4½-6¾
Turzum ...	72	1/7	24	1/11¼	48	1/4¾	—	—	—	—	—	—	—	—
DOOARS	**3078 p**	**8¼d**												
Bhogotpore ...	418 p	9	—	—	72	8¾	178½c	1/-1/0¼	131	7¾	—	—	37½c	5¼
Chalouni ...	241	1/1½	—	—	88	1/1½	87	1/4¾	66	9½	—	—	—	—
Deomoni ...	110 p	6½	18½c	†8½	44 p	†6½ 7½	—	—	28 p	5½	20½c	5¼	—	—
DooarsTC Baman	736	8	63	1/2¾	272	†7¾	147	8¾	182	6½	—	—	72	3½ 6
Lagoo ...	146	8¼	—	—	58	8¼-9½	20	1/1¾	50	6-7	—	—	18	5½
Majilidoubah ...	120	7½	—	—	20	10½	—	—	64	7½	36	6	—	—
Nope ...	140	9¼	12	1/7	36	9	30	†9¾	50	7¼	—	—	12	†6¼
Nti ...	80 p	6	—	—	—	—	—	—	—	—	60	6¼	20½c	4¼
Nillcott T Co ...	114	6¼	—	—	22	7¼	29	6¾	42	5¾	—	—	21	3¾5½
Nankapura ...	159	7	1	9	47	6¾ †7¼	35	8½ †1/0½	38	†6¼	26	5¼ †5¾	12	5¼
Nethjhora ..	34	5¾	—	—	—	—	—	—	—	—	34	5¾	—	—
Nooksan ...	78	6½	—	—	40	7¼	—	—	38	5¾	—	—	—	—
Nanabarrie ...	193	7½	83	8½ †10¼	—	—	—	—	92	6¾	—	—	18	5½
Neenglas ...	147	9	35	1 1-1/4½	31	8½	—	—	57	6¾	—	—	24	3¾ 8
Nundani ...	110	8	—	—	—	—	—	—	97	8¼	—	—	13	5¼
Nutharjhora ...	250	7	26	11-1/3	35	†8¾	—	—	78	†6¼	87	5¼ †5¾	24	3½ †6
NANGRAVALEY	**354 c**	**6¾d**												
Nangra Valley Co	139 p	8¼	90 p	8-1/1¼	32	7	—	—	17	7¾	—	—	—	—
NullaKuttyoor	175½c	6	—	—	100½c	6½-6¾	—	—	75½c	5¼	—	—	—	—
NEILGHERRY	**65 p**	**10**												
Nodanaad ...	45½c	1/1	25½c	1/2	—	—	20½c	1/	—	—	—	—	—	—
NRAVANCORE	**227 c**	**7½d**												
Nfield ...	101	7	—	—	20	7½	22	10	59	5¾	—	—	—	—
Nenshurst ...	75	8¼	12	1/2	14	8¾	—	—	35	7	14	5½	—	—
Nenture ...	51	7¼	—	—	34	6¾	10	9-10½	6	5½	—	—	1	3

Gardens marked thus * are last of the Season.

CEYLON. Average 9¼d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity	Price.	Quantity	Price
Aberdeen ...	100½c	6¼	—	—	50½c	5¼	50½c	7	—	—	—	—	—	—
Adams Peak ...	201	10¼	—	—	83	9¼	81	1/0¾	33	6½	—	—	4	5½
Ambatenne ...	58	7½	—	—	21	6¾	24	9½	13	5¼	—	—		
Amblamana ...	39	8¼	—	—	6	8½	21	9¼	12	6¼	—	—	—	
Amherst ...	20 p	9¼	—	—	8	7¾	8	1/0¾	2	6	—		2½c	5
Amunamulle ...	56½c	9	—	—	22½c	7¾	34½c	9¾	—	—	—	—	—	—
Ancoombra ...	106	7¾	—	—	29	7½	34	10½	12	6	31	5¼	—	—
Angroowelle ...	51½c	8	—	—	26½c	7½	18½c	10	6½c	5½	—		1½c	5¼
Atherfield ...	54	8¼	—	—	20	7¼	23	10¾	11	5¼	—	—	—	—
Balmoral ...	59	9½	—	—	16	10¼	22	11¾	21	6¾	—	-	—	..
Bambrakelly&D.	82	10¾	—	—	42	9¾	46	11¾-1 -	—	—	—	—	—	...
Bathford ...	61	11	—	—	29	10¼	22	1 1¼	16	8	—	--	—	--
Bearwell ...	141 p	8½	—	—	80	8	39	11¼	17	5½	—	—	5½c	5
Blackwater ...	269 p	7¾	47 p	11 11½	82	8¾	41	8	74	6	21	5	4	4½
Blairgowrie ...	76 p	8¾	—	—	13	9	37½c	11½	22	6½	2½c	5	2½c	4½
Bogawantalawa	98 p	1/0½	—	—	35	1/0¼	53	1/3½	25	10	1	5½	4½c	6½
Bon Accord ...	54 p	11¼	--	—	36 p	8¼ 10½	18	1 1¼	—	—	—	—	—	
Broad Oak ...	106½c	10½	—	—	47½c	10¼	41½c	1/	16½c	7½	2½c	3		—
Burnside ...	39½c	9	—	—	21½c	7¼	18½c	11	—	—	—	—		—
Campden Hill ...	247	6¾	—	—	119	6½	84	7¾ 8	28	5¼	16	4¾	—	
Campion ...	147	10½	—	—	49	9½	62	1 1¼	36	6	—	—	—	
Castlemilk ...	125	8	—	—	41	†7¾	41	10	43	6	—	—	—	-
Chapelton ...	155 p	11¾	—	—	40	†11¼	75½c	1/4¼	40	18¼	—	—	—	—
CeyLand&ProdC														
,, Eadella ...	45	7½	—	—	19	7	12	10½	13	5¼	—	-	1	4¼
,,NewPeradeniya	128	7¾	—	—	49	7½-7¾	36	10¾	41	5¼	—	—	2	4¼
Claverton ...	84 p	10¼	17	1/1	31	9¼	17½c	1 8	13	5¾	1	4¼	—	-
Clontarf ...	83	8¾	—	—	52	6¾	31	1 0¼	—	—	—	—		—
Clunes ...	192½c	8¾	—	—	90½c	8½	78½c	10½	24½c	5¾	—	--	—	—
Come Away ...	75 p	9½	—	—	35	†8¼	42½c	11¼	—	—	—	-		
Coolbawn ...	66	6¾	—	—	15	6¼	24	8½	27	5½	—		—	
CTPCo Alton ...	18	5¾	—	—	—	—	—	—	18	5¾	—	—	—	—
,,Mariawatte	268	7½	—	—	113	†7-7¼	66	11 11¼	89	5-5½	—	—		
,,Tillyrie ...	130	11½	—	—	38	10½	66	†1/1½	16	7½	—	—	10	8
,,Wallaha ...	165 p	10¼	—	—	84 p	8¾ 10¾	51	1/1¼	30	6	—	—	—	—
,,Waverley ...	65	1/2	—	—	29	1/0½	36	1/3¼	—	—	—	—	—	—
Dammeria ...	75½c	1/1¼	28½c	1/1½ 1/8½	43½c	1/-1/1¼	—	—	3½c	5¼	1½c	7¼	—	—
Deanstone ...	86½c	7¾	27½c	10¾	37½c	†7	—	—	—	—	14½c	5¼	8½c	5
Dedugalla ...	60	8¾	—	—	17	†9	22	10¾	21	6¼	—	—	—	—
Dehiowita ...	87	7½	—	—	49	6¾	22	10½	16	5½	—	—	—	—
Denegama ...	78½c	1/1¾	—	—	52½c	1/0¾	20½c	1/6¾	—	—	4½c	5-5¼	2½c	4¾
,, ...	72½c	1/2½	—	—	52½c	1/0¾	20½c	1 6¾	—	—	—	—	—	—
Densworth ...	85½c	4¼	—	—	—	—	—	—	—	—	57½c	4½ 5	28½c	3½
Dessford ...	84	10½	—	—	36	9¾	32	1/1½	16	†6¾	—	—	—	—
Dickoya ...	94	8½	—	—	62	†5½-9	19	11½	13	6¼	—	—	—	—
Dig Dola ...	47	7½	—	—	32	6¼	15	10	—	—	—	—	—	—
Dikmukalana ...	37½c	6½	—	—	19½c	6¾	—	—	18½c	6	—	—	—	—
Doragalla ...	118	7½	—	—	42	7¼	32	10¾	44	5½	--	—	---	—
Dotala ...	61 p	8¼	—	—	29	†6¼	31½c	†1/0¼	—	—	—	—	1	5
Duckwari T P ...	46	9½	17	1 1¼ 1/2¾	14	9¼	—	—	12	6¼	—	—	3	5
Elfindale ...	267½c	7	—	—	100½c	6¼-6½	80½c	9½	75½c	5¼-5½	—	—	12½c	4½
Elston ...	109	8½	—	—	54	7¾	35	11¼	20	5½	—	—	—	—
Elstree ...	215½c	8¼	—	—	100⅛c	†7	64½c	1/	51½c	†5½	—	—	—	—
Eltofts ...	103 p	10¼	—	—	19	11¼	42	†1/2¼	37	8	5	5¾	—	—
Emelina ...	71	9½	—	—	37	9½	13	1/2½	16	7¼	4	4	1	5
Engurukande ...	65	8¾	—	—	41	7¾	23	11	1	4¾	—	—	—	—
EP&ECo Cndegal	65	11¼	—	—	26	11½	21	†1/2½	14	†7	—	—	4	9½
,,Doombagastala	56	9	—	—	38	7½	18	1/0¼	—	—	—	—	—	—
,,Meddecombra	86	7¼	—	—	23	†6¼	33	†9¾	30	5	—	—	—	—
,,Kirrimattia	93	10½	—	—	56	9½	37	1/	—	—	—	—	—	—
Excelsior ...	59½c	1/0¼	—	—	18½c	1/0½	19½c	1/4¼	18½c	9¼	2½c	7¼	2½c	6¼
Fairfield ...	51	11¼	--	—	26	9½	25	1/1	—	—	—	—	—	—
Ferndale ...	64	8¼	—	—	42	7¼	22	10	—	—	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Friedland ...	65½c	11¼	—	—	20½c	11¼	21½c	†1/1¾	24½c	9	—	—	—	—
Galaha ...	228	8½	—	—	43	8½	115	9¾	50	6¾	20	5¼	—	—
Galgawatte ...	34 p	6	—	—	9	5½	16½c	†7¾	9	4¾	—	—	—	—
Gallebodde ...	91	10¼	—	—	35	10½	31	1/0½	25	7	—	—	—	—
Gallewatte ...	36½c	7½	18½c	†8	18½c	†6¾	—	—	—	—	—	—	—	—
Gallola ...	123½c	8	—	—	30½c	8¾	26½c	1/	60½c	6¼	2½c	2	5½c	4-4¼
Glendon ...	86	8¼	—	—	56	6¾-7¼	26	10¼	3	4¾	—	—	1	3½
Glentilt ...	118 p	9½	38½c	1/2½	31	11	—	—	29	7¼	20	5½	—	—
Goorookoya ...	97	8	—	—	39	7¾	31	10½	37	6	—	—	—	—
Great Western ...	120	7¾	—	—	33	†8¼	26	10¾	61	†6¼	—	—	—	—
Hardenhuish & L.	113 p	7¾	—	—	—	—	56	9	57	5½	—	—	—	—
Heeloya ...	47	7½	—	—	25	†6½	18	†9½	4	5¼	—	—	—	—
Hemingfold ...	101½c	7¼	—	—	35½c	7¼	28½c	9½	27½c	5½	6½c	1-5¼	5½c	4¼-6¼
Henfold ...	141	1/0½	—	—	65	1/	53	1/3½	23	†7	—	—	—	—
Hindagalla ...	84 p	9¼	—	—	43	9	21	1/0½	15	6	—	—	5½c	5
Holmwood ...	85 p	9¾	—	—	25	9½	69	†10½	21	6¾	—	—	3½c	4¾
Iddegodda ...	36	9¼	—	—	24	8½	9	1/1	—	—	2	4¾	1	4¼
Imboolpittia ...	154 p	9	26	11¼	44 p	9¼	24	1/0¼	60 p	5¾	—	—	—	—
Kallebokka ...	57 p	9¾	12½c	1/3¼	24	7½	18	11½	2	5¼	—	—	1½c	4½
Kandapolla ...	69 p	1/2¼	37½c	1/1⅓	—	—	18	1/6	14	10½	—	—	—	—
Katookella .	29	9¾	—	—	12	11½	—	—	12	8	—	—	5	6¾ 10¾
Kelani ...	188½c	7½	—	—	83½c	7¾	32½c	11	73½c	5¾	—	—	—	—
KelaniValAsso D	107 p	6¾	—	—	50	6¼	23	9¾	28	5¼	1	3½	5½c	5
Kelburne ...	31	10	—	—	12	10	16	11	—	—	—	—	3	4½
Kirkoswald ...	152	1/	—	—	56	1/0½	43	1/2½	53	9¼	—	—	—	—
Koladenia ...	81	6¾	—	—	55	†5½	26	9¼	—	—	—	—	—	—
Kowlahena ...	72	10¾	—	—	22	10	29	1/2	21	7	—	—	—	—
Lameliere ...	130½c	10	—	—	28½c	†10	58½c	†1/	44½c	†7½	—	—	—	—
Laxapana ...	170 p	9½	36½c	1/1½	67	†8¾	42½c	1/1¼	25	†6	—	—	—	—
Laxapanagalla ...	119½c	7¼	50½c	9½	50½c	6¼	—	—	15½c	4½	—	—	4½c	4½
Le Vallon ...	133 p	8	—	—	19	8	76½c	10½	26	5¾	—	—	12	5
Lindoola ...	58 p	11	—	—	15 p	11	22	1/1¼	21 p	8¼	—	—	—	—
Lippakelle ...	90	1/	—	—	48	8¼-11	39	1/3	—	—	—	—	3	7¼
Loinorn ...	82 p	11½	37½c	1/4½	—	—	—	—	43	9¾	2	4½	—	—
Mahousa ..	76 p	8¼	39	9½-10	21	7	14	5¾	—	—	—	—	2½c	3¾
Maskeliya ...	51 p	10½	21½c	1/3½	30	8¾	—	—	—	—	—	—	—	—
Mattakelly ...	181	8¾	—	—	52	9	67	†11½	60	5¾	—	—	2	5¼
Maturatta ...	49 p	10¼	—	—	29½c	†8¼	17½c	1/1¼	—	—	—	—	3	10
Meria Cotta ...	61	10¼	—	—	34	9¾	13	1/3¾	14	†6¼	—	—	—	—
Minna ...	147	8¼	—	—	58	8¾	35	1/	46	5½	8	3½	—	—
OBEC Havilland	122½c	8¼	—	—	42½c	8	42½c	10¾	38½c	6	—	—	—	—
,, Kuda-Oya ...	138	9¼	—	—	59	8¾	44	1/1	35	5¾	—	—	—	—
,, Loolecondera	39	11¼	—	—	16	11	18	†1/0½	5	7	—	—	—	—
,, Nilloomally	67	7¾	—	—	28	7½	21	10	18	5¾	—	—	—	—
Peacock Hill ...	66 p	8	—	—	18	8¾	25½c	11½	23	5¾	—	—	—	—
Penla Cotta ...	43	7¼	—	—	25	†6¾	18	†7¾	—	—	—	—	—	—
Penrith ...	100	11	—	—	35	10	44	1/1½	21	7	—	—	—	—
Pen-y-lan ...	81	9¼	—	—	26	9	41	10¾	11	5¾	1	4½	2	4½
Portree ...	67 p	11¾	—	—	39	10¼	28½c	1/3¾	—	—	—	—	—	—
Putupaula ...	51	8¼	—	—	12	9½	15	11½	14	6½	7	4-5¼	3	4¼
Rangbodde ...	152	10	—	—	59	10	46	1/1½	47	†6¼ †6½	—	—	—	—
Relugas ...	73	9	—	—	28	9	24	11	21	†6¼	—	—	—	—
Riverside ...	92	8½	—	—	42	7½	38	10½	12	†5¾	—	—	—	—
Rookwood ...	63½c	10	—	—	19½c	10¼	23½c	1/0¾	21½c	6½	—	—	—	—
Sanquhar ...	110	7¾	—	—	32	8	30	10¼	42	6	2	4	4	4¾
Spring Valley ...	143 p	1/1	—	—	54	1/0¼	57	1/3¾	20	9½	—	—	12½c	6½-7
St. Clair ...	88	9¾	23	10¾	15	†8¼	20	1/2¾	30	6¼	—	—	—	—
St. Johns ...	32	1/	—	—	17	11¼	15	1/1	—	—	—	—	—	—
Strathspey ...	69	11¼	—	—	38	11¼	13	1/3½	15	8½	1	5	2	6
Sumtravalle ...	46	10¼	—	—	—	—	29	1/	17	7¼	—	—	—	—
Talawakelle ...	108 p	10	—	—	37	11	14	1/4¾	45	7½	—	—	12 p	7-10½
Tamaravelley ...	247½c	6½	—	—	49½c	5¾	123½c	7¾	75½c	5¼	—	—	—	—
Torrington HAP	64	7¼	—	—	30	8¼	—	—	34	6-6¼	—	—	—	—
Torwood ...	102 p	8	—	—	28	8¾	30½c	11½	—	—	31	5¾-6¼	13½c	4¼-4¾
Troy ...	55	7	—	—	18	6¾	16	9½	19	5¼	—	—	2	4½

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price
Tyspany ...	94	7¼	—	—	45	6¼	37	9	12	5¼	—	—	—	—
Udabage ...	102½c	8	—	—	33½c	7¼	43½c	10	26½c	5¾	—	—	—	—
Udaradella ...	150 p	9¾	80½c	1/0½	37	9½	—	—	30	7	—	—	3	5
Vicarton ...	21	7¾	—	—	5	9	5	†11	11	†5¾	—	—	—	—
Vincit ...	29	6¼	—	—	11	5¾	7	8¾	11	5	—	—	—	—
Waltrim ...	102	11¼	—	—	33	11	41	1/2¼	28	7¼	—	—	—	—
Warleigh ...	45	10¾	—	—	32	10	13	1/1	—	—	—	—	—	—
Warwick ...	95½c	1/0½	32½c	1/4	29½c	1/0¼	—	—	34½c	9¾	—	—	—	—
Wattegodde ...	103 p	1/1	—	—	43	1/	33	1/4½	20½c	8½	—	—	7½c	6½
Wewelmadde ...	34	8¾	—	—	16	6¾	18	10½	—	—	—	—	—	—
Woodstock ...	134½c	7¼	—	—	73½c	†6½	51½c	9	—	—	10½c	5	—	—
Yapane ...	53	10¾	—	—	39	7¾ 11½	14	1/2¾	—	—	—	—	—	—
Yarrow ...	45½c	9½	—	—	30½c	8¼	15½c	1/0¼	—	—	—	—	—	—

JAVA. 45 chests. Average 5d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong		Comp. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Jonlapa ...	45	5	11	5½ 6	11	5¼	7	3	13	5¼	3	4½	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *January 29th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	837,093 packages.	388,169 packages.	31,484 packages.
1891-1892.	943,158 ,,	532,493 ,,	29,824 ,,

During the week
3,569 packages Indian
4,974 ,, Ceylon } Total 48,909 packages have been offered in public auction.
366 ,, Java

The increasing favour with which Indian and Ceylon Teas are being regarded in Foreign Markets is shown by the progress made in the export trade of 1891 over that of 1890. Much encouragement may be derived from the fact that a larger quantity of both Indian and Ceylon Tea was exported during 1891, in spite of the high prices ruling during a considerable part of the year.

Exports of Indian and Ceylon Tea from Great Britain during 1890 and 1891.

	Indian.		Ceylon.	
	1890.	1891.	1890.	1891.
United States of America	635,077	659,831	322,539	417,982
Canada	567,268	621,490	201,979	410,958
Holland	309,150	393,394	129,872	153,995
*Germany	148,566	162,878	398,134	511,699
Russia	23,267	2,240	26,316	55,361
France	41,449	34,372	23,993	43,381
Other Places	899,802	1,465,623	329,098	499,653
	lbs. 2,624,579	lbs. 3,339,828	lbs. 1,431,931	lbs. 2,093,029

* Probably part of the Tea exported to Germany was for Russia.

INDIAN. Offerings were again light, and below last week's small total; thus contributing to strengthen the tone of the market. Prices have somewhat hardened, especially for better liquoring kinds—common Teas also being less neglected. A few more "Closing Invoices" were offered, the first having been sold last week. The following averages are worthy of note:—"Poobong," 1/11½; "Jokai Co., Hukanpukri," 1/7½; "L.M.B., Moondakotte," 1/6¾; "Shakamato," 1/4¾.

This weeks average price of New Season's Teas sold on Garden Account. Total 21,878 pkgs. average 9d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	10949 p	10d	Chota Nagpore ..			Kangra Valley ..	333 p	6¾d
Cachar and Sylhet..	6579 p	7½d	Darjeeling & Terai	1414 p	1/	Neilgherry.. ..	93 c	7¾d
Chittagong	250 c	9¼d	Dooars	1275 p	8¼d	Travancore	985 p	6¾d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	4d.	1891,	6¾d.	1890,	5½d.	1889, 6d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	7½d.	,,	6d.	,, 5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6d.	,,	9d.	,,	7½d.	,, 7d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6¾d.	,,	10d.	,,	8d.	,, 8d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8½d.	,,	11d.	,,	9¼d.	,, 9¼d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	9d.	,,	6¾d.	,, 6¾d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6½d.	,,	10d.	,,	7¾d.	,, 7½d.

CEYLON. With moderate offerings, bidding was more animated and prices have been generally very steady at last week's rates.

After this week, Thurday's Ceylon Auction will be held at 12 o'clock, in a separate room from Indian, instead of after the Indian Sales as at present. The following averages may be mentioned:—"Portswood," 1/4¾; "New Dimbula D," 1/1½; "St. George RA," 1/1½; "Kandapolla," "Melfort" and "Mooloya," 1/1. Average for week, 9d.

Total exports from Ceylon were 68,274,420 lbs., in 1891 against 45,943,469 lbs. in 1890.

To the United Kingdom	63,744,987	1891 ,,	42,828,743 1890.
To Australia	3,210,598	1891 ,,	2,552,861 1890.
To the United States	163,137	1891 ,,	201,098 1890.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6½d.	1891,	10d.	1890,	9¾d.	1889, 9d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9d.	,,	11d.	,,	10½d.	,, 10½d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9½d.	,,	9¼d.	,, 8½d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6¼d.	,,	10½d.	,,	9¾d.	,, 9¼d.

JAVA. Only one small catalogue was offered, comprising 366 packages. These met with good competition and mostly sold at firm rates. Catalogues are issued for 1,097 packages.

BANK RATE. 3 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 4 3/32d.

INDIAN. Average 9d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price
ASSAM	**10949p**	**10**												
AssamFrontierCo	975	10¼	298	1/0¾-1/7	417	†9-11	56	10¾ 11¾	106	5¼6½	—	—	98	5½-6
Badulipar ...	208	9	—	—	62	10¾	35	1/1½	60	6¾	51	6	—	—
Bamgaon ...	200	8¾	—	—	99	9½ 1/1¼	—	—	78	6½-6¾	23	5½	—	—
Bargang Co ...	55 p	1/2¾	—	—	—	—	25½c	1/8	30	1/0¾	—	—	—	—
,, ..	86	1/2	—	—	25	1/8½	—	—	36	1/1½	21	9	4	—
Beheating ...	164 p	9½	24½c	1/7¾	35	1/0¼	30½c	1/1¼	35	7½	60	5¾6¼	—	—
Bishnauth T Co	661 p	10	116 p	1/0¾-1/1 0	177	11 11¼	20	1/1¼	132	8	96	5½-6¼	120	4½
BITC Mancotta	71	6	—	—	25	7¼	—	—	20	6	26	5	—	—
,,Sessa ...	158 p	8¼	23½c	1/8	40	7¾	45 p	†8¼ 10	26	6¼	24	5¼	—	—
Borbarrie ...	129 p	11½	25½c	2/6½	21	1/0¼	17	†1/2½	40	†7	26	7	—	—
Borelli T Co ...	272	10⅓	—	—	95	1 1¾ 1/4¼	41	1/3¾ 1/5¼	76	7¾ 8	60	6½	—	—
Borpukri ...	120	1/0½	—	—	52	1/3-1/7¾	—	—	48	10	20	6½	—	—
Brahmapootra Co	479	9½	—	—	140	11½ 1/1	64	1/-1/3	193	6½-8	82	6-6¾	—	—
DebrooghurCo ...	88	7	—	—	24	8	—	—	40	7¼	24	5¾	—	—
Dekhari ...	62	8¾	—	—	20	1/0¼	35	7½	—	—	—	—	7	4½
Dhendi ...	130	9¾	—	—	50	10¾ 1/3¾	20	11¼	40	7	20	5¾	—	—
Dhoolie ...	139	8	—	—	30	†9¾	25	1/0½	59	6 6¼	25	†5¾	—	—
Diffloo ...	617	6½	—	—	150	6¾	122	7-10¾	175	5¾-6	170	5¼	—	—
Digloy T Co D ...	36	9¼	—	—	24	10¾	—	—	12	6½	—	—	—	—
Gotoonga ...	160 p	11½	27½c	1/11	107	9-1/5½	—	—	—	—	26	7	—	—
,, ...	87	1/2¼	—	—	70	9¼ †1/4½	16	1/10¾	—	—	1	6	—	—
Halmirah ...	204	6¾	—	—	33	†8¾	21	11	95	5¾-6	41	†5¼	14	4½
Jhanzie T Assoc	312 p	9¾	—	—	133	9½	70	1/2¾-1/3	68	6¼6½	—	—	41	5½
JokaiCoHuknpuri	96 p	1/7½	32½c	2/5¼	38	1/6¾	—	—	26	1/2½	—	—	—	—
,, Tippuk ...	181	10¾	53	1/0¾ †1/2¾	81	10¾ 1/0¾	—	—	22	7¾	—	—	25	5½
Jorehaut T Co	780 p	9¾	102 p	1/0½-1/8	1144	8¾ 10½	126	1/0½ 1/1¼	372	6½-7¾	—	—	57	5½-6
Kettela T Co ...	70	10¾	—	—	39	1/3¼	—	—	31	5¼	—	—	—	—
Khongea ...	169 p	7¾	27 b	1/10	18	9½	124	6¼9¾	—	—	—	—	—	—
LMB Hatticoolie	300	8	—	—	100	8	100	10¼	100	5¾-6	—	—	—	—
,,Lattakoojan	450	10¼	—	—	150	11½	75	1/6	125	7¾	100	4¾-5	—	—
LuckimporeTCo	206 p	1/1½	20½c	1/10	76	1/0½ 1/7¼	20	1/2	50	8 1/1½	40	8¼-10	—	—
Majuli T Co. K	115	11¾	13	1/6½	42	1/	12	1/1	19	9¾	29	8¾	—	—
,, M	144 p	1/0¾	—	—	28	1/1¾	34½c	1/8¾	25	9¾	—	—	57½	5½-1
Mesai Jan ...	215	7¾	—	—	40	9½	40	1/2	72	6¼	53	†¾	10	3½
Moabund T Co....	323	1/1⅓	—	—	99	1/2¾ 1/7¾	39	1/9	142	10½	43	8½	—	—
,, ...	219	1/3¾	—	—	90	1/4¼ 1/8¾	22	2/1½	79	11½ 11¾	28	10	—	—
Moran T Co ...	168 p	11¾	67 p	1/3¼-2/3	47	9½ 10½	—	—	54	7	—	—	—	—
,, S	95	9	31	1 1¾ 1/3¾	—	—	—	—	41	7	23	5¾	—	—
Nahor Toli ...	155 p	7	25½c	1/5¼	25	8	—	—	75	5¾	—	—	30	5¼
Namgaon ...	112	11¼	—	—	47	11 1/4¼	18	1/8	35	7	12	6	—	—
Noahbarrie ...	161	6½	—	—	30	7¾	32	†8	49	6	—	—	50	†5¼
Nonoi T Co ...	367 p	9¼	70½c	1/3¾	184	†8-11	50	7¾	63	6½	—	—	—	—
Oaklands ...	78 p	1/0½	50 p	1/ 1½ 1/8½	—	—	—	—	28	8½	—	—	—	—
Rajabhetta ...	74	6½	—	—	50	6¾	12	5½	12	5¾	—	—	—	—
Rajmai ...	204 p	9¾	—	—	80	9½	72	1/0½	—	—	—	—	52½c	†7
Shakamato ...	135 p	1/4¾	22½c	2/4	50	1/6½	—	—	40	1/1½	23½c	8¾	—	—
Tingri T Co ...	160	11¼	†2	1/3-1/6¼	72	9¾	17	1/1	—	—	29	5½	—	—
CACHR&SYLHT	**6579 p**	**7½d**	—											
Amo ...	246	7½	—	—	136	6¼-8¾	35	11¼	75	5½	—	—	—	—
B&CoChargola H	312	8¾	39	11 1¼ †1/3½	79	8½	59	†11½	99	6½	16	5¾	20	4½
,, ,, M	207 p	7	24	9-†1/3	75	7¼	16	†7	70	5¾	16	5½	6½c	5
Bicrampore H	164 p	7	—	—	57	6½-8	40½c	†11	—	—	50	†5½	17	4¾-5
BITC Urrunbund	197	7	—	—	86	6¾9¾	32	9¾	—	—	79	5¼5¾	—	—
Borkai T Co. ...	145	11¾	—	—	57	10¾	15	1/11¾	29	7¾	44	11¾	—	—
Digun ...	41	5½	—	—	—	—	34	6	—	—	—	—	7	3¾
Dilkoosha ...	107	7½	—	—	29	8¾	28	9¾	21	†6	29	5½	—	—
Dulcherra ..	153	7½	—	—	43	7¾	52	9¼	25	6	33	5¼	—	—
Indian T Co ...	218	9	—	—	44	11¼	17	1/10¼	57	7	100	5½-8¼	—	—
Kaline ...	263	8½	—	—	124	9-9½	66	1/-1/1¼	—	—	173	5¾-6	—	—
LMB Jalingah ...	195	6½	—	—	65	7	30	7¾	50	5¾	—	—	50	5½-5
,,Morapore ...	209	6¾	—	—	97	6¾-7¼	24	6½-10	66	5¾-6	22	5¼	—	—
,,Shabazpore ...	151 p	7¼	—	—	57	7½	38½c	†9¾	36	6¼	20	5¼	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Lungla T Co ...	235 p	7¼	50 p	7¾ 1/4¾	150	7 7¼	55	7	70	5½	—	—	—	—
Madoorie ...	142	6¼	—	—	33	6¼	76	†6¾	—	—	33	5¼	—	—
NrthWstrnCachr	238 p	8¾	20½c	1/5¼	86	†8¼	22	†1/0¾	60	6¼6½	—	—	50½c	†4¼
Parbutpore ...	91	7	—	—	36	7½	31	7¾	—	—	—	—	24	5
Pathecherra ...	152 p	8	52½c	10¼	35	7½	40	8½	25	6	—	—	—	—
Pathemara ...	77 p	8¾	28½c	1/2	23	7¼	26	7	—	—	—	—	—	—
Phootullah ...	150	8½	—	—	45	9	30	1/1½	75	6¼	—	—	—	—
Rajnagar ...	121	6½	—	—	38	7	27	†8	—	—	36	5¼	20	5
Rookeenee ...	146	5	—	—	—	—	90	†5½	—	—	56	4½	—	—
Shumshernugger	413 p	8	48½c	1/4	140	†8¼	81	7½ †8¾	102	6¼ †6¼	42	†5¾	—	—
Tarrapore T Co	468	8½	—	—	143	8¾ 11¼	115	11-1/4	90	6¾	120	5½ 6	—	—
CHITTAGONG	**250**	**9¼d**												
Dantmara ...	80	8	32	9½-1/1	—	—	—	—	35	6¼	—	—	13	†5¾
Futtickcherra ...	170	10	—	—	92	9½ 1/0¼	19	1/4½	59	7	—	—	—	—
DRJELNG&TERI	**1414 p**	**1/**												
Darjeeling T Co	221	1/3¼	24	1/8¼	73	1/3-1/4	49 1/6	¼ 1/10¼	75	9¼ 1/0¼	—	—	—	—
*Lizziepore ...	48 p	7	—	—	11	10½	6½c	10	6	7¾	13	4¾	12 p	4 4½
*LMB Lebong ...	134	9¾	—	—	64	11¼	18	1/1¼	36	6¾	16	5¾	—	—
,,MineralSpring	139	8¼	—	—	63	9½9¾	16	11½	45	6½	15	5	—	—
*Moondakotte ...	40	1/6¾	—	—	14	2/2½	5	2/4	10	1/2½	11	8¾	—	—
*Nagri ...	92	9	—	—	43	11	7	†1/3½	9	8	28	3½5¾	5	6
Munjha ...	99 p	5	—	—	19	†5½	35½c	†6¼	24	4¾	21	†4	—	—
Pahar Goomiah	93 p	1/	—	—	26	1/0½	29½c	1/5	38	7¾	—	—	—	—
Poobong ...	126 p	1/11½	56½c 2/	4¼ 2/8½	52	2/	—	—	13	1/2	—	—	5	9
Risheehci ...	156 p	10⅝	30½c	1/5½	28	1/2	20½c	7½-1/7	27	9	3	5¼	48	6-1/0½
Rungmook ...	110 p	1/2	20½c	1/7½	60½c	1/0½	18½c	1/8½	12	8¾	—	—	—	—
DOOARS	**1275 p**	**8¼d**												
Dooars Co Ghatai	220	8	—	—	80	8½	43	10¾	97	6½	—	—	—	—
,, Indong ...	170	10¼	18	1/5¼	43	10¼	50	10½	22	8½	12	8	25	4½8½
Gajilidoubah BO	127	7	—	—	—	—	—	—	100	6¾8¼	12	5½	15	8¼
,, BS	105	7¾	—	—	20	8¾	—	—	40	6½	—	—	45	5¾ 11¾
Hope ...	249	9½	12	1/5	98	9½9¾	70	10½10¾	69	7¼	—	—	—	—
Jiti ...	111 p	6	—	—	—	—	—	—	—	—	83	6¼	28½c	4
Lethijhora ..	97 p	5¾	—	—	—	—	—	—	—	—	85	6	12½c	3½
Manabarrie ...	196	8¼	79	9¾ †11¾	—	—	—	—	105	6¾ 7	—	—	12	5¼
KANGRAVALEY	**333 p**	**6⅝d**												
Kangra Valley G	185 p	7	104 p	8-1/0½	24	†6 †6¼	—	—	57	†5¼	—	—	—	—
NEILGHERRY														
Tudor Hall ...	93	7¾	63	8¼ †8¾	—	—	—	—	17	6½	13	5¾	—	—
TRAVANCORE	**985 p**	**6¾**												
Belford ...	33½c	6½	—	—	33½c	6½	—	—	—	—	—	—	—	—
CMR ...	64½c	6½	—	—	58½c	6¾	—	—	—	—	3½c	4½	3½c	4
Home ...	32½c	6¾	—	—	32½c	6¾	—	—	—	—	—	—	—	—
Invernettie ...	30	8¼	—	—	10	7¼	10	11¾	10	5¾	—	—	—	—
Isfield ...	84	6½	—	—	17	7	18	9¾	28	5½	21	4¾	—	—
Kinmylies ...	104½c	6½	—	—	104½c	6½	—	—	—	—	—	—	—	—
Nagamally Co N	70	7¼	—	—	25	7½	16	10½	23	5¾	4	5½	2	4
Parvithi ...	144½c	6¼	—	—	48½c	7¼	—	—	96½c	5¾	—	—	—	—
Perrintorra ...	41 p	6	—	—	32	6¼	—	—	—	—	4	4¾	5½c	3¼
Poonmudi ...	30	6½	—	—	21	7	—	—	—	—	9	5	—	—
Rockwood ...	42½c	7	—	—	42½c	7	—	—	—	—	—	—	—	—
Seenikali ...	24½c	7	—	—	12½c	6	7½c	10	—	—	4½c	5	1½c	3¼
TPC ...	50	6¾	—	—	10	8	10	9	23	5½	—	—	7	4¼ 6
Vembenard ...	162 p	7¼	—	—	79	†6½	69½c	10	—	—	5	4¾	9½c	4¼
Venture ...	75 p	7½	—	—	42 p	6¾	21	10¼	11	5¼	1	3¾	—	—

Gardens marked thus * are last of the Season.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Varieties.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Abbotsleigh ...	99	11½	—	—	65	10	34	1/2¼	—	—	—	—	—	—
Agrakande ...	74	10½	—	—	46	9	28	1/1¼	—	—	—	—	—	—
Ambatenne ...	69	8¼	—	—	24	7	31	10½	11	5¼	—	—	3	4½
Atherfield ...	71	8¼	—	—	25	7¼	31	10½	15	5½	—	—	—	—
Avisawella ...	99	7½	—	—	33	5¾-8¾	18	1/0¼	45	6	3	4½	—	—
Bambrakelly&D.	67	10¾	—	—	35	9¾	32	1/	—	—	—	—	—	—
Barnagalla ..	136	9	—	—	39	9¼	53	10¾	44	6½	—	—	—	—
Beaumont ...	67	10	—	—	22	9½	28	1/0¼	17	6¾	—	—	—	—
Bramley ...	62½c	11	—	—	18½c	11½	24½c	1/0½	19½c	8¾	—	—	1½c	6¼
Brownlow ...	122	8¾	—	—	52	†6¾-9	60	†9½11½	10	6	—	—	—	—
Bukanda ...	43	6½	—	—	22	5¼	19	8	—	—	—	—	2	3¼
Campden Hill ...	284	6¼	—	—	124	6	81	8	38	5	41	4½	—	—
Carlabeck ...	66	8¼	—	—	20	7	30	10¼	16	5¾	—	—	—	—
Chapelton ...	154 p	11¾	—	—	43	1/0½	59½c	†1/4½	37	9½	15	6	—	—
Chrystler's Farm	100	11	—	—	44	9¾	29	1/4¼	27	7	—	—	—	—
CL&PCoAldie ...	106 p	7½	—	—	42	†7¾	29½c	†11½	33	†5½	—	—	2½c	4½
,,Narengalla ...	90	6½	—	—	39	†6	24	9	23	5½	—	—	4	4
,, ,, ...	61	11	—	—	28	10¼	24	1/1¾	9	5¼	—	—	—	—
Cocawattee ...	22½c	5¾	—	—	18½c	5½	4½c	6½	—	—	—	—	—	—
Colgrain ...	58	4¾	—	—	22	5	—	—	36	4¾	—	—	—	—
CTPCo Dunedin	307 p	8	63 b	1/3½	150½c	7¼	47	9	47	5½	—	—	—	—
,,EastHolyrood	199 p	10½	—	—	99 p	9¼9½	100	11¼	—	—	—	—	—	—
,,Mariawatte	230	7¼	—	—	89	6½-6¾	61	10-11	80	5¼-5½	—	—	—	—
,,Wallaha ...	214½c	8¼	—	—	74½c	†8	54½c	1/0½	86½c	†6	—	—	—	—
Dalleagles ...	171½c	8	—	—	70½c	7½	58½c	10¼	43½c	5¾	—	—	—	—
Daphne .	25	6¼	—	—	15	†5¾	9	†7½	—	—	—	—	1	3¼
DC ...	72	6	—	—	18	6	15	8¾	34	5¼	—	—	5	3¾
Debatgama ..	142	7½	—	—	22	6¼	101	8-8¼	19	5¼	—	—	—	—
Delta ...	52	7¾	—	—	17	9¼	16	1/0¼	—	—	29	†5¾	—	—
Delpotonoya ...	112	7¼	—	—	22	7½	42	†9½	48	5½	—	—	—	—
Deyanella ...	40	8½	—	—	23	7¾	15	10¼	—	—	1	4½	1	5¾
Dimbula ...	178 p	9	—	—	44	10½	45½c	1/4	51	†6½	16	4¼	22½c	6¼
Doragalla ...	293	7¾	—	—	84	7-7¼	109	10½ 11	98	5¼	—	—	2	5¾
Drayton ...	119 p	1/0½	87 p	1/0¼ 1/8¼	—	—	—	—	32	9	—	—	—	—
Dunnottar ...	50 p	11¼	27½c	1/3½	18	8¼-9¾	—	—	1	5	—	—	4 p	5-10½
Dunsinane ...	160 p	1/0¼	41½c	1/4¾	79	1/0¼	—	—	32	9	—	—	8	1/
Edinburgh ...	63	1/0¼	—	—	31	11	32	1/1½	—	—	—	—	—	—
Eila ...	62	6¾	—	—	30	6	18	9½	14	5	—	—	—	—
Ekkie Oya ...	70	7¼	—	—	37	6¾	15	11¼	13	5¼	3	5	2	4½
Ekolsund ...	69	8½	—	—	24	7	36	5 10¾	6	6	3	5	—	—
Elangapitiya ...	93	6¼	—	—	40	6	21	8¾	22	5½	10	3¾	—	—
EP&ECo Arapo.	70	8	—	—	20	7½	25	10¼	25	5¾	—	—	—	—
,,Hope ...	128	8½	—	—	33	†8¼	58	†10	—	—	37	†6-†7	—	—
Fordyce ...	210 p	9	—	—	59	8¾	82	†11¼	48	6	—	—	21½c	5¾
Fruithill ...	96 p	9½	49½c	1/1¼	27	8¾	—	—	16	6	—	—	4½c	5¾
Galaha ...	139	8¾	—	—	28	8¼	73	10¼	26	6¼	—	—	12	5½
Gallaheria ...	103 p	9½	24½c	1/0½	37	8½	23	11¾	19	6¼	—	—	—	—
Gallamudina ...	120	9	—	—	50	9	42	11¼	28	6	—	—	—	—
Gammadua ...	47	8¾	—	—	20	8½	17	11¼	9	5½	—	—	1	4
Gangwarily ...	130 p	6½	—	—	86	6	39	7¾	—	—	—	—	5½c	3
Gikiyanakanda ...	72	11¼	—	—	30	11	24	1/2¼	18	7¾	—	—	—	—
Gingranoya ...	56	9	—	—	29	8¼	18	1/0½	8	5¼	—	—	1	3½
Glenalla ...	81	8	29	11¼ 1/1	32	6¾	—	—	15	5½	3	3½-3¾	2	3¼
Glenugie ...	134 p	11	—	—	77	10	42½c	1/5	15	8	—	—	—	—
Goomera ...	71	7¾	—	—	24	6½	35	9¼	12	5½	—	—	—	—
Gonakelle ...	49	7¾	19	10¼	11	6¾	—	—	19	5¾	—	—	—	—
Gorthie ...	141 p	11¼	—	—	53	11	56½c	†1/2	26	9	—	—	6½c	7
Hallowella ...	50	10½	14	1/3	22	10	—	—	14	7	—	—	—	—
Hattanwella ...	60½c	7	—	—	27½c	6½	21½c	9½	—	—	10½c	2¼-4	2½c	4
Hauteville ...	143	1/0½	—	—	54	11¼	69	1/2¾	20	8¾	—	—	—	—
Hemingford ...	54	7¾	—	—	30	6¾	24	9	—	—	—	—	—	—
Hethersett ...	64 p	1/0¾	—	—	17	1/1	31½c	†1/4¼	15	†9¼	—	—	1	8¼

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Faunings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Hoolankande ...	125 p	7	41½c	†9½	28	8½	—	—	46	5½	5	4¼	5½c	4¼
Hoonoocotua ...	85	8	—	—	28	8	28	10	28	6	—	—	1	4¾
Hunasgeria ...	103	7¼	—	—	26	9	14	1/0¼	37	5¾	13	3-5¼	13	4¾
Hunugalla ...	90 p	7¼	—	—	60	6½	30½c	10	—	—	—	—	—	—
Indian Walk ...	63½c	6	—	—	47½c	5-6¼	11½c	9	3½c	4¼	2½c	2¾	—	—
Ingestre ...	82 p	9¾	—	—	44	9½	27½c	†1/2	11	6¼	—	—	—	—
Kaloogala ...	47	9½	—	—	11	8¾	28	†10¼11	8	6¼	—	—	—	—
Kaluphani ..	76 p	10½	—	—	15	10¾	43½c	1/1¼	18	7¼	—	—	—	—
Kandapolla ...	67 p	1/1	35½c	1/0¼	—	—	17	1/3¾	15	10½	—	—	—	—
Katookella .	44 p	11½	—	—	12	1/	12	†1/3¼	12	8½	—	—	8½c	6¾-10
Katugalla ...	53	6½	—	—	24	†5½ 6½	16	8½	10	5	—	—	3	4¼
KAW ...	185	10¼	—	—	124	8¾ 1/0¼	35	1/2¼	26	6	—	—	—	—
Kelani ...	222½c	7½	—	—	98½c	7¼	44½c	1/	80½c	5½	—	—	—	—
Kellie ...	104 p	6	—	—	19	†7¼	—	—	30	5½	37	5¼	18½c	7¼
Kelliewatte ...	93	10¼	—	—	21	9	41	1/2¼	31	6	—	—	—	—
Kotiyagalla ...	116 p	11	—	—	41	11½	75½c	†1/2¾	—	—	—	—	—	—
Lagalla ...	91½c	7¾	—	—	55½c	6½-6¾	29½c	10½	—	—	5½c	5	2½c	4¼
Lauderdale ...	64	5½	—	—	14	7¾	—	—	33	5¼	13	3¾	4	4¼
Le Vallon ...	192 p	9⅓	—	—	48	8½	144½c	10	—	—	—	—	—	—
Macduff ...	95 p	9¼	—	—	27	†8¼	46½c	†1/1¾	19	†5¾	—	—	3	5½
Malgolla ...	156 p	6¾	1 b	3/	18½c	9¼	11½c	9½	126½c	†6	—	—	—	—
Mapitigama ...	14	6½	—	—	10	5½	4	8¾	—	—	—	—	—	—
Mattakelly ...	138	9	—	—	42	9½	40	1/0½	52	6¼	—	—	4	5½
Mayfair ...	38	9	13	1/	25	7¼	—	—	—	—	—	—	—	—
Melfort ...	77	1/1	43	1/2	34	11¾	—	—	—	—	—	—	—	—
Midlands ...	155 p	7¼	—	—	25	6¼	100½c	9	30	5¼	—	—	—	—
Mocha ...	106 p	11¼	—	—	26	10½	60½c	1/2¾	20	7	—	—	—	—
Morar ...	74 p	10¼	—	—	14	†10¼	37½c	†1/2	23	†7½	—	—	—	—
Moray ...	231½c	10	156½c	9¼	1/2¼	36½c	6	39½c	11	—	—	—	—	—
Mottingham ...	72 p	7½	—	—	18½c	9	17	11	34	5¾	1	2¼	2	4
Mooloya ...	31	1/1	—	—	13	1/0¼	16	1/2½	—	—	2	6½	—	—
Mount Vernon ...	180 p	9¾	26	1/2¾	—	—	84 p	9½ 1/7¾	45	6½	—	—	25	4-5½
Nartakanda ...	56	6½	—	—	12	7¼	12	†9¼	32	5¼	—	—	—	—
Nathapane ...	82	9⅓	—	—	33	9	27	1/0¾	16	6¾	3	5	3	4¾
Nayapane ...	131 p	8	—	—	33	8¾	44½c	1/0¼	47	5½	3½c	3	4½c	5¼
NewDimbulaD...	87	1/1½	—	—	35	1/1	36	1/3¼	16	10	—	—	—	—
Nilambe ...	142	8	—	—	56	7½	60	9½	26	5¾	—	—	—	—
Norton ...	155½c	8½	—	—	61½c	8¼	39½c	1/	47½c	6¼	—	—	8½c	5¼
OBEC Bellwood	62	10	—	—	29	10¼	14	1/2¼	19	6¼	—	—	—	—
,, Craigie Lea	108 p	8¼	—	—	45	7¾	24	1/1¼	29	5½	3	4-4½	7½c	4-8
,, Darrawella	114	8½	—	—	62	6¾-10	27	1/0½	17	5¼	4	3¾	4	3½
,, Glendevon ...	82	1/	—	—	23	1/	24	1/3¾	27	9½	—	—	8	9½
,, Sinnapittia...	80	8	—	—	30	7¼	26	11	24	5¼	—	—	—	—
,, Stellenberg	74	8½	—	—	24	8¾	24	11½	24	5¾	—	—	2	5
,, Wattawella	53	7¾	—	—	19	7	18	10½	15	5½	—	—	1	4¼
Dononagalla ...	125 p	8¼	23½c	1/	35	6½	32	11½	35	5½	—	—	—	—
Dpalgalla ...	114 p	8	—	—	31	8¼	31	†11	41	5¾	3	3-4	8½c	6
Dttery ...	45	10½	—	—	22	10¾	10	1/3¼	13	†6¾	—	—	—	—
Dvoca ..	73	11	—	—	35	11¼	17	1/2¾	21	7½	—	—	—	—
Pambagama ...	121 p	9	—	—	60	8½	52½c	11¼	9	6	—	—	—	—
Panmure ...	48	10¼	—	—	19	10¼	14	1/1½	15	7½	—	—	—	—
Parusella ...	270½c	7¼	—	—	134½c	6½-6¾	65½c	10 10½	71½c	5¼	—	—	—	—
PDM ...	56 p	11¾	—	—	23	7¼-11	33½c	†1/0½-1/3¾	—	—	—	—	—	—
Penrhos ...	7½c	7¼	—	—	4½c	†7½	1½c	†10¾	2½c	†5½	—	—	—	—
Pen-y-lan ...	101	9	—	—	35	8¾	43	11	16	5¾	1	4¼	6	4½-5¾
Portswood ...	66 p	1/4¾	—	—	38½c	1/ 5½ 1/8¼	10½c	1/10¼	14 p	9½-1/1	—	—	4½c	11¼
Pundaloya ...	103 p	1/0¼	45½c	1/4½	40	1/	—	—	18	8	—	—	—	—
RP ...	69	7¼	—	—	27	7½	19	9¼	23	5¼	—	—	—	—
Saumarez ...	70	6¼	—	—	41	5-6½	12	9¼	12	5¾	—	—	5	3½
SCTC MncngLne	75 p	10	—	—	28	10	27½c	1/3¼	15	†6¾	3	4¼	2½c	4¾
,,Strathdon ...	137 p	8¾	—	—	32	8¾	66½c	1/	39	6	—	—	—	—
Sheen ...	103 p	1/0¾	44½c	1/6	41	1/0¼	—	—	18	8	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Springwood ...	65	6	—	—	20	5½	18	8	27	5	—	—	—	—
Stamford Hill	73	11	—	—	37	11¼	15	1/3½	21	7¼	—	—	—	—
St. George RA ...	44 p	1/1½	—	—	17	1/	22 p	1/4	5	8¼	—	—	—	—
St. Helen ...	65	7¼	—	—	24	6½	21	9½	20	5½	—	—	—	—
St. John Del Rey	135 p	10¼	—	—	47	†9¾	48½c	1/3½	33	7½	—	—	7½c	5¼ 9
Strathellie ...	203	6¾	—	—	100	†6 †6¼	64	8¾ 9	39	†5½	—	—	—	—
St. Vigeans JG ...	49 p	10	—	—	24	10	17½c	1/1½	6	6¾	2½c	4½	—	—
Sunnycroft ...	57	6½	21	6½9¼	21	6¼	—	—	15	5	—	—	—	—
Theydon Bois ..	88	6¼	13	9½	75	5¾	—	—	—	—	—	—	—	—
Udugama ...	32	6½	—	—	18	5¼6¼	8	9¼	4	5	2	4	—	—
Wewelmadde ...	75	7½	—	—	12	6½	33	9½9¾	30	5½	—	—	—	—
Wellekelle ..	56½c	11	—	—	32½c	9½	22½c	1/1½	—	—	—	—	2½c	4 4½

JAVA. 366 chests. Average 6d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Brk. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Tendjo Aijoe ...	112	5½	—	—	21	6½	15	6	20	†5¾	56	†4½ 5¼	—	—
Tjiloear ...	78	6	—	—	30	6½	9	6	21	†5½	18	5½	—	—
Tjogrey ...	67	5¾	—	—	31	†5¾ †7¾	10	†5¼	18	†5½	8	4¾	—	—
Tjiomas ...	109	6¾	—	—	29	†7½ †8½	32	6¼7½	40	6 6¾	8	3¾ 4	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests, p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT

13, Rood Lane, London, E.C. *February 5th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	871,778 packages.	397,038 packages.	34,908 packages.
1891-1892.	971,817 ,,	550,340 ,,	30,212 ,,

During the week

28,659 packages Indian
17,847 ,, Ceylon
388 ,, Java

Total 46,894 packages have been offered in public auction.

The New French Tariff, which has just come into operation, happily imposes no additional duty upon the importation of Tea, notwithstanding its generally protective character.

Commercial Treaties with Portugal and Spain will shortly expire. An opportunity may therefore occur to negotiate for a reduction of the Tea duty, which in the former country is about 1/10½ per lb., and 10d. to 1/1½ in the latter.

Movements of Tea in London during January are shown below.

INDIAN. Comparatively light auctions,—28,659 packages against 33,569 last week,—imparted further steadiness to the market. Low Pekoes are a farthing dearer, and good liquoring Teas are strongly competed for at occasionally better prices.

This weeks average price of New Season's Teas sold on Garden Account. Total 22,308 pkgs. average 9½d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	14512 p	9¾d	Chota Nagpore ..			Kangra Valley ..	226 p	6¾d
Cachar and Sylhet..	4149 p	8¾d	Darjeeling & Terai	1554 p	11¼d	Neilgherry.. ..		
Chittagong	89 p	9d	Dooars	1136 p	8¾d	Travancore	642 p	7¼d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	4d.	1891,	6¾d.	1890,	5½d.	1889,	6¼d
CANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	7½d.	,,	6d.	,,	5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6d.	,,	9¼d.	,,	7½d.	,,	7d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6¾d.	,,	10¼d.	,,	8d.	,,	8d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8½d.	,,	11d.	,,	9¼d.	,,	9¼d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	9¼d.	,,	6¾d.	,,	6¾d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	10d.	,,	7½d.	,,	7½d.

CEYLON. No actual change can be noted in the market, but prices are fully maintained and competition has been general and animated. Thursday's sale, which was held concurrently with Indian Tea at 12 o'clock, in a separate room, was well attended; and was characterised by brisk bidding. Average for week, 9¼d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6½d.	1891,	10½d.	1890,	9¾d.	1889,	8½d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9d.	,,	11¾d.	,,	10¼d.	,,	10¼d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	10d.	,,	9d.	,,	8¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6¼d.	,,	10¾d.	,,	9½d.	,,	9d.

JAVA. Only 388 packages were brought forward; these met with attention at about previous rates. Average, 6¼d.

MOVEMENTS OF TEA IN LONDON (in lbs.) DURING JANUARY.

	Imports.			Deliveries.		
	1890.	1891.	1892.	1890.	1891.	1892.
Indian	13,367,724	13,258,320	13,634,409	8,831,223	10,570,794	9,967,647
Ceylon.....	2,573,914	2,885,804	5,070,238	2,215,670	3,565,962	4,729,196
Java	239,400	191,520	97,650	166,670	253,750	117,740
China, etc.	8,585,972	5,669,322	4,169,123	7,145,643	6,440,795	5,079,493
Total lbs,	24,767,010	22,004,966	22,971,420	18,359,206	20,831,301	19,894,076

FROM 1st JUNE TO 31st JANUARY.

	Imports.			Deliveries.			Stock.		
	1889-1890.	1890-1891.	1891-1892.	1889-1890.	1890-1891.	1891-1892.	1890.	1891.	1892
DIAN	80,786,511	81,182,466	91,991,655	66,190,653	69,607,836	69,490,647	42,350,793	39,064,419	49,162,440
YLON.....	20,715,360	26,792,210	41,280,862	21,384,828	28,440,918	40,474,824	6,662,198	7,941,666	15,780,930
A	1,587,020	2,192,120	2,061,990	2,205,540	1,554,720	2,457,000	614,880	702,240	454,580
NA, etc	79,938,056	60,338,967	54,713,038	58,030,138	56,360,440	47,952,700	59,251,998	43,069,855	35,204,807
Total lbs.	183,026,947	170,505,763	190,047,545	147,811,159	155,963,914	160,375,171	108,879,869	91,678,180	100,602,757

BANK RATE. 3 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 4 5/32d.

INDIAN. Average 9½d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price
ASSAM	**14512p**	**9¾d**												
Assam Co ...	1413 p	8½	—	—	269	8-11¼	186	9-1/3½	—	—	866	5½		
AssamFrontierCo	737	8¼	—	—	454		—	—	218		—			
Attaree Khat Co	358 p	10	—	—	135 p				46		105			
Balijan T Co ...	195 p	9¼	—	—	2	8½	39	1/1	98	7¼	—	—		
Bamgaon ...	177	11	—	—	76		36		42		23			
Bishnauth T Co	527 p	10½			188									
,, ..	380 p	1/1			125									
Borelli T Co ...	361	11½	—	—										
Brahmapootra Co	422	10	—	—	117									
Bungala Gor ...	100	6½	—	—	25		—	—	25					
Choonsali T Co C	127	7½	—	—	19	8¾	48	9	33	6½	27	5½		
,, S	158 p	8			41	8½	22	9¾	45	6¼	27	5		
Chubwa T Co ...	271 p	8			85									
*Coolie Koossie...	108	7¼	—	—	13	9	10	11	13	7	53	6		
DebrooghurCo ...	175	7½	—	—	48	7¾	12	1/4¾	78	6½	37	5¾		
Dejoo T Co ..	241	8½	—	—	78	9¼	40	9½ 1/4¼	60	7	44			
Doom Dooma B	198 p	9½			67									
,, H	255 p	11			77		47		33	7	18	6¼		
,, S	40	7¾	—	—	—	—	—	—	—	—	20	7		
Hapjan ...	111	11½	38		52	9	—	—	—	—	—	—		
Harmutty ...	396	7½	—	—	50	9¾	27	1/2½	192		127			
Hazelbank ...	191	8¾	—	—	46									
Hunwal T Co ...	140 p	9½			34									
Jeetokiah ...	300	11¾			90									
JokaiTCo Jamira	138 p	5½	—	—	24	7	—	—	20	5¾	81	5-5¼		
,, Muttuck ...	114	8¾	25		53	6¾-8	—	—	36	5¾	—	—		
,, Panitola ...	260	1/1¼			60		—	—	104		—	—		
,, Subansiri ...	131	6¾	—	—	70		—	—	61	5¾	—	—		
Jorehaut T Co	102	11	18	1/4¼	24	11	12	1/5	48		—	—	—	—
,, ...	306	9¾			60									
Majuli T Co. K	122	1/2¼	17	2/	49	1/2½	12	1/3	19	10	13	9¾	12	
Moabund T Co....	307 p	1/4¾			98									
Mokalbari ...	163 p	11¾			78		—	—	—	—	—	—	—	—
Moran T Co ...	118	10	24	1/3½	20	10¼	16	10¾	58	7¼	—	—	—	—
,, S	169 p	11			39	11½	13	10¾	56	8¼	31	7	—	—
Mungledye T Co	236 p	9¾	—	—										
Noahbarrie ...	127	7¼	—	—	37	7¾	24	8	50	6	—	—	16	
Noanuddy ...	189	7¼	—	—	57	8	34	9½ 10¾	53	6½	45	5¼		—
Ohat ...	162	10¼	—	—	73	11¾	—	—	53		—	—	36	10½
Rajmai ...	165	1/	—	—	115	10¾	50	1/2½	—	—	—	—	—	—
Romai .	101 p	9¼			30	8¼			29	6¼	—	—	—	—
SalonahTCo Kon	440 p	10¾			120	11¼	90	1/	70	8	50	6½	40	5½-10
,, Kot	286 p	1/			73	1/1¼			49	8¾	41			
,, Sal	505 p	1/			100	1/1¾	60	1/3	65	8¾	100	7½	80	7¼ 11½
Sealkotee ..	63 p	10¾	—	—	43	7¼ 10¾			—	—	—	—	—	—
Shakamato ...	79 p	1/5¾			33	1/6¾	—	—	22	1/1¼	—	—	—	—
Sillonee Baree	247	9¾	—	—	69	10¼10½	51	1/0¾	46	8	44	7¾	37	9¾
Tingri T Co ...	236	8½	—	—	65	9½	40	1/1	131	6½	—	—	—	—
Tiphook T Co ...	300	8½	—	—	70	9¾	30	1/7½	170	6½	30	7	—	—
Wilton T Co D	173 p	11¼			55	11	—	—	48	7	17	7½	—	—
,, W	212 p	9	22½c	1/10½	79	10¼	—	—	60	7	30	8¼	21	4
CACHR & SYLHT	**4149 p**	**8¾d**												
Baraoora ...	770 p	9¾			260	9½	146	9¼	231	7¼	—	—		
Borokai T Co. ...	300	1/0¼	—	—	110	11	35	2/	56	7¼	99	1/-1/0¼	—	—
Chatlapore ...	252	11¼			218	10¼	—	—	—	—	—	—	—	—
Cherra Co Balla	384 p	7	—	—	254	6-6¾	64½c	1/3¼	—	—	—	—	66 p	3½-5¼
,, Heron	169 p	7¼	—	—	54	7	50½c	11	65	5¾	—	—	—	—
Cossipore ...	206	5½	—	—	30	8	—	—	25	6¼	77	5¼	74	3½-5
Doloi T Co ...	116	8½	14	1/7½	—	—	21	9½	59	6½	22	5¼	—	—
Indian T Co ...	140	10¼	—	—	34	11¼	16	1/10	53	7¼	37	8¼	—	—
Kaline ...	274	9	—	—	111	9½ 10½	17	1/8½	—	—	124	6¼-6¾	22	7¾
Luskerpore ...	111	5¾	—	—	32	6½	42	6	14	5¾	23	4½	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
CACHR & SYLHT														
Patrakola ...	257 p	8½	17	1/5	72	8½	88	8½	60	6¾	—	—	20½c	4¼
Roopabally ...	57	8½	—	—	24	7¼	33	9¼	—	—	—	—	—	—
Singla T Co ...	356	8½	34 †1/	1¾ 1/6¾	126	9	38	9¾	115	6¾	38	6	5	4
TF&Co ...	542 p	7½	174½c	8½ 10¾	123	7¼7½	177	6¾	51	6	17	5¾	—	—
CHITTAGONG														
Neptune ...	89 p	9	—	—	28	9	29½c	1/2¼	32	6½	—	—	—	—
DRJELNG&TERI	**1554 p**	**11½d**												
Bannockburn ...	129 p	6¼	—	—	28	†8½	20 b	1/3½	21	6	—	—	60	5
Darjeeling T Co	180 p	1/	15	1/6¼	70	1/0¾ 1/1½	25p	1/5¾ †1/6¼	70	8¼8½	—	—	—	—
*Lebong T Co ...	526	1/0¼	185 1/	1¾ 1/9¼	71	1/3¼	—	—	125	8½ 10¾	16	5¾	129	4¼ 10¾
*Lingia ...	128	1/1½	—	—	50	1/4½	26	1/3½	38	10½	14	7½	—	—
Lohagur ...	73	7	—	—	37	†7½	36	†6½	—	—	—	—	—	—
Mahalderam ...	53 p	5¾	—	—	12½c	7¾	6½c	5½	21½c	5¾	14½c	4¼	—	—
Pusumbing ...	143 p	1/0½	20½c	1/5¼	100½c	1/1¼-1/1½	—	—	23	8¼	—	—	—	—
*Tumsong ..	106 p	1/1¾	—	—	29	1/4½	16	1/11	26	11¼	20	8½	15½c	4
DOOARS	**1136 p**	**8¾**												
Chalouni ...	94	1/1	—	—	31	1/1¼	40	1/3	23	9½	—	—	—	—
Dooars Co Nagra.	466	8¼	21	1/3¾	132	9½	81	10	200	6½6¾	—	—	32	3½7½
Ellenbarrie ...	90	1/1½	56 1/0¾-1/8		—	—	—	—	34	9½	—	—	—	—
Hope ...	104	8½	—	—	20	9¾	20	10½	52	7½	—	—	12	8
Jiti ...	129 p	6¼	—	—	—	—	—	—	—	—	104	6½6¾	25½c	4¼
,, ...	55 p	5¾	—	—	—	—	—	—	—	—	43	6	12½c	4
Leesh River Co	165	7¾	—	—	43	7½	53	9½ 1/1½	25	6¼	44	5½	—	—
KANGRAVALEY	**226 p**	**6¾d**												
Kangra Valley G	150 p	6½	69 p	8½ †6½	25	†6-7¾	—	—	56	†5¼†5½	—	—	—	—
*Nassau T Co.	76	7½	24	†8¾	52	7	—	—	—	—	—	—	—	—
TRAVANCORE	**642 p**	**7¼d**												
Arnakel ...	63	10	—	—	18	10½	15	1/3½	27	7¼	—	—	3	3¼
Balamore ...	40 p	8	—	—	37½c	8¼	—	—	—	—	1½c	4¼	2½c	3¾
Corrimony ...	80 p	7½	—	—	55½c	†5½ 7¼	23½c	9¼	—	—	—	—	2½c	3½
Fairfield ...	21	11¾	—	—	3	1/2¼	3	1/2¾	14	11	—	—	1	4¼
Glenmary ...	24	6½	3	9	15	†6¼	—	—	—	—	6	5½	—	—
Glenmore ...	80½c	5½	—	—	76½c	5½-5¾	—	—	—	—	2½c	5	2½c	3½
Kuduwa Karnum	216	6¾	—	—	101	†7¾	—	—	93	†6¼	15	5¼	7	4
Seafield ...	118½c	6¼	—	—	93½c	†5½†6¼	19½c	†9	—	—	4½c	4	2½c	3¾

Gardens marked thus * are last of the Season.

CEYLON. Average 9¼d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Abbotsford ...	116 p	9¾	10½c	1/0¾	40	8¾	53	11	13	6	—	—	—	—
Aberdeen ...	100½c	6¾	—	—	—	—	50½c	7¾	50½c	5¾	—	—	—	—
Adams Peak ...	38	6½	—	—	—	—	—	—	38	6½	—	—	—	—
Agra Oya ...	25	5½	—	—	8	6¼	—	—	17	5¼	—	—	—	—
Allagalla ...	83	9¾	—	—	27	10	24	1/0½	27	8	4	4½	1	3¾
Alnwick ...	50	1/	—	—	29	10	21	1/2¾	—	—	—	—	—	—
Ambragalla ...	89	7½	—	—	38	6¾	26	10	25	5¾	—	—	—	—
Amherst ...	48½c	9	—	—	20½c	8	14½c	11	10½c	8¼	—	—	4½c	4¼-8¼
Annfield ..	114	9¼	—	—	45	8¼	49	11	20	6	—	—	—	—
Ardlaw ...	66 p	10¼	39 1	1-1/5½	22	8¾	—	—	4	5	—	—	1½c	4¾
Bambrakelly&D.	142	11	—	—	83	9¾	59	1/0½	—	—	—	—	—	—
Battalgalla ...	110 p	10	48 p	1/0¾ 1/3¾	36	9¾	—	—	18	6	—	—	8	5½
Beaumont ...	76	9	—	—	28	8¾	29	11¼	19	†5¾	—	—	—	—
Belgravia ...	65	9¼	—	—	20	9¼	30	11¼	12	6¼	3	3-3¾	—	—
Blackstone ...	97 p	8¼	—	—	20	9	42½c	11¾	35	5¾	—	—	—	—
Blair Athol ...	111 p	10¾	—	—	31	9¾	56½c	1/1¼	19½c	6¾	5½c	5	—	—
Brae ...	112½c	7½	—	—	15½c	9½	22½c	1/	68½c	†5¾	3½c	3-4¼	4½c	4¾

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Brunswick ...	100 p	1/0¼	6½c	1/1¾	32	11 11¼	—	—	—	—	—	—	¼	6½-7
Calsay ...	126	9	—	—	30	8¼	61	11	35	6¼	—	—	—	—
Caskie Ben ...	51	1/0¼	26	1/3¼	23	9¼	—	—	—	—	—	—	2	7
Castlereagh ...	121½c	11	38½c	1/2¼	83½c	9½	—	—	—	—	—	—	—	—
Cattaratenne ...	70 p	8¼	—	—	24	6½	45½c	10¼	—	—	—	—	1	5½
Choisy ...	77	7½	—	—	34	6¼	43	8½	—	—	—	—	—	—
CL&PC														
,,Shrubs Hill	96	7	—	—	36	†6¾	24	†10¼	23	5-5¾	9	4½	4	6
,, ,, B	111	7½	—	—	16	†6½	57	†8¾	30	6	5	4¾	3	5¼
Clontarf ...	95	8½	30	9	33	6¼	26	11¾	—	—	6	5	—	—
Come Away ...	56 p	10	—	—	28	8¾	28½c	1/0¾	—	—	—	—	—	—
Court Lodge ...	35½c	1/4¼	—	—	—	—	35½c	1/4¼	—	—	—	—	—	—
CTPC Balgownie	41	5¾	—	—	19	6	10	†6½	12	5	—	—	—	—
,,Dewalakanda	254 p	7¼	42	8¼	163 p	6-8¾	27	9	22	5¼	—	—	—	—
,,Mariawatte	154 p	7¼	—	—	47	6¾	37	11	50	5¼			20½c	5½
,,Sembawatte	253 p	6¼	—	—	74½c	†5¾	121 p	6¾-7½	26½c	5	32½c	4½	—	—
,,Tillyrie ...	141	11¾	—	—	58	10½	63	1/2	20	8¼	—	—	—	—
,,Wallaha ...	205 p	9	—	—	88½c	8¾	87½c	11½	30	6	—	—	—	—
,, ,, . .	175 p	9¼	—	—	54½c	10	58½c	1/1¼	28	6½	11	†6¼	24	7¾
,,Yoxford ...	125 p	1/	—	—	63	9¾ 11¼	62½c	1/2½	—	—	—	—	—	—
Dahanaike ...	99½c	8	17½c	†10	18½c	9	13½c	1/0¼	33½c	†6¼	11½c	4½-5½	7½c	6¼
Damblagollo ...	39	8¼	—	—	26	†7	13	10¾	—	—	—	—	—	—
Dambulagalla ...	96 p	11	20½c	1/2¼	49	10	15	1/3¾	12	7	—	—	—	—
Dammeria ...	108½c	8	35½c	10¾	57½c	7	—	—	14½c	†5½	2½c	5	—	—
Daphne . .	9	5	—	—	—	—	—	—	8	5¼	—	—	1	†2¾
Dedugalla ...	69	8¼	—	—	18	10	15	11	36	6¼	—	—	—	—
Deemally ...	26 p	6	4½c	11½	20 p	5½	—	—	—	—	1	3¾	1	4¼
Deeside . .	190 p	9	—	—	70	8¼	103½c	11	—	—	13	5½	4½c	4¼
Dehiowita ...	50	6¼	—	—	50	†6¼	—	—	—	—	—	—	—	—
Dessford ...	92 p	10¼	23½c	7¼	30	9¾	26	1/1¾	13	7	—	—	—	—
Deviturai ...	36	8½	—	—	20	7¾	15	10	—	—	1	4½	—	—
Devonford ...	53 p	9¾	—	—	16	9½	30	11¾	7	6	—	—	—	—
Deyanella ...	24	6½	—	—	24	6½	—	—	—	—	—	—	—	—
Donside ...	67	7¾	—	—	31	7½	17	10½	17	5½	2	3½	—	—
Doranakande ...	57 p	7¾	—	—	16	7	23	9¾	16	5½	—	—	2½c	4
Dotel-Oya ...	90	10	—	—	26	9¼	49	11½	10	6¼	1	5¼	4	6
Ederapolla ...	130 p	8¼	—	—	29	7	77½c	10½	24	6	—	—	—	—
Eilandhu ..	48	8	—	—	29	6½	19	10¼	—	—	—	—	—	—
Elbedde ...	105	11¾	—	—	55	10¾	30	1/4¾	20	7¼	—	—	—	—
Elkadua ...	98	7¾	—	—	29	†7½	28	10¾	41	6	—	—	—	—
EP&ECo Ingura	119	7¾	54	9-9½	48	7	—	—	17	5¾	—	—	—	—
,,Labukelle ..	110 p	1/1½	—	—	78½c	1/	28	1/4	—	—	—	—	4	10½
,,Meddecombra	121	7	—	—	32	6¼	42	9½	47	5	—	—	—	—
,,Rothschild ...	49	9¾	13	1/1	36	7¼ 10½	—	—	—	—	—	—	—	—
,,Sogama ...	83	9¼	22	†1/	61	7½-9¾	—	—	—	—	—	—	—	—
,,Vellai-Oya ...	201	9¼	65	†1/	110	†8¼	—	—	26	†6	—	—	—	—
Erlsmere ...	103 p	10½	41	11 1/2¾	56	8¾-9¼	—	—	—	—	—	—	6½c	4¾
Erroll .	77 p	1/0¾	—	—	29	1/0¾	26½c	1/4	20½c	9	—	—	2½c	7¼
Fairfield ...	67	10¾	—	—	40	9¾	27	1/0½	—	—	—	—	—	—
Fairlawn ...	71½c	1/1½	—	—	36½c	1/0½	19½c	1/6¾	15½c	9½	1½c	7¼	—	—
Frotoft ...	214½c	1/0¾	—	—	80	†1 1¼ 1/0¾	72½c	1/4	62½c	10¼	—	—	—	—
Gammadua ...	46	9½	—	—	26	†8	18	1/	—	—	—	—	2	†4¼
Ganapalla ...	45	7¼	—	—	20	7	12	10	12	5½	—	—	1	4¼
Gartmore ...	51	11	—	—	32	9½	17	1/2½	—	—	—	—	2	6¼
Glassel ...	38	8½	—	—	14	8¼	12	11¾	12	5½	—	—	—	—
Glenalla ...	61	9¼	24	1 1¾ 1/1¼	30	7¾	—	—	7	5¾	—	—	—	—
Glen Alpin ...	125 p	11½	—	—	56	11½	31	1/4	25	7½	4	5¼	9½c	5¾
Glendon ...	78	8¾	—	—	46	8	24	11	7	5¼	—	—	1	4
Glengariffe ...	68	8	—	—	20	†8	21	10¾	22	5¾	4	6¼	1	3½
Glentilt ...	96 p	10½	30½c	1/3¼	25	1/0¾	—	—	24	8½	17	6	—	—
Goatfell ...	104 p	1/2½	—	—	43	1/1½	40	†1/ 0½ 1/6¼	—	—	—	—	21½c	1/
Gona Adika Co G	110 p	7¾	—	—	83	7-7¼	27½c	11	—	—	—	--	—	—
Gonakelle ...	48	9	17	11½	15	8½	—	—	16	6¾	—	—	—	—
Gonamotava ...	29	9¼	—	—	14	8	15	10½	—	—	—	—	—	—
,, ...	35	11½	—	—	18	10	16	1/1¼	—	—	1	6¼	—	—

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Good Hope ...	28 p	7¼	—	—	12	6 6½	13	8 8¾	1½c	4¾	1½c	3¾	1½c	2
Hantane ...	84 p	10	—	—	30	10¾	25½c	1/2¼	28	7¾	—	—	1	3½
Hardenhuish & L.	101 p	8	—	—	—	—	56	†8¾	45½c	6	—	—	—	—
Harmony ...	45 p	7¾	—	—	12	8¼	15	11¾	16	5¾	1½c	3½	1½c	3½
Hatale ...	159	7¾	—	—	71	7¼7½	52	10	32	5¾	—	—	4	4¾
Heatherley ...	92	10	—	—	40	10¼	21	1/0¾	24	7	—	—	1	7
Henfold ...	146	1/0¾	—	—	70	11½	61 1/	3½ 1/3¾	15	7¾	—	—	—	—
Hunasgeria ...	111	9¼	—	—	48	†9¼	32	1/0½	31	6¼	—	—	—	—
Hunugalla ...	90 p	7	—	—	40	6½	30½c	10¾	—	—	20	5½	—	—
Hindagalla ...	100 p	8	—	—	46	8¼	25	10¼	11	5½	5	4¾	13½c	5¼
Hornsey ...	89	11	35	1/2	38	10¼	—	—	12	6¾	—	—	4	5½
Ingiriya ...	34	9	—	—	—	—	—	—	34	9	—	—	—	—
Ingrogalla ...	57	8	—	—	18	†7½	18	†11	21	†5½	—	—	—	—
Kabragalla M	248 p	9½	—	—	95 b	10¾	31½c	1/0¾	100 b	†8¼	8½c	4½	14½c	5½16½
Kaipoogalla ...	62 p	9¼	—	—	23	9¼	24	†11	13	†6	—	—	2½c	4½
Kallebokka ...	60 p	1/	12½c	1/7	20	9¾	23	1/1¼	4	7¾	—	—	1½c	4½
Kaloogala ...	28	7¾	—	—	10	7	11	10	7	5¼	—	—	—	—
Kaluganga ...	45	6½	—	—	17	6	18	†7½	9	5¼	—	—	1	3¾
Karagastalawa	28	7½	—	—	5	6¾	11	9¼	12	6¼	—	—	—	—
Kataboola ...	143	9¾	—	—	33	9¼	69	11-1/1	40	6½	—	—	1	4¼
Katooloya ...	134 p	7¾	—	—	33	†8	31	1/	20	6	27	5¼	23½c	4¼
KAW ...	216	10	—	—	130	9¼ 1/0¼	57	7¼ 1/2¼	—	—	29	6½	—	—
Keenagaha Ella	61	7¼	—	—	36	†6¾	18	†9¼	4	5¼	1	4¼	2	4½
KelaniValAsso D	121 p	7¾	—	—	63½c	8	24½c	†10¾	31½c	†5¾	1½c	3¾	2	4
Kinloch ...	37	9¾	—	—	14	9	15	1/0¾	6	5¾	—	—	2	5¼
Kintyre ...	92 p	11¼	61½c	†1/1¼-1/2	½ 20	8¾	—	--	—	—	5	6	6½c	8¾
Kirkoswald ...	154	10¾	—	—	46	1/1½	37	1/2¾	43	9	4	3¾	24	4¼
Kotiyagalla ...	102 p	1/1½	—	—	46	1/	56	1/4¼	—	—	—	—	—	—
Kottagalla ...	66 p	1/1	34½c	1/3½	32	11¾	—	—	—	—	—	—	—	—
Leangapella ...	71	9	38	10½	33	†7¼	—	—	—	—	—	—	—	—
Little Valley ...	86 p	6¾	—	—	46 p	†6½	24	8½	—	—	16	5¼	—	—
Maria ...	100	6	—	—	29	5½	28	9	39	4¾	—	—	4	2¾
Marske ...	35 p	10¾	—	—	17½c	8¾	16½c	1/1½	—	—	1½c	4	1½c	4¾
Massena ...	47½c	8¾	—	—	47½c	8¾	—	—	—	—	—	—	—	—
Mayfair ...	78	8¼	12	11	43	7	20	10	—	—	3	4¼	—	—
Mayfield ...	40	11	—	—	11	10¼	17	1/1¼	12	8¼	—	—	—	—
,, ...	91	9½	—	—	28	9	39	1/	24	6½	—	—	—	—
Mipitiakande ...	159 p	9½	—	—	76	10	33	1/1¼	44	6½	1	7	5½c	5
Monsakelle ...	77	9½	—	—	43	8¾	31	11¼	—	—	2	5¼	1	4¼
Mottingham ...	63 p	8¼	—	—	14	10	18½c	1/1¼	27	6½	1	3	3	4
Mousagalla ...	64 p	9	8½c	9¾	31½c	7¼ 8	23½c	11	2	5	—	—	—	—
Nayabedde ...	82	8¾	—	—	30	†8½	26	†11¼	23	†6¼	—	—	3	4½5¾
New Dimbula D...	81	1/2	—	—	23	1/1¾	34	1/4¾	24	10¼	—	—	—	—
New Peacock ...	314 p	8	—	—	80	9	104½c	11½11¾	114	5¾	7½c	3¾	9½c	6
Nyanza ...	89	10¼	—	—	33	10½	30	1/1¼	16	7	6	6	4	7
North Cove ...	92 p	10¼	—	—	47	9	45½c	1/0¾	—	—	—	—	—	—
OBECraigieLea	77	8¾	—	—	36	8½	18	1/0½	23	6	—	—	—	—
,, Dangkande...	169½c	7¾	—	—	30½c	6½	111½c	8¾ 9	25½c	5½	—	—	3½c	4¾
,, Darrawella	114	7¾	—	—	60	6½ 10	25	11¾	29	5¼	—	—	—	—
,, Havilland ...	105½c	7	—	—	26½c	7½	27½c	10	25½c	6	27½c	4¾	—	—
,, Kuda-Oya ...	99	9¼	—	—	31	8½	28	1/2½	40	6	—	—	—	—
,, Loolecondera	58	10¾	—	—	15	10¼	34 1	1½†11¾	9	8	—	—	—	—
,, Nilloomally	86	8¾	—	—	55	7¼8¾	19	1/0¼	12	6½	—	—	—	—
Old Madegama	73½c	10½	37½c	†1/	—	—	—	—	32½c	9¼	—	—	4½c	4¾
Polapane . .	74	7½	—	—	25	6¾	21	11	27	5½	—	—	1	5
Osborne ...	24	5¾	—	—	—	—	7	6½	—	—	—	—	17	5 6
Puvahkellie ...	19	9	—	—	—	—	—	—	19	9	—	—	—	—
Puvah Kellie B...	66 p	11¾	—	—	31	11¼	20	1/3¾	14	7½	—	—	1½c	5½
Ranslatenne ...	51 p	7¼	—	—	13	8	13	9¾	14	6	7	5	4½c	4½
Rathragalla ...	14⅓c	5¼	—	—	—	—	—	—	14⅓c	5¼	—	—	—	—

CEYLON.—Continued.

Garden.	Total.		Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Pen-y-lan ...	100		9	—	—	36	8¼	41	11½	20	6¼	1	4¼	2	5¾
Pine Hill ...	140½c		10½	22½c	1/3¼	56½c	10¾	—	—	62½c	8½	—	—		
Portmore ...	53		1/2	—	—	16	1/0½	28	1/4½	9	9¼	—	—	—	—
Portswood ...	117	p	1/3¾	—	—	67½c	†1/4¼-1/7	19½c	†1/8½	27	p 11	†1/0½	—	—	4½c	10½
Rahatungoda ...	26		11¼	—	—	12	9¾	14	1/0¾	—	—	—	—	—	—
Ravenscraig ...	38		7	—	—	17	6¾	9	10	9	5¼	1	3	2	3¼-4
Raxawa ...	51		7	10	11	25	7	—	—	7	5	8	3¼-4	1	3¼
,, ...	49		8¾	—	—	12	9	14	11¼	23	7	—	—	—	—
Rookwood ...	50	p	11¾	—	—	18½c	11½	20½c	1/1½	12½c	9½	—	—	—	—
,, ...	65½c		10¾	—	—	19½c	11¼	19½c	1/2¼	43½c	7¾	—	—	22c	7¼
Rowley ...	49½c		9½	—	—	27½c	8¼	22½c	11	—	—	—	—	—	—
Salem ...	53		6¾	—	—	12	7	12	9¾	29	5½	—	—	—	—
Sandringham ...	113		1/1¼	—	—	40	1/1	45	1/4	26	9½	—	—	2	7
Scarborough ...	102		9½	—	—	42	8¾	39	11¾	17	6½	4	5¼	—	—
SCTCo Invery	111	p	1/1¾	—	—	39	1/2½	35½c	1/6½	30	10¾	7½c	5¾	—	—
Situlaganga ..	70	p	7¾	10	b 11¾	30½c	6¾	26½c	8½	3½c	5¾	—	—	1½c	4½
Somerset ...	77	p	10¾	—	—	41	9	36	1/2¾	—	—	—	—	—	—
SouthWanaRajah	48	p	1/0¼	31½c	1/2½	17	10¼	—	—	—	—	—	—	—	—
St. Leys ...	42		7¾	12	10½	20	7½	—	—	6	6	4	4	—	—
Summerville ...	46		11¾	—	—	24	9½	22	1/2	—	—	—	—	—	—
Sunnycroft ...	79		6¾	—	—	35	5½-6¼	26	8¾	18	5¼	—	—	—	—
Sunnyside ...	20		7½	—	—	6	7	5	11¼	8	5½	—	—	1	4¼
Sutton ...	33		1/1¾	—	—	12	1/0½	18	1/3½	3	9¼	—	—	—	—
Talawakelle ...	120	p	11	—	—	96	8¾-1/-	16	1/4¾	—	—	—	—	8½c	7¼ 11½
Taprobana ...	85	p	8½	15½c	8	23	8	28½c	11¼	14½c	5¼	—	—	5½c	7¼
Templestowe ...	130	p	7¼	50½c	10½	25	7¼	—	—	28	6	18½c	5¼	9	4½
Troy ...	61		7½	—	—	21	7	18	10¼	22	5¾	—	—	—	—
Tyspany ...	86		8¼	—	—	42	7¾	34	10	10	5¼	—	—	—	—
Ugieside ...	84		6½	13	9-11	40	5¾-6½	12	8¾	7	5¼	5	4½-4¾	7	4-4½
Ukuwella ...	70	p	7	—	—	17	7¼	18	†9½	20	5½	12	5	3½c	4½
Uva ...	56½c		1/2¾	—	—	30½c	1/-2¾	19½c	1/4½	42c	11¼	3½	6¾	2½c	6
Venture ...	148	p	9¼	—	—	54	9	52½c	1/1¼	37	6¾	—	—	5½c	3¾
W.A.H. ...	78		6½	—	—	28	†6¼	17	9	30	5-5¼	—	—	3	4¼
Waltrim ..	93		1/0½	—	—	27	1/0½	38	1/3½	26	8¾	—	—	2	7
Wariagalla ...	94		6¼	—	—	25	6	42	7¼	24	5½	—	—	3	5¾
Wattakelly ...	63		9½	—	—	31	8¼	31	11	—	—	—	—	1	5¾
Wavendon ...	117½c		7¾	—	—	20½c	7¾-8¼	36½c	9¼ 11½	57½c	6-6¾	—	—	4½c	4
Wereagalla ..	90	p	9	—	—	32	9¾	30½c	1/0¾	26	6¼	1	3½	1	4¾
West Haputale	117½c		9¼	—	—	66½c	7¾-8	51½c	10¾	—	—	—	—	—	—
Wewelmadde ...	33		7½	—	—	16	6	17	9	—	—	—	—	—	—
Weyweltalawa	110½c		8¾	23½c	10½	30½c	8¼	20½c	1/0¼	29½c	6	—	—	8½c	6
Woodend ...	85		7¾	—	—	46	†6½	26	11	13	5½	—	—	—	—
Woodlands ...	32		9¼	—	—	12	8½	12	1/0¼	7	5¾	—	—	1	4

JAVA. 388 pkgs. Average 6¼d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Dramaga ...	140		6¼	—	—	26	7-1/2¾	15	7¾	58	5¾	32	5¼	9	†4½
Nangoeng ...	201	p	6¾	37	p 2/0¼	49	6¾-11	6	†5½	100	5-5¼	—	—	9	†4½
Roompien ...	47		4½	2	4½-6½	22	5	—	—	5	4	4	4	14	†4

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C.

February 12th, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	904,788 packages.	403,914 packages.	35,445 packages.
1891-1892.	1,004,730 ,,	570,078 ,,	30,921 ,,

uring the week

,913 packages INDIAN
,738 ,, CEYLON
709 ,, JAVA

Total 53,360 packages have been offered in public auction.

A marked stimulus appears to have been given to Tea consumption in foreign countries, through cent low quotations. Exports of both Indian and Ceylon Tea from Great Britain, during the last x months of 1891, were greatly in excess of those between January and June, when prices were uch higher.

Exports of Indian and Ceylon Tea from Great Britain during the first and last half-years of 1891.

	INDIAN. 1891.		CEYLON. 1891.	
	1st Jan. to 30th June.	*1st July to 31st Dec.*	*1st Jan. to 31st June.*	*1st July to 31st Dec.*
nited States of America	142,802	517,029	155,999	261,983
anada	273,619	347,871	205,370	205,588
olland	119,748	273,646	65,462	88,533
ermany	59,032	103,846	175,675	336,024
ussia	955	1,285	13,768	41,593
rance	12,511	21,861	18,311	25,070
ther Places	594,421	871,202	214,554	285,099
	lbs. 1,203,088	lbs. 2,136,740	lbs. 849,139	lbs. 1,243,890
Six months average price of ades of Whole Leaf Tea quoted ekly in our circular. Pekoe ..	10¾d. *and* 9¾d.	9½d. *and* 7½d.	10¼d. *and* 9¾d.	9d. *and* 7½d.
Pek. Sou.	9¾d. ,, 9d.	8d. ,, 6½d.	9¼d. ,, 9d.	7¾d. ,, 6¼d.

* Probably part of the Tea exported to Germany was for Russia.

INDIAN. Very little change can be recorded in the market. Auctions have been characterized y general firmness, all grades selling steadily at prices fully up to last week's rates. The quality some of the "Darjeeling" Teas recently arrived shows improvement, and high prices have been casionally paid in consequence. At Thursday's sale good liquoring Teas were in very strong emand. The following averages are worthy of note:—"Majuli T Co. M," 1/4¾; "Darjeeling T o. G," 1/4; "Balasun" and "Goomtee," 1/3¾.

This weeks average price of New Season's Teas sold on Garden Account. Total 24,234 pkgs. average 8¾d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
Assam	11626 p	9¾d	Chota Nagpore ..	159 c	6d	Kangra Valley ..	149 p	5d
Cachar and Sylhet..	7161 p	7½d	Darjeeling & Terai	1272 p	1/0¼	Neilgherry.. ..	24 c	7¼d
Chittagong	276 p	8½d	Dooars	3162 p	7¾d	Travancore	405 p	7¾d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	4d.	1891,	7d.	1890,	5½d.	1889, 6¼d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	7¾d.	,,	6d.	,, 5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6d.	,,	9½d.	,,	7½d.	,, 6¾d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6¾d.	,,	10½d.	,,	8d.	,, 8¼d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8¾d.	,,	11d.	,,	9¼d.	,, 9¾d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5½d.	,,	9½d.	,,	6¾d.	,, 7d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	10¼d.	,,	7½d.	,, 7¾d.

CEYLON. Offerings although rather above last week's total and comparatively heavy, were eadily taken by the trade with good competition. Rates have not materially altered, but finest escriptions attracted most attention. In Thursday's auction common kinds were somewhat less nquired for. The following averages may be mentioned:—"Tommagong," 1/3½; "Norwood" of he EP & E Co., 1/3; "New Dimbula D," 1/2¾. Average for week, 9¼d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6¼d.	1891,	10½d.	1890,	9¾d.	1889, 8½d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8¾d.	,,	11½d.	,,	10¼d.	,, 10d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9¾d.	,,	9d.	,, 8¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6d.	,,	10½d.	,,	9½d.	,, 8¾d.

JAVAS. Only one auction was held; this was well attended and competition good. Rates were ully maintained; some parcels were however withdrawn for higher offers. A parcel of white tipped ekoe from the "Jasinga" estate, realized 1/6¼ per lb. Average, 7d.

BANK RATE. 3 per cent. **EXCHANGE.** Calcutta on London three months sight 1s. 4 3/32d.

INDIAN. Average 8¾d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Faunings, Dust and Various	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity	Price
ASSAM	**11626p**	**9¼d**												
AssamFrontierCo	746	10	151	1/0½-1/6	487	9 10¾	19	10½	70	†6¼-7	—	—	19	8½
AttareeKhatCo B	73 p	1/	—	—	31	1/0¾	20½c	1/4	22	9	—	—	—	—
Badulipar ...	152	9¼	—	—	46	11¼	24	1/1	46	7¾	36	6	—	—
Beheating ...	125	8½	—	—	25	1/	—	—	35	9½	65	6¼ 7	—	
Borelli T Co ...	113	1/	—	—	35	1/3	18	1/5¼	38	9¼	22	7¾	—	—
* ,, H	168	11¼	—	—	44	1 0¾ 1/5¼	29	1/ 0¾ 1/5¾	47	7¾ 10½	48	5½-8¾	—	—
Borting ...	73	9½	—	—	28	10¼	20	1/0¼	25	6¼	—	—	—	—
Bungala Gor ...	124	7½	15	1/2½	26	8½	—	—	24	6¾	44	5-6	15 p	7
Corramore ...	545 p	1/0¼	20	1/11¼	160	1/3-1/7¼	20	1/2	140	11¼	160	7½-8½	45	4-9½
Dejoo T Co ..	283	9	—	—	75	9¼	90	9½ 1/2¾	71	6½	47	6	—	—
Dhoolie ...	217	7¾	—	—	45	10	35	†11½	85	†6¼	44	5¾	8	4
Doolahat ...	138	8	—	—	58	11	—	—	36	6¾	44	†4¾	—	—
Dooria ...	130	1/0¼	—	—	80	10-1/2	25	1/7¾	—	—	25	7½	—	—
Eastern AssamC	455 p	10¼	245½c	1 1¾ 1/9¼	91	8¼-8¾	20	8¼	99	6½-6¾	—	—	—	—
GreenwoodTCoD	212	10½	51	1/4½	72	10¼	—	—	49	8	40	7	—	—
,, G	474 p	8¾	49½c	1/4	179	8½ 9	128	9¼ 10	93	6¼	25	5¾	—	—
Hattigor ...	280	1/0¼	—	—	110	1/ 1¾ 1/6¾	20	1/4¼	70	11½	80	6¾-7	—	—
Hunwal T Co ...	137	9	24	1/0½	55	8¾	14	1/0½	—	—	40	6½	4	4
Jhanzie T Assoc	241 p	11	—	—	104	11¼	44	1/4½	68	7¾	—	—	25 p	3½8½
Jorehaut T Co	900 p	11	144p	1/ 2½ 2/0¼	180	9-1/1	120	1/ 1¾ 1/5¼	456	6½8¾	—	—	—	—
Kelly Den ...	260 p	9½	83½c	1/ 1¼ 1/7¾	93	8½-8¾	23	9½	30	6¼	—	—	31	6¼
Koddom ...	45	11½	—	—	20	10¼	25	†1/0¾	—	—	—	—	—	—
Kuttalgoorie ...	238 p	9¾	33½c	†1/10½	64	9¼-1/-	20	†1/3½	81	7	40	6	—	—
Letekoojan ...	120	6¼	—	—	80	6¾	—	—	40	5¼	—	—	—	—
LMB Hatticoolie	670	7¾	—	—	220	8-8¼	150	10½10¾	240	5¾-6	60	6	—	—
Luckwah Co ...	279 p	7¼	—	—	70	8-8¼	43½c	1/1½-1/3	69	6¼	70	5½	27	5½
Majuli T Co. M	151 p	1/4¾	57 p	1/6-1/7¾	43	1/3	26	1/10	25	10½	—	—	—	
Mungledye T Co	149 p	9½	—	—	55½c	10¾	34½c	1/1¾	30	8	30	7¼	—	—
Nahor Habi ...	244	6¾	—	—	85	†7¼	23	1/0¾	38	†5¾	98	†5¾	—	—
Nahor Kutia ...	66 p	11¼	—	—	23	1/1½	—	—	33	10¼	—	—	10½c	†7¾
Nahor Toli ...	280	7¼	20	1/5¼	85	7¾	—	—	115	6 6¼	45	5¾	15	6½
Romai ..	139 p	8¾	28½c	1/4½	28	8¼	26½c	1/0¾	37	6	—	—	20	5½
SalonahTCo ...	340 p	1/ 8	0½c	1/1 0¾ 1/11	100	1/2-1/2¼	—	—	60	9¼	100	7½	—	—
Sealkotee ..	159 p	9¾	—	—	116	8 11	23½c	1/3¼	—	—	20	6	—	—
Sillonee Baree	236	9½	—	—	65	10 10¼	50	1/0¼	42	†7¼	42	†7	37	9½
Tarajulie ...	83	6¾	—	—	52	†7¾	2	5¾	—	—	29	†5¼	—	—
Tingri T Co ...	435 p	8½	2½c	1/2	179	9¾ 11¼	41	1 1½ 1/1¼	213	6½6¾	—	—	—	—
Titadimoro ..	99½c	9¾	14½c	2/	30½c	7¼	30½c	†8¾	25½c	5¾	—	—	—	—
Upper Assam Co	946 p	1/0¾	229 p	1/8¾-2/0	¾334	8¾ 1/1¾	131 p	1/-1/3	208	7¼-9¾	44	9¼-9½	—	—
CACHR & SYLHT	**7161 p**	**7½**											—	
B&CoChargola C	411 p	7¾	68	1 1¼ 1/4½	160	7-7¼	48	7¼	100	6	13	5¼	22½c	4¼
,, ,, H	298 p	8½	44	1 1¼ 1/4¼	85	8¾	46	7¾	104	6¾	—	—	19½c	4
BlTCoDwarbund	200	5¾	—	—	60	6¼	40	6½	60	5½5¾	40	5	—	—
Borokai ...	177	11½	—	—	63	11¼	17	1/9	38	7¼	59	11½	—	—
Cherra Co Heron	174 p	6¼	40½c	8¼	49	7	—	—	64	5¾	—	—	21	†5
,, Naren	216 p	7½	—	—	80	7¼	56½c	†11¾	80	6	—	—	—	—
Craigpark ...	134 p	9½	18½c	1/9¼	54	8¾ 9	35	10	15	6½	—	—	12	6
Dhamai ...	357 p	6¼	10	9	84	†7	75	†6¾-7	55	†5½	100	5¼-5½	33½c	4¼
Doloo ...	206 p	7	67½c	8½ †10	49	†7	64	†6½	20	†5¾	6	5½	—	—
Doodputlee ...	111	8¾	—	—	45	8¾	14	1/4	—	—	52	6¾	—	—
Dulcherra ..	137	7¼	—	—	38	8½	25	10	33	6½	28	5½	13	3¾
Endogram ...	382	6¾	31	1/0¾	131	6½6¾	68	7¼	95	5¾	—	—	57	5½
Loobah Co L ...	223 p	9¾	20½c	1/10	53	11	36	1/1¼	102	6¾	—	—	12	8¼
NSTC Jafflong	294 p	7½	72	8-1/6½	75	7¼	40	8½	30	6	25	5½	52½c	5
Pathecherra ...	86 p	9¾	36½c	11½	30	8¼	20	10	—	—	—	—	—	—
Phœnix T Co ...	308	6	—	—	63	7¼	40	7¾	147	†5½ 5¾	38	†4¾	20	3¾
Phootullah ...	131	8	—	—	32	9	24	11	55	6¾	—	—	20	6½
Puttareah ...	241	7	11	1/1¼	70	7¾	20	10½	30	5¾	—	—	110½c	4¼-4½
Scotpore T Co ...	321	7½	13	1/3¼	113	7¾	60	8¾	92	6¼	31	5½	12	5
SephinjuriBhTCo	287	5¾	—	—	98	6¼	45	†6¾	105	5¼	—	—	39	5
Sonarupa ...	130	6¾	12	9¾	43	7¾	12	9	12	6	35	4½ 5	16	5¼
SSTCoAmrail ..	189 p	9	12	1/6¾	31	10¼	34	9¾	47	8½	52	6¾	13½c	4¼

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
SSTCo Deanston	345 p	8¼	156	8-1/5½	—	—	88	8¼-8½	81	6¾	—	—	20½c	4¾
,,Phulcherra ...	122 p	8	44	8½ 1/8¼	16	7	15	7½	12	6	14	5¼	21½c	4¾
Tarrapore T Co	535	8½	15	1/4¾	158	8 10¼	101	8¾ 1/4¼	124	6½7¼	127	4¾6¼	—	—
WesternCachr Co	167	8½	—	—	52	10¼	20	1/1¾	—	—	95	4¾-7	—	—
West Jalingah ...	148	7½	—	—	48	8¼	29	†9½	34	6½	37	5¼5¾	—	—
CHITTAGONG	**276 p**	**8½**												
Chandpore ...	128 p	7½	—	—	41	8½	25½c	1/0¾	50	6¼	12	5¼	—	—
Futtickcherra ...	148	9	—	—	94	9½ 11¾	—	—	54	6¾	—	—	—	—
CHOTA NAGPRE	**159**	**6**												
Ballyhat ...	111	6½	24	9¼	26	6½	8	6	23	6	26	4¾	4	3
CHTCB ...	48	5¼	—	—	—	—	12	†5¼	24	5½	12	4¾	—	—
DARJELNG&TERI	**1272 p**	**1/0¼**												
Balasun Co ...	103 p	1/3¾	62½c†1	/5½-†1/	6½21	1/3½	—	—	—	—	—	—	20½c	†9
Cedars ...	101	11¾	—	—	60	1/0½	12	1/7¼	21	8¼	8	5½	—	—
Darjeeling T C G	51	1/4	13	1/9¼	9	1/5	8	1/9⅝	8	1/0½	5	8	8	8½
Dhajea ...	60	1/0¼	—	—	42 1	1¼ 1/2¾	5	1/4¼	10	7¼	—	—	3	6¼
Goomtee ...	171 p	1/3¾	67½c 1/	10½ 2/0	½ 22	1/6	—	—	8	10¾	21½c	7	53½c	6½10
Mattigurrah ...	271 p	6	2½c	9	85	6½	29½c	1/2	112	†5	—	—	43	4-†5
Rungmook ...	118 p	11¼	—	—	80½c	1/2½	—	—	20	9¼	18	6½	—	—
Soom T Co ...	107	11¼	22	1/3½	34	†1/2	—	—	23	9½	16	†6¼	12	5½
Tukvar T Co ...	259	1/2¾	141	1/6¾	—	—	—	—	74	11¾-1/-	13	6½	31	4½-9¾
DOOARS	**3162 p**	**7¾d**												
Aibheel ...	176	7¾	56	9-1/-	35	7½	18	7½	67	6	—	—	—	—
Dooars Co Ghatai	399 p	8	85½c	1/4	51	8¾	33	10½	134	6¼	20	6½	76	3¾-6
,, Nagrakatta	274	7½	—	—	77	8½	45	9¾	127	†6¼	—	—	25	6¼
,, Tondoo ...	238	7¼	15	†11½	50	8	39	9	93	6¼	—	—	41	4-6
Gajilidoubah ...	100	9¼	—	—	—	—	12	1/4	40	7¼	28	6	20	1/1¾
,, ...	60	7	—	—	—	—	—	—	45	6¾	—	—	15	7½
Hope ...	294	9¼	24	1/6½	90	9¾ 10¼	20	10¾	145	7¼	—	—	15	7½
Iti ...	68 p	6	—	—	—	—	—	—	—	—	52	6¼	16½c	4¼
Killcott T Co ...	103	6	—	—	16	6½	27	6¾	39	6	—	—	21	4 5½
Lankapura ...	44	8	—	—	13	7¾	14	10¼	16	6¼	—	—	1	4¼
LMB Kolabarrie	200	7¾	—	—	115	8½	—	—	—	—	85	7	—	—
Looksan ...	54	8	—	—	2	7¼	23	9-10½	29	6	—	—	—	—
Meenglas ...	149	8	—	—	37	9¾	—	—	75	6¾	—	—	37	8½
NSTC Dam Dim	349	7¼	—	—	106	7¾	141	†8¼	87	6	—	—	15	4¼
,,Rungamuttee	373 p	9	56	10 1/6¾	40	8¾	121	11¼	108	7	33	6	15½c	6¾
Putharjhora ...	201	7½	26	1/-1/5¼	22	†8½	—	—	66	†6¾	68	†5¾	19	4½-6½
Raipur ...	80	6¼	30	7¾	50	5½	—	—	—	—	—	—	—	—
RANGRAVALEY	**149 p**	**5**												
Mount Somerset	70½c	5¾	20½c	7	28½c	†5¾	—	—	22½c	5	—	—	—	—
NEILGHERRY														
Tudor Hall ...	24	7¼	13	†8 †8½	8	6½	—	—	—	—	3	5	—	—
TRAVANCORE	**405 p**	**7¾d**												
Aneimudi ...	94½c	6¾	—	—	26½c	6¾	37½c	†7¾	31½c	5½	—	—	—	—
Bison Valley ...	20	6½	—	—	20	6½	—	—	—	—	—	—	—	—
Bon Ami ...	179	8	—	—	22	8	57	9¾	20	†6	74	†7¼	6	4¾
Venture ...	112	7¾	—	—	78	7¼	26	9½	8	5¼	—	—	—	—

Gardens marked thus * are last of the Season.

CEYLON. Average 9¼d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Ambragalla ...	85	7½	—	—	36	7	27	9¾	22	5½	—	—	—	—
Angrowelle ...	55½c	8½	—	—	44½c	8¾10	—	—	9½c	5½	—	—	2½c	6¼
Attabage ...	106 p	7⅓	—	—	27	8	35½c	1/	38	5½	3½c	3¾	3½c	4½
Balgownie ...	61	6¾	—	—	33	6¼	14	9¼	14	5¼	—	—	—	—
Bambrakelly&D.	87	11¼	—	—	47	10	40	1/0¾	—	—	—	—	—	—
,, ...	66	11	—	—	33	9¾	33	1/0¼	—	—	—	—	—	—

CEYLON.—Continued.

Garden.	Total.		Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Beverley ...	143½c		8¼	—	—	60½c	8½	50½c	9¾	33½c	5¾	—	—	—	—
Binoya ...	93 p		6½	—	—	54	†6½	10	10	—	—	19	5	10½c	4¼
Bitterne ...	23		10¼	—	—	13	9½	10	11¼	—	—	—	—	—	—
Blackburn ...	51		7¼	—	—	27	6½-6¾	15	9½	8	5	—	—	1	4½
Blackwater ...	264		8	39	11¼11¾	79	9¼	36	9	83	6	22	5	5	4¾
Blairavon ...	80		8¾	—	—	34	8½	28	11	16	6	—	—	2	4½
Bogahawatte ...	138 p		9	61½c	1/0¾	65	8	—	—	12	5½	—	—	—	—
Carlabeck ...	112		9¼	—	—	53	7½	59	10¾	—	—	—	—	—	—
Carney ...	43½c		7	—	—	11½c	6¼	15½c	9	17½c	5½	—	—	—	—
Castlemilk ...	109		8¼	—	—	40	8½	30	10¾	39	6	—	—	—	—
Chapelton ...	158 p		1/1	—	—	44	1/0½	76½c	1/5¼	29	9¼	—	—	9½c	5
Chetnole ...	64 p		10¼	—	—	13	10½	28½c	1/1½	23	8	—	—	—	—
Choisy ...	209		7¾	—	—	66	†7¾	52	†10¼	70	6¼	7	5	14	5½
CL&PC Eadella	53		7¾	—	—	21	7¼	15	10½	17	5¾	—	—	—	—
,,Fetteresso	106 p		11½	—	—	29	1/	45½c	1/3½	28	9	2	5¾	2	6¼
,,Leaston ...	91 p		11¾	13	†1/1¾	24	†11	24½c	†1/6¾	21	9	4	4¾-7	5½c	7¾
,,Narengalla ...	65		6¼	—	—	27	6	13	8¾	18	5¼	7	4	—	—
,,NewPeradeniya	127		7¾	—	—	40	8¼	30	11¼	57	5¾	—	—	—	—
Clontarf ...	32		9	5	10¼	16	7	8	1/1	—	—	3	5¼	—	—
Cocagalla ...	16		8½	—	—	7	†7¾	4	1/0¾	5	6	—	—	—	—
Coroondawattee	106½c		8¼	—	—	62½c	6½	44½c	10½	—	—	—	—	—	—
Craighead ...	64		6¾	18	9¼	32	5¾	—	—	14	5¼	—	—	—	—
Crathie ...	60 p		7¾	—	—	20	7¼	20	10	17	†5¾	—	—	3½c	5
CTPCEstHolyod	148 p		10¼	—	—	78 p	9½	70	11	—	—	—	—	—	—
,,Rosita ...	94 p		11¼	35 p	1/2-1/5½	30	11¼	—	—	29	7½	—	—	—	—
,,Tillyrie ...	155		1/0¼	106	1/0¾1/1½	35	11	—	—	14	9¼	—	—	—	—
,,Wallaha ...	200½c		9½	—	—	54½c	10	62½c	1/0½	84½c	6¾	—	—	—	—
,, ,, ...	129 p		10	—	—	70½c	10	29	1/0¾	30	7¼	—	—	—	—
,,Waverley ...	116 p		1/2½	—	—	53½c	1/1	47	1/4¾	14	10	—	—	2	10¼
Culloden ...	119		10¼	—	—	50	9½	37	1/2½	32	6¾	—	—	—	—
Dalleagles ...	105½c		7¾	—	—	44½c	7½	34½c	10	27½c	5¾	—	—	—	—
,, ...	106½c		8	—	—	49½c	7¾	33½c	10¼	24½c	5¾	—	—	—	—
Delta ...	75		8½	—	—	18	9½	20	1/	—	—	37	6¼	—	—
Denmark Hill ...	22		1/0¾	—	—	7	1/0¼	8	1/3¾	6	10¾	1	5¼	—	—
Densworth ...	54		8¼	—	—	12	7	30	10	12	5½	—	—	—	—
Digalla ...	183 p		6½	—	—	71	6½	34	9¾	66	5¼	10	4½	2½c	4
Doragalla ...	88		9¾	—	—	31	10	31	1/0¼	26	6¼	—	—	—	—
Dotala ...	40 p		8¾	21½c	1/0½	19	6¾	—	—	—	—	—	—	—	—
Doteloya ...	84		10	—	—	25	9¾	45	11¼	9	6½	2	6¼	3	5¼
Drayton ...	103 p		1/0½	72 p	1/0¾1/7¾	—	—	—	—	31	8¾	—	—	—	—
Duckwari T P ...	48		8¾	20	10½-1/-	16	†8	—	—	12	5¾	—	—	—	—
Elangapitiya ...	81		6¾	—	—	35	6¾	19	9	25	5¼	—	—	2	4½
Elkadua ...	124		8	—	—	44	6¾-8¾	37	10¼	43	4¾-5¾	—	—	—	—
Ellagalla ...	83		7¼	—	—	5	7½	31	9¾	42	5¾	2	4½	3	4¼
Elston ...	100		8¾	—	—	44	8	39	10¾	17	5¾	—	—	—	—
EP&ECo Cndegal	83		1/0¼	—	—	36	11	44	1/1½	—	—	—	—	3	†6¼
,,Meddecombra	44		7	—	—	12	6¼	15	9¾	17	5	—	—	—	—
,, ,, ...	56		8	—	—	23	6¼	33	9¼	—	—	—	—	—	—
,,Norwood ...	55		1/3	—	—	31	1/1	24	1/5½	—	—	—	—	—	—
Ferndale ...	69		8¼	—	—	50	7¼	19	11	—	—	—	—	—	—
Friedland ...	78½c		11½	—	—	25½c	1/	22½c	1/2¼	31½c	9	—	—	—	—
Fordyce ...	149 p		10¼	—	—	34	10	78½c	1/1	27	7	—	—	10½c	7
Galaha ...	64		8¾	—	—	—	—	30	10¾	34	7	—	—	—	—
Galata ...	113½c		7½	—	—	47½c	†6¾	65½c	†8¼	—	—	1½c	3¼	—	—
Gallamudina ...	100		9	—	—	37	8¾	36	11¼	—	—	27	6	—	—
Gallebodde ...	86		10¼	—	—	32	10½	30	1/0¼	24	7¼	—	—	—	—
Gavatenne ...	65½c		10¼	—	—	41½c	9¼	24½c	11¾	—	—	—	—	—	—
Geddes ...	174½c		10¼	36½c	1/3	103½c	6¾-9	29½c	11¾	—	—	—	—	6½c	8

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Glassaugh ...	118 p	11¼	—	—	44	1/0¼	31½c	1/3½	43	9	—	—	—	—
Glen Alpin ...	134 p	11½	—	—	66	11¼	35	1/3¾	21	7¾	4	5½	8½c	5
Glencoe ...	78 p	8¼	—	—	23	7¾	36½c	11¾	19	5¾	—	—	—	—
Glencorse ...	77 p	10¼	22 b	1/7¾	12	10¾	12	1/1¾	25	7¾	6	5½	—	—
Glentaaffe ...	98	9¼	—	—	43	9¾	20	1/1¼	34	6¾	—	—	1	4½
Glenugie ...	117 p	11¾	—	—	71	10½	39½c	1/5	—	—	—	—	7½c	6
Gonakelle ...	38	8	15	10¾ 11	11	†6½-7	—	—	12	5½-5¾	—	—	—	—
Goorookoya ...	120	8¼	—	—	35	8½	38	10¼	47	6½	—	—	—	—
Gorthie ...	109 p	11¾	—	—	39	11	44½c	1/3¾	21	8¾	—	—	5½c	9
Gracelyn ...	11½c	9¾	—	—	5½c	9½	4½c	11¾	2½c	6	—	—	—	—
Great Western ...	164 p	1/1½	62½c	1/2 1/11½	39	1/	37 p	1/1¼ 1/7½	—	—	16	7-8¾	10	8¼
Hangranoya ...	62	7	—	—	17	7¼	18	9	26	5¾	1	4	—	—
Happugahalande	49	9	—	—	17	8¼	19	1/	12	6	—	—	1	4¾
Hardenhuish & L.	65 p	8¼	—	—	—	—	33	9¼	32½c	6¼	—	—	—	—
Hatherleigh ...	90 p	6½	—	—	24	6¾	24½c	10¾	32	5½	8	4¾-5¼	2	3¾
Heatherton ...	77 p	9½	—	—	17	9¾	39½c	1/0¾	17	6½	2½c	4	2½c	7
Hiralouvah ...	28	8¼	—	—	14	†7	14	†9¼	—	—	—	—	—	—
Hunugalla ...	70 p	7¼	—	—	45	6½	25½c	10	—	—	—	—	—	—
Imboolpittia ...	187 p	9½	20	11½	54 p	9-10	29	1/1¼	77 p	6-7¾	—	—	7½c	7¼
IMP ...	136 p	10	—	—	48 p	10¾ 11	30	1/0¼	58	8¼	—	—	—	—
Indurana ...	100	7	—	—	29	7¾	21	9¼	48	5¾	—	—	2	3½
Kadien Lena ...	130	8	—	—	49	7¼	47	10¼	32	5¾	1	†3	1	4½
Kahakellie ...	88	5¼	—	—	29	5¼	12	6¾	34	5¼	13	4½	—	—
Kabragalla M	73½c	8¼	—	—	20½c	9½	20½c	11	20½c	†6¼	4½c	4½	9½c	5-5¾
Kandapolla ...	104 p	1/1½	53½c	1/1½	—	—	27	1/5	16	10¾	8	†6¼	—	—
Kelaneiya ...	107	10½	—	—	53	9¼	54	11¾	—	—	—	—	—	—
KelaniValAsso D	155 p	7¼	—	—	65	6¾	38	10¼	41	5¼	4½c	3¾	7½c	4¼
Kellie ...	110	8½	—	—	31	9¼	25	1/	42	6¾	12	6	—	—
Kew ...	114 p	1/1	—	—	34	1/0¾	43½c	1/6¾	29	10	—	—	8	9¼
Knuckles Group	82	7	—	—	25	7	23	9½	18	5½	16	5	—	—
Kowlahena ...	121	11¾	—	—	32	8¾ 11¾	46	1/3¼	42	8¼	—	—	1	7½
Kurulugalla ...	130	5½	—	—	55	5¼	31	†7 †7¼	32	4¾-5	12	3½	—	—
Lawrence ...	136	11	43	1/1¼	56	11	—	—	37	8¾	—	—	—	—
Laxapana ...	170 p	10¼	36½c	1/1¾	54	9	62½c	†1/	18	7	—	—	—	—
Laxapanagalla ...	62½c	7	18½c	9¾	23½c	6¾	—	—	10½c	5½	9½c	4¼	2½c	4¼
Leangawella ...	16½c	10	5½c	1/1¾	9½c	9	—	—	—	—	1½c	7½	1½c	4
Le Vallon ...	139 p	7¾	—	—	29	9¼	38½c	10¼	72	6½	—	—	—	—
Lindoola ...	61 p	1/0¾	—	—	23	11½	38½c	1/2¼	—	—	—	—	—	—
Liskillen ...	57	6¾	—	—	41	†5¾	16	9	—	—	—	—	—	—
Loinorn ...	72 p	11¾	29½c	1/5	—	—	—	—	43	10	—	—	—	—
Lynsted ...	256½c	10¼	—	—	70½c	8¼ 11½	56½c	1/3	114½c	8	6½c	4¼	10½c	5½
Mahagastotte ...	136	11¼	—	—	59	10¼	64	1/1	13	6	—	—	—	—
Mahalla ...	38	6¼	—	—	12	5½	13	8¼	13	5	—	—	—	—
Mahanilu ...	63 p	1/0¼	5 b	1/10	12	1/2½	17½c	1/3½	29	10	—	—	—	—
Mahatenne ...	130 p	7¼	—	—	36	7¼	46½c	11¼	48	5½	—	—	—	—
Mahousa ...	82	8¼	41	10 10¼	22	6¾	—	—	18	5¾	—	—	1	4
Marlborough ...	109 p	7¾	—	—	107½c	†7¾	—	—	—	—	—	—	2	4¾
Maryland ...	32	6¼	—	—	19	6¾	—	—	13	5¾	—	—	—	—
Maskeliya ...	70 p	10¼	33½c	1/1¼	18	10	—	—	19½c	5½	—	—	—	—
Mattakelly ...	154	8¾	—	—	48	8	52	1/0¼	52	5¾	—	—	2	5½
Maturatta ...	69 p	7¼	—	—	59½c	7-7½	6½c	†9½	—	—	—	—	4	6¾
Mayfield ...	52	9¾	—	—	17	9	23	1/0¾	12	†6¼	—	—	—	—
Meria Cotta ...	81	10	—	—	38	11	14	1/3¼	29	5¾-7	—	—	—	—
Morlands ...	138	7½	39	10	81	6¾-7	—	—	18	5½	—	—	—	—
Mossville ...	85	8	—	—	8	9¼	22	10½ 11	49	6¾	6	4-5¾	—	—
Nayabedde ...	56	9	—	—	21	7-8¼	21	11¾	14	6	—	—	—	—
NewDimbula D...	95	1/2¼	—	—	31	1/2½	44	1/3¾	20	10¾	—	—	—	—
,, ...	97	1/2¾	—	—	37	1/2½	40	1/5	20	11	—	—	—	—
New Forest ...	39	11½	—	—	19	10	20	1/0¾	—	—	—	—	—	—
Newton ...	153½c	11	—	—	80½c	10½	45½c	1/2¼	20½c	7½	8½c	6	—	—
New Valley ...	101	11¾	—	—	62	11¼	18	1/4¼	21	9½	—	—	—	—
Nicholaoya ...	104½c	8¾	—	—	51½c	7	53½c	†10½	—	—	—	—	—	—
OBEC Havilland	63½c	6¾	—	—	30½c	7½	—	—	33½c	6	—	—	—	—
,, Wattawella	45	8½	—	—	17	7½	15	11¾	12	5¾	—	—	1	3¾

CEYLON.—Continued.

Garden.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Oliphant ...	91 p		8	—	—	30½c	8¼	21	10¼	27½c	6½	13	5½	—	—
Orwell ...	63		8¼	—	—	25	8¾	15	10½	19	6¾	2	5	2	†4½
,, ...	16		7¾	—	—	16	7¾	—	—	—	—	—	—	—	—
Osborne ...	108		9¾	—	—	52	9	43	11¾	13	6½	—	—	—	—
Pambagama ...	165 p		8¾	—	—	89	8¼	70½c	10¼	6	5½	—	—	—	—
Pantiya ...	44		8¾	11	10	26	7	7	1/1¼	—	—	—	—	—	—
Penrith ...	70		10¾	—	—	29	10	25	1/1¾	16	7¼	—	—	—	—
Poengalla ...	95		8	25	8¾	25	7¼	30	9	15	5½	—	—	—	—
Polgahakande ...	92		9	15	9¼	42	7	35	11	—	—	—	—	—	—
Poolbank ...	68½c		8½	40½c	9¾	28½c	†6½	—	—	—	—	—	—	—	—
Queensberry ...	162 p		8	—	—	53	6¼	62	11	39	6	2	4	6½c	5½
Ragalla ...	55		10½	—	—	26	10	18	1/1¼	11	6¾	—	—	—	—
Rangalla ...	106 p		10¼	—	—	43	9¾	30	1/0¼	17	7½	—	—	10½c	9
Rangbodde ...	120		10	—	—	56	9½	42	1/0¼	22	6½	—	—	—	—
Raxawa ...	62		8¾	—	—	14	9	20	11	28	7	—	—	—	—
Richlands ...	57 p		7¾	13½c	10½	11½c	8½	16½c	†9¼	16	†5¾	—	—	1	4½
Robgill ...	47 p		9¼	—	—	17	8	20½c	11½	—	—	—	—	4½c	5½
Rothes ...	30 b		11¼	—	—	30 b	11¼	—	—	—	—	—	—	—	—
SctshCyCStrathn	356 p		9	—	—	59	9	172½c	1/0¼	103	6½	9½c	5	13½c	6½
Spring Valley ...	143 p		1/0¾	—	—	55	1/	55	1/3¼	23	9½	—	—	10½c	7 8½
S. Leonards-on-S	33		7¾	—	—	17	6½	16	9	—	—	—	—	—	—
St. Clair ...	121		9¼	22	11	33	9¾	21	1/1	38	6½	3	5	4	4½ 5
Tamaravelly ...	150½c		7¾	—	—	82½c	6¼	68½c	9¾	—	—	—	—	—	—
Tellisagalla ...	52		7¾	—	—	15	7½	17	10¼	18	6	—	—	2	5¾
Tommagong ...	48 p		1/3½	—	—	12	1/3¾	16½c	1/9¾	12	1/1	4½c	11½	4½c	10
Tunisgalla ...	69		8½	—	—	41	8¼	16	11½	12	6	—	—	—	—
Udabage ...	105½c		8¼	—	—	39½c	7¼	40½c	11	26½c	6	—	—	—	—
Upper Haloya ...	199 p		5½	60½c	†7¼	74	†5 6¾	55	†5½ †6	29	4½	1	3	—	—
Valamaly ...	78		10¾	—	—	39	10¼	21	1/2¼	17	7¾	—	—	1	5½
Vallambrosa ...	78 p		11¾	53 p	1/0½-1/5	—	—	—	—	21	9½	2	6	2	5¾
Wangie Oya ...	117		8	43	9¾ †11	23	†7¼	—	—	31	†5½	—	—	—	—
Warleigh ...	65		10¼	—	—	35	10½	12	1/1¾	14	7½	—	—	4	4¼-5½
Weyweltalawa ...	118½c		8½	—	—	38½c	8¼	29½c	1/0½	5†½c	6½	—	—	—	—
Yarrow ...	43½c		8½	—	—	20½c	8½	12½c	11¼	11½c	5¾	—	—	—	—
Ythanside ...	111		11¾	26	1/4½	—	—	41	11¼	44	9½	—	—	—	—

JAVA. 709 chests. Average 7d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Jasinga ...	68		8¼	17	1/6¼	13	5½	13	4½	—	—	13	†5	12	4¾
Parakan Salak ...	100		6	—	—	—	—	50	6½	—	—	—	—	50	†5¼
Perbawattee ...	100		9	—	—	40	†9	60	9	—	—	—	—	—	—
Sinagar ...	278		5¾	—	—	—	—	48	†6¼ 6½	83	6 †6½	—	—	147	5 †5¾
Sindang Sarie ...	163		7½	—	—	96	†7 8	46	6¾ †7½	21	6½	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

upplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *February 19th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	930,102 packages.	428,710 packages.	37,145 packages.
1891-1892.	1,039,713 ,,	585,784 ,,	31,165 ,,

uring the week

4,983 packages Indian
5,706 ,, Ceylon } Total 50,933 packages have been offered in public auction.
244 ,, Java

The volume of Tea brought to auction since Christmas has been comparatively heavy, and ppears to have fully equalled immediate trade requirements, in addition to its absorption of nsiderable capital.

These reasons probably account for the somewhat quieter tone lately noticeable in the auctions, nd the disposition of buyers to allow the market to droop.

The offering of a parcel of 303 packages of Tea from Natal is a noticeable feature amongst talogues issued. No Tea from this quarter has been on the market for some years, and the esent shipment is a comparatively large quantity.

NDIAN. Bidding was less animated for all but really desirable Teas. Poor liquoring kinds ave generally sold with an easier tendency, and towards the close of the week were fully a farthing elow last week's rates. Quality from most districts has shown some improvement during several eek's past, and many "autumnal" invoices have attracted attention owing to their fine flavour. he following averages are worthy of note:—"Pusumbing," 1/10¼; "Tong Song," 1/10; Darjeeling T Co. A," 1/6½; "Balasun," 1/4¾; "Dilaram," 1/3¼.

RAVANCORE continues to be represented by increasing quantities, while it is satisfactory to te an occasional improvement in quality.

This weeks average price of New Season's Teas sold on Garden Account. Total 26,063 pkgs. average 8¾d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	14725 p	9½d	Chota Nagpore ..	104 c	5d	Kangra Valley ..	257 p	6¼d
Cachar and Sylhet..	8185 p	7¼d	Darjeeling & Terai	788 p	1/4½	Neilgherry.. ..		
Chittagong			Dooars	1930 p	8¾d	Travancore	74 p	7½d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	4d.	1891,	7d.	1890,	5½d.	1889, 6¼d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	7¾d.	,,	6d.	,, 5¾d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5¾d.	,,	9½d.	,,	7½d.	,, 6¾d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10½d.	,,	8d.	,, 8¼d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	8½d.	,,	11d.	,,	9¼d.	,, 9¾d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9½d.	,,	6¾d.	,, 7d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6½d.	,,	10¼d.	,,	7½d.	,, 8d.

CEYLON. The market has been supported wherever distinct point or character was discernible liquor—but other kinds have sold with irregularity, and thin or poor Teas have been depressed, elling in some cases fully a farthing to a halfpenny below rates current a week ago. Many nvoices are now showing a welcome change for the better in quality and flavour. The following verages may be mentioned:—"Bloomfield, F.," 1/5¼ & U.F., 1/4¼; "C.T.P. Co.Waverley, 1/2½; Kotiyagalla, 1/2½; "Mooloya," 1/1¾; "Hauteville," 1/1½. Average for week, 9d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6d.	1891,	10¼d.	1890,	9½d.	1889, 8½d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8½d.	,,	11¼d.	,,	10¼d.	,, 10d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9¾d.	,,	8¾d.	,, 8¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5¾d.	,,	10½d.	,,	9½d.	,, 8¾d.

AVA was only represented by 244 packages of which 192 were of direct import. A small parcel f White Tipped Pekoe from the "Semplak" Estate, realized the high price of 2/- per lb. Arrivals f this leaf have recently been slightly heavier—hence catalogues for larger quantities may shortly e expected.

BANK RATE. 3 per cent. EXCHANGE. Calcutta on London three months sight 1s. $4\frac{7}{32}$d.

INDIAN. Average 8¾d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong		Broken and Souchong.		Pannings Dust and Various	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity	Price	Quantity.	Price
ASSAM	**14725p**	**9½d**												
Assam Co ...	1998 p	7½	122 p	1/-1/6	532	†7½ 9	102	9-11¼	120	5¾	1122	5¼ 11¾	—	—
AssamFrontierCo	348	11	72	1/1½ 2/2¼	145	9½-11	16	11½	66	7-7½	—	—	49	6½-7
,, ...	651	9½	213	†1/0½ 1/1¼	202	†9¼ 9½	—	—	120	6 †6¼	44	†5½	72	†5¼ 5½
AttareeKhatCo...	415 p	10	—	—	138	10¾ 1/1¼	57	1/1½ 1 1¼	148	8-8½	66	6	6	4¼
Bargang Co ...	99	1/1¾	—		20	1/7	26½c	1/5¾	34	1/0¾	19	7¾		-
Behora ...	80	8	—	—	22	8½	34	9	24	5¾	—	—	—	—
Bishnauth T Co	691 p	11	82½c	1/2½ 1/6¾	228	†9½ 1/3¾	56	1/3-1/3¼	143	†6¾ 10½	87	†5¾-6	95	5¼ 1/-1¼
B I T C Sessa	63 p	7¼	—	—	23	7¾	20½c	8¾	20	6¼	—	—	—	—
Bongong ...	98	8¼	-		57	8½ 10¼	18	†8½	23	6	—	—	—	-
Borelli T Co ...	447	10½	—	—	134	1/-1/5¼	67	1/3¾-1/4	142	7½-8¼	104	6¼-6½	—	—
Borjan ...	251 p	10	30½c	1/4¼	135	†9 9¾	30½c	†1/6½	56	7¾	—	—	—	-
Borpani Valley ...	257 p	6¼	41½c	1/	42	6½	49	†6¼	76	5½	33	†3½ 5¼	16½c	3½
Borpukri T Co ...	129	11½	—	—	50	1/1½-1/5	22	1/5	28	7¼	29	6	—	—
Bungala Gor ...	88	7½	—	—	16	8¾	15	1/0¾	18	6¾	39	5-6	—	—
Chubwa T Co ...	249 p	8¾	59½c	†1/0¼-1/3	½ 86	9¾	12	†8¼	67	6½	23	5¼	2½c	3½
Dahingeapar ...	135	9¼	25	1/2-1/7½	30	10	—	—	60	7	15	†6¾	4	4
DebrooghurCo ...	59	7	—	—	20	9	—	—	24	6¾	15	†5	—	—
Dooria ...	95	11½	-	—	60	9¼ 1/2¼	15	1/5¾	—	—	20	7	—	
Gellahatting Co	108 p	1/1¼	29½c	2/3½	29	1/1½	—	—	29	10¼	21	7¾	—	—
Gotoonga ...	106	1/	—	—	91	10†1/8	—	—	—	—	15	7¼	—	—
Hapjan ...	76	1/2¼	37	1/6	39	10¾	—	—	—	—	—	—	—	—
Hattigor ...	280	10¼	—		110	11¼ 1/4	20	1/2	70	9-9¼	80	6½	—	—
JokaiTCo Joyhing	286	7½	—	-	108	6¾ 9	48	1/0¼	100	5¾	30	5½	—	—
,, Muttuck ...	114	8¼	23	1/4	61	6½7¼	—	—	30	5¼	—	—		—
,, Panitola ...	217	1/1¼	94	†1/3½	69	1/1½	-	—	54	†9½	—	—		—
,, Subansiri ...	184	6¾	—	—	90	†7¼ 8	56	†6	—	—	38	5½	—	—
* ,, Tippuk ...	69	10¾	16	1/1¼-1/1	33	8½ 1/0½	9	1/0½	11	6½-7	—	—	—	—
Jorehaut T Co	552 p	11	84 p	1/1¾ 2/0½	102	9½-1/1	78	1/4-1/5½	252	7-8¾	—		36	5-5¼
Kellyden ...	255 p	10	66 p	1/1¾-1/8	101	9½9¾	25	10	30	6½	19	†5¼	14	5
* ,, ...	264 p	11¾	99½c	1/0½-1/7	90	8¼	35	1/10	40	5½	—	-	—	—
Kettela T Co ...	125 p	10¾	—	—	26	1/2½	39½c	1/5¾	26	8	34	6 6¼	-	-
Koliabur Factory	60	8¾	—	—	21	10¾	—	—	20	8¾	19	6¼	—	—
Kopati ...	87	6¼	—	—	30	6¾	17	7¼	20	5¾	20	5	—	—
Kuttalgoorie ...	170 p	10¼	30½c	†1/9¼	44	1/-1/1	13	1/1¾	65	7	18	†5½	—	—
LMB Lattakoojn	775	11¾	—	—	325	1/-1/2	125	1/5¼ 1/6¼	325	7¾-9¼	—	—	—	—
LuckimporeTCo	305 p	1/0¾	36½c	1/9¼ 1/11	½ 93	1/2½ 1/6½	16	1/4	80	8¾-1/-	60	6-9¼	20	11¾
Mahmara T.P.D.	215	7¼	80	9½	28	6½	—	—	—	—	107	5½-5¾		—
Majuli T Co. G	107	10¾	20	1/4¼	63	10½10¾	—	-	24	6¾	—	—	—	—
Meleng ...	300	10½	19	1/11¾	90	1/0¼ 1/0½	1	1/3½	80	9	110	7½		—
Naga Dhoolie ...	294 p	9	—	—	68	11¾	54	1/	118	7-7¼	37	6¼	17½c	3¾
Naharani ...	69	7½	—	—	23	9	—	—	11	5¾	15	5¼	20	8¾
Nahor Rani ...	293	10½	—	—	77	1/-1/7	63	10 1/7¼	141	8	12	6¼	—	—
NoakachareeCoT	114	9¼	—	—	46	1/0½	—	—	48	7¾	20	6	—	—
Romai ...	64	7¼	—	—	41	8	—	—	23	6¼	—	—	—	—
Rungajaun ...	220	7	—	—	90	†6¾ 8	46	†9½	61	†5¾	—	—	23	†4½
Rungli Ting ...	73 p	10½	20½c	1/10½	12	11½	—	—	—	—	26	7	15	7¾
SalonahTCo ...	590 p	1/0¾	95½c	1/10¾ 2/1	¼ 140	1/2½-1/3	90	1/3¾	135	9½	70	7½	60	7¼ 1/0
Seconne ...	167	7¾	—	—	40	8¾	13	1/2½	64	6½	50	6½	—	—
Tiok ...	64 p	8	20½c	1/2½	—	—	—	—	20	6	24½c	5¾	—	—
Titabur ...	123	7½	—	—	32	8¾	23	10¼	51	5½	—	—	17	7
Upper Assam Co	70 p	11½	—	—	30	11½	18½c	1/10¼	16	7	6 p	4½-4¾	—	—
,, ...	371 p	10¾	—	—	110	9½ 11¾	120½c	1/5½-1/7	90	6¾-8¼	51 p	0½	—	—
Wilton T Co D	235 p	10½	34½c	2/	85	11½11¾	—	—	90	7½-7¾	26	7¼	—	—
,, W	148	9	—	—	80	10¼	—	—	44	7¼	24	†7¼	—	—
CACHR&SYLHT	**8185 p**	**7¼d**												
Allynugger ...	298 p	7¾	20	†9½ 1/4	135	8	70	8	17	6	30	5½	26½c	4¼
Amo ...	241	6¾	—	—	20	9	99	7½	122	†5¾	—	—	—	—
B&C Muddanpore	160 p	7¼	—	—	58	8¼	20½c	1/1	38	6¼	21	4¾	23½c	5
Bicrampore H	148 p	7¼	—	—	50	7-9	33½c	†10¼	—	—	65	6	—	—
Burrumsal ...	223	8¾	—	—	83	10	40	†1/0½	—	—	88	†6¼	12	4½
Chatlapore ...	364	8¼	—	—	120	10¾ 11	—	—	182	7¼	62	6	—	—
Cherra Co Balla	210 p	6¾	—	—	97	†6½	34½c	1/3	39	5½	—	—	40	†4¾
,, Heron	156	6¾	—	—	59	6¾	34	9¾	63	†5¼	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
CACHR & SYLHT														
Cheerie Valley	204	7½	—	—	62	7¾	43	10¾	59	6¼	—	—	40	5¼
Chin Joor ...	59 p	8¼	—	—	15	8½	30½c	†9½	14	6½	—	—	—	—
Cossipore ...	319	6	—	—	64	7¼7½	27	†9¾	—	—	184	5 5½	44	5
Doodputlee ...	141	8	—	—	55	8¾	22	1/0½	—	—	64	6	—	—
Endogram ...	400	6½	23	†1/0½	163	†6½	59	7	106	5½	—	—	49	5½
Indian T Co ...	175	10¼	—	—	44	11½	23	1/7	56	7½	52	8¼	—	—
Kaliti T Co ...	99	7	—	—	36	7½	23	†9	25	†5½	—	—	15	†4½
Lallkhira ...	118	5¾	—	—	50	6	28	6	40	5	—	—	—	—
Longai ...	277 p	5¾	24½c	8¼	34	†6	75	6-6¼	100	5½-5¾	—	—	44½c	3¾
Luayuni ...	55	5¾	—	—	44	†6¼	—	—	—	—	—	—	11	†3½
Madoorie ...	137	6¼	—	—	20	6¼	92½c	†6¾	—	—	25	5¼	—	—
Mertinga ...	75	5¾	—	—	44	†6¼	19	†6	—	—	—	—	12	†4
MSTCBaitakhal	125	6¾	23	8	45	6½	27	8	15	5¼	15	5¼	—	—
,,Burjan ...	145	7¾	—	—	40	8½	43	8¼	62	6¾	—	—	—	—
,,Degaicherra	96	7½	—	—	33	8¼	23	9½	21	6¼	18	5¼	1	3¼
,,Khadim ...	115	9¼	12	1/7½	31	9	29	8½	31	7½	12	7	—	—
,,Lallakhal ...	167	7½	27	10¼	58	7¼	23	8¾	26	6	33	5½	—	—
Narbutpore ...	52	7¾	—	—	23	9¼	21	†7	—	—	—	—	8	6
Najnagar ...	90	7½	—	—	34	7¼	36	8¼-9	—	—	20	5½	—	—
Nookeenee ...	188 p	5½	—	—	—	—	123 p	6-6¼	—	—	65	5	—	—
NScottporeTCo D	157	7	—	—	78	7¼	42	8½	—	—	33	5¼	4	†3¼
,, P	297	7½	27	1/2	139	†7-7½	35	†8½	67	5¾	29	5	—	—
,, S	148	7¼	—	—	40	8	22	10¾	50	6¼	36	5¼	—	—
Nephinjuri BhTCo	269	5¾	—	—	120	5¾ 6	44	†6½	105	5	—	—	—	—
Nonarupa ...	130	6½	16	†9	30	7	16	†7¾	12	†5¾	40	5¼	16	5¼
NSTCoAmrail ..	181 p	8¼	28	10¾	59	8½	46	†8	38	6¾	—	—	10½c	3¾
NBalisera ..	176 p	6¾	—	—	58	7½	46	†7	45	6¼	—	—	27½c	4¼
NDukingole ...	83	7¾	—	—	30	8½	16	†10¾	30	6	7	4¾	—	—
NGoombira ...	212 p	7¾	41	1 0½ 1/3½	50	7½	40	7	41	5¾	20	5½	20½c	4¼
NHolicherra ...	118	7	—	—	31	8	29	†8¼	46	6¼	12	5¼	—	—
NJagcherra ...	289 p	7¼	12	1/6¾	90	7	87	7¼	72	6	—	—	28½c	4½
NPhulcherra ...	202 p	6½	—	—	57	6¾	61	†7	58	6	—	—	26½c	4¾
NRajghat ...	375 p	7¼	15	1/6½	131	†7¼	94	7	103	†6	—	—	32½c	5
NSagurnal ...	370 p	8	73 9½	†1/5½	113	6¾ 7	81	9	83	5¾	17	5¼	3½c	3
Nilhet T Co ...	141	6½	23	7¾	24	6½	42	7¾	28	5½	—	—	24	5
NF&Co ...	219 p	7¼	67½c	8½ 10¼	54	7¼	73	6½	19	5¾	6	4¾	—	—
NIOTA NAGPRE	**104**	**5**												
Narygrove ...	57	4	—	—	15	5	1	4¼	—	—	41	†2¼ 3¾	—	—
NRJELNG&TERI	**788 p**	**1/4½**												
Nalasun Co ...	86 p	1/4¾	64½c	1/6¼ 1/8¼	22	†1/1¼	—	—	—	—	—	—	—	—
Narjeeling T Co A	64	1/6½	—	—	22	1/9	20	1/11½	22	11¼	—	—	—	—
,, P	88	1/0½	—	—	26	1/8¾	8	1/7½	26	9¼	11	4¾	17	3¾8¼
Naram ...	99	1/3¼	32	1/7	27	1/1	19	1/6¾	14	9	—	—	7	9
NMB ChngTong	245	1/1¾	—	—	97	1/6	31	1/5¼	57	11	60	8-8¼	—	—
Nsumbing ...	116 p	1/10¼	46½c	†2/3½-†2/	5¾59½c	1/9	—	—	11	11¾	—	—	—	—
Ning Song ...	90	1/10	—	—	45	1/10½	25	2/3½	20	1/2¼	—	—	—	—
NOARS	**1930 p**	**8¾d**												
Nalouni ...	69	1/1½	—	—	22	1/1½	29	1/3¾	18	9¾	—	—	—	—
NoarsTC Baman	253	8¾	23	1/2¾	84	9	43	10¼	76	†6½	—	—	27	4½-6¾
N, Indong ...	218	9	17	1/5	63	8¾	80	9	24	6½	12	6½	22	6½
Ningua Jhar ...	106 p	7½	8½c	10	40	7¾	18½c	†1/2¼	25	5¾	—	—	15	4¾
Ngoo ...	73 p	9½	—	—	22	10½	19	1/3	20	7¼	—	—	12	3½-6½
Njilidoubah ...	100	7	—	—	—	—	—	—	40	6½	20	5½	40	5½-11
Npe ...	187	9¼	15	†1/4½	50	9¾	35	10¾	72	7-7¼	—	—	15	6
Nomlai ...	143	6½	—	—	46	†6¾	44	†5¼ 9¾	53	†5¼	—	—	—	—
Nphijhora ..	41	5¾	—	—	—	—	—	—	—	—	41	†5¾	—	—
Nnabarrie ...	55	9¼	29	10¾11¾	—	—	—	—	26	7	—	—	—	—
Nenglas ...	256	10	87	11¾ 1/5	64	10	—	—	63	7	—	—	42	4-8¼
Nndani ...	82	7½	—	—	—	—	—	—	82	7½	—	—	—	—
NTC Dam Dim	347	7¾	15	1/3½	113	7½	141	8¼	60	6	—	—	18	4½
Nhoolbarrie ...	169	6	—	—	43	6½	40	6¼ †8	33	5½	47	4½	6	3½

INDIAN.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
KANGRAVALEY	257 p	6¼												
Lode ...	61½c	7	—	—	37½c	6	24½c	8¼	—	—	—	—	—	—
New Hope ...	196 p	6	11	8¼	11	6¾	46	†6¾	31	6	64	5¼	33 1	4 6
TRAVANCORE														
Isfield ...	74	7½	—	—	20	7½	23	9¾	31	5¾	—	—	—	—

Gardens marked thus * are last of the Season.

CEYLON. Average 9d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Abbotsleigh ...	89	1/0¼	—	—	58	10¾	31	1/3¼	—	—	—	—	—	—
Aberfoyle ...	47 p	6¾	—	—	21	6¼	21½c	8¾	—	—	3	4¾	2½c	5¼
Agars Land ...	122½c	8¼	—	—	40½c	†7	63½c	† 9½ †10½	19½c	†5¾	—	—	—	—
Amblamana ...	62	8¾	—	—	10	8½	36	10¼	16	6	—	—	—	—
Ardross ...	136	7	—	—	43	6¼	51	8¾ 9	42	5¼	—	—	—	—
Avisawella ...	64	7¾	—	—	20	5¾-9	12	1/0¼	29	6	3	4¾	—	—
Bambrakelly&D.	117	11¼	—	—	67	10½	50	1/0¼	—	—	—	—	—	—
Barnagalla ..	167 p	8¼	—	—	30	8¾	49	10¾	39	6	—	—	49 p	6¼8½
Binoya ...	71	7	—	—	30	6¼	21	9½	—	—	20	5	—	—
Bitterne ...	28	8¾	—	—	15	†7¾	13	†10	—	—	—	—	—	—
Bloomfield F ...	67 p	1/5¼	49½c	1/6¼	15	1/4	—	—	—	—	—	—	3½c	10½
,, UF	67 p	1/4¼	49½c	1/5¾	15	1/2¾	—	—	—	—	—	—	3½c	10½
Bogawantalawa	83 p	1/1¼	—	—	31	1/1¾	28	1/3¼	19	10¼	1	6½	4½c	7¼
Bowhill ...	22	6¾	—	—	4	7½	6	9¼	12	5¼	—	—	—	—
Brownlow ...	51	10	—	—	39	9	12	1/1¼	—	—	—	—	—	—
Brunswick ...	99 p	1/0¾	64½c	1/3	32	11¼	—	—	—	—	—	—	3	7
Campden Hill ...	195	6¼	—	—	78	6	40	8	46	5½	31	5	—	—
Campion ...	144 p	9¾	--	—	45	10	51	1/0¼	23	6¼	—	—	25½c	6
Caskie Ben ...	51	11	24	1/0¾	24	7¼-9¾	—	—	—	—	—	—	3	7¼
Chapelton ...	154 p	1/1¼	—	—	50	1/0¼	74½c	1/5½	30	9¼	—	—	—	—
Choisy ...	121	7½	—	—	39	8	28	10¼	43	5¾	3	4½	8	5¼
CLPC. NPeradn.	127	7½	—	—	45	7½	31	11¼	33	5¼	9	5	9	4¼
Claverton ...	87 p	9½	15	†11½	40	†8	18½c	1/6¾	12	†5¾	1	4¾	1	3
Coodugalla ...	67 p	6¼	—	—	31 p	†5½	22 p	8½	9 p	4½	1½c	2	4½c	3½ 4
CTPCo Alton ...	254	9½	—	—	103	9¼	84	1/0½ 1/2¼	54	5¾-6	—	—	13	8¼
,,Dunedin ...	295 p	7	35 b	1/1¾	150½c	†6½	64	†8	46	5¼	—	—	—	—
,,Mariawatte ...	366 p	7½	—	—	162	6½-7	89	10¾ 11	95	5¼-5½	—	—	20½c	6
,, ,, ...	186 p	6¾	—	—	71	†6¼	37	10¼	58	5	—	—	20½c	5¼
,,Scrubs ...	69	10½	—	—	26	9	43	11½	—	—	—	—	—	—
,,Sembawatte	234½c	6¼	—	—	92½c	5¾	100½c	7	42½c	5	—	—	—	—
,,Tangakelly ...	239	10¾	—	—	64	10 10¼	117	1/0¾	51	7¼	—	—	7	5¾
,,Tillyrie ...	124	10	—	—	41	10¼	49	1/1	12	8¼	—	—	22	4¼
,, ,, ...	81	10½	31	1/0¼	40	10	—	—	10	8	—	—	—	—
,,Wallaha ...	136 p	10½	—	—	74½c	10	38	1/1	24	7	—	—	—	—
,,Waverley ...	64	1/2½	—	—	16	1/0½	48	1/3	—	—	—	—	—	—
Dahanaike ...	81½c	7½	—	—	9½c	8¾	14½c	1/	49½c	6¼6¾	4½c	5¼	5½c	6¾
Damblagolla ...	30	7	—	—	30	7	—	—	—	—	—	—	—	—
Delta ..	46	7¼	—	—	21	9¼	—	—	—	—	25	5¾	—	—
Derryclare ...	101	8½	—	—	37	†7¾	39	11½	22	5½	—	—	3	4
Devonford ...	41 p	10¾	—	—	13	10	24½c	1/0¾	4	7¼	—	—	—	—
Dickoya ...	32	6½	—	—	16	6½	—	—	16	6½	—	—	—	—
Dikmukalana ...	36½c	7¼	—	--	18½c	8¼	—	—	18½c	6	—	—	—	—
Diyanilla Kaele...	98 p	9½	—	—	36	9½	32	1/0¼	22	6¼	3½c	4½	5 p	5-5½
Dolgalla ...	80	7¾	—	—	20	7¾	30	10	30	5¾	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Elgin ...	77	10¾	—	—	25	10½	33	1/1	17	7¾	—	—	2	4¾
Elkadua ...	97	8¼	—	—	34	8½	27	11	36	6	—	—	—	—
Elston ...	110	8	—	—	50	7	40	10½	20	5¼	—	—	—	—
Elstree ...	292½c	7¼	—	—	150½c	†6¾	73½c	†10½	69½c	†5¼	—	—	—	—
EP&ECo Cndegal	61	11	—	—	31	11¼	16	1/2¼	12	6¾	—	—	2	8¾
,,Doombagastala	45	7¾	—	—	—	—	16	11¼	29	6	—	—	—	—
,,Hope ...	140	8¼	—	—	41	8¼	57	10	—	—	42	6-7	—	—
,,Kirrimattia	52	1/0¼	—	—	31	10¾	21	1/2¾	—	—	—	—	—	—
,,Meddecombra	38	7¾	—	—	11	6	15	11¼	12	5	—	—	—	—
,, ,, ...	39	6¾	—	—	12	5¾	13	9¾	14	4¾	—	—	—	—
,, ,, ...	42	7½	—	—	12	6¼	16	10¾	14	†4¾	—	—	—	—
,,Rothschild ...	47	8½	11	11	36	7-9	—	—	—	—	—	—	—	—
,,Sogama ...	81	10¼	38	1 1¼ 1/0¾	43	7½ 10¾	—	—	—	—	—	—	—	—
,, ,, ...	47	8¼	13	†10	34	6½-9¼	—	—	—	—	—	—	—	—
Ernan ...	86 p	7½	16½c	11¼	24	7	16	10	30	5½	—	—	—	—
Errol ...	75 p	1/0¼	—	—	26	1/0½	23½c	1/4	22½c	9¼	3	6¾	1½c	7½
Frotoft ...	179½c	1/1	—	—	35½c	1/1½	63½c	1/4¾	47½c	11¼	19½c	7-9¾	15½c	6¼-8
Galaha ...	72	10	—	—	20	9½	40	11	12	7½	—	—	—	—
Gallebodde ...	95	10¼	—	—	32	10¼	27	1/0½	22	7½	—	—	14	10¾
Ganapalla ...	52	7	—	—	21	6½	14	10	13	5¼	—	—	4	4-4¾
Gikiyanakanda ...	151	10	—	—	56	6-11	48	1/1	32	7¾	15	6	—	—
Glen Alpin ...	112 p	10½	—	—	57	1/1	39	1/4¾	10	10¼	1	7½	5½c	7
Glenugie ...	118 p	11¼	—	—	63	10¼	40½c	1/5½	15	7¾	—	—	—	—
Gona Adika Co G	46 p	7¾	—	—	24	6½	22½c	10½	—	—	—	—	—	—
Gonamotava ...	63 p	8¼	—	—	29	7	30	9¾	2	5¼	—	—	2½c	4
Good Hope ...	14	6¾	—	—	6	5½	7	8¼	1	4	—	—	—	—
Goomera ...	179	7	—	—	57	6¾-8½	42	9½ 10¾	69	5½	5	5	6	3¾
Great Western ...	176 p	9¾	65½c	1 0½ 1/8½	56	7-8½	28 p	† 11 1/2¾	—	—	27	†5¼	—	—
Hatale ...	78	8¾	9	10½	26	8	25	11	18	6¼	—	—	—	—
Hauteville ...	128	1/1½	—	—	52	1/	63	1/3¼ 1/3½	13	10	—	—	—	—
HGA ...	30 p	4½	—	—	—	—	—	—	—	—	12	3½-4	18½c	5¼
Henfold ...	122	1/1¾	—	—	52	1/1	56	1/3½	14	8¾	—	—	—	—
Hindagalla ...	61 p	11¼	—	—	20	1/0¼	13	1/2½	20	10	6	6¼	2½c	6
Holmwood ...	127 p	9	—	—	35	8¾	52	10½	30	7	—	—	10½c	7
Hoonoocotua ...	96	7¾	—	—	17	9	27	10¾	49	6	—	—	3	4¾
MP ...	103 p	10¾	—	—	36 p	11½ 11¾	21	1/2½	51	8½	—	—	—	—
ngestre ...	81 p	10	—	—	38	10¼	25½c	1/2	18	7	—	—	—	—
ngrogalla ...	66	6	—	—	18	7½	—	—	48	5½	—	—	—	—
Kabragalla M...	97½c	8½	—	—	32½c	8½	39½c	11	—	—	—	—	26½c	5
Kadien Lena ...	187	7¼	—	—	64	6¾	64	9¾	54	5¼	3	4	2	4
Katookella ...	36	9½	—	—	15	11½	—	—	18	8¼	3	5½	—	—
KAW ...	248	10¾	—	—	170	9¼ 1/0¾	59	†7 1/2½	—	—	19	7½	—	—
Kelliewatte ...	100	9	—	—	38	9¼	23	1/1¼	39	6	—	—	—	—
Kintyre ...	75 p	9½	27½c	† 1/-1/2½	38	8½	—	—	—	—	7	6½	3½c	8
Kirkoswald ...	126	1/0¾	—	—	54	1/1	36	1/3¼	36	9½	—	—	—	—
Kotiyagalla ...	90 p	1/2½	—	—	34	1/0¾	56½c	1/4½	—	—	—	—	—	—
Knuckles Group	112 p	7	—	—	35	6½	32	9¾	31	5¼	—	—	14½c	4
Lauderdale ...	57	6¾	—	—	13	6¾	12	10¼	32	5¼	—	—	—	—
Loinorn ...	62 p	1/	28½c	1/5¼	—	—	—	—	32	10	2	5½	—	—
Mahacoodagalla	95	7½	—	—	31	6¾	31	9½	33	5½	—	—	—	—
Maha Eliya ...	127 p	9¾	—	—	61	9	62 p	11 11½	4	5¾	—	—	—	—
Melrose ...	82	6¼	—	—	31	6	28	7¼	20	5¼	2	4	1	3½
Minna ...	216 p	8¼	—	—	79½c	9⅓	56½c	1/1	66	6	5	3¼	10	6
MK ...	49	5¾	—	—	20	6¾	—	—	29	5	—	—	—	—
Mooloya ...	26	1/1¾	—	—	13	1/0¼	13	1/3¼	—	—	—	—	—	—
Morar ...	74	9¾	—	—	14	†8¾	37	†1/	23	†6½	—	—	—	—
Moray ...	455½c	9½	102½c	1/1	262½c	6 †8½	74½c	11¼	—	—	—	—	17½c	6¼
Mottingham ...	79 p	7¾	—	—	19	9½	25½c	1/0¼	33	5½	—	—	2	†½
Mount Vernon ...	175 p	10	47 p	1/2¾ 1/9¾	63	9¾	12	9¾	18	7¼	35	3¼-5½	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity.	Price	Quantity.	Price	Quantity.	Price	Quantity.	Price
Mudumana ...	100	8½	—	—	40	8	34	11	20	5¾		—	—	—
Narangalla ...	102 p	8	—	—	39	†7	39	10½	15	5½	2	4½ 6	7½c	4 7
Nayabedde ...	108	8¾	—	—	45	†7¾8¼	43	10½ 11½	18	6	—	—	2	5 7
Nilambe ...	132	7¾	—	—	13	7	81	9	38	5¾	—	—	—	—
OBEC Lolcondra	46	9½	—	—	14	11	13	11½	—	—	5	8¾	14	5¾6½
,, Nilloomally...	71	9½	—	—	31	9¼	20	1/0½	20	7	—	—	—	—
,, Sinnapittia...	50	6¾	—	—	38	7	—	—	—	—	—	—	12	7
,, Stellenberg	100	7¼	—	—	50	9	—	—	50	5½	—	—	—	—
Oolanakande ...	33½c	7½	—	—	21½c	6	10½c	11¾	—	—	—	—	2½c	—
Oonoonagalla ...	119 p	7¼	19½c	1/	40	6¼	21	10¾	37	5¼	—	—	2	4
Orion ...	297 p	9½	—	—	150 b	10	108 b	1/0¼	15	5¾	16½c	6¼	8½c	4 8
Ovoca ..	59	11½	—	—	32	11¾	13	1/2½	14	7¾	—	—	—	—
Pathragalla ...	48	6	—	—	32	5½	10	9	—	—	6	4¾	—	—
Penylan ...	86	9½	—	—	31	8¾	44	11	7	5½	1	4½	3	4 3¾ 5
Putupaula ...	48	8½	—	—	13	9½	14	11¾	12	6¼	9	3¼5½	—	—
Rookwood ...	112½c	10	—	—	35½c	10½	43½c	†11¼	29½c	7½	—	—	5½c	7 4
Ruanwella ...	84½c	6½	—	—	34½c	6	21½c	9¾	25½c	5	—	—	4½c	7
Riseland ...	31	5¼	—	—	18	5½ 6	2	8	2	4¾	7	4½	2	5½
Sanquhar ...	96	7¼	—	—	40	7	23	10	33	5¾	—	—	—	—
Selegama ...	97 p	6½	10½c	10¼	—	—	22½c	9	61½c	5½	—	—	4	4
South Wana Rajah	79 p	10½	45	1/1¾	21	9½	—	—	13	6½	—	—	—	—
St. Clair ...	92	9½	25	10¾	15	8¾	21	1/1½	31	6¼	—	—	—	—
St. Clive ...	36	6¼	—	—	12	6¼	12	8½	—	—	12	3 4½	—	—
St. John Del Rey	156 p	11½	—	—	84	10¼ 1/0¼	39½c	1/5	29	9½	—	—	4½c	8¼ 10
St. Leys ...	41	10	—	—	22	10¼	9	1/1¼	10	6¾	—	—	—	—
St. Martins ...	46½c	6¾	10½c	11	33½c	5¾	—	—	—	—	2½c	3¼4½	1½c	3½
Sumtravalle ...	46	9½	—	—	14	9½	17	11½	15	7¼	—	—	—	—
Sunnycroft ...	99	7½	78	6¾9½	—	—	14	9½	7	5¼	—	—	—	—
,, ..	97	5¾	19	8½	48	5½	—	—	30	†4¾	—	—	—	—
Suriakande ...	68 p	9	14	†1/1	37	†9	—	—	15	6¼	1	4	1½c	4½
Tyspany ...	75	7¾	—	—	39	7	27	9½	9	5¼	—	—	—	—
Uva ...	113	10¼	—	—	55½c	9¾	31½c	1/1¼	22½c	7½	2½c	8	3½c	5¼
Wangie Oya ...	109	9¼	13	1/1½	51	8¾	27	10¼	18	5¾	—	—	—	—
Wariagalla ...	62	6¾	—	—	16	7	25	8	19	5¼	—	—	2	—
Westhall ...	149	8	—	—	68	†8½	23	1/0½	56	5¾	—	—	2	4½
Windsor Forest	182	8¾	—	—	61	9	54	11½	67	6	—	—	—	—
Woodend ...	78	7	—	—	41	6¼	25	†9½	12	5	—	—	—	—
Wootton ..	87 p	11¼	23½c	1/8½	39	11¼	—	—	19	†6¼	—	—	6½c	4¼

JAVA. 192 chests. Average 7d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity.	Price
Semplak ...	192	7	—	—	85	†6¾-2/-	13	†7	—	—	74	5½	20	4

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for hal.-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

13, Rood Lane, London, E.C. *April 22nd*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,107,237 packages.	550,554 packages.	50,348 packages.
1891-1892.	1,211,320 ,,	704,158 ,,	38,387 ,,

During the week

— packages Indian
— ,, Ceylon
719 ,, Java

Total 719 packages have been offered in public auction.

The annexed table shows the quantities of Indian and Ceylon Tea exported from Great Britain during each month since January, 1890. At this date, separate figures for these exports were first obtainable.

The use of both Indian and Ceylon Tea in foreign markets has been gradually increasing, and when the high prices which ruled during the greater part of 1890 are taken into consideration, the progress is decidedly encouraging.

Recent low quotations have increased foreign demand generally, and imparted a stimulus to the trade which is very noticeable in the statistics of the last few months.

There is strong ground for believing that the approaching Chicago Exhibition will further popularize British Grown Tea in North America. Efforts are being made both by India and Ceylon to utilize this exhibition as a means for increasing the demand in the United States.

INDIAN. In the absence of public sales there is nothing to report, the market practically remaining closed till Monday next.

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	3½d.	1891,	7d.	1890,	5d.	1889,	5½d.
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¼d.	,,	8d.	,,	5¾d.	,,	5d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5½d.	,,	9¾d.	,,	7½d.	,,	6½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10½d.	,,	8½d.	,,	7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9d.	,,	11¼d.	,,	9¼d.	,,	9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5d.	,,	10d.	,,	7d.	,,	6½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6½d.	,,	10½d.	,,	8d.	,,	7¼d.

CEYLON. No auctions have been held this week, the next public sale being advertised for Tuesday the 26th inst., for which date 17,515 packages are catalogued.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	5¾d.	1891,	9¾d.	1890,	8¾d.	1889,	8d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8½d.	,,	10½d.	,,	10¼d.	,,	9d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	4¾d.	,,	9½d.	,,	8¼d.	,,	7¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5½d.	,,	10d.	,,	9d.	,,	8d.

JAVA. Only one sale was held. This consisted of 719 packages from the "Bagelen" estate. Competition was good at slightly improving rates. 399 chests of Pekoe sold at from 5½d. to 9¾d., and 320 chests of Pekoe Souchong at from 4¾d. to 5¼d. Total average, 6½d. per lb.

MOVEMENTS OF TEA IN LONDON (in lbs.) FROM 1st JUNE TO 31st MARCH.

	Imports.			Deliveries.			Stock.		
	1889-1890.	1890-1891.	1891-1892.	1889-1890.	1890-1891.	1891-1892.	1890.	1891.	1892.
INDIAN	96,383,508	97,234,899	107,860,881	81,519,899	85,863,012	89,433,033	42,624,144	38,861,676	45,089,280
CEYLON.....	26,775,318	36,284,536	52,105,472	25,592,404	34,095,190	50,393,510	8,514,580	11,779,720	16,686,854
JAVA	2,412,810	3,244,220	2,537,850	2,744,260	3,233,440	2,713,130	905,380	1,075,620	674,310
CHINA, etc	89,290,382	68,289,725	60,122,381	71,456,963	68,383,967	58,538,352	55,384,979	39,898,086	30,028,498
TOTAL lbs	214,862,018	205,053,380	222,626,584	181,313,526	191,575,609	201,078,025	107,429,083	91,615,102	92,478,942

BANK RATE. 2½ per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3⅜. Colombo 1/3⅜

Exports of **INDIAN** and **CEYLON TEA** from Great Britain.

INDIAN.

	1890.	1891.	1892.
JANUARY ...	166,541	162,303	262,121
FEBRUARY ...	271,704	260,814	475,191
MARCH ...	366,979	196,588	415,979
APRIL ...	245,913	169,104	
MAY	227,989	193,147	
JUNE	164,868	221,132	
JULY	96,745	202,434	
AUGUST ...	132,743	211,571	
SEPTEMBER...	203,611	278,848	
OCTOBER ...	268,025	498,281	
NOVEMBER ...	230,515	534,838	
DECEMBER ...	248,946	410,768	
Total ...	2,624,579	3,339,828	

CEYLON.

	1890.	1891.	1892.
JANUARY ...	72,293	67,191	141,899
FEBRUARY ...	93,843	93,595	272,212
MARCH ...	140,283	88,203	357,786
APRIL ...	106,028	151,536	
MAY	125,847	131,932	
JUNE	113,674	316,682	
JULY	131,985	211,942	
AUGUST ...	134,433	195,350	
SEPTEMBER ...	160,495	157,692	
OCTOBER ...	128,811	264,404	
NOVEMBER ...	120,228	235,025	
DECEMBER ...	104,011	179,477	
Total ...	1,131,931	2,093,029	

13, Rood Lane, London, E.C. *April 13th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
	1890-1891. 1,080,525 packages.	536,341 packages.	50,348 packages.
During the week	1891-1892. 1,211,320 ,,	704,158 ,,	37,668 ,,

3,584 packages Indian
3,811 ,, Ceylon } Total 28,786 packages have been offered in public auction.
1,391 ,, Java

Tea consumption continues to progress. An increased quantity was necessary to supply ne expanding demand of the country, in spite of the serious falling off in the use of China Tea. he figures given below show that an additional 7½ million lbs. were taken during the past ten nonths, the consumption of liquid Tea must therefore have shown its usual satisfactory expansion.

The low rates so long ruling for Indian Teas have at length brought up the home consumption f this leaf a million pounds above figures this time last season. The use of Ceylon Tea also ecomes more and more general.

It is worthy of note that the quantity of Indian and Ceylon Tea exported from Great Britain almost double what it was at the same period last season;—still further illustrating the effect of rolonged low prices.

uantity of Tea (in lbs.) on which Duty was paid at all Bonded Warehouses in the Kingdom from 1st June to 31st March.

	1888-1889.	*per centages.*	1889-1890.	*per centages.*	1890-1891.	*per centages.*	1891-1892.	*per centages.*
Indian	74,855,493	48	78,357,797	53	85,264,588	52	86,278,531	50
Ceylon	18,832,350	12	23,492,012	16	32,217,364	19	47,862,608	28
China, etc.	60,635,924	40	46,451,721	31	47,327,840	29	38,068,828	22
Total lbs.	154,323,767		148,301,530		164,809,792		172,209,967	

Quantity of Tea exported from Great Britain, from 1st June to 31st March.

	1888-89.	1889-90.	1890-91.	1891-92.
Indian	*Included with China.*	*Included with China.*	1,965,158	3,511,163
Ceylon	,,	,,	1,142,626	2,332,469
China, etc.	32,898,797	29,572,801	25,295,929	24,121,756

NDIAN. Sales were only held on Monday, when competition was strong for all Teas with esirable liquor, but those of indifferent quality were neglected and must be quoted in many istances ¼d. to ½d. cheaper.

This weeks average price of New Season's Teas sold on Garden Account. Total 9,587 pkgs. average 8¾d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
Assam	2854 p	10d	Chota Nagpore ..	94 c	4¾d	Kangra Valley, Etc.		
Cachar and Sylhet..	5442 p	8¼d	Darjeeling	21 c	1/1¾	Neilgherry.. ..		
Chittagong			Dooars	984 p	8d	Travancore	192 p	5¾d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	3½d.	1891,	7d.	1890,	5d.	1889, 5½d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¼d.	,,	8d.	,,	5¾d.	,, 5d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5½d.	,,	9¾d.	,,	7¼d.	,, 6½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10¼d.	,,	8½d.	,, 7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9d.	,,	11¼d.	,,	9¼d.	,, 9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5d.	,,	9¾d.	,,	7d.	,, 6½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6½d.	,,	10½d.	,,	7¾d.	,, 7¼d.

CEYLON. The only auction held this week was on Tuesday, when bidding was lacking in nimation, except for such parcels as possessed greatest attraction in liquor. Speaking generally he market was weak, and poorer liquoring Teas must be quoted fully a farthing to a halfpenny heaper. Undesirable kinds were somewhat neglected. Average 8¾d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	5¾d.	1891,	9½d.	1890,	8¾d.	1889, 8d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8½d.	,,	10¼d.	,,	10⅜d.	,, 9d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	4¾d.	,,	9¼d.	,,	8¼d.	,, 7¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5½d.	,,	10d.	,,	9d.	,, 8d.

AVA. Sales passed at about rates current last week showing a lower market than that of a ortnight since, for all kinds except really good liquoring Teas or tippy Pekoes. The export demand ontinues to assist materially in giving support to the market.

BANK RATE. 2½ per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3¼. Colombo 1/3¼

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pekoe Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
ASSAM	**2854 p**	**10**												
*Balijan Co ...	168 p	1/1½	15½c	2/6½	43	1/2¼ 1/2½	20	1/6¾	22 p	9 9½	19	†6¾	49½c	11½
*Brahmapootra C	238	7¾	—	—	35	1/2	27	9½	63	8¾	113	4½	—	—
*Doolahat ...	153 p	6¾	—	—	20	11½	22 p	11	49 p	7 7½	45	13 13½	14	†3½
Doom Dooma B	111 p	1/1¾	26½c	1/4½	56	1/1¼ 1/2¾	14	1/2¾	15	9¾	—	—	—	—
,, ,, B	89	1/1¾	—	—	56	1/1½ 1/3†	17	1/3¼	16	10¼	—	—	—	—
,, ,, H	205 p	1/1	66½c	1/3¼ 1/8½	84	1 1¼ 1/1¾	29	1/3	26	8¼	—	—	—	—
,, ,, H	144	7½	—	—	41	5½ 1/0¼	6	2¾ 6	23	8¼	42	6	32	3¼ 5½
,, ,, S	60 p	1/	20½c	1/3	20	1/1	—	—	20	9¼	—	—	—	—
Eastern AssamCo	179 p	11	96½c	1 1¼ 1/6¾	43	8¾ 9¾	20	7	20	6¼	—	—	—	—
*GreenwoodCo D	230	1/0¼	34	1/6½	55	1/2	16	1 7½	67	7 10	52	5¼ 8¼	6	4¾
*Khobong T Co	201 p	8¾	62½c	10¼ 10¾	66	†6	73	1 0¾ 1/0¾	—	—	—	—	—	—
*LMB Diffloo ...	222	6¼	—	—	21	10¼	34	10¼	71	5¾ 6	44	4¾	52	3½
* ,,Hatticoolie..	163	7	—	—	9	10¼	10	11¼	143	6¼ 6¾	1	4½	—	—
*Nagani ...	89	6¼	7	9	47	7	—	—	20	†4¾	—	—	15	4¾
*Sillonee Baree	104	10	—	—	23	1/1	24	1/0½	9	8¼	19	8½	29	4½ 10
*UpperAssam N	41	1/1¼	4	1/7¼	33	1/0½ 1/5¾	4	6½	—	—	—	—	—	—
* ,, N	72	11½	—	—	9	11	33	1/3¼ 1/5	24	7¼	—	—	6	4
* ,, OB	132 p	11	—	—	42	1/2-1/2½	38½c	1 1¾-1 3	13 p	9	33 p	4¼ 5¾	6½c	2½ 4¼
CACHR & SYLHT	**5442 p**	**8¼**												
B&Co Chargola C	648 p	9	94	1/1¾ 1/5¼	278	9¼	68	8	124	6¼	39	5¼	53½c	4
,, ,, H	227	8¾	29	11½ 1/5	62	9½	38	†8¼	83	7¼	15	5¾	—	—
,,Mookham Co	235 p	8¾	39	1/0¾ 1/8¼	54	9	33	10½	82	5¾	17	5	10½c	4
Baraoora ...	275	10¼	45	†1/1¼-1/8	80	10½	50	9¾	100	7½	—	—	—	—
*Bicrampore A	177 p	7	—	—	16	9¼	56½c	11	25	6	25	5¼	55½c	3¾
*Burrumsal ...	60	10¾	—	—	22	1/0½	17	1/1	—	—	21	7½	—	—
*Captainpore ...	24	4¼	—	—	—	—	—	—	—	—	14	4¾	10	3¾
*Chinjoor ...	27 p	5¾	—	—	1	†6½	7½c	8½	3	5¼	—	—	16½c	4½
*Cossipore ...	223	7½	—	—	—	—	39	11½	65	9½ 9¾	42	5½ 6	77	3¾ 5¼
*Craigpark ...	156 p	8½	—	—	61 p	9¾	35	11¼	20 p	6½	19	5¼	21 p	4-5
*Dilkoosha ...	175	7	—	—	36	11	26	10½	22	6½	51	5½	40	†3¼ 3½
Doloo ...	185 p	7¼	54½c	10¼ 11	45	8 8¼	64	†5¾	18	6	4	5	—	—
*Doodputlee ...	118	8¾	—	—	41	10¼	12	1/3	—	—	49	7¼	16	4
Kalline ...	138	10	—	—	50	11¾	23	1/2¼	—	—	40	7¼	25	7¼
*LMB Shabazpre	145 p	9	—	—	60	10	39½c	1/0¼	39	6½	3	5	4	2½
,,Salgunga ...	171	7¼	—	—	50	9	24	11	47	5¾	50	5	—	—
*Roopabally ...	55	8¼	—	—	22	8	24	9½	9	5¾	—	—	—	—
Sonarupa ...	120	6¾	—	—	60	8 8¼	—	—	—	—	60	5¼	—	—
SSTCo Rajghat	545 p	8¼	87	9¾ 1/10¼	172	†7¾	105	8¾	134	6½ 6¾	32	5½	15½c	5¼
*Tarrapore T Co	408	9	—	—	—	—	106	1/	108	8¾	183	6½ 7¾	11	4
*Western Cachr	102 p	11¾	8½c	2/	26	1/3¼	7	1/5½	—	—	54	9¼	7 p	5¼
CHOTA NAGPRE	**94 c**	**4¾**												
Ballyhat ...	67	5¼	5	8	25	6-7	5	4½	15	5¼	15	4	2	†2
IHTCB ...	27	3¾	—	—	—	—	4	4½	9	5½	8	2¾	6	†2
DOOARS	**984 p**	**8**												
Hope ...	28	6	—	—	16	5¼	10	8	—	—	—	—	2	2½
NSTC Dam Dim	956 p	8	35p	1/6½ †1/11	314	7½ 7¾	388	8¾	200	6	—	—	19	4½
TRAVANCORE	**192 p**	**5¾**												
Aneimudie ...	118½c	5	—	—	13½c	5¾	17½c	†7	80½c	†4½	3½c	4	5½c	2
Bison Valley ...	14	6¼	—	—	7	5¾	5	8	—	—	2	4½	—	—
Isfield ...	47	5½	—	—	13	6	5	†8	29	4¾	—	—	—	—
Patanaverum ...	13 p	10	—	—	9½c	†7¾	4 p	1/3¼	—	—	—	—	—	—

Gardens marked thus * are last of the Season.

CEYLON. Average 8¾d.

Aldie ...	106 p	9¼	—	—	32	10¼	35½c	1/1¼	35	7	4	3¾ 4¾	—	—
Amblamana ..	80	9	—	—	13	8¼	48	10½	19	6	—	—	—	—
Atherfield ...	157	8	—	—	54	7¼	69	10	34	5¼	—	—	—	—
Bambrakelly&D.	104	1/0½	—	—	54	11¼	50	1/1¾	—	—	—	—	—	—
Barnagalla ..	127	9¼	21	1/0½	39	9½	22	1/0¼	45	6	—	—	—	—
Battalgalla ...	82	8¾	17	10¾	28	†8¼	16	1/0¼	21	†5¼	—	—	—	—
Binoya ...	84	7	—	—	50	6¾	17	10¾	—	—	17	4¼ 4½	—	—
Blackwater ...	234 p	7¼	53½c	9¾ 1/0¼	60	8	30	7¾	67	5¾	21	4½	3	3¼

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Blairavon ...	64	7¾	—	—	29	7¼	17	10¾	17	5¼	—	—	1	3¼
Bowhill ...	32	6½	—	—	6	7¾	9	9¾	13	5	3	3½	1	†2¼
Burnside ...	51½c	7¾	—	—	24½c	6½	24½c	9½	3½c	4½	—	—	—	—
Campden Hill ...	141	6	—	—	47	5½	46	8¼	48	4½	—	—	—	—
,, ...	97	5½	—	—	57	5½	10	8¾	18	4½	12	4½	—	—
Campion ...	105	11¼	—	—	40	10¼	45	1/1½	20	8	—	—	—	—
C'Galla ...	29	9¼	—	—	14	7¾	14	11	1	4¼	—	—	—	—
Chapelton ...	173 p	1/	—	—	48	1/	80½c	1/4	39	8¾	—	—	6½c	5¼
CLPC. N Peradn.	139	7¼	—	—	45	6½	30	11¾	62	5¾	—	—	2	3
Clontarf ...	64	8¾	17	10	30	6¼	15	1/1¼	—	—	2	4¼	—	—
Cocoawatte ...	15½c	6	—	—	4½c	4¾	6½c	8	5½c	4½	—	—	—	—
,, ...	70½c	4¾	—	—	31½c	4¾	20½c	†5¼	16½c	4¼	3½c	3½	—	—
CTPC Mariawate	110	7	—	—	41	7	26	10½	43	5	—	—	—	—
,, ,, ...	134 p	7	—	—	41	6¾	28	11	45	5	—	—	20½c	5¼
,,Tillyrie ...	102	10	43	1/	41	9½	—	—	13	6¾	—	—	5	7
,,Wallaha ...	137 p	11	—	—	76½c	11¼	39	1/1¼	22	6¼	—	—	—	—
,,Waverley ...	117	1/1	—	—	35	10 1/0¼	82	1/1¾	—	—	—	—	—	—
Dalleagles ...	102	7½	—	—	36	6	45	9¾	21	5	—	—	—	—
Daphne ..	29	5¼	—	—	16	4½	8	7¾	5	4	—	—	—	—
DC ...	33	6¼	—	—	15	6-6¼	9	8¼	8	4½	1	4	—	—
Debatgama ...	61	7¾	—	—	12	6¾	12	5¾	37	8¾	—	—	—	—
Delta ..	81	7½	—	—	18	8¾	15	†1/0¼	26	5¼	22	5½	—	—
Derryclare ...	115	9	—	—	44	8¼	45	11½	26	5½	—	—	—	—
Dickoya ...	169	6¾	—	—	134	5¼7¼	19	10¼	16	5	—	—	—	—
Digdolla ...	68	6	—	—	39	5¼	15	9¼	—	—	2	3½	12	2¾4¾
Dikmukalana ...	66½c	6¾	—	—	18½c	6	30½c	†8½	18½c	†5	—	—	—	—
Dilandhu ..	53	6½	—	—	39	5½	14	9½	—	—	—	—	—	—
Dkkie Oya ...	50	6¼	—	—	25	6	12	8¾	12	4½	—	—	1	†2¾
Elgin ...	71	10¾	—	—	23	9¾	33	†1/1	12	†6¾	—	—	3	7¼
Elkadua ...	86	7¾	—	—	34	7½	27	10½	25	5¼	—	—	—	—
Ellagalla ...	39	6½	—	—	3	†6½	13	9¼	21	5	1	4	1	†2½
Elston ...	124	8¼	—	—	62	7¾	40	10¾	22	5¼	—	—	—	—
EP&ECoDoomba	62	6¾	—	—	41	†5½	21	9½	—	—	—	—	—	—
,,Hope ...	162	6¾	—	—	79	†5¼	83	8¼	—	—	—	—	—	—
,,Ingurugalle ...	88	7	—	—	60	6	28	†9	—	—	—	—	—	—
,,Koladenia ...	65	6¼	—	—	44	5	21	8¾	—	—	—	—	—	—
,,Labukelle ..	24	1/3¼	—	—	—	—	24	1/3¼	—	—	—	—	—	—
,,Meddecombra	58	8½	—	—	45	6¾	13	1/2¼	—	—	—	—	—	—
,,Rothschild ...	59	8¼	22	9¾	37	7½	—	—	—	—	—	—	—	—
,, ,, ...	41	7	15	9	26	†6	—	—	—	—	—	—	—	—
,,Sogama ...	94	7½	35	9½-9¾	59	†6-6½	—	—	—	—	—	—	—	—
Errol .	36	9	—	—	36	†9	—	—	—	—	—	—	—	—
Ferndale ...	21	9¾	—	—	13	8	8	1/0½	—	—	—	—	—	—
Fernlands ...	104 p	11¼	—	—	47	8-10¾	54½c	1/2¾	—	—	1½c	5¼	2½c	5½
Frotoft ...	140½c	1/1¼	—	—	34½c	1/0¼ †1/0	¾58½c	1/3½-1/4	48½c	10½11¼	—	—	—	—
Galella ...	52½c	6½	—	—	22½c	†5	30½c	7½	—	—	—	—	—	—
Gallebodde ...	135	9¼	—	—	40	9¼	42	11½	37	6	—	—	16	11¼
Grammadua ...	77	7	—	—	54	†5¾-6	21	10¼	—	—	—	—	2	3½
Glenalla ...	64	6¾	20	10	44	†5¼	—	—	—	—	—	—	—	—
Glenugie .	172 p	10¾	—	—	42	7	66½c	1/4	64	10½	—	—	—	—
Glendon ...	100	8	—	—	64	7½	24	10¾	12	5	—	—	—	—
Goorookoya ...	148	6¼	—	—	68	5¾ †5¾	34	8¾	46	5	—	—	—	—
Gordon ...	60½c	5¾	—	—	19½c	5¼	13½c	9¼	24½c	4½	3½c	4½	1½c	3
Gorthie ...	124 p	11	—	—	45	10½	51½c	1/2½	23	8½	—	—	5½c	6½
Great Western ...	136 p	8¼	32 p	† 11¼11¾	56	6¾-8¼	16	9½	11½c	5¾	13	5	8½c	7¼
Hallowella ...	67	9½	15	1/1	34	9½	—	—	18	7	—	—	—	—
Happugahalande	50	8¾	—	—	17	8	17	1/0¼	15	5¾	—	—	1	3¾
Hardenhuish & L.	67 p	9	—	—	—	—	47	9½	20½c	6	—	—	—	—
Hattangalla ...	20 p	5	—	—	13	†6	—	—	1½c	4¼	6	3¼	—	—
Hauteville ...	92	1/2	—	—	35	†1/0¼	44	1/4½	13	9¾	—	—	—	—
Henfold ...	126	1/0½	—	—	60	11½	54	1/2¾-1/3	12	7	—	—	—	—
Holmwood ...	91 p	8¼	—	—	26	†8	42	9½	17	5½	—	—	6½	5¼
Hunugalla ...	75 p	8	—	—	45	6¾	30½c	1/	—	—	—	—	—	—
Idurana ...	123	6½	—	—	59	5½-7¼	20	10	42	5	—	—	2	3
Ingestre ...	91 p	9¼	—	—	50	8	41½c	1/0¼	—	—	—	—	—	—

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Souchong.		and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity	Price.	Quantity	Price	Quantity	Price
Ivanhoe ...	81 p	8¾	—	—	23	10	34½c	†11¼	19	5½	—	—	5 p	3¼
Kabragalla M...	152½c	7¾	—	—	46½c	7¾	48½c	10⅜	35½c	5½	8½c	4½	15½c	5¼
Katooloya ...	90 p	10	—	—	24	10	26	1/3	14	6	—	—	20½c	†6
Kattiagalla ...	56	5¼	—	—	29	4¾	15	7	12	4	—	—	—	—
KAW ...	261	10¾	—	—	190	9¾ 1/1¼	38	1/2¾	—	—	33	6¾	—	—
KelaniValAsso D	83	7½	—	—	41	7	23	10¼	19	5¼	—	—	—	—
Kelburne ...	46	7¼	—	—	14	6¼	14	10¾	12	5⅜	6	4¼	—	—
Kirkoswald ...	178	8¾	—	—	75	9½	29	1/	71	6½	—	—	—	—
Kotiyagalla ...	74 p	1/1	—	—	29	11½	45½c	1/3	—	—	—	—	—	—
Kurulugalla ...	100	5	—	—	35	5	20	6¾	24	4½	10	3¾4¼	2	2¾
Lameliere ...	224½c	9¾	—	—	47½c	9¾	106½c	11¼11½	71½c	7¼	—	—	—	—
Lokamanda ...	158 p	10	—	—	15	9¼	125 b	1/-1/0¼	—	—	18	6¾	—	—
Longford ...	104½c	11	—	—	33½c	†5	18½c	7¼	40½c	4½	11½c	2 4	2½c	2¾
Lynsted ...	178½c	11¼	—	—	80½c	7½ 10½	6¾c	1¾1½	—	—	—	—	—	—
Mahacoodagalla	83 p	10¼	9	8¾	30	9¼	44½c	1/-1/0¼	—	—	—	—	—	—
Manickwatte ...	78 p	7½	—	—	35	6¼	43½c	9¾	—	—	—	—	—	—
Marske ...	62½c	8¼	—	—	35½c	†6	25½c	11¾	—	—	—	—	2½c	3½ 4
Mattakelly ...	145	8	—	—	54	8	49	10½	40	5¼	—	—	2	4¼
,, ...	221	7¾	—	—	85	7¾	71	9¾-10	62	4¾-5	—	—	3	4¾
Mooloya ...	33	10½	—	—	16	11½	17	1/3½	—	—	—	—	—	—
Mottingham ...	55 p	7½	—	—	14	8¾	18½c	11	23	5½	—	—	—	—
Nahakettia ...	59	6¾	—	—	29	6¼	15	9¾	10	5¼	4	4½	1	3¼
Nayabedde ...	50	9¼	—	—	12	9	19	1/0¾	18	5¾	—	—	1	4¼
OBECCraigieLea	99	8¾	—	—	46	8¼	26	1/0¾	27	5¾	—	—	—	—
,, Loolecondera	66	9	—	—	23	9½	22	11	21	6½	—	—	—	—
Oliphant ...	272 p	9	—	—	100½c	9	62	†11	88½c	8	16	5¼	6	4¼
Orwell ...	97	8¼	—	—	44	8½	19	11¼	28	6½	4	3½	2	3¼
Osborne ...	103 p	10¼	—	—	48	10½	28	1/1	14	6¼	13½c	5 5½	—	—
Ottery ...	94	9	—	—	35	9¾	26	1/	24	6	9	4½	—	—
Parusella ...	209½c	6½	—	—	117½c	5½	61½c	†8¾	20½c	4½	6½c	4¾	5½c	3½
Penylan ...	125	8	—	—	72	6¾-7	43	10¾	8	5	—	—	2	4
Pita Ratmalie	90½c	10½	—	—	52½c	9½ 10¾	31½c	1/0¼	—	—	3½c	6¾	4½c	8½
Poolbank ...	54½c	8½	31½c	10	23½c	6¾	—	—	—	—	—	—	—	—
Portswood ...	63½c	1/2½	—	—	37½c	†1/2½-1/5	13½c	†1/4¼	13½c	11¼	—	—	—	—
Pundaloya ...	131 p	10¾	56½c	†1/2½	50	10¾	—	—	20	6¼	—	—	5½c	4½
Rambodde ...	58½c	10¾	—	—	18½c	1/0¾	19½c	†1/0½	12½c	8¾	6½c	6¼	3½c	6
Riseland ...	25	5¼	—	—	8	6	3	6¼	12	4¾	2	3½	—	—
Rookwood ...	63½c	11¼	—	—	18½c	11¾	31½c	1/0¾	14½c	7¼	—	—	—	—
Rowley ...	41½c	7½	—	—	21½c	†5¾	20½c	9½	—	—	—	—	—	—
Saumarez ...	94	6	—	—	53	†4¼ 5¾	20	9	12	4¾	5	4	4	†3
Sheen ...	103 p	11¾	43½c	1/3¾	39	11¾	—	—	17	7¼	—	—	4	5¼
Somerset ...	36	8½	—	—	36	8½	—	—	—	—	—	—	—	—
Spring Valley ...	137 p	10¼	—	—	54	10	34	1/3¼	40	6½	—	—	9½c	4¾
Stamford Hill ...	82	8½	—	—	33	9¾	17	11¾	24	5¾	8	4	—	—
Stonycliff ...	149	9½	—	—	70	8¼-8½	65	11½	14	6	—	—	—	—
St. Vigeans JG ...	51 p	9¾	—	—	24	9¾	17½c	1/3¼	9	6	—	—	1	3¼
Talawakellie ...	111 p	11¼	—	—	29	1/0¼	25	1/2¾	33	8¾	—	—	24½c	7 10
Tommagong ...	53 p	10¾	—	—	14	11	20½c	† 1/3¾	14	8	5½c	†5	—	—
Venture ...	79 p	10	—	—	29	10¼	27½c	† 1/2¼	20	7	—	—	3½c	6
Wereagalla ...	49 p	9	—	—	18	9¼	19½c	1/	12	6	—	—	—	—
Westhall ...	115	9	—	—	46	9½	24	1/1¾	43	6	—	—	2	5
West Haputale	120½c	6½	—	—	39½c	†5¼	61½c	†7¾	20½c	†4½	—	—	—	—
Wewelmadde ...	77	7½	—	—	18	6¼	38	†9¼	21	5¼	—	—	—	—
Windsor ...	148	7½	—	—	40	8	43	10¼	65	5¼	—	—	—	—
Wootton ...	76 p	11¾	25½c	1/8¼	—	—	36	11	15	6¼	—	—	—	—
Ythanside ...	99	10½	20	1/4	—	—	32	11	35	8¾	12	5½	—	—
JAVA. 1368 chests. Average 5½d.														
Panoembangan	29	6¼	—	—	17	7½	—	—	—	—	—	—	12	4¼
Perbakti ...	135	7¼	24	1/2½	25	†6¾	18	†5¾	19	†5½	33	†5	16	†5½
Perbawattee ...	95	8½	—	—	42	†7½	53	9¼	—	—	—	—	—	—
Roempien ...	61	4	5	4 7¼	28	4½	—	—	5	3¾	4	3¾	19	†3
Semplak ...	142	5¼	—	—	62	†5¼†6¾	17	†4¾	—	—	63	5	—	—
Sinagar ...	524	5	—	—	—	—	84	†4¼†4¾	329	4¾ †5½	67	5¼	44	4¼ †4
Sindang Sarie ...	176	4¾	—	—	42	†6¼	49	†4½ 5¼	35	†5	—	—	50	†3¼
Tendjo Aijoe ...	206	5	19	11	38	†5½	31	†3¾	34	†4¾	52	4½	32	†3¾

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *April 8th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

		Indian.	Ceylon.	Java.
	1890-1891.	1,050,808 packages.	516,406 packages.	47,327 packages.
During the week	1891-1892.	1,197,736 ,,	690,347 ,,	36,277 ,,

6,497 packages Indian
3,913 ,, Ceylon } Total 42,261 packages have been offered in public auction.
1,851 ,, Java

In considering the deliveries for March it must be borne in mind that Easter fell in that month ast year, also that the value of such Teas as constitute the bulk of the Home Consumption was hen very much higher than at present. Even taking these circumstances into account, deliveries ave proved exceptional, and clearly illustrate the effect of prolonged low rates in forcing Indian and eylon Tea into consumption. The monthly deliveries of Indian Tea have on only three occasions xceeded those for March. Deliveries of Ceylon Tea during the past nine months almost equal the nusually heavy imports.

INDIAN. The market has remained very firm for all descriptions, Teas with quality especially elling with strong competition. High averages were made by "Hukanpukri," 1/8¾; "Gotoonga," 1/5¾.

This weeks average price of New Season's Teas sold on Garden Account. Total 16,314 pkgs. average 9d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	9665 p	9½d	Chota Nagpore ..	128 p	5¾d	Kangra Valley, Etc.	129 p	9½d
Cachar and Sylhet..	3835 p	8¾d	Darjeeling	97 c	8d	Neilgherry.. ..	91 p	6¾d
Chittagong	96 c	8½d	Dooars	1471 p	8d	Travancore	802 p	7d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	3¾d.	1891,	7d.	1890,	5d.	1889, 5½d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4½d.	,,	7¾d.	,,	5½d.	,, 5d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5¾d.	,,	9¾d.	,,	7d.	,, 6½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10¼d.	,,	8¼d.	,, 7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9d.	,,	11d.	,,	9¼d.	,, 9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9¾d.	,,	6½d.	,, 6½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	10½d.	,,	7½d.	,, 7¼d.

CEYLON. Auctions comprised 13,913 packages against 20,457 last week. All Teas with point n liquor met with attention and sold at full prices. Commonest descriptions alone showed less nimation and occasionally passed at slightly easier rates. Exports from Ceylon during March were ,500,000 lbs., and the estimated export for April is a trifle over this figure. Average for week, 9d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6d.	1891,	9½d.	1890,	9d.	1889, 8d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8¾d.	,,	10½d.	,,	10¾d.	,, 9d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9¼d.	,,	8¼d.	,, 7¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5¾d.	,,	10d.	,,	9d.	,, 8d.

AVAS. Bidding was languid, except for the higher grades, and a considerable proportion of he poorer descriptions was withdrawn. A few export orders somewhat assisted the market.

MOVEMENTS OF TEA IN LONDON (in lbs.) DURING MARCH.

	Imports:			Deliveries		
	1890.	1891.	1892.	1890.	1891.	1892.
Indian	6,684,921	5,953,848	7,574,724	7,141,953	7,223,670	10,042,986
Ceylon.....	3,008,554	4,765,346	5,475,372	2,081,078	2,769,972	5,158,508
Java	308,910	455,700	336,840	338,240	385,490	121,590
China, etc.	2,083,317	3,725,403	1,859,779	6,522,564	5,810,576	5,350,234
Total lbs,	12,085,702	14,900,297	15,246,715	16,083,835	16,189,708	20,673,318

FROM 1st JUNE TO 31st MARCH.

	Imports.			Deliveries.			Stock.		
	1889-1890.	1890-1891.	1891-1892.	1889-1890.	1890-1891.	1891-1892.	1890.	1891.	1892
Indian	96,383,508	97,234,899	107,860,881	81,519,899	85,863,012	89,433,033	42,624,144	38,861,676	45,089,280
Ceylon.....	26,775,318	36,284,536	52,105,472	25,592,404	34,095,190	50,393,510	8,514,580	11,779,720	16,686,854
Java	2,412,810	3,244,220	2,537,850	2,744,260	3,233,440	2,713,130	905,380	1,075,620	674,310
China, etc	89,290,382	68,289,725	60,122,381	71,456,963	68,383,967	58,538,352	55,384,979	39,898,086	30,028,498
Total lbs.	214,862,018	205,053,380	222,626,584	181,313,526	191,575,609	201,078,025	107,429,083	91,615,102	92,478,942

BANK RATE. 2½ per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3¼. Colombo 1/3¼

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity	Price	Quantity	Price
ASSAM	**9665 p**	**9½**												
AssamC Cherideo	485	6¾	—	—	—	—	156	7¾-9¼	—		340	5¾-6¾	—	
,, Gelakey ...	690	9½	30	1/4½	70	9¾-10	180	1 0¾ 1 1½	100	6¼-6½	34	6-1 3¼	—	
,, Mazenga ...	194	9¼	—	—	66	10¾-11	22	1 0¼	—	—	20	6¼-6½	—	
,, Rookang ..	80	9	—	—	—	—	—	—	—	—	20	9	—	
*Badulipar ...	291 p	11¼	8½c	1 9	108	1/0½ 1 3¼	60	1 2½	57	7	58	6½	—	
*Behora ..	159 p	9¾	—	—	33½c	1/1½	29½c	1 3¼	38½	9¾	29	7¾	—	
*Borjan ...	98 p	11	17½c	1/3	—	—	22½c	1 0¼	—	—	25	6½	11	11-11
Borting ...	111 p	10½	—	—	45	1/0¾	7½	1 2¼	34	10¼	—	—	—	—
British Assam Co	192	8½	—	—	41	10¼	24	1 3	93	6¾ 7	34	5¼	—	—
*ChoonsaliTC C	111	7	—	—	13	9¼	15	9¾	42	6	34	5	—	—
* ,, S	135 p	6½	14½c	1 6	—	—	11	9½	30	5¾	34	4	—	—
Dejoo T Co ..	287	8	—	—	57	1 11¼	67	7½ 11¼	30	7¾	44	5¼ 5	30	11
Dhoolie ...	285	8	—	—	50	11¾	30	1 3	104	6 6¾	14	5½	9	8¾
Digloy T Co D ...	135	10¾	—	—	43	1 11¾ 1 0½	27	1 5½-1 9	30	6½-7½	28	4¾-5	—	—
* ,, P	66	1/2¾	—	—	16	1 1½ 1 3½	17	1 3½-2 5	13	8 10½	20	4 7-7½	—	—
Eastern AssamC	269 p	9¾	83½c	6½ 1/9¾	48	8-1/2	29	8¼ 9	61	6¼-8½	17	5¼	31	2½ 3¾
*GreenwoodC B	119 p	1/	—	—	25	1/3¼	25	1 3½	35	11	31	5¾	13½c	5¾
,, G	131	10¾	—	—	55	1/	45	10½	24	9¾	7	5¼	—	—
*Gotoonga ...	161 p	1/5¾	27½c	2/12¼ 2/10	½	9¼ 1 1¼-1 2½	20	1 10¼	—	—	16	7 7¾	7	4¼ 4½
Hattigor ...	24	3½	—	—	—	—	—	—	—	—	—	—	24	3¾
Jhanzie T Assoc	250 p	1/0½	—	—	114	1/1	48	1 0¼	60	8-8¼	—	—	19	4-4¼
JokaiCoHuknpuri	78	1/8¾	47	1/7¾ 2/1¼	31	1/6¾	—	—	—	—	—	—	—	—
,, Jamira ...	175	5¼	—	—	28	7	—	—	54	5¾	68	4¼ 4½	26	7
,, Subansiri ...	210	7½	—	—	60	9¾	40	9½	34	6	54	4¾	—	—
*Jorehaut T Co	1083 p	1/1½	191 p	1/6-2/1¾	208	1 0½ 1 4½	136	1 4½-1 6¾	467	7¼ 1 0¼	—	—	81	2-1 2¼
Khobong T Co...	179 p	7¾	20	8½	60	7½-10	32½c	1/1	32½	5½	—	—	35½c	4½
*Koliabur ...	93 p	10	—	—	36	1/0½	14½c	1/1	12	9½	19	6¼	14½c	4¼
*Kolony ...	101	11¼	—	—	22	1/3	16	1/5¼	50	8¾	13	6¾	—	—
Lepetketta ..	92	10	29	1/3-1/3¼	63	7¼-7¾	—	—	—	—	—	—	—	—
LMB Hatticoolie	427	8	—	—	50	1/	50	1 1¼	240	6½-7	87	5½-6¼	—	—
Mokalbari ...	54	6½	—	—	38	7	—	—	—	—	16	5	—	—
*MungeldyeCo ...	105½c	3¾	—	—	—	—	—	—	—	—	—	—	105½c	3¾
*Naharanee ...	110	7¼	—	—	17	10¼	—	—	14	6¼	17	5½	12	3¼-3¾
Nahor Habi ...	207	7	—	—	50	8¾	28	1/0¼	56	5¾	75	4¾ 5	—	—
Ohat ...	234	8¾	—	—	40	11	33	1/1¾	138	6¾	—	—	23	10¼
*Rajmai T Co ...	160 p	11	—	—	34	1/1¼	30½c	1/6¼	—	—	75	9½	21	8
Rungaghur ...	156 p	9¼	—	—	50	10¾	30½c	1/5½	39	7	16	6	21	16
Rungajaun ...	271	6¾	—	—	97	7¼-8¾	32	10	86	6	34	3¾	22	5½
*Rungli Ting ..	46	8½	—	—	15	8-1/5½	3	8¾	13	10	—	—	15	2¼ 5¼
SalonahTCo Kon	340 p	7¾	—	—	55	1/1	40½c	1/0¾	55	8	80	5¼ 5¾	110	5 8¼
*Seconne ...	116 p	8¼	13½c	1/8	7	11½	2	11	48	7¾	28	4¼-8¼	18½c	3
*ScottishAssamC	345 p	1/0¼	13½c	1/ 10½ 2/2¼	81	1/1¼-1/5	31	1/4	46	11¼	61	8¾ 10½	83 p	3½-4
*Singlijan ...	62 p	4¾	—	—	—	—	—	—	—	—	37	5¼	25½c	3½
*Tiok ...	130 p	7½	—	—	18	9¾	22	11¼	53	7	½c	5	33 p	4½-9½
Titadimoro ..	20	3¼	—	—	—	—	—	—	—	—	—	—	20	3¼
UpperAssamC M	135	1/4¼	27	1/11¾	75	1/ 1¾ 1/5¼	28	1/0¾	—	—	—	—	5	5½
* ,, R	134 p	11	—	—	—	—	23	1/4½	43	1/1	39	7½-8¼	29½c	4½
* ,, T	74	9¼	—	—	10	1/	13	1/1¼	11	7-7¾	17	8¾	23	7¼
CACHR & SYLHT	**3835 p**	**8¼d**												
Adam Tila ...	127 p	8¾	44½c	11 ¼ 1/2½	36	8¾	21½c	8¼	26	6	—	—	—	—
Alyne ...	91 p	9½	33½c	10	29	8½	29	10	—	—	—	—	—	—
B&CoChargola M	116	7¾	12	1/2¾	40	8	20	8¼	40	5¾	—	—	4	3½
,, Eraligool ...	329 p	8	43	1 1¼ 1/5¼	85	8¾	45	10	110	6	40	5¼	6½c	3¼
Baraoora ...	333 p	10	40	1/1 ¼ 1/7¾	110	10¼ 10½	60	10	110	7¾	—	—	13½c	4¾
BITCoDwarbund	200	6¾	—	—	75	7	45	9	60	5½	20	5	—	—
,, Urrunbund	144	7½	—	—	44	8¾ 10½	20	11½	—	—	80	5-6	—	—
Borokai T Co ...	158	11	—	—	61	1/-1/0¼	15	1/5¾	26	8	56	9¼	—	—
Chandkhira ...	48 p	8¾	12½c	1/3½	16	7	20	8	—	—	—	—	—	—
Chandpore Co ...	315	8¼	—	—	180	8-9½	74	5¾ 1/0½	61	6	—	—	—	—
Doloo ...	223 p	7½	70½c	10¼ 11	53	8	73	6	23	5¾ 6	4	4¾ 5	—	—
Doloi T Co ...	157	8¼	15	1/6	—	—	40	9¼	78	6¾	24	5½	—	—
Indian T Co ...	343	9	—	—	61	1/0¾	20	1/8½	90	8½	172	5¼ 8½	—	—
Kewacherra ...	35	6½	—	—	—	—	24	8¼	—	—	—	—	11	2½ 2

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Lallkhira ...	49	5¾	—	—	41	†5¾	8	6¼	—	—	—	—	—	—
LF&Co ...	118	8¼	—	—	24	†9¾	16	1/2	35	7¼	43	†5¼ 6¼	—	—
LMB Jalingah ...	200	7¼	—	—	90	7¼	40	9¾	70	5¾	—	—	—	—
,, Salgunga	147	6¾	—	—	27	8¾	20	11	50	6	50	5	—	—
Longai ...	122 p	5¾	—	—	46	6½	—	—	21	5½	35½c	4¾	20 b	†3¼
Luskerpore ...	100	5½	—	—	36	6-7	15	5¾	34	4¾ 5	15	4¼	—	—
ScottporeTCo ...	144	8	—	—	33	10	19	1/	55	7	37	5½	—	—
Tarrapore T Co	223 p	1/0¾	15½c	†1/8	168	10¼ 1/2	40	8¾ 1/7¼	—	—	—	—	—	—
,, SMF	207	8¼	28	9¼ 1/1½	42	9½	30	9¾	59	6¾	48	5½	—	—
CHITTAGONG														
Dantmara ...	96	8½	26	1-1/2¼	16	9	—	—	36	6½	—	—	18	3 6½
CHOTA NAGPRE														
Indian Hill T Co	128	5½	—	—	54½c	7	—	—	50	†4¾	24	4¼5½	—	—
DARJEELING	**97 c**	**8**												
Glenburn ...	60	9¼	19	1/0¼	19	10½	—	—	12	†6½	—	—	10	3¾5¼
DOOARS	**1471 p**	**8**												
Adabarrie ...	68	5¼	—	—	38	5½	—	—	21	5	9	4	—	—
Bagracote ...	264	5¾	—	—	51	6½	47	7	166	5	—	—	—	—
DooarsCoGhatia	444	9¾	—	—	115	11½	93	1/1¾	66	9¼	37	8½	133	4-8
,, Nagrakatta	150	9¾	8	†1/3½	46	1/	22	1/0¾	46	6¾	—	—	28	4¼8¼
Gajilidoubah ...	71	8¾	14	1/4¼	6	10¼	—	—	11	7¼	11	5½	28	4½8½
Hahai Patha ...	131 p	6¼	16 p	†8-1/4¼	50	6½	—	—	38	4¾	—	—	27	4 5½
Nashabarrie ...	178	6½	—	—	63	7¼	23	10¾	20	5¼	72	4¾	—	—
Zurrantee ...	93 p	7	1½c	†6	63	8	—	—	—	—	29	5	—	—
KANGRAVALEY														
New Hope ...	129 p	9½	46	1/0¾	—	—	—	—	65	7¾	—	—	18 p	4½6¾
NEILGHERRY	**91 p**	**6¾**												
Carshalton ...	30 p	4¼	—	—	17½c	4¾	—	—	—	—	—	—	13	3¾
Kodanaad ..	61 p	8	—	—	—	—	25½c	1/	—	—	18	7	18	6½
TRAVANCORE	**802 p**	**7**												
Ashley ...	14	9	—	—	—	—	13	9¼	—	—	1	4	—	—
Balamore ..	30½c	8	—	—	30½c	8	—	—	—	—	—	—	—	—
Braemore ...	35½c	6¾	—	—	23½c	6½	6½c	9½	—	—	5½c	5	1½c	2¼
Corrimony ...	80½c	7¾	—	—	51½c	7½	25½c	9¼	—	—	1½c	†3¼	3½c	3
Glenmore ...	160½c	5¾	—	—	104½c	†5¼	51½c	7¼	—	—	3½c	4½	2½c	†2¾
Kuduwa Karnum	239	6¼	—	—	60	8¼	—	—	165	5 6¼	11	4½	3	3½
Penshurst ...	64	8¾	—	—	26	9	13	1/0¼	18	7	7	5	—	—
Seafield ...	130½c	8	—	—	88½c	5 7½	34½c	1 1¾	—	—	3½c	4½	5½c	4
Venture ...	50	7	—	—	32	7¼	10	8½	8	4½	—	—	—	—

Gardens marked thus * are last of the Season.

CEYLON. Average 9d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Aberfoyle ...	40 p	7	—	—	16	7	15½c	10	5	5	2	3	2½c	3¾
Agra Ouvah ...	82½c	10¾	—	—	28½c	10½	27½c	1/2	27½c	7¾	—	—	—	—
Alnwick ...	60	1/	—	—	34	10	26	1/2½	—	—	—	—	—	—
Ambragalla ...	81	8½	—	—	36	8½	27	10¼	18	5½	—	—	—	—
Ardross ...	190	6¾	—	—	63	5¾	82	8¾	45	5	—	—	—	—
Attabage ...	89 p	7¾	—	—	23	7½	32	10¾	—	—	2½c	3¾	3½c	3¾
Audneran ..	18	10	—	—	—	—	18	†10	—	—	—	—	—	—
Avisawella ...	78	7	—	—	13	9	12	1/	48	5½	5	4¼	—	—
Avoca ...	38	8¾	12	11¾	20	8	—	—	6	4¾	—	—	—	—
Beaumont ...	62	8¼	—	—	21	7¾	23	10¾	18	5½	—	—	—	—
Becherton ...	30	6¼	—	—	20	5¾	10	7½	—	—	—	—	—	—
Belgravia ...	51	10¼	—	—	17	10	24	1/0¼	9	6¼	1	3¾	—	—
Blackstone ...	84 p	7½	—	—	18	9	31½c	†10¾	35	5¼	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken Souchong.		Pekoe Dust.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Bloomfield ...	53 p	1/2¼	35½c	1/3	15	1/1¾	—	—	—	—	—	—	3½c	4½
Bogawantalawa	113 p	1/	—	—	44	11½	36	1/3¼	26	9	2	6¾	5½c	7¼
Broad Oak ...	91½c	9¾	39½c	†11¼11½	37½c	9¼	—	—	15½c	6¾	—	—	—	—
Brownlow ...	117	11¼	—	—	95	10¼	22	1/3½	—	—	—	—	—	—
Brunswick ...	102 p	1/0½	66½c	1/2½	33	10¾	—	—	—	—	—	—	3	7½
Caskie Ben ...	57	10¼	26	1/0¼	29	6¼-9½	—	—	—	—	—	—	2	5
Chalmers ...	79	7¼	—	—	23	6¾	32	9	14	5¾	6	4¾	4	7½
Coodugalla ...	40	5½	—	—	16	5	10	8¼	5	4¼	2	2½	7	11
Crurie ...	73	7¼	—	—	17	7	27	9½	29	5	—	—	—	—
CTPCo Alton ...	300 p	9	—	—	105	9¼	89	10-1/1	77	5-5½	—	—	29 p	5½
,,Dewalakanda	214 p	6¾	12	1/0¼	150 p	5¾-6½	33	8¼	19	4¾	—	—	—	—
,,Dunedin ...	253 p	7¾	50 b	1/4¾	130½c	6¾	37	8¾	36	5	—	—	—	—
,,EastHolyrood	144 p	11	—	—	75 p	10	69	11¾-1/	—	—	—	—	—	—
,,Mariawatte ...	100	7	—	—	35	6½	26	10½	39	5	—	—	—	—
,,Tangakelly ...	168	11¾	—	—	54	10½	81	1/2½	27	7½	—	—	6	11
,,Tillyrie ...	148 p	9¾	58	1/	60	9¼	—	—	13	6¾	—	—	17 p	4½
,,Wallaha ...	207 p	9½	—	—	110½c	10	42	1/1¼	55	6	—	—	—	—
,,Waverley ...	85	1/2	—	—	—	—	85	†1/2	—	—	—	—	—	—
,,Yoxford ...	54 p	11¼	—	—	31	8¾ 11¼	23½c	1/1	—	—	—	—	—	—
Culloden ...	139 p	8¾	—	—	73 p	8½-9¼	35	11¾	31	†5½	—	—	—	—
Deyanella ...	31	10¼	—	—	16	9	14	1/0¼	—	—	1	4½	—	—
Digalla ...	74 p	7½	—	—	28	7	24	10¾	17	†5¼	4	3¾	1½c	3½
Doomo ...	87 p	6¼	—	—	33	5¾	27	†8	19	5	—	—	8½c	3¾
Doragalla ...	99	8½	—	—	45	8¼	27	1/	19	5¼	4	3¼	4	6¼
Dunsinane ...	162 p	11	48½c	1/3½	91	10†10½	—	—	23	8	—	—	—	—
Eastdale ...	47	8¼	—	—	20	7¾	15	11	12	5¼	—	—	—	—
Ederapolla ...	52	5½	—	—	31	5½-6	—	—	21	5¼	—	—	—	—
Elkadua ...	72	8	—	—	28	8	23	10½	21	5½	—	—	—	—
Eltofts ...	138 p	10¼	—	—	22	10¼	83½c	†1/-1/0¾	27	8	5	5¼	1	3¼
EP&ECo Arapo.	61	8¼	—	—	40	6½	18	1/1	—	—	—	—	3	3
,,Condegalla ...	70	1/	—	—	49	10 11¾	19	1/3	—	—	—	—	2	9
,,Meddecombra	75	8¾	—	—	59	7¼	16	1/2¼	—	—	—	—	—	—
,,Montefiore ...	79	7	22	10	47	6	—	—	10	4¾	—	—	—	—
Ernan ...	98 p	8	23½c	11¼	31	7½	25	9¾	19	4¾	—	—	—	—
Friedland ...	75½c	10¾	—	—	21½c	11¼	24½c	1/2	3c½c	8	—	—	—	—
Frogmore ...	48½c	11¼	—	—	23½c	9½	23½c	1/1½	—	—	—	—	2½c	5
Galata ...	122 p	8¼	—	—	33 p	8-9¼	67 p	9½ 11¼	18	5¾	2	4	2½c	4½
Gallaheria ...	92 p	8¾	26½c	1/	30	7	24	11	12	5	—	—	—	—
Gikiyanakanda ...	129	9¾	—	—	47	9	55	1/	27	6¼	—	—	—	—
Gingranoya ...	74	9	—	—	40	8¼	19	1/1¼	13	5¾	—	—	2	5¼
Glassel ...	76	7¾	27	10-11	31	6½	—	—	18	5¼	—	—	—	—
Glen Alpin ...	105 p	1/0¼	—	—	50	11¼	35	1/4¼	12	7¼	3	6	5½c	5½
Glencairn ...	96	8¼	—	—	28	8½	29	10¾	36	6	—	—	3	4½
Glentaaffe ...	114	8¾	—	—	50	9½	18	1/2	45	6	—	—	1	4
Goatfell ...	110 p	1/1	15	1/1¾	49 p	1/0½-1/1	25	1 1-1/3½	—	—	—	—	21½c	10
Gona Adika Co G	56 p	7¼	—	—	27	6	29½c	†9½	—	—	—	—	—	—
Hardenhuish & L.	52 p	9½	—	—	—	—	34	10½	18½c	6	—	—	—	—
Hattanwella ...	86½c	6¼	—	—	78½c	6	8½c	8¾	—	—	—	—	—	—
Heatherley ...	95 p	9	—	—	52 p	†8-9¼	19	1/0½	24	6¼	—	—	—	—
Hemingford ...	118	6	—	—	41	5¼	33	8½	35	4¾	9	4¼	—	—
Henfold ...	160	1/0¾	—	—	75	11¾	65	1/3¼	20	7¾	—	—	—	—
Hindagalla ...	94 p	11½	—	—	38	1/0½	20	1/3	23	9	5	5½	8½c	7
IMP ...	109 p	9	—	—	30 p	10¼ 11	28	1/	51	6½	—	—	—	—
Ingiriya ...	60	7	—	—	60	7	—	—	—	—	—	—	—	—
Kabragalla ...	45½c	5¼	—	—	—	—	—	—	23½c	5¼	8½c	4¼	14½c	5-5¾
Kandapolla ...	75 p	1/1	42½c	1/0¾	—	—	20	1/3	13	10¼	—	—	—	—
Kataboola ...	76	9	—	—	25	9¾	20	1/1	30	5¾	—	—	1	4½
Katookella ...	65	10¼	—	—	20	1/0¼	12	†1/1¾	23	8	2	5¼	8	6¾-9½
Kelani ...	204½c	6¾	—	—	74½c	6¼	51½c	10	79½c	5¼	—	—	—	—
Kintyre ...	106 p	8¼	39 p	†1/-†1/1	35	†7½	—	—	—	—	20	5¼	12	6
Kirkoswald ...	184	9½	—	—	77	9¾	39	1/1	68	7	—	—	—	—
Laxapanagalla ...	75½c	7½	30½c	9½	45½c	6	—	—	—	—	—	—	—	—
Lindoola ...	59	10½	—	—	32	9	27	1/0¼	—	—	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Liskillen ...	31	6	—	—	21	5¼	10	7½	—	—	—	—	—	—
Lokamanda ...	169 p	9¾	—	—	23	7½	146 b	11	—	—	—	—	—	—
Macduff ...	94	9½	—	—	34	†9¾	28	†1/1½	28	6	—	—	4	4½
Maha Eliya ...	124 p	10½	—	—	47	10½	53½c	1/1¼	1/1½	10	6¼	—	—	14½c 5½
Mapitigama ...	33	5¼	—	—	25	†4¾	8	7¼	—	—	—	—	—	—
Mayfair ...	62	8	18	11¾	27	7¼	—	—	17	5½	—	—	—	—
Midlands ...	283½c	7	—	—	80½c	6	127½c	9	76½c	5	—	—	—	—
Moralioya ...	44	7	—	—	18	6¼	12	11	14	4¾	—	—	—	—
Mooloya ...	28	1/	—	—	13	10¼	15	1/1¼	—	—	—	—	—	—
Morar ...	107 p	10½	—	—	24	10¼	54½c	1/1¾	29	7¾	—	—	—	—
Moray ...	254½c	10¾	—	—	115½c	7½-10	122½c	1/1	—	—	—	—	17½c	5¾
Mudumana ...	100	7½	—	—	40	6¾	34	10	26	5	—	—	—	—
Narangalla ...	61 p	10¾	—	—	20	11¾	19	1/2½	17	7¼	3	4½	2½c	3¾
New Dimbula D...	233	1/0¾	—	—	89	1/	95	1/2¾	49	10½	—	—	—	—
North Cove ...	95 p	9¼	—	—	46	†7¾	49½c	1/	—	—	—	—	—	—
OBEC Kuda Oya	78	9¾	—	—	34	9¼	22	1/1½	22	6½	—	—	—	—
,, Nilloomally...	65	8¾	—	—	29	8¼	22	11¼	14	5¾	—	—	—	—
,, Sinnapittia...	90	7¾	—	—	33	7¼	27	11	30	5¼	—	—	—	—
Old Madegama	103½c	9¾	63½c	†1 0¾†11¼	—	—	—	—	34½c	8½	2½c	5¼	4½c	4
Dononagalla ...	114 p	8¼	19½c	1/0½	40	7¾	20	1/0¾	33	5½	—	—	2	3½
Duvah Kellie B...	37	1/0¾	—	—	19	10½	18	1/3¼	—	—	—	—	—	—
Pambagama ...	128 p	7½	—	—	75	7	43½c	10	10	4¾	—	—	—	—
Panmure ...	48	9¾	—	—	21	9½	13	1/0¼	14	7½	—	—	—	—
Panslatenne ...	36	7½	—	—	12	7½	12	9¾	12	5½	—	—	—	—
Pantiya ...	102	8¼	—	—	29	9	30	†11½	43	5¾	—	—	—	—
Penrith ...	58	10	—	—	17	9½	26	1/0¼	15	7	—	—	—	—
Polgahakande ...	87	8¼	—	—	28	8½	40	9¾	19	5¼	—	—	—	—
Portmore ...	32	1/2	—	—	15	1/1	17	1/3	—	—	—	—	—	—
Putupaula ...	69	7½	—	—	16	†8¼	26	†9½	27	†5	—	—	—	—
Rangbodde ...	121	10¼	—	—	58	9¾	37	1/1	26	7	—	—	—	—
Rillamulla ...	75 p	7¼	—	—	31½c	†8¼	15½c	10	27½c	5	—	—	2	6
RP ...	65	6	—	—	19	5¼	20	8½	25	4½	1	4¼	—	—
Saumarez ...	50	6	—	—	24	†5½	12	†8	12	4¾	—	—	2	†3
SCTC Abergeldie	51 p	11	—	—	23	11	20½c	1/2½	8	6¾	—	—	—	—
,,Invery ...	159 p	1/0¼	—	—	53	1/0¾	51½c	1/4¾	—	—	55	5½-10	—	—
St. Andrews ...	92 p	9¼	43½c	†1 1¼-†1/-	30	7¾	19½c	8½	—	—	—	—	—	—
St. Clair ...	102	8¾	24	10½	13	8¼	22	1/0¾	37	5¾	2	4½	4	5¼
S. Leonards-on-S	27	7¼	—	—	13	5¾	14	8½	—	—	—	—	—	—
Sumtravalle ...	43	9	—	—	14	8¾	14	1/	15	6¼	—	—	—	—
Sunnycroft ...	127	6½	35	6½-9¾	44	5½	24	8¼	24	4½	—	—	—	—
S. Wana Rajah...	51 p	10¼	33½c	1/	18	8¾	—	—	—	—	—	—	—	—
Taprobana ...	90½c	8	—	—	43½c	7	36½c	10¼	5½c	4¾	—	—	6½c	3¾-5½
Tellisagalla ...	35	7¾	—	—	18	†6¾	11	10¼	6	5¾	—	—	—	—
Templestowe ...	55	9	29	11	14	8	—	—	12	5¼	—	—	—	—
Torwood ...	85 p	8	—	—	35	6¼	50½c	10½	—	—	—	—	—	—
Troy ...	82	7¼	—	—	35	7	21	10½	26	5¼	—	—	—	—
Ukuwela ...	51	6¾	—	—	14	7	15	9¼	15	5¼	4	†4	3	†3¼
W.A.H. ...	61	6	—	—	20	6	12	8½	29	4¾	—	—	—	—
Waltrim ...	70	1/0½	—	—	25	1/0½	29	1/2½	16	9¼	—	—	—	—
Wangie Oya ...	92	8	30	10-1/1¼	48	7	—	—	14	5	—	—	—	—
Warriapolla ...	58	7½	24	†8½ 1/0¾	—	—	—	—	25	5½	9	+¾	—	—
Wellekelle ...	85½c	8¾	—	—	45½c	7½	37½c	10¼	—	—	2½c	5¼	1½c	3
Woodend ...	62	6¾	—	—	33	5¾	20	†9¼	9	4½	—	—	—	—
Zululand ...	50	6†	—	—	17	†5	15	†9¾	18	4¼	—	—	—	—

JAVA. 1850 pkgs. Average 6½d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Bolang ...	103		1/4¼	—	—	103	1/4¼	—	—	—	—	—	—	—	—
Dramaga ...	139		5½	—	—	61	†6¼	—	—	55	5 5¼	23	5	—	—
Jasinga ...	110		8¾	—	—	49	1/2¾	—	—	61	4½	—	—	—	—
Nangoeng ...	252	p	5¾	17	b 2/1¼	54	†5¾ 9¾	10	5¾	166	4½ †4¾	—	—	5	3¾
Parakan Salak ...	300		5	—	—	100	5-6	100	†5	—	—	100	†4½ †5	—	—
Semplak ...	181		5¼	—	—	81	†5½	—	—	—	—	100	5	—	—
Tjikoija ...	127		4¾	—	—	13	5¾	12	†4¾	42	5	60	†3¾ 4¾	—	—
Tjiloear ...	156	p	6¾	43	b 1/8½	54	†5¾	13	†5	28	5	18	4¾	—	—
Tjiomas ...	126		7	—	—	57	†6¼ 9	35	5¼7½	28	†5 7¼	6	3½3¾	—	—
Tjisalak ...	242	p	5	—	—	100	†5¾	42	p †4½ 9½	50	†4¾	11	4	39	3½
Tjogrey ...	114		5¼	—	—	52	†5¼	22	†5¾	29	†4¾	11	4¾	—	—

In these tables all packages are chests unless otherwise stated b stands for boxes, ½c for half-chests, p for packages † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *April 1st*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,028,998 packages.	496,630 packages.	44,871 packages.
1891-1892.	1,171,239 ,,	676,434 ,,	34,426 ,,

During the week

2,268 packages Indian
0,457 ,, Ceylon } Total 44,080 packages have been offered in public auction.
1,355 ,, Java

The quantity brought forward between 1st January and 31st March, shows considerable excess ver that of the same time last year. Even taking into account the few working days which were ost in March last year, through the fact that Easter fell at the end of that month, greater freedom as been shown in bringing arrivals to sale.

	Indian.			Ceylon.			Java.		
	1890. pkgs.	1891. pkgs.	1892. pkgs.	1890. pkgs.	1891. pkgs.	1892. pkgs.	1890. pkgs.	1891. pkgs.	1892. pkgs.
January ...	147,441	172,408	168,428	47,013	48,053	69,683	3,838	2,316	2,181
February ...	114,078	121,638	131,699	37,143	54,717	65,704	4,959	6,435	2,401
March ...	88,286	69,265	96,382	28,498	53,744	78,737	3,674	6,952	2,201
Total pkgs.	349,805	364,311	396,509	112,654	156,514	214,124	12,471	15,703	6,783

INDIAN. About the same quantity was brought forward as last week. Up to the 31st March, 9 "last of the season" invoices have been disposed of, against only 40 for the same time last year. he market has been very steady for all descriptions, while anything above common must be quoted ather dearer, good liquoring Teas marking a still further advance. Autumn flavoured invoices ontinue to come in of good quality and occasional high averages have been obtained. The following verages are worthy of note:—"Moabund," 1/10¾; "Luckimpore," 1/6½; "Panitola" of the Jokai ea Co., "Majuli T Co.," and "Oaklands," 1/2¾.

Amongst the Travancore Teas, an invoice from the "Nagamally" Tea Co.'s Estate, realized n average of 9¾d.

This weeks average price of New Season's Teas sold on Garden Account. Total 15,251 pkgs. average 9½d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	8378 p	10¾d	Darjeeling	23 c	6d	Neilgherry		
Cachar and Sylhet ..	5333 p	8d	Dooars	1232 p	9½d	Terai		
Chittagong			Kangra Valley, Etc.	91½c	5½d	Travancore	194 p	7¾d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	3¾d.	1891,	7d.	1890,	5d.	1889,	5½d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4½d.	,,	7¾d.	,,	5½d.	,,	5d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5¾d.	,,	9½d.	,,	7d.	,,	6½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10¼d.	,,	8¼d.	,,	7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9d.	,,	11d.	,,	9¼d.	,,	9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9½d.	,,	6½d.	,,	6½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	10¼d.	,,	7½d.	,,	7¼d.

CEYLON. 20,457 packages were brought forward against 14,759 last week. In spite of the omparatively large auction, competition was strong throughout the sale, and good liquoring and avoury kinds sold at very firm rates. Poor liquoring Teas of the lower grades were not bid or with much animation, and in Thursday's auction showed a slight decline in rates. The following verages may be mentioned:—"Norwood," of E.P.&E.C. 1/3½; "Portswood," 1/2¾; "Edinburgh" nd "Kotiyagalla," 1/2½. Average for week, 9d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6d.	1891,	9½d.	1890,	9d.	1889,	8d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8¾d.	,,	10½d.	,,	10½d.	,,	9d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9¼d.	,,	8¼d.	,,	7½d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5¾d.	,,	10d.	,,	9¼d.	,,	8d.

JAVA. Auctions were on a somewhat larger scale, and the Teas met with considerable atten- on, being principally bought for the export trade. An invoice from the "Bagelen" Estate, comprised he bulk of the offerings; tippy Pekoes sold well, the average for the invoice being 6¼d.

BANK RATE. 3 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3 5/16. Colombo 1/3 5/16

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity	Price.	Quantity	Price
ASSAM	**8378 p**	**10¾**												
*AssamFrontierC	989 p	11¼	323 p	†1/0½ †2	/2¾ 233	9½ 1/3¾	28	†11	114	†6½ 10½	118	4¼-10	173	5¼
*AttareeKhatC B	158 p	9¾	—	—	47	11⅓	34½c	1 1¾	37	9	27	2¾-7	13½c	4
* ,, D	256 p	1/1	—	—	86 p	1/4½ 1 8¼	30 p	1 2¼	78	1 0½	34	5¼-9¾	28 p	4¾-5
Behora ..	66 p	6½	—	—	—	—	25½c	10¼	—	—	21	6	20	4¾
*BishnauthTCo	191 p	1/1¾	37½c	1/8¾ 1/10	45	1/3½	12	1/5	36	11	30	8½	31 p	4-1 3¼
*Borelli T Co ...	69	9	—	—	17	1/0¼	11	1/2½	21	7¼	20	5¼	—	—
British Assam Co	151	9	—	—	27	11	23	1/5¾	52	7¼	49	†5½	—	—
*Bungala Gor ...	57 p	7¾	—	—	14 p	9¾	5 p	1 2¾	10 p	7½	28 p	5½-6¾	—	—
Choonsali T Co S	110	9	—	—	67	11	—	—	43	6	—	—	—	—
Chubwa T Co ...	155 p	9	40½c	1/3¼ †1/3	¼ 40	11¼	—	—	24	6¾	48	5¾	3½c	3¾
*Chunderpore K	62	6¼	7	†1/	9	†5	13	†8½	6	†4¾	27	4 4½	—	—
*Corramore ...	244	11	—	—	38	7½ 1/4¾	19	5¾ 1/3¾	76	1/0¾	91	8	20	5
Dekhari ...	42	9¾	—	—	9	1/2½	2	1/	4	7¼	27	8¼	—	—
Dhoolie ...	137	9	—	—	35	11½	20	1/3¼	60	6½	22	5¾	—	—
Doolahat ...	100	6¾	—	—	25	11	—	—	45	6¼	30	4¼	—	—
Doom Dooma B	218 p	1/0½	71½c	1/3¾ 1/7¾	69	11½ 1/1	23	1/3¾	25	8¾	—	—	20	6
,, H	140 p	1/0¾	94½c	1/0¾ 1/2¾	46	11 11¾	—	—	—	—	—	—	—	—
,, S	101 p	9½	20½c	1/2¼	25	11½	—	—	20	8¾	—	—	36	4-7½
*Hapjan ...	74	1/1½	21	1/10¼	12	†10	—	—	26	9½	—	—	15	10½
Harmutty ...	463	8	—	—	84	9½ 11¾	39	1/4¾	216	6¾ 7	124	5	—	—
*Hattigor ...	327	11¼	—	—	52	1/4½ 1 11⅓	13	1 4¼	83	1 0¼	179	5½	—	—
Hazelbank ...	120	1/0½	—	—	26	†1/2¾	24	1/7	42	10	28	2½-8¼	—	—
Hunwal T Co ...	152 p	7	20 p	11¼ 1/4	26	10¾	12	†6½	—	—	81	5¼ †5½	13	4
Jhanzie T Assoc	195 p	11½	—	—	97	11¾	40	1/4¼	36	7¼	—	—	22 p	3¾-10
Jokai Co Bokel...	431	8¾	50	1/5½ 1/9½	193	8¼ 10¼	—	—	116	6	22	5½	50	5¼
,, Panitola ...	93	1/2¾	69	1/4¼ 1/4½	—	—	—	—	24	9¾	—	—	—	—
,, Subansiri ...	130	6½	—	—	—	—	50	8	50	5¾	30	4¾	—	—
Jorehaut T Co	120	11½	12	1/3¾	18	1/0¾	24	1/4¼	48	9¼	—	—	18	6¼
* ,, N	224	1/1	20	1/6¾	65	1/1½	30	1/5¾	100	10¼	—	—	9	9
* ,, O	123	11¼	—	—	42	1/1-1/1¼	26	1/2½	55	8½	—	—	—	—
* ,, RG	82	11	—	—	28	1/1	11	1/1¾	27	9	—	—	16	9
Koddom ...	68	11¼	—	—	—	—	52	1 1¼ 1/1½	16	7¾	—	—	—	—
Lepetketta ..	97 p	10¾	33 p	1/4¼ 2/2¾	51	7¾-8	—	—	—	—	13	5⅛	—	—
LowerAssamCo B	128 p	6½	20½c	10	21	7¾	55	6¼	16	5¾	16	4¾	—	—
*LuckimporeTCo	182 p	1/6½	9½c	2/8¾	49	2/0¼	15	2/0½	54	1/4½-1/5	48	3¾ 1/2¼	7	4¼ 6¾
*Majuli T Co. M	165 p	1/2¾	16½c	1/10¼	53	1/2½ 1/4¾	36½c	1/8¼	22	10	21	1/	17½c	7¼
*Moabund T Co.	195 p	1/10¾	57½c	2/6¼-3/5	99	1/9-2/1	—	—	—	—	25	1/2½	14½c	5½
Mokalbari ...	86 p	9	—	—	20	10¾	39½c	9½	—	—	27½c	6	—	—
*Moran T Co ...	387 p	9¼	54 p	1/4½-2/1	40	1/	13	11¾	214	8	39	6¼	27	4¾
* ,, S	276 p	10¾	72 p	†1/4½-1/7	½ 66	1/	—	—	72	8½	45	7	21	4½
*Oaklands ...	58 p	1/2¾	36 p	1/5½ 1/10	¾ —	—	—	—	17	10½	4	4¼	1	2¾
Rajmai T Co ...	350 p	10½	—	—	66	1/2½	50½c	1/6	—	—	234	8¼-8¾	—	—
Sillonee Baree	187	9¼	—	—	39	10¾	37	11½	23	8¾	30	8¼	58	4½ 10¾
Tiphook T Co ...	150	10	—	—	30	11½	20	1/7¼	80	7½	20	8¼	—	—
*Titadimoro ..	132 p	1/1	42½c	2/2¼	31	9¾	33	1/0½	26	6½	—	—	—	—
CACHR & SYLHT	**5333 p**	**8d**												
B&CoChargola C	452 p	8¼	54	1/2-1/5½	168	8½	47	8	114	5¾-6	12	†4½	57½c	†3¾
* ,,MuddanporeC	59 p	8½	—	—	25	9½	13½c	1/1¼	14	†6¼	5	4¼	2½c	3½
* ,,Singla T Co	278	7¾	10	1/1¼	94	9½	21	10¼	105	6½	44	5½	4	4
Bicrampore A	222 p	7¼	—	—	55	9-9¼	60½c	10¼	—	—	107	†5½	—	—
Burrumsal ...	65	11	—	—	—	—	40	1/1	—	—	25	7½	—	—
Chandkhira ...	219 p	6¾	—	—	32	7½	61	8¼	75	5½	—	—	51 p	3¾-7¼
Chandpore ...	354	8	—	—	207	7-8½	106	5½-1/-	41	5¾	—	—	—	—
Cossipore ...	156	6½	—	—	30	10¼	—	—	—	—	96	5¾	30	5¼
Dhamai ...	157 p	8¾	20½c	1/8¼	27	8¾	58	†9	8	5½	20	5½	24½c	5
Doloi T Co ...	150	8¼	25	10½	49	8¾	25	9½	30	6¾	—	—	21	†4¾
,, ...	116	7¾	—	—	39	8¾	25	9	52	6¼	—	—	—	—
Doodputlee Co D	105	9¼	—	—	25	10¼	15	1/4¼	—	—	65	7¼	—	—
Dooloogram ...	108	6½	—	—	24	7½	20	8½	14	6	50	5½	—	—
Kallacherra ...	118	6	—	—	35	6¼	41	6½-7½	30	†4¾	12	†4	—	—
Lallkhira ...	50	5½	--	—	—	—	25	6½	25	4¾	—	—	—	—
Lungla T Co ...	177	7½	47	8¼	—	—	130	7¼	—	—	—	—	—	—
Parbutpore ...	128	7¼	—	—	15	9¼	20	10½	81	6½	—	—	12	5¼
Pathini ...	227 p	5¾	31	10½	42	6¼	—	—	70 p	5-5¼	84 p	4-4¾	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
*Phœnix T Co ...	300	6	—	—	60	7¾	41	8	98	†5½	90	†4½†4¾	11	3¾
Rajnagar ...	174	7	—	—	40	8¼	30	9¼	40	†6¼	44	5¾	20	5
Sathgao ...	172	11	—	—	100	9½ 11	25	1/7	30	8	—	—	17	9
ScottporeTCo P	89	7½	—	—	48	8	22	8¼	19	5¾	—	—	—	—
,, S	246 p	8	10½c	1/8	67 p	9¼-1/5	35 p	10¾1/10	59	6½	65 p	5¼ 6	10	3¾
Shumshernugger	217	9	15	1/5¼	71	10½	44	9½	45	7¾	—	—	42	4
Sonarupa ...	260	7¼	26	10	74	7¾	33	9½	40	6¼	87	5½	—	—
Subong ...	72	8	—	—	25	8	30	8¾	17	6½	—	—	—	—
Tarrapore T Co	163	1/0¼	—	—	115	10¾1/1	¾ 21	1/5¼	—	—	27	8¼	—	—
TF&Co ...	283 p	7½	86½c	9¾10¾	85	7½ 8	74	6¼6½	31	5½5¾	7	4¾ 5	—	—
WesternCachr Co	191	10¼	—	—	55	11¼11¾	50	1/1-1/1½	—	—	86	4½ 8	—	—
DOOARS	**1232 p**	**9½**												
*DooarsC Baman	195	11	10	1/6	81	11¼	35	1/0¾	64	8¾	—	—	5	6
,, Indong ...	153	1/0¼	14	1/8½	41	1/0¾	44	1/2¼	22	8	13	7½	19	6½ 9
,, Tondoo ...	540	9	23	1/4½	122	9½ 10¾	69	11-1/3	95	7	88	8½	143	4-8
*Hope ...	129	9¾	12	1/5	41	9½	45	10¾	31	5¾	—	—	—	—
*Jiti ...	61 p	5¼	—	—	—	—	—	—	—	—	41	5	20½c	6
Washabarrie ...	44	5¾	—	—	24	7¾	—	—	20	5¾	—	—	—	—
KANGRAVALEY														
Bygnauth ...	91½c	5½	28½c	6¼	23½c	5½	—	—	40½c	5	—	—	—	—
TRAVANCORE	**194 p**	**7¾d**												
Nagamally Co N	50	9¾	—	—	20	10¼	12	1/0¾	16	7½	2	5½	—	—
Parvithi ...	146½c	6¼	—	—	35½c	8¼	21½c	7¼	80½c	5½	1½c	4¼	7½c	4

Gardens marked thus * are last of the Season.

CEYLON. Average 9d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Abbotsford ...	73	10½	—	—	25	10½	35	1/	13	6	—	—	—	—
Abbotsleigh ...	94	11¼	—	—	62	10	32	†1/1½	—	—	—	—	—	—
Agrakande ...	40	10⅜	—	—	24	9½	16	1/0¼	—	—	—	—	—	—
Aldie ...	123 p	9¾	—	—	35	10	51½c	1/1¾	35	6¾	—	—	2½c	3¾
Allagalla ...	48	9½	—	—	14	10	18	11¼	14	7½	1	4½	1	†3
Ambatenne ...	58	8	—	—	33	†6¼	25	†10	—	—	—	—	—	—
Ambawella ...	21½c	8½	—	—	12½c	6¾-7½	7½c	8½-1/-	—	—	—	—	2½c	3¾
Annfield . .	100	8	—	—	38	7	45	†9¾	17	5½	—	—	—	—
Ayr ...	84½c	7¾	—	—	33½c	7¼	20½c	1/0½	31½c	5½	—	—	—	—
Bambrakelly&D.	117	1/0½	—	—	72	11¼	45	1/2½	—	—	—	—	—	—
Bathford ...	74	11¼	—	—	36	10¾	30	1/1	8	6¾	—	—	—	—
Battalgalla ...	174 p	10¼	48	1/2	62	9½	20 b	1/7½	40	6	—	—	4	6
Bearwell ...	70 p	9¼	—	—	38	9	19	1/	11	5¼	—	—	2½c	4½
Binoya ...	26	4¼	—	—	—	—	—	—	—	—	26	4¼	—	—
Bromley ...	71	7¼	—	—	24	7	21	†10½	22	5	—	—	4	5
Broughton ...	43½c	8½	—	—	7½c	7½	31½c	9	5½c	7	—	—	—	—
Bukanda ...	71	6½	—	—	26	6½	18	9¼	25	5	—	—	2	4¼
Campion ...	105	11½	—	—	40	11¼	45	1/1½	20	7¼	—	—	—	—
Castlemilk ...	113	7¾	—	—	38	7½	40	†10	35	5½	—	—	—	—
Cattaratenne ...	57 p	7¼	—	—	25	5½	32 p	9	—	—	—	—	—	—
Chalmers ...	39	7¼	—	—	18	6¼	21	†8¼	—	—	—	—	—	—
Chapelton ...	156 p	1/0¼	—	—	39	†1/0¼	79½c	1/3¾	38	8½	—	—	—	—
Chetnole ...	67 p	10½	—	—	18	10	38½c	1/1¾	11	6	—	—	—	—
CLPC. NPeradn.	87	6¾	—	—	28	6¾	21	10½	35	5	2	4¾	1	3
Claverton ...	79	10	14	1/0½	37	9	12	†1/3	13	6½	—	—	3	3½
Clunes ...	171½c	8¼	—	—	77½c	8	69½c	†10	25½c	5	—	—	—	—
Come Away ...	119 p	8	—	—	59	7	60½c	10¼	—	—	—	—	—	—
Coroondawatte ...	85½c	7½	—	—	51½c	6	34½c	9¾	—	—	—	—	—	—
Craighead ...	72	6¾	—	—	34	5¾	20	9¾	18	5	—	—	—	—
Ceylon T PlantCo														
,,Balgownie ...	49	6	—	—	20	5¾	12	8½	16	4¾	—	—	1	3
,,East Holyrood	193 p	9¾	—	—	103 p	9	90	10½	—	—	—	—	—	—
,,Mariawatte ...	107	7¼	—	—	39	6½	35	10½	33	5	—	—	—	—
,, ,, ...	207	7¼	—	—	84	6-7	69	9¾ 11½	54	4¾-5¼	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity.	Price	Quantity	Price	Quantity	Price	Quantity	Price
CTPCo Rosita...	160	10	74	†11¾	45	10½	—	—	41	6¼	—	—	—	—
,,Scrubs ...	112 p	9½	—	—	36	8	74 p	†10½	—	—	2	6¾	—	—
,,Sembawatte	54	6¼	—	—	22	5½	18	8¼	14	4¾	—	—	—	—
,,Tillyrie ...	126 p	10½	—	—	42	10	55	1/0½	10	7	14	7	5½c	4¼
,,Wallaha ...	193	8½	—	—	67	8¾	67	11	59	5¾	—	—	—	—
,, ,, ...	214	9	—	—	83	9¼	64	1/	67	5¾	—	—	—	—
,,Waverley ...	139	1/2	—	—	52	1/0¾	84	1/2¾-1/3	—	—	—	—	—	—
Dalhousie ...	84 p	10¼	22 b	1/3¾	36½c	8½	26½c	10½	—	—	—	—	—	—
Dambulagalla ...	173 p	10	28 b	†1/	35½c	7½	92 b	1/1	18½c	5½	—	—	—	—
Deeside ...	100	9	—	—	43	8¾	38	10½	—	—	19	6¼	—	—
Denmark Hill ...	41	11¾	—	—	13	11¾	16	†1/1½	10	9¾	—	—	2	8
Densworth ...	42	8¼	—	—	12	6	30	9¼	—	—	—	—	—	—
Dessford ...	80	8¾	—	—	40	†7¼	28	†11½	12	7¾	—	—	—	—
Detenagalla ...	55½c	9¾	—	—	30½c	8½	25½c	11	—	—	—	—	—	—
Devituraí ...	48	8¾	—	—	24	8	20	10½	—	—	2	4¼	2	4¼
Devonford ...	66 p	10½	—	—	19	10¼	37½c	1/1¼	8	6¾	—	—	2	4
Dickoya ...	49	8	—	—	36	†7	13	10¾	—	—	—	—	—	—
Donside ...	66	7¼	—	—	28	7¼	13	11	25	5¼	—	—	—	—
Duckwari T P Co	50	8½	20	†1111¾	15	8	—	—	15	5½	—	—	—	—
Edinburgh ...	45	1/2½	—	—	20	1/1	25	1/3½	—	—	—	—	—	—
Ekolsund ...	45	7¾	—	—	18	6¾	18	10	9	5¾	—	—	—	—
Elkadua ...	71	8	—	—	24	7¼	23	11	24	5½	—	—	—	—
Elfindale ...	273½c	6¼	—	—	203½c	†5½-6	46½c	9	24½c	4¾	—	—	—	—
Elston ...	114	7½	—	—	48	6½	40	10	26	5½	—	—	—	—
EP&ECo Arapo.	110	7	—	—	80	6	30	10	—	—	—	—	—	—
,,Labukelle ..	106 p	1/0½	—	—	80 p	†10-1/-	24	1/3½	—	—	—	—	2	10¼
,,Norwood ...	53	1/3½	—	—	32	1/1¼	21	1/7	—	—	—	—	—	—
,,Vellai-Oya ...	187	8¼	53	1/	123	†6¾-7	—	—	11	5¼	—	—	—	—
Erlsmere ...	117	8¾	51	†9¼†1/	64	†7½	—	—	2	5	—	—	—	—
Fairlawn ...	91½c	1/0¼	—	—	47½c	1/0¼	22½c	†1/3¾	18½c	9¼	3½c	6¼	1½c	3½
Frotoft ...	122½c	1/1½	—	—	31½c	1/1¼	50½c	1/3½	41½c	11½	—	—	—	—
Galaha ...	129	9	—	—	18	8¾	70	10½10¾	21	7¼	20	5	—	—
Gallamudina ...	126	8½	—	—	43	8¼	47	11¼	36	5¼	—	—	—	—
Gammadua ...	45	7¼	—	—	27	†6	16	†10	—	—	1	†4	1	†3¼
Ganapalla ...	64	6½	—	—	25	†5¾	18	9	21	5	—	—	—	—
Gangwarily ...	82	6½	—	—	45	5¾	25	8½	7	5	—	—	5	3¾
Gartmore ...	50	11¾	—	—	31	10¼	18	1/3	—	—	—	—	1	4¾
Geddes ...	168½c	10¾	—	—	83½c	8-9½	80½c	1/0¾	—	—	—	—	5½c	6½
Glassaugh ...	104	10¼	—	—	46	11¼	20½c	1/1¼	38	8½	—	—	—	—
Glassel ...	68	7¼	24	†9½10½	24	†6¼	—	—	17	5	3	3½	—	—
Glencorse ...	81 p	8½	20 b	1/3½	13	9½	12	1/	32	6¼	4	4½	—	—
Glendon ...	94 p	7¾	8	10	49 p	7¼-8¼	22	9¾	14	5¼	—	—	1	3
,, ...	81	7¾	—	—	47	7½	19	10¾	13	5¼	—	—	2	3
Glenorchy ...	40	10¼	—	—	23	8¾	17	1/	—	—	—	—	—	—
Glentilt ...	138 p	11¼	74½c	1/2¼	20	11½	—	—	44	8½	—	—	—	—
Good Hope ...	15	7½	—	—	7	5½	8	9	—	—	—	—	—	—
Goomera ...	45	7¼	—	—	17	7	15	9½	13	5	—	—	—	—
Gonakelle ...	123	9¼	37	11¼-1/-	42	6¾ 10½	—	—	44	6¾-7¾	—	—	—	—
Gorthie ...	129 p	11	—	—	43	10½	51½c	1/3	30	8½	—	—	5½c	7¼
Great Western ...	198 p	8¼	59	9¼-1/-	46	7¾	17	10	—	—	45	5½	11½c	6¾
Hangran Oya ...	42 p	7	—	—	9	7¾	11	10¼	19	5	—	—	3½c	3
Happugahalande	53	9	—	—	17	8½	19	1/0¾	16	5¾	—	—	1	4¾
Harmony ...	46 p	7	—	—	12	8	17½c	10	15	5	—	—	2½c	3½
Hatale ...	91	8	17	†9¼	31	7¾	21	10¾	22	5¼	—	—	—	—
Hatherleigh ...	69 p	7¾	—	—	22	7½	23½c	1/0½	24	5½	—	—	—	—
Heatherton ...	55 p	9¾	—	—	20	10¼	19½c	1/2	13	6	1½c	4	2½c	5¾
Helbeck ...	33	10	—	—	15	9½	16	11 11½	2	5¾	—	—	—	—
Hemingford ...	52½c	7	—	—	28½c	5½	24½c	8¾	—	—	—	—	—	—
Hoonocotua ...	90	8¼	—	—	26	8¾	31	10½	30	5¾	—	—	3	5½
Hornsey ...	87	10¾	30	1/1½	37	10½	—	—	20	7½	—	—	—	—
Hunasgeria ...	19	3½	—	—	—	—	—	—	9	3	10	2¾-4½	—	—
Hunugalla ...	80 p	6¾	—	—	50	†6	30½c	†9¾	—	—	—	—	—	—
Imboolpittia ...	169 p	8½	25	11	60 p	8-8½	24	1/	54 p	5-5¼	—	—	6½c	5¼

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Kaipoogala ...	59	8¾	—	—	24	†8¼	26	10¼	7	5¼	—	—	2	4
Kallebokka ...	47 p	1/	26 p	1/1-1/7½	16	9½	—	—	4	6¾	—	—	1½c	5¾
Kaloogala ...	32	7¼	—	—	11	6¼	12	†9½	9	5¼	—	—	—	—
Kaluphani ..	76 p	9½	—	—	12	10½	38½c	1/1¾	13	6½	—	—	13 p	4¼-6
Kandal Oya ...	240½c	7¼	49½c	9½	104½c	6½	44½c	9	43½c	5	—	—	—	—
Kandenewera ...	65	8¼	—	—	31	7½	17	11½	17	6	—	—	—	—
KAW ...	174	10½	—	—	115	9¾ 1/1¾	33	7¼ 1/3¼	—	—	26	7	—	—
Kelaneiya ...	120	9½	—	—	58	†8	57	†11¼	—	—	3	5	2	3½
Kelani ...	129½c	6¾	—	—	44½c	6-7¼	28½c	10¼	57½c	5	—	—	—	—
Kellie ...	133	8	—	—	51	8½	29	1/	41	5¾	12	4¾	—	—
Kelliewatte ...	98	9¼	—	—	28	10½	22	1/2	48	6½	—	—	—	—
Kew ..	107 p	1/2	—	—	31	1/3¼	42	1/6½	27	10¾	—	—	7	9
Kinloch ...	38	9¼	—	—	15	9	16	†10¾	7	5¾	—	—	—	—
Kirkoswald ...	163	10½	—	—	85	†10¼	47	1/1½	31	7¼	—	—	—	—
Knuckles Group	103	6¾	—	—	35	6¼	27	10¾	23	5	18	4½	—	—
Kotiyagalla ...	98 p	1/2½	—	—	37	1/1¼	61½c	1/4¼	—	—	—	—	—	—
Kottagalla ...	55	11¼	21	1/2	34	†9¾	—	—	—	—	—	—	—	—
Kowlahena ...	60	10¾	—	—	17	11¾	18	1/2	25	7¾	—	—	—	—
Lagalla ...	50½c	7	—	—	17½c	6	21½c	9	—	—	12½c	4¾	—	—
Lameliere ...	229½c	9	—	—	47½c	9	106½c	11	76½c	6	—	—	—	—
Lauderdale ...	83	6¼	—	—	20	6¼	20	10	30	5	13	3½	—	—
Lawrence ...	129	10¾	42	1/0¾	62	10	—	—	25	8¾	—	—	—	—
Laxapana ...	182 p	9¾	38½c	1/0¾	60	8½-8¾	60½c	1/1¼	24	5¾	—	—	—	—
Leangapella ...	28	8	16	†9½	12	6	—	—	—	—	—	—	—	—
Lindoola ...	48	9¾	—	—	23	8	25	11¼	—	—	—	—	—	—
Lokamanda ...	80	7¼	—	—	39	6¼	29	9½	12	5	—	—	—	—
Lonach	88 p	10¼	—	—	40	9¾	32½c	1/2¾	16	6½	—	—	—	—
Lynsted ..	138½c	10¼	—	—	95½c	6½-10	43½c	1/1¼	—	—	—	—	—	—
Mahacoodagalla	40	9¼	9	†8½	19	8¼	12	†11	—	—	—	—	—	—
Mahanilu ...	57 p	10	—	—	20	†10¼	22½c	1/2¼	12	†7	—	—	3	4
Marguirita ..	29½c	10	—	—	8½c	10¼	9½c	10½	12½c	9¼	—	—	—	—
Marlborough ...	122½c	7¾	—	—	122½c	†7¾	—	—	—	—	—	—	—	—
Mayfield ...	115	9	—	—	41	8½	47	11	27	6	—	—	—	—
Meria Cotta ...	71	7½	—	—	38	†7½	14	†11¾	19	4¾	—	—	—	—
Minna ...	237 p	8½	—	—	113½c	9½	58½c	1/0½	56	6	3	3¼	7½c	6¾
Mipitiakande ...	184 p	9	—	—	90	9½	36	1/0¼	52	5¾	1	4	5½c	4¼
Mossville ...	221½c	8	—	—	18½c	10¼	51½c	9-1/0¾	135½c	6¼	6½c	5 6¼	1½c	3¾
Mottingham ...	67 p	7	—	—	12	9	10	10¾	25	5½	—	—	20½c	4½
Mount Vernon ...	166 p	10	42 p	1/5¾ 1/10 ½	56	9¾	—	—	16	6	36	5 6¼	16½c	4
Mousaheria ...	140½c	6	—	—	81½c	5½	39½c	8¼	—	—	15½c	3¼-4¾	5½c	3¼
Nathapane ...	30	9	—	—	11	9¼	9	1/0¼	8	6¼	1	4½	1	3¾
Nayapane ...	141 p	7¼	—	—	36	7½	52½c	11	46	5¼	3½c	3½	4½c	5½
New Forest ...	42	11¼	—	—	24	†9¾	18	1/1	—	—	—	—	—	—
New Peacock ...	256 p	7½	—	—	66	8¼	94½c	10¾	84	5¼	6½c	3¾	6½c	5¾
Newton ...	164½c	10¼	—	—	81½c	9½	57½c	1/1¼	22½c	7	4½c	5¼	—	—
Nicholaoya ...	137½c	9	—	—	57½c	6¾	80½c	10½	—	—	—	—	—	—
Nilambe ...	160	8¼	—	—	42	6½	92	9¼	13	5½	13	8¼	—	—
North Cove ...	70 p	10	—	—	33	8¾	37½c	1/	—	—	—	—	—	—
Nyanza ...	79	9½	—	—	27	10	21	1/1¾	23	6¼	5	5½	3	5
OBECCraigieLea	91	8½	—	—	39	8¼	20	1/1½	32	5½	—	—	—	—
,, ,,	45 p	5¾	—	—	—	—	—	—	—	—	17	4-4¾	28½c	4-8
,, Dangkande...	105½c	7½	—	—	30½c	7	38½c	10¼	26½c	6	7½c	4½	4½c	3¼
,, Darrawella	90	9½	—	—	56	9¼	17	1/1½	15	7¼	2	5	—	—
,, Glendevon ...	114	11	—	—	31	11	40	1/1½	32	8	—	—	11	9½
,, Stellenberg	46	7¾	—	—	22	9¾	—	—	24	6	—	—	—	—
Ovoca ..	60	11¼	—	—	32	11½	13	1/3½	15	7	—	—	—	—
Ouvah Kellie ...	32	1/1	—	—	17	10¾	15	1/3¼	—	—	—	—	—	—
PDM ...	17	8½	—	—	17	8½	—	—	—	—	—	—	—	—
Penrhos ...	54½c	10¾	29½c	10¼	—	—	25½c	11½	—	—	—	—	—	—
Penrith ...	62	10	—	—	21	9¾	26	1/0¾	12	6½	—	—	3	3¾-4¼

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price	Quantity.	Price	Quantity.	Price
Pine Hill ...	140½c	9	25½c	1/2	55½c	10	—	—	60½c	6¼	—	—	—	—
Poengalla ...	49	7½	11	9½	12	6¼	18	8½	8	4¾	—	—	—	—
Portree ...	81 p	10¼	—	—	17	10	40½c	1/1½	24	8	—	—	—	—
Portswood ...	72 p	1/2¾	—	—	38½c	1/4-1/6	14½c	1/6	17 p	9¼ 11¼	—	—	3½c	9¼
Ragalla ...	79 p	10¾	—	—	24	10¼	45½c	1/0¾	9	6¾	—	—	1½c	5
Raxawa ...	20	6¾	5	9½	9	6¼	—	—	5	5	1	4½	—	—
Relugas ...	58	8¼	—	—	20	8½	18	10½	20	5¾	—	—	—	—
Ritnagherry ...	50	9½	12	†9¾	22	†7½	16	†1/0¼	—	—	—	—	—	—
Riverside ...	71	8¼	—	—	36	7½	23	10¾	12	†5¼	—	—	—	—
Rowley ...	41½c	7¾	—	—	21½c	6¼	20½c	9½	—	—	—	—	—	—
Ruanwella ...	46½c	7	—	—	21½c	6	16½c	9½	8½c	5¼	—	—	1½c	3¾
Scarborough ...	104	9	27	11	43	8½	12	1/1	17	5¾	—	—	5	4¾
SCTC MncngLne	111 p	8	—	—	25	11¼	33 p	†4¾ 1/3¾	51	†4 8	—	—	2½c	6½
„Strathdon ...	111 p	10½	—	—	51	10½	40½c	1/2	20	6½	—	—	—	—
Sheen ...	129 p	1/0½	57½c	1/4½	51	1/0¼	—	—	21	7¾	—	—	—	—
Somerset ...	99 p	8¾	—	—	30	8½	32½c	†11	—	—	—	—	37½c	5¾9½
Spring Valley ...	148 p	10¾	—	—	58	10	59	1/1½	21	6¼	—	—	10½c	5½
St. Clair ...	90	9¾	25	10¾	12	8	23	1/1¾	30	6¼	—	—	—	—
St. Helen ...	101	6½	—	—	29	†6	31	9	28	†5½	2	2¼	11	†4¾
St. Johns ...	27	8½	—	—	15	6¾	12	11	—	—	—	—	—	—
Strathellie ...	58	6½	—	—	17	†5¾	21	8½	20	5	—	—	—	—
Summerville ...	50	9½	—	—	28	8	22	11½	—	—	—	—	—	—
Sunnycroft ...	156	6¼	41	6½9¾	45	5½	30	7½8½	40	4½	—	—	—	—
Suriakande ...	66	8¼	—	—	36	8¼	13	1/0¼	17	5	—	—	—	—
Thornfield ...	107 p	11	—	—	41	10	57½c	1/1½	6	5¾	—	—	3½c	8¾
Tyspany ...	78	8½	—	—	52	7¼	26	10¾	—	—	—	—	—	—
„ ...	72	7¾	—	—	45	6¼	27	10	—	—	—	—	—	—
Uplands ...	167 p	5¼	23½c	8¼	88	5¼	20	5¼	36	4¾	—	—	—	—
Vogan ...	65	8¼	—	—	20	8¾	30	9½	15	5½	—	—	—	—
Waltrim ...	112	11	—	—	31	11½	39	1/1¾	42	8	—	—	—	—
Wangie Oya ...	63	5¾	—	—	22	7	—	—	41	5	—	—	—	—
Wariagalla ...	56	7	—	—	14	7	22	8½	17	5¼	—	—	3	3¼
Warleigh ...	62	10	—	—	41	9½	17	1/0½	—	—	4	3½	—	—
Wattakelly ...	64	8	41	†9¼	20	†5¾	—	—	1	4¼	—	—	2	5½
Wattegodde ...	126 p	10¾	—	—	54	10¼	32	1/2¼	31½c	6½	—	—	9½c	5¾
Wavendon ...	66½c	7½	—	—	13½c	†6	28½c	9¾	25½c	5½	—	—	—	—
Weyweltalawa ...	128½c	8¼	21½c	10¼	35½c	7½	29½c	11	38½c	6	5½c	3¾	—	—

JAVA. 1321 pkgs. Average 6d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Ardja Sarie ...	430	5¾	—	—	110	†4½ 6½	75	†5	245	5¼ 6	—	—	—	—
Bagelen ...	802	6¼	—	—	347	†5½10¼	—	—	455	5 7¼	—	—	—	—
Sindang Sarie ...	89	6	—	—	35	†6½	21	†6	33	†5¼	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for hal -chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *March 25th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,028,361 packages.	496,630 packages.	44,871 packages.
1891-1892.	1,148,971 ,,	655,977 ,,	33,071 ,,

During the week

2,975 packages Indian }
14,759 ,, Ceylon } Total 37,771 packages have been offered in public auction.
37 ,, Java }

The firmer tone noticed last week has been even more pronounced, and the impression appears to be gaining ground that the lowest prices have been passed for the present, and that with diminishing supplies from India and moderate offerings from Ceylon, the outlook has a more hopeful appearance.

The very low range of prices so long ruling for such Teas as make up the bulk of the Home Consumption, compares in a marked manner with rates for similar Teas at this time last year, when they were several pence per lb. dearer. To the present low rates of Indian and Ceylon Teas of this class may probably be attributed the great falling off which is again so noticeable in the Home Consumption of China Tea.

Clearances of all Tea from the 1st inst., are considerably in excess of the same time last year.

INDIAN. Closing invoices have been sold from several Gardens. The market for Teas with quality is, if anything, dearer, while medium Teas also, in some cases, show an advance upon last week's rates, the commonest grades being also better competed for. The quality of many of the autumn flavoured invoices was good and some high averages have in consequence been obtained. The following averages are worthy of note:—"Jetookiah," 1/3½; "Shakamato," 1/3¼; "Upper Assam," 1/2½; "Sealkotee," 1/2¼.

TRAVANCORE was represented by a considerable quantity. The general quality from this district still needs improvement, although it is satisfactory to note a change for the better in recent arrivals.

This weeks average price of New Season's Teas sold on Garden Account. Total 16,090 pkgs. average 9½d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	9489 p	10½d	Darjeeling			Neilgherry	152 p	8½d
Cachar and Sylhet ..	4355 p	8d	Dooars	473 p	7¾d	Terai	43 c	5d
Chittagong	215 p	7d	Kangra Valley, Etc.			Travancore	1363 p	6¾d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	3¾d.	1891,	7d.	1890,	5d.	1889,	5½d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4½d.	,,	7¾d.	,,	5½d.	,,	5d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5¾d.	,,	9½d.	,,	7d.	,,	6½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10¼d.	,,	8¼d.	,,	7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9d.	,,	11d.	,,	9¼d.	,,	9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9½d.	,,	6½d.	,,	6½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	10¼d.	,,	7½d.	,,	7¼d.

CEYLON. Auctions comprised 14,759 packages and were well received by the trade, competition running mainly upon Teas with point and character in liquor, finest descriptions selling at dearer rates. All Teas with quality were strongly competed for at steady prices. Poor liquoring Teas have sold with a rather hardening tendency. Quality of offerings continues to show improvement, and reports from Ceylon state that better Teas are likely to arrive in the near future. The following averages may be mentioned:—"Ormidale," 1/5¼; CTPCo., "Waverley," 1/2½; "Portmore," 1/2; "Hauteville" and "St. George," 1/1¼. Average for week, 9d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6d.	1891,	9½d.	1890,	9d.	1889,	8d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8¾d.	,,	10½d.	,,	10½d.	,,	9d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	9¼d.	,,	8¼d.	,,	7½d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5¾d.	,,	10d.	,,	9¼d.	,,	8d.

JAVA. No auctions of direct import have taken place, but arrivals during the past few weeks have been heavier, and catalogues are advertised for several sales in the near future.

BANK RATE. 3 per cent. **EXCHANGE** on London three months sight.—Calcutta $1/3\frac{21}{32}$. Colombo $1/3\frac{24}{32}$

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pekoe, Souchong and Various.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price	Quantity	Price
ASSAM	**9489 p**	**10½d**												
AssamFrontierCo	1011	9¾	111	1/1-1/6¼	530	9½ 1/1¼	18	1/1	186	†6 9	23	4¾	143	5-8
*AttareeKhatWP	268	1/0½	—	—	82	1/4¼	37	1/3	66	1/-1/0¼	60	8½	23	6½
Beheating ...	162 p	8¾	13½c	1/10	21	1/2	23½c	1/2	17 p	8¾	65	4¾ 6	23½c	3¾
*BITC Mancotta	65 p	5¾	—	—	12	5½ 7	24	7¼7¾	—	—	18 p	4	11 p	3½
* ,,Sessa ...	122 p	7¼	—	—	32	8½	32½c	10½	34	6¼	24	4½	—	—
*Bongong ...	66	7½	—	—	24	9½11½	7	9¼	14	6¼	17	4½	4	3¼
*Borelli T Co ...	342 p	11	—	—	84 p	1/3-1/9¼	46	1/4¼	80	9¼9½	132 p	6¼ 7	—	—
*Borbarrie ...	129 p	11¼	—	—	16	1/3	14	1/5¼	47	9	29	9¼	23 p	4¼ 1/1½
*Borpukri T Co	215 p	1/0¾	—	—	48	1/5-1/9¾	16	1/8½	53	1/-1/1¼	15	2½9¼	83 p	4¼9¾
*Brahmapootra S	154	1/	—	—	44	1/4	17	1/6½	55	9¾	25	9	13	4¾
*,, SB	137	10	—	—	38	1/1¼	15	1/3	60	8½	12	6¼	12	4
,, SM	115	10	—	—	35	1/2¾	12	1/1	48	7½	20	6½	—	—
*,, SR	219	11	—	—	45	1/2½	27	1/4½	95	10¼10½	44	7¼	8	4¾
*,, SS	132	9½	—	—	40	1/0¾	24	10¾	48	7¾	20	5	—	—
Bungala Gor ...	118 p	8½	16 p	1/1¾	30	10¼	—	—	22	7½	32 p	5½	18 p	7
Dahingeapar ...	51	10	6	1/5¾	13	1/0½	—	—	20	8½	6	6¼	6	5
*Debrooghur ...	76	9	—	—	24	1/0¾	5	†1/2½	18	8½	12	6½	17	3¾
Dejoo T Co ..	187	11	20	1/5	50	11	40	1/5	77	6½	—	—	—	—
*Dibroo ...	143 p	7½	43½c	1/1½1/9¼	—	—	—	—	14	7	84 p	†4½4¾	2	3¼
Doolahat ...	275 p	7½	36½c	1/6¾	65	10½	—	—	112	5¾	62	4	—	—
Eastern AssamC	279 p	1/	179½c	1/0½-1/9	½ 23	9½	—	—	62	5½6¼	—	—	15½c	3¾
GreenwoodTCoG	100	9¼	—	—	35	10¾	30	9½	22	8¼	13	5¾	—	—
,, B	113	11¼	—	—	26	1/1½	23	1/3¾	29	9½	35	7¾	—	—
*Jetookiah ...	194	1/3½	11	2/4½	67	1/5¾	17	2/3¼	33	1/0¼	55	10¼10½	11	4
Jorehaut T Co	174 p	1/0¼	42 p	1/6-2/1¼	24	1/1½	—	—	108	9¾	—	—	—	—
Kobira ...	203	5¼	—	—	27	7½	—	—	54	5½	113	4½5¼	9	3½
*Kuttalgoorie ...	195 p	11½	58	1/5¼1/8¼	38	1/0¾	18	1/2¼	60	7¼	21	5¼	—	—
Lepetketta ..	76	7¾	12	1/1¼	52	6¾ 7	—	—	—	—	12	5¾		
*LMBLattakoojn	378	1/0¼	52	1/8¼	124	1/3¼1/3½	—	—	143	9½9¾	59	4¾	—	
Madoorie ...	94 p	5¼	—	—	20	5¾	43½c	6	—	—	12	5	19	3¾
*Majuli T Co. G	192 p	1/0½	41p	1/5-1/10½	59	1/1¾	23	11¾	37	8½	27 p	†4¼ 5	5½c	†3¾
* ,, WLMK	219 p	11	13	1/11½	42	1/2½	11	1/4	24	11¾	86	5¾ 11¼	43 p	5 9¾
*Malijan T Co ...	330	7½	—	—	78	9¾-1/	44	1/0½	73	6¼	107	5¼	28	4
*Medla ...	94 p	7¾	—	—	30	10	15	†7½	28	7	13 p	5 5½	8 p	3½
Mungldye MDTC	333	9¾	—	—	55	1/0¾	82	1/2	82	8 8¼	114	6½6¾	—	—
Naga Dhoolie ...	99	9¾	—	—	17	1/2¼	20	1/1¾	38	8¾	19	†2½ 6¼	5	4½
*Namgaon ...	207	9¾	—	—	75	9¾1/3¾	25	1/1-1/5¾	52	6½ 8	55	4¾5¼	—	—
*Nonoi T Co ...	291 p	9¼	41½c	1/0¾1/4½	143	7½1/0½	37	†4¾10¼	41 p	4¾ 7	—	—	29½c	3½3
SalonahTCo Kot	148 p	1/1½	17½c	1/8¼	39	1/0¾	33½c	1/7¼	28	11¾	25	7¼ 9	6	3¾
,, Sal	504 p	1/1½	70½c	1/10¾	99	1/4½	80	1/5¼	40	1/0¼	110	10	105	6¼-1/1
*Sealkotee ..	109 p	1/2¼	49 p	1/5¼-2/7	15	1/0½	11½c	2/0½	—	—	17	4½ 8	17	3¼4¼
Seconne ...	120	9¼	—	—	34	11½	—	—	46	8	40	9	—	—
*Shakamato ...	178 p	1/3¼	21½c	1/9½	39	1/7¾	34	1/4½	32	1/1½	29½c	7½	23½c	†5½
Singlijan ...	172 p	10¼	50½c	1/6¾2/4¼	37	11	—	—	55	6¾	24	5¼	6½c	7
*Tingri T Co ...	149	9¼	—	—	43	1/	25	1/1¼	48	7¼	17	5¼	16	†5¼
Upper Assam Co	267 p	1/1	—	—	64	1/1-1/6¾	77 p	1/3½2/0¼	56	9-1/0¾	70 p	6¼ 11¾	—	—
,, ...	246 p	1/2½	52	1/6¼1/10	141	1¼1/3¼	46	1/0½	—	—	—	—	7	4¾
CACHR & SYLHT	**4355 p**	**8d**												
Adam Tila ...	195 p	8½	75½c	1/0¼1/4¼	33	8	26½c	7¾	61	6	—	—	—	—
B&CoChargola H	289	8½	35	†11½1/5	81	9¼	46	9½	102	6½	25	5¼	—	—
,, ,, M	329	7	25	8¾1/3¼	114	7½	40	8½	138	5½5¾	—	—	12	4¾
,, ,, S	607 p	8½	71	1/1½1/4¾	227	8½	100	10	175	6½6¾	23	5½	11	4
Baraoora ...	330 p	9¼	20	†1/1	120	10	70	9¾10	120	7½	—	—	—	—
BITCoDwarbund	175	6¾	—	—	70	7	35	8¾	50	5½	20	5	—	—
,, Urrunbund	200	7¼	—	—	88	8 10¼	20	9½	—	—	92	5 5¾	—	—
Cheerie Valley	205	7¾	—	—	74	7¾	50	11¾ 1/-	25	6	56	5¼	—	—
Cherra Co Balla	542 p	7¾	173	†7¾	132	6¼6½	110½c	1/4¾	62	5½	—	—	65	5
,, Heron	69	5¼	—	—	—	—	—	—	48	5¼	—	—	21	5¼
Koyah ...	245 p	7¼	46½c	11	76	6¾	75 p	5½11	48	5½	—	—	—	—
Patrakola ...	331	8¾	28	1/5¾1/6¼	67	9¼	121	8¾	89	6½	26	5¾	—	—
Puttareah ...	62	6¾	—	—	20	6½	21	8¾	21	5	—	—	—	—
*Rookeenee ...	77	5½	—	—	—	—	46	6	—	—	31	5	—	—
Sathgao ...	192	10¼	—	—	113	9¼ 10¼	25	1/5¾	34	7	—	—	20	8½
Subong ...	61	8½	—	—	19	†10	21	8¾	16	7	—	—	5	4¾

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Tarrapore T Co	129	10	—	—	40	11½	37	1/0½	20	9	32	5½ 7	—	—
CHITTAGONG	**215 p**	**7**												
Chandpore ...	129 p	7¼	—	—	39	8½	31½c	10	59	5¾	—	—	—	—
Dantmara ...	86	6¾	—	—	40	9	—	—	—	—	46	5	—	—
DOOARS	**473 p**	**7¾d**												
Aibheel ...	113	8	27	8¾-1/3	18	†6¾	10	8¾	35	6¼	7		16	4¼5¾
Hope ...	249	8¼	21	†1/1¼	95	8½	21	11	112	6¾	—	—	—	—
Titi ...	111 p	5½	—	—	—	—	—	—	—	—	72	†5	39 p	5¼6½
NEILGHERRY	**152 p**	**8½**												
Carolina ...	9½c	10	9½c	10	—	—	—	—	—	—	—	—	—	—
Kodanaad ...	33 p	1/1	18½c	1/2¼	—	—	—	—	15	1/0¼	—	—	—	—
Nelampathy ...	34 b	4½	—	—	25 b	4½	2 b	4	—	—	—	—	7 b	4½ 5
Prospect ..	76	7½	—	—	46	8	23	7¾	—	—	—	—	7	4½
TERAI														
Lohagur ...	43	5	—	—	10	6	13	5¼	20	4½	—	—	—	—
TRAVANCORE	**1363 p**	**6¾d**												
Belford ...	32½c	7	—	—	32½c	7	—	—	—	—	—	—	—	—
Bon Accord ...	80½c	6¾	—	—	40½c	6	20½c	10¾	—	—	17½c	4½	3½c	4
Bon Ami ...	211	7½	—	—	37	6½-8¼	48	10 10½	40	5-†5½	79	6-†6¾	7	5-6
Braemore ...	43½c	6½	—	—	25½c	6¼	10½c	9¼	—	—	6½c	4¼	2½c	4
Brigton ...	72	5½	36	†6½	—	—	—	—	34	†4¾	—	—	2	2¾
CMR ...	86½c	6	—	—	82½c	6	—	—	—	—	3½c	3½	1½c	3¼
Home ...	64½c	6½	—	—	64½c	6½	—	—	—	—	—	—	—	—
Invercauld ...	39½c	6½	—	—	22½c	4¾-6¼	8½c	9¾	—	—	7½c	5	2½c	4½
Kinmylies ...	64½c	6½	—	—	60½c	6¾	—	—	—	—	2½c	3¾	2½c	3½
,, ..	79½c	4¼	—	—	54½c	4¾	—	—	—	—	23½c	3	2½c	4
Linwood ...	32½c	5¼	—	—	29½c	5½	—	—	—	—	—	—	3½c	3
Merchiston ...	17½c	5¾	—	—	16½c	†5¾	—	—	—	—	—	—	1½c	4
Poonmudi ...	85 p	8	—	—	35 p	8	27 p	†9½11½	—	—	19 p	5¾	4	3
Rockwood ...	63½c	7½	—	—	63½c	7½	—	—	—	—	—	—	—	—
Seemkali ...	45½c	6¼	—	—	17½c	5½	15½c	8½	—	—	11½c	4¾	2½c	3¼
TPC ...	57	6¼	—	—	12	7	12	8¾	31	†5	—	—	2	†3½
Venture ...	200	7	—	—	112	6-6¾	64	8¾-9	24	5-5½	—	—	—	—
Wallardre ...	54	7½	—	—	13	8½	11	9½	28	6½	2	5	—	—

Gardens marked thus * are last of the Season.

CEYLON. Average 9d.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Abbotsford ...	79	9½	—	—	28	9	43	10½	8	6½	—	—	—	—
Augusta ...	50	7	—	—	14	6½7¼	12	11¼	22	5¼	1	3	1	3¼
Avisawella ...	77	8¼	—	—	20	9	19	1/0¼	33	5¾	5	5	—	—
Bambrakelly&D.	162	10½	—	—	102	†10	60	11¾	—	—	—	—	—	—
Barnagalla ..	110	9½	15	1/0½	34	9½	28	11¾	33	6	—	—	—	—
Beaumont ...	62	8	—	—	22	7¼	22	10½	18	5¾	—	—	—	—
Binoya ...	67	8	—	—	39	6½	28	10¼	—	—	—	—	—	—
Bitterne ...	50	9¾	—	—	30	8¾	20	11¼	—	—	—	—	—	—
Blackburn ...	63 p	7½	—	—	24	6	25	9½	11½c	5	—	—	3½c	4
Blackwater ...	240 p	7¾	56½c	† 10 11½	72	8¾	26	8¼	66	6	18	4½	2	5
Blackwood ...	52 p	6¾	—	—	36 p	4¾-†6	16 p	†9¼	—	—	—	—	—	—
Blair Athol ...	112 p	10¼	60½c	1/-1/0½	52 p	5¾9½	—	—	—	—	—	—	—	—
Bon Accord ...	42	1/0¼	—	—	21	10	21	1/2½	—	—	—	—	—	—
Bramley ...	93½c	10¼	25½c	10¼	18½c	11	28½c	1/0¼	22½c	7½	—	—	—	—
Chalmers ...	24	6¾	—	—	24	6¾	—	—	—	—	—	—	—	—
Choisy ...	86	7½	—	—	29	7½	22	10¾	29	5½	1	5	5	5¼
Chrystler's Farm	93	11	—	—	45	10	25	1/5½	23	6½	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
CeyLand&ProdC														
,,Narengalla ...	82	6	—	—	35	5½	19	9	22	4¾	4	5	2	4
,,NewPeradeniya	88	7	—	—	29	6½	20	11½	38	5¼	—	—	1	4¼
,,Rickarton ...	99 p	10¼	15 p	11¾-5/-	25	9¾	28½c	10	21	10¼	6	5¾-6¼	4	5¼
Clontarf ...	85	9	24	10½	42	6¾	10	1/2	—	—	3	5	—	—
Clunes ...	136½c	7½	—	—	44½c	9	37½	10	14½c	5	15½c	4½	20½	4¼
Craig ...	68½c	1/	—	—	30½c	10¼ 10¾	19½	1 1¼ 10¾	13½	8½	2½	6	3½	5½
Ceylon T PlantCo														
,,Mariawatte ...	509 p	6¼	—	—	194	6-6¼	100	6¼-10	132	5	39	4¼	18½c	4½
,,Scrubs ...	112 p	9¼	—	—	39	8¼	17 p	1	15 p	5	4 p	5¼	6	6½
,,Tillyrie ...	124 p	11	56	1/1¼	45	10¼	—	—	15	7½	—	—	8 p	4½ 7½
,,Wallaha ...	111	9¼	—	—	52	9	42	11	17	5¼	—	—	—	—
,,Waverley ...	116	1/2½	—	—	31	1/0¾	38	1 3 1 3¾	—	—	—	—	—	—
,,Yoxford ...	47 p	11½	—	—	26	7½-11	23½c	1 2½	—	—	—	—	—	—
Culloden ...	174	8½	—	—	74	8¾	44	11	30	5¾	—	—	—	—
Dalleagles ...	115 p	7½	—	—	38	7	52½c	10	22	5¼	—	—	—	—
Delta ...	31	10¾	—	—	17	9	13	1/0¾	—	—	—	—	—	—
Dimbula ...	154 p	9½	—	—	30	11	31½c	1 1½	—	—	24	7¼	6½c	5½
Dolgalla ...	57	9	—	—	20	9	10	11¾	18	6	—	—	—	—
Dotala ...	51 p	8¾	—	—	22	10¾	28½c	1/	—	—	—	—	1	4¼
Dotel-Oya ...	99	8¾	—	—	33	8	30	10½	6	6	3	5	4	4¾
Dunnottar ...	54 p	11½	31½c	1/3¼	12	9¾	7	8¼	4	5½	—	—	2½	9¼
Eila ...	53	6¼	—	—	22	5¾	7	10½	10	4¼	—	•	8	1/2-8
Elangapitiya ...	73	6½	—	—	40	5½	20	9½	13	4¼	—	—	—	—
Elgin ...	65	11¼	—	—	19	10½	33	10¼	12	7	—	—	1	5¼
Ellagalla ...	66	7¾	—	—	7	8	24	10¼	11	6	2	4½	2	5¾
Elston ...	107	8	—	—	45	7	43	10¼	19	5½	—	—	—	—
Emelina ...	86	9½	—	—	43	9¾	17	1 1¾	11	6½	4	4¼	2	6¼
EP&ECo Asgeria	65	7	—	—	50	15¾	15	11	—	—	—	—	—	—
,,Condegalla ...	54	11½	—	—	22	11¾	17	1 2½	13	7½	—	—	—	10
,,Hope ...	164	8	—	—	35	8¼	30	9¼	—	—	13	4 5¼	—	—
,,Kirrimattia	90	8¾	—	—	35	9½	21	1 0¾	—	—	5¼	5¾ 5¼	—	—
,,Meddecombra	103	7¼	—	—	83	6	20	1 0¼	—	—	—	—	—	—
,, ,, ...	58	8¼	—	—	15	16¾	13	1 1 1½	—	—	—	—	—	—
,,Rothschild ...	79	9	24	11½	55	6½-9¼	—	—	—	—	—	—	—	—
,,Sogama ...	107	8¾	29	1/	78	6¼-9	—	—	—	—	—	—	—	—
Errol ...	84 p	11½	—	—	36	11¼	31½c	1 3½	16	8½	1½c	5¾	—	—
Fairfield ...	60	10½	—	—	35	9½	25	11½	—	—	—	—	—	—
Fassifern ...	41	11¾	—	—	26	11¼	12	1 2¼	—	—	—	—	3	5¾
Fernlands ...	99 p	11½	—	—	56	9-11½	39½c	1 4	—	—	1½	5¼	3½	5¼
Fordyce ...	168 p	9¾	—	—	40	9½	20	1 0¼	34	6¼	—	—	14½c	7¼
Friedland ...	74½c	11¼	—	—	20½c	1/	23½c	1 2¾	28½c	8	—	—	—	—
Fruit Hill ...	78 p	10	38½c	1/1¼	18	10½	—	—	20	6¾	—	—	2½c	5¾
Gallawatte ...	34½c	7½	—	—	14½c	5½	20½c	9	—	—	—	—	—	—
Gavatenne ...	94½c	8¾	—	—	46½c	18½	30½c	11¼	18½c	5¾	—	—	—	—
Glenalla ...	99	7¼	31	11½	49	5¾	—	—	—	—	1	4¼	18	4¾
Glen Alpin ...	125 p	1/0¼	—	—	65	11½	38	1/3¾	15	7½	1	5½	6½c	6¼
Glencoe ...	71	7¾	—	—	20	16½	31	10	20	5½	—	—	—	—
Glengariffe ...	85 p	8½	—	—	24	8¾	30	11½	22	5½	5	6	4½c	3¼
Glentaaffe ...	119 p	9¼	—	—	48	10	23	1/1½	44	6¼	—	—	4½c	4¾
Gona Adika Co G	106 p	6¾	—	—	36	6	44½c	10	18 p	4¾	—	—	8½c	4½
Gonamotava ...	29	9	—	—	15	6¾	13	1/	—	—	1	4¼	—	—
Goonambil ...	69½c	7	—	—	26½c	7½	15½c	10	18½c	5½	4½c	3-3¾	6½c	3¼-4¼
Hauteville ...	216	1/1¼	—	—	79	1/-1/0½	117	1/2½-1/3	20	9½	—	—	—	—
Henfold ...	150	1/0¾	—	—	70	1/	60	1/3½	20	7½	—	—	—	—
Holmwood ...	119 p	9	—	—	34	9	50	10½	28	6¾	—	—	7½c	4½
Hunasgeria ...	50	9	—	—	22	8¼	14	1/1	14	5½	—	—	—	—
Inchstelly ...	59½c	6½	—	—	20½c	6¾	12½c	10¼	24½c	5	2½c	3-4	1½c	3¼
Ingestre ...	81 p	9¼	—	—	58	8¾	23½c	1/	—	—	—	—	—	—
Kadien Lena ...	246	7	—	—	82	6¾	88	18¾ 19	71	4½-5¼	2	3½	3	4
Kaluganga ...	49	7	—	—	18	6¼	17	9¼	13	5	—	—	1	3¼
Karagastalawa ...	45	8¼	—	—	8	8	20	9¾	14	6½	—	—	3	5½
Kelani ...	129½c	6¾	—	—	59½c	5¾-7	28½c	10¼	42½c	5¼	—	—	—	—
KelaniValAsso D	67	7¾	—	—	32	6½	22	10¾	13	5¼	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Kintyre ...	85 p	9¼	32 p	†1/1½-1/2	¼ 30	†7¾	—	—	18	†5½	—	—	5½c	8
Kowlahena ...	70	11¼	—	—	28	11¼	25	1/1¾	17	7¾	—	—	—	—
Kurulugalla ...	31	7½	—	—	—	—	31	7¼7¾	—	—	—	—	—	—
Lagalla ...	192½c	6½	—	—	104½c	5¾ 6	59½c	9	—	—	22½c	3½4¾	7½c	4¼
Lippakelle ...	100	1/	—	—	54	8¼11¼	43	1/2½	—	—	—	—	3	9
Loinorn ...	68 p	1/	26½c	1/5	—	—	—	—	40	10¾	2	4½	—	—
Mahalla ...	40	6¼	—	—	12	5¾	14	8	14	5	—	—	—	—
Mahousa ..	113 p	8¾	57	10¼10½	28	8½	—	—	26	5¾	—	—	2 p	4
Marske ...	39½c	10¼	—	—	21½c	8	17½c	1/1¼	—	—	—	—	1½c	3½
Maskeliya ...	75 p	11½	63 p	1/-1/2½	—	—	—	—	12	8	—	—	—	—
Maturatta ...	24½c	10	—	—	11½c	†8	13½c	11½	—	—	—	—	—	—
Melfort ...	78	1/	39	1/1-1/1¾	39	10½	—	—	—	—	—	—	—	—
MK ...	31	7¼	—	—	13	5¼	17	8¾	—	—	1	4¼	—	—
Moray ...	202½c	10¾	—	—	110½c	7 9¼	92½c	1/0¼1/1½	—	—	—	—	—	—
Morningside ...	36½c	7¼	—	—	20½c	5¾	16½c	9	—	—	—	—	—	—
Nartagalena ...	161½c	6¼	—	—	58½c	6	40½c	8½	39½c	5½	20½c	4-4½	4½c	3¾
Nartakanda ...	51	6	—	—	—	—	17	8¾	34	4¾	—	—	—	—
Needwood ...	110	7	—	—	74	5 6¼	36	†9½	—	—	—	—	—	—
New Valley ...	76	11¼	18	1/3	38	11	—	—	20	8½	—	—	—	—
OBEC Darrawela	116	9¼	—	—	51	8¾	45	11¾	10	5¼	8	4¼	2	4½
,, Kuda-Oya ...	147	10	—	—	53	9	52	1/1½	42	6¾	—	—	—	—
,, Wattawella	54	8	—	—	22	7¾	15	†11¼	17	5¾	—	—	—	—
Oononagalla ...	120 p	8¼	15½c	1/1	40	7½	22	1/1¾	42	5¼	1	4	—	—
Ormidale ...	104½c	1/5¼	—	—	38½c	1/4¼	51½c	1/7½	15½c	1/0½	—	—	—	—
Parusella ...	251 p	7	41 b	†7¾	118½c	†5¾ 6	55½c	10½	37½c	5	—	—	—	—
PDM ...	30 p	1/0¾	—	—	12	11½	18½c	1/2½	—	—	—	—	—	—
Pen-y-lan ...	82	8½	—	—	30	7	42	10¼	7	5½	1	4	2	4
Pingarawe ...	106 p	11½	—	—	34	1/0¼	23	1/4¼	34	9½	9	7	6½c	6¼
Portmore ...	46	1/2	—	—	23	1/1	23	1/3¼	—	—	—	—	—	—
Poolbank ...	78½c	8¾	47½c	9¾	31½c	7	—	—	—	—	—	—	—	—
Rahatungoda ...	39	10¾	—	—	13	9½	23	1/	2	7	—	—	1	6½
Ravenscraig ...	42 p	7	—	—	15	6¾	8	11	15 p	5½	3 p	2½-4¾	1	3
Riverside ...	103	8	—	—	45	†6½	47	10	11	5½	—	—	—	—
Rookwood ...	47½c	10¼	—	—	13½c	†10¼	18½c	1/0½	15½c	8	—	—	1½c	†5¼
Salem ...	24	6¼	—	—	—	—	12	†7¾	12	†4¾	—	—	—	—
Sanquhar ...	97	8	—	—	30	8	33	10¼	34	5¾	—	—	—	—
Sapu ...	45 p	4¼	—	—	—	—	—	—	—	—	27	4¼	18½c	4½
South Wana Rajah	110 p	10½	67½c	1/0½	31	9½	—	—	12	†5¾	—	—	—	—
St. Clair ...	15	8	—	—	15	8	—	—	—	—	—	—	—	—
St. Clive ...	45 p	6¾	—	—	14 p	6	15	8½	—	—	16 p	3½4¾	—	—
St. George ...	72	1/1¼	—	—	28	1/0¼	38	1/2½	6	9	—	—	—	—
St. John Del Rey	147 p	1/0½	—	—	47	1/1½	54½c	1/3½	39	9½	—	—	7½c	7¾10
S. Leonards-on-S	31	7	—	—	16	5½	15	8¾	—	—	—	—	—	—
St. Leys ...	78 p	1/	43 p	1/2¼-†6/	25	10½	—	—	10	7½	—	—	—	—
Sunnycroft ...	155	6¼	36	6½10½	61	5½	18	8¾	40	4¾	—	—	—	—
Tamaravelly ...	160½c	9	—	—	73½c	6½	87½c	10¾ 11	—	—	—	—	—	—
Theresia ...	75 p	11	—	—	24	8¾	48½c	1/2	—	—	1	4¾	2	4½
Theydon Bois ..	62	6¾	14	9½	21	6	6	9	17	5	4	4¼	—	—
Troy ...	127	7	—	—	36	6¾	31	10¾	40	5¼	14	4½	6	3
Ugieside ...	47	7	—	—	22	6½	15	8¾	10	5½	—	—	—	—
Valamaly ...	52	11¼	—	—	28	11¼	12	1/3	12	†8	—	—	—	—
Venture ...	199 p	9¾	—	—	75	10	68½c	1/2	46	6½	—	—	10½c	4¼ 5
Vincit ...	135 p	6¼	4	5¾	6	5¼	20½c	†6 8	5	5	—	—	—	—
W.A.H. ...	46	6½	—	—	22	5¾	18	8	6	4½	—	—	—	—
West Haputale	131½c	7¼	—	—	69½c	†6¼	50½c	†8¾	12½c	5¾	—	—	—	—
Weyweltalawa ...	129½c	7½	19½c	10	34½c	7½	24½c	†10½	44½c	5½	—	—	8½c	4½
Woodend ...	90	7	—	—	50	6	28	9¾	12	4¾	—	—	—	—
Woodstock ...	66 p	8¼	—	—	16	6¾	47½c	9¾	—	—	1	4	2½c	3¾
Yarrow ...	43½c	7¾	—	—	23½c	6½	14½c	11	6½c	5¼	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *April 29th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,126,973 packages.	575,067 packages.	50,348 packages.
1891-1892.	1,232,584 ,,	728,360 ,,	40,645 ,,

During the week

1,264 packages Indian
4,202 ,, Ceylon } Total 47,724 packages have been offered in public auction.
2,258 ,, Java

The market opened after the holidays with a good demand for all grades. Competition was sufficiently active to carry prices in some instances slightly over those ruling a fortnight ago.

Export markets are now becoming of such importance to British Grown Tea, that it will be interesting to proprietors of Estates to know that during the past *three* months, the quantity of both Indian and Ceylon Tea exported from Great Britain, was almost equal to that shipped during the first *six* months of last year. The effect of low prices thus becomes very apparent, and is decidedly creating demand in foreign markets.

INDIAN. 174 closing invoices have been disposed of, against 166 to the end of April last year. The market was steady throughout the week, prices being slightly above those ruling before the holidays. Next season's Indian Tea crop is estimated at 129,000,000 lbs., of which 119,000,000 lbs. are expected to be available for the United Kingdom. The following averages are worthy of note:—"Hukanpukri" of the Jokai T Co., 1/8½; "Doom Dooma, B.," 1/2¾; "Tudor Hall," and "Panitola of the Jokai T Co.," 1/2.

TRAVANCORE was represented by a rather large assortment. The highest averages were obtained by the following estates:—"Fairfield," 10¼d.; "Arnakel," 9½d.; and "Vembenard," 9d.

This weeks average price of New Season's Teas sold on Garden Account. Total 15,954 pkgs. average 8¼d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	5953 p	9d	Chota Nagpore ..			Kangra Valley, Etc.	33 c	5¾d
Cachar and Sylhet..	8342 p	7¾d	Darjeeling			Neilgherry	118 c	6¼d
Chittagong			Dooars	430 p	9d	Travancore	1078 p	7¼d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892.	3½d.	1891,	7d.	1890,	5d.	1889, 5½d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¼d.	,,	8d.	,,	5¾d.	,, 5d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5¾d.	,,	9¾d.	,,	7½d.	,, 6½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10¼d.	,,	8½d.	,, 8d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9½d.	,,	11¼d.	,,	9¼d.	,, 9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9¾d.	,,	7d.	,, 6¾d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	10¼d.	,,	8d.	,, 7¼d.

CEYLON. Public sales were unusually heavy- the weeks quantity ranking amongst the highest totals on record. There was no difficulty in dealing with this large supply, after a fortnights cessation of auctions; consequently with a brisk demand, quotations were fully up to prices ruling before the holidays. Better liquoring kinds showed an occasional advance. Quality continues to show signs of improving and many Teas now arriving are of good quality and flavour. The following averages may be mentioned: "Norwood" of the EP & ECo., and "Portswood," 1/3¼; "Kew," 1/2½. Average, 9¼d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6d.	1891,	9¾d.	1890,	8½d.	1889, 8d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8¾d.	,,	10½d.	,,	10d.	,, 9¼d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	4¾d.	,,	9¼d.	,,	8d.	,, 7¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5¾d.	,,	9¾d.	,,	8¾d.	,, 8d.

JAVA. The auctions which comprised 2,258 packages, passed well, the Teas being mostly sold at prices about equal to those ruling just before the holidays the late fall in values not as yet having been recovered.

BANK RATE. 2 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3½. Colombo 1/3½

INDIAN. Average 8¼d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price	Quantity.	Price	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
ASSAM	**5953 p**	**9**												
Amluckie T Co...	281	5½	11	†1/6½	36	†7	13	5¾	146	4¾ 5	—	—	75	4¾
AssamC Cherideo	435	7	—	—	136	9	—	—	—	—	100	5 10½	—	—
,, Gelakey ...	110	11¾	30	1/6½	40	11¼	—	—	—	—	40	7	—	—
,, Mazenga ...	342 p	9¾	25½c	1/9½	70	11-1/	50½	1/5½	25	8¾	100	6¼11¼	—	—
,, Towkok ...	93	1/0¾	—	—	93	1/0¾	—	—	—	—	—	—	—	—
British Assam Co	230	8	—	—	40	11½	20	1/5¼	95	7	44	5½	31	11
Dhoolie ...	141	9	—	—	40	11¾	15	1 1¼	60	6¾	18	5½	—	—
*Digloy T Co D	70	10	—	—	35	1/0½1 2¾	7	1 0½	4	5¾	44	4¾5¼	—	—
*Doom Dooma B	96½c	1/2¾	33½c	1/4¾	63½c	1 1-1/3½	—	—	—	—	—	—	—	—
* ,, ,,	136 p	10¾	20½c	1/6¾	41 p	6¼1/2½	30½c	1 2¼	14	9½	12	4¾	19	7¼
* ,, ,, H	63 p	1/0¼	—	—	28	1 0¼	12½c	1 0¼	—	—	—	—	—	—
* ,, ,, ,,	143½c	1/2¼	20½c	1/4	72½c	1/2	51½c	1/1¼	—	—	—	—	—	—
* ,, ,, ,,	147 p	9½	18½c	1/5¾	58 p	10¾1/2	21½c	†8½	21	8¼	20	5¾	9	4½
* ,, ,, S	89 p	9¾	—	—	38 p	10¾1/2¼	—	—	24	8 10¼	—	—	17	3¾5½
Eastern AssamCo	214 p	11¾	128½c	1/1½-1/9¼	37	8¾	26	8¾	43	7	—	—	—	—
Jhanzie T Assoc	345 p	1/0½	—	—	109	1 1¾1 1½	70	1 1¼-1 7	74	7 9	—	—	11	4 1½
*Johankatta ...	113	8½	—	—	20	9¼	15½c	10¼	20	7½	22	5¾	—	—
Jokai Co Bokel...	366	8½	47 1/3½1/7½		145	9¼ 10¾	—	—	80	6	37	5	33	9½
,, Jamira ...	213 p	5½	12	1/0¾	32	7	13	7¼	15	5¾	106	4¼4½	14	6
,, Joyhing ...	347	7¼	—	—	147	7¼11	—	—	200	5¾ 6	—	—	—	—
* ,, Hukanpukri	93 p	1/8½	38 p	1 9¼2/8¼	25	1/8¼	15	1 0-1/5¼	17	1 2½	—	—	—	—
,, Muttuck ...	191	7	26	1/4½	70	7-8	—	—	63	†5	15	3¾	17	6
,, Panitola ...	396	1/2	93	1/4¼	107	1/1¾ 1/2	61	1/4¾	135	11	—	—	—	—
,, Subansiri ...	47	5½	—	—	—	—	—	—	47	5½	—	—	—	—
*Lepetketta ...	80 p	10¼	32 p	1/2¾-2/4	26	8	—	—	—	—	6	5¼	11	5¼
LMB Salunga ...	213	6¾	—	—	16	8¼	54	8¼1	129	5¼5	44	4½	—	—
*Mokalbari ...	92	9¾	36 p	1/2½-1/9	½	—	13	10	—	—	33	6 3	10	3½
*Rungaghur B ...	106	9½	—	—	14	11	24	10½	28	7¼	—	—	—	—
*Salonah T Co S	315 p	10½	15½c	1/9½	79	1/2½	13	11	50	10¼	34	4 1¾	21	5½
CACHR & SYLHT	**8342 p**	**7¾**												
Allynugger ...	426 p	8¾	36	1/0½1/5	152	10 10¼	117	7½7¼	69	6	26	3½	27	8
*Amo ...	320 p	6¾	—	—	1	7	179 p	†4 †9¼	129	5½ 6	—	—	11	4½
*BITCDwarbund	232	7	—	—	100	7½	44	8½	67	5½5¾	21	5	—	—
* ,, Urrunbund	228	7	—	—	83	8¼8½	39	9¾	63	5¼	22	4¾	21	3½
Chandpore Co ...	391	7¼	—	—	231	6¼9¼	89	5½ 1/0¼	71	5½	—	—	—	—
Chatlapore ...	473	8¼	12	†1/4½-1/5	88	11¼	39	6½	69	7¾	65	4¼5¾	—	—
Cherrie Valley	209	7¼	—	—	58	8½	35	10¾	73	5¾ 6	—	—	43	4¾
DoodputleeTCoK	277	7¾	13½c	1/3	63	8¾	59	10	115	6¼	26	5	—	—
*Dulcherra ...	96	9¼	—	—	30	11¾	10	1/3¾	20	8	25	5¾	5	5
*Indian T Co ...	246	10¼	—	—	41	1/1-1/1¼	17	1/9¼	85	8½8¾	103	3 9¾	—	—
*Koyah ...	211 p	6¾	14	10½	61	7¼	61 p	5 10¾	75	5½	—	—	—	—
Kunchunpore ...	52	5¼	—	—	—	—	28	5¾	—	—	24	4½	—	—
LF&Co ...	109	8¼	—	—	39	9¾10¾	9	1/1¼	21	7½	28	6 6½	12	3½
*LMB Jalingah	184	5¾	—	—	49	7	20	7½	46	5½	—	—	10	5
* ,,Morapore ...	201	6¾	—	—	86	7½	19	10	61	6	55	5	—	—
Lungla T Co ...	424	5½	42 p	†4¼1/0½	—	—	110	6 6¼	180	5½	92	3½	—	—
Luskerpore ...	214	4½	—	—	29	†5¾	57	†5	52	†4½	43	†½	33	5
NSTCo Burjan	115 p	9¼	12	1/11½	—	—	40	9	35	7	12	5¾	16½c	4½
,,Jafflong ...	544 p	9	153	9¾-1/7¾	129	9¼	90	10¼	88	6¾	18	5¾	66½c	5¼
Pathini ...	453	6	25	11¼	185	6¼	167	†5¾ 5¾	76	4½4¾	—	—	—	—
Patrakola ...	231 p	8¾	12	1/6½	50	9¼	76	9½9½	50	7¼	12	5¼	31½c	4
*Phooltullah ...	166	8	—	—	36	10½	29	1/	79	6¼6½	—	—	22	4 5¼
*Puttareah ...	148 p	5¾	5	11½	34	6¾	22	†5¾	36	5 5¾	51 p	4¼5¾	—	—
*Rungamuttee ...	123 p	8¼	—	—	47 p	8 11¾	28 p	7½ 1/2¼	11½c	7½	18	3 5¾	19	3¾1½
*ScotporeC P&D	440	7	—	—	146	8 8¾	100	7¾10¼	84	5½5¾	34	4½5¾	26	2 4
Shumshernugger	489	8¼	44	†1/1¾1/4½	130	9½ 10½	140	9 9¼	96	6½6¾	37	5¼	42	4
Sreekonah ...	130½c	6½	—	—	52½c	6	30½c	10	14½c	5¾	24½c	4½	10	3½
SSTCoAmrail ..	345 p	9	66	1 1 †1/6¼	106	9¼	59	9½	95	6¾	—	—	10½	†3¾
..Deanston ...	716 p	10¾	186	11¼ †1/9½	134	10 10¼	78	1/0½	178	8¼	104	6¾	36½c	7¼
..Phulcherra ...	587 p	8½	137	10-1/11¾	83	8¾	130	9	85	6¼	107	5½	45½c	4¾
TarraporeTCoL	119	8½	—	—	27	11¾	18	1/0½	13	10	39	7	22	3¾
*TF&Co ...	267 p	7½	84½c	9¾ 1/0¼	56	8	90	5¾ 6	30	5½ 6	7	4¾	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
DOOARS	**430 p**	**9**												
*Hahai Patha ...	106	6	16	9½	39	†6	—	—	28	4¾ 5	—	—	23	3½ †5¼
*NSTC Nakhati	279 p	10½	33	1/1-1/7¾	42	9-10¾	40	1/1½-1/3	67 p	8¼10¼	65	7¾ 9	32½c	6½ 7
Washabarrie ...	45	8¼	—	—	—	—	25	10¼	—	—	—	—	20	5½
NEILGHERRY	**118**	**6¼**												
Prospect ..	110	5¾	—	—	31	†6¾	41	†6½	—	—	9	4½	29	3½
Tudor Hall ...	8	1/2	5	1/4	3	10½	—	—	—	—	—	—	—	—
TRAVANCORE	**1078 p**	**7¼**												
Aneimudi ...	104½c	5¾	—	—	23½c	6¼	23½c	8¼	46½c	4¾	6½c	3½	6½c	2
Arnakel ...	49	9½	—	—	6	11	9	1/3¼	33	8	—	—	1	2¾
Belford ...	48½c	7¼	—	—	45½c	7½	—	—	—	—	2½c	4¼	1½c	3
Brigton ...	70	5¼	36	6	—	—	—	—	34	4½	—	—	—	—
Bon Ami ...	236	7¾	9	11	40	8½	40	9¼	77	6¼	60	8	10	5
CMR ...	36½c	5¾	—	—	31½c	6	—	—	—	—	2½c	4½	3½c	3½
Fairfield ...	51	10¼	—	—	9	10½ 1/0¾	8	1/4	32	8¾	1	6½	1	3¾
Invercauld ...	83½c	6¼	—	—	47½c	5-6¼	16½c	9	—	—	15½c	†5	5½c	3
Kinmylies ...	32½c	5	—	—	25½c	†5½	—	—	—	—	4½c	4	3½c	3
Linwood ...	32⅜c	5½	—	—	31½c	5½	—	—	—	—	—	—	1½c	3
Merchiston ...	16½c	5¾	—	—	16½c	5¾	—	—	—	—	—	—	—	—
Parvithi ...	114½c	5¼	—	—	14½c	8	11½c	6	51½c	5½	14½c	4½	24½c	3 3½
Perrintorra ...	12	5	—	—	12	5	—	—	—	—	—	—	—	—
Poonmudi ...	114½c	8	—	—	46½c	7¾	45½c	9½	—	—	17½c	5¼	6½c	1¼
Rockwood ...	24½c	6	—	—	16½c	7	—	—	—	—	3½c	3¾	5½c	3½
Vembenard ...	57	9	—	—	36	8	19	11½	—	—	—	—	2	4¼

Gardens marked thus * are last of the Season.

CEYLON. Average 9¼d.

Aambtenne ...	84	6¾	—	—	39	6½	21	9¾	24	4¾	—	—	—	—
Abbotsford ...	63	9½	—	—	23	9	31	11	9	6	—	—	—	—
Abbotsleigh ...	113	10½	—	—	75	9¼	38	1/1	—	—	—	—	—	—
Agarsland ...	78½c	9	—	—	—	—	60½c	9¾ 10¼	18½c	5½	—	—	—	—
Alnwick ...	66	11¼	—	—	40	9¾	26	1/1½	—	—	—	—	—	—
Ampittiakande ...	37 p	8	12½c	1/2¼	21	†6¾	—	—	—	—	—	—	4½c	3
Annfield ..	103	9¼	—	—	40	9	46	11	17	5½	—	—	—	—
Avisawella ...	53	8	—	—	12	9	12	1/	29	5¾	—	—	—	—
Bambrakelly&D.	60	1/0½	—	—	36	11¾	24	1/2	—	—	—	—	—	—
Bathford ...	57	11¼	—	—	25	10¾	23	1/0¾	9	8¾	—	—	—	—
Battagalla ...	39	9	—	—	22	7	17	11¼	—	—	—	—	—	—
Battalgalla ...	177 p	10¼	56	†1/1	64	3¾-10	29 b	1/1¼	28	6	—	—	—	—
Bearwell ...	64 p	9¼	—	—	32	8½	24	†11½	7	5¼	—	—	—	—
Beaumont ...	86	8½	—	—	31	8¼	37	10¼	18	5½	—	—	1½c	3½
Berragalla ...	60	8¾	—	—	21	7½	29	11¼	10	4½	—	—	—	—
,, ...	42	6¾	—	—	4	6½	21	8½	15	4¾	—	—	—	—
Beverley ...	94½c	7	—	—	39½c	6	33½c	9¾	22½c	4¾	—	—	2	3¼
Blackstone ...	76 p	7¾	—	—	18	8½	32½c	11	25	5¼	1½c	3¼	—	—
Blair Athol ...	100 p	9	56½c	11¼11¾	35	8	—	—	9	5½	—	—	—	—
Blairgowrie ...	73 p	8¾	—	—	30	9¼	25½c	1/0½	15	5½	2½c	4	1½c	4
Bogahawatte ...	128 p	7¾	54½c	1/0½	61	†6½	—	—	13	4½	—	—	—	—
,, ...	124 p	7¾	52½c	11	59	7	—	—	13	5	—	—	—	—
Bogawantalawa	115 p	1/	—	—	46	11¾	36	1/3¼	27	9	1	5	5½c	6
Bon Accord ...	31	1/0¼	—	—	14	10	17	1/2¼	—	—	—	—	—	—
Brae ...	64½c	6½	—	—	16½c	6¼	19½c	†9¾	28½c	†4¾	1½c	2¼	—	—
Bramley ...	133½c	8¼	24½c	8¾	28½c	8½	56½c	9½	25½c	5¼	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
MK	32	7½	—	—	16	5[illegible]	14	9½	—	—	2	5[illegible]	—	—
Moray	96	11	—		48	8-10	41	1/0¾	—		—		—	
,	19½c	4¼	—	—	—	—	—	—	—	—	—	—	1[illegible]c	4½
Moriands	41	7	12	9¾	24	6	—	—	5	4¼	—	—	—	
Mount Pleasant	55	9	15	1/2	13	10¼	—	—	27	†5½	—	—	—	
Mount Vernon	203 p	9	50 p	1/2½	1/8¼	74	9[illegible]	—		21	6¾	5[illegible]	5	
Nayapane	176 p	6½	—	—	47	6¼	6½c	10	59	5	-½c	2½	4½c	3
Needwood	121	8	—	—	75	5¼-7	49	10¼	—	—	—	—	—	—
New Dimbula D	111	1/2	—	—	41	1/1½	49	1/4	21	10[illegible]	—	—	—	—
Newton	192½c	9½	—	—	87½c	9	7-½c	1 0¾	-7½c	†5¼	-½c	4½	11c	3[illegible]
Nilambe	136	8¼	—	—	36	6	9[illegible]	9¼-9½	2	4¾	—	—	—	—
North Cove	95 p	8¾	—	—	39	8½	5-½c	11¾	8	4[illegible]	—	—	9½c	4[illegible]
North Matale	56	8¾	—	—	18	8¼	10	1	19	5¼	—	—	—	—
Norton	125½c	7½	—	—	48½c	8	-9½	11	42½c	5¼	—	—	4½c	†5¼
OBECCraigieLea	83	8½	—	—	38	8½	24	11¾	21	5¼	—	—	—	—
,, Dangkande	81½c	7¼			25½c	6½	5-½c	9¼	22½c	5¼	—	—	2½c	2¼
,, Darrawella	121	9¼	—	—	44	9½	43	11¾	29	6¼	2	2 4¾	2	4
,, Gleudevon	108	10½	—	—	30	11	5[illegible]	1/0¾	40	8¼	—	—	—	—
,, Kuda-Oya	102	10¼	—	—	45	9½	57	11[illegible]	20	†7¼	—	—	—	—
,, Nilloomally	65	7¾	—	—	28	7½	21	10	16	5½	—	—	—	—
,, Sinnapittia	78	8½	—	—	27	9¼	27	10½	24	5¼	—	—	—	—
,, Stellenberg	42	1/0¼	—		20	11½	20	1/1¾	2	5¼	—	—	—	—
,, Wattawella	53	8¼		—	23	8	17	11	13	5¼	—	—	—	—
Oodewelle	83	8	—	—	25	8	30	10¼	20	5¼	3	4½	4	3½
Oolapane	39	7	—		27	4¾6¾	12	10	—		—	—	—	—
Opalgalla	96	7½			30	7½	43	11	34	5¼	—	—	—	—
Pallagodde	32½c	10¾	—	—	—	—	32½c	10¼			—	—	—	—
Panmure	53	8¾	—		28	8¾	14	10¼	11	5¼	—	—	—	—
Panslatenne	54	7¼	—	—	13	7	23	9	18	5¼	—	—	—	—
Peacock Hill	97 p	6½	—	—	27	8	22½c	9¾	18	5	—	—	—	—
Penrith	57	10	—	—	22	9	23	1/0¼	12	7	—	—	—	—
Pen-y-lan	93	8¾	—	—	34	7	18	10¾	9	5¼	—	—	2	3
Peradenia	109	8	—	—	24	9	26	1/0½	59	5¼	—	—	—	—
Pine Hill	113½c	10½	24½c	1/3	47½c	10¾	—	—	42½c	7¼	—	—	—	—
Polgahakande	94	8	—	—	40	8¼	28	10	26	5½	—	—	—	—
Portmore	36	1/1¾	—		15	1 0½	21	1 2¾	—	—	—	—	—	—
Portree	69 p	10½	—	—	16	11¼	30½c	1/1¾	23	8	—	—	—	—
Portswood	75½c	1/3¼	—	—	41½c	1/3¼-1 6	17½c	1/6	17½c	11½			—	—
Poyston	65 p	8¾	—	—	14	9¼	30½c	1/	20	6	—	—	1	4¼
Prestou	55	1/0¾	—	—	31	11½	24	1/2½	—	—	—	—	—	—
Queensberry	146	7½	—	—	15	1/0½	50	10½	84	5¾	2	3½	10	6¼
Rahatungoda	40	10¼	—	—	15	9¼	23	11¼	—	—	—	—	2	6¼
Rambodde	19½c	1/1¼	—		—	—	19½c	1 1¼		—	—	—	—	—
Rangalla	73 p	10¼	—		33	†8¾	30	1/	—		—	—	10½c	9
Ravenscraig	30	6¾	—	—	18	6	8	10		—	4	3¼3¾	—	—
Raxawa Panwila	74	8	—	—	20	8½	22	10¾	32	5¾	—	—	—	—
Riseland	25	5	—	—	7	5¾	5	5½-6	9	4¾	4	4	—	—
Riverside	70	7¼	14	†10¾	43	†6¾	—	—	13	†5	—	—	—	—
Robgill	67 p	8½	—	—	24	7¾	40½c	10	—	—	—	—	3½c	3¾
Rookwood	63½c	9¾	—	—	19½c	11	26½c	11⅛	18½c	5½	—	—	—	—
SCTCo Invery	122 p	1/0¾	—	—	38	1/1¼	45½c	1/5½	—	—	39 p	5¼-9½	—	—
,,Strathdon	93 p	10½	—	—	40	10¾	34½c	1/2¼	19	6½	—	—	—	—
Selegama	100 p	7	14½c	†9¼	—	—	39	9	45	†5	—	—	2	3
SouthWanaRajah	70 p	10¼	44½c	1/0¼	26	8½	—	—	—	—	—	—	—	—
St. Clair	67	10	—	—	30	11	15	1/1¾	19	6	2	5	1	3
St. Johns	49 p	9	—	—	18	9½	12	1/1¾	15	5½	—	—	4½c	3
St. Leys	52	11½	—	—	34	10½	18	1/1¼	—	—	—	—	—	—
Suriakande	56	8¼	—	—	31	7¾	12	1/0½	13	†5¼	—	—	—	—
Talagalla	63	5¾	25	†7	25	†5¼	—	—	13	†4¾	—	—	—	—
Talgaswella Co	158	7¼	—	—	—	—	134	†7¾	24	5	—	—	—	—
Taprobana	76	8½	—	—	40	7¾	27	10¼	4	5	—	—	5	3¾-9
Templestowe	64	8¼	23	11¼	25	7½	—	—	14	5¾	—	—	2	3
Theresia	65 p	10½	—	—	21	8½	42½c	1/1¼	—	—	1	4¼	1	3¾
Troy	76	7½	—	—	45	6¼	23	11	6	4½	—	—	2	2½

CEYLON.—Continued.

Garden.	Total.		Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Tyspany ...	127		9	—	—	87	8	40	10¾	—	—	—	—	—	—
Udabage ...	123½c		8¼	—	—	59½c	6½	64½c	9¾	—	—	—	—	—	—
Ugieside ...	43		6¼	8	9½	29	5¾	—	—	6	4	—	—	—	—
Uplands ...	50		5	—	—	21	5¼	11	5	18	4½	—	—	—	—
Upper Haloya ...	28½c		3	—	—	—	—	—	—	—	—	—	—	28½c	3
Uva ...	87½c		11	—	—	41½c	10¾	27½c	1/1¾	15½c	8	1½c	5½	3½c	5
Valamaly ...	80		11½	—	—	51	11	26	†1/1	—	—	—	—	3	5¾
Vallambrosa ...	103 p		11¾	81 p	1/-1/4	—	—	—	—	22	†7½	—	—	—	—
Vellai Oya ...	207		7¾	66	†11¼	141	6-6¼	—	—	—	—	—	—	—	—
Venture ...	83 p		10¾	—	—	27	10¾	27½c	1/4¾	24	7½	—	—	5½c	6¼
Vicarton ...	62 p		8	20½c	†11½	20½c	†9	—	—	19	6	—	—	3	4¼
Vogan ...	133		7½	—	—	47	7	47	9½	39	5½	—	—	—	—
Waltrim ...	112		1/	—	—	38	11¼	48	1/2½	26	8¼	—	—	—	—
Wangie Oya ...	91 p		8¼	33 p	1 0¼ 1/1¾	38	8	—	—	20	5	—	—	—	—
Warleigh ...	45		8½	—	—	21	8¾	12	†10¾	12	5½	—	—	—	—
Warwick ...	22½c		1/1	—	—	—	—	22½c	1/1	—	—	—	—	—	—
Wattakelly ...	101		8¾	63	10 10¼	35	6¾	—	—	—	—	1	3	2	4½
Wattegodde ...	96		10	—	—	50	9¾	26	1/1¼	14	6¼	—	—	6	7
Wereagalla ...	52 p		9½	—	—	22	9½	19½c	1/0½	11	6½	—	—	—	—
Westhall ...	104		8½	—	—	45	9¼	20	1/0¼	36	5¾	—	—	3	5¼
Wewebedde ...	59		8½	—	—	13	7¼	32	10½	9	5¼	1	3¾	4	3¼3½
Yahalakella ...	89		6	—	—	31	4¾7½	23	†7½	35	5	—	—	—	—
Yarrow ...	49½c		7	—	—	30½c	6½	12½c	9¼	7½c	4¾	—	—	—	—
,, ...	49½c		7	—	—	30½c	6¼	12½c	†9¾	7½c	4¾	—	—	—	—
Ythanside ...	114		10½	25	1/4	—	—	40	10¼	42	8½	—	—	7	6½

JAVA. 2241 pkgs. Average 5½d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust,	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Ardja Sarie ...	175		6	—	—	100	6½	—	—	75	5¼	—	—	—	—
,, ...	90		5¼	—	—	—	—	—	—	90	5¼	—	—	—	—
Calorama ...	50		5	—	—	—	—	—	—	—	—	50	5	—	—
Dramaga ...	116		5¾	—	—	44	6¼	8	9½	—	—	64	4¾-5	—	—
Jasinga ...	163		4¾	—	—	32	5¼	20	4	34	5¼	41	5	36	4½
Jonlapa ...	45		4½	9	4¾-5¾	12	5	7	3	14	4½	3	3	—	—
Nangoeng ...	252 p		6	33 p	5¾2/3½	38	9¾	11	6	165	4¾-5	—	—	5	3¼
Panoembangan ...	79		8¾	—	—	79	8¾	—	—	—	—	—	—	—	—
Roempien ...	67		4¼	5	4½-8½	34	4½	—	—	4	3¾	3	3¾	21	†3¼
Semplak ...	50		5½	—	—	50	5½	—	—	—	—	—	—	—	—
,, ...	228		5¼	—	—	86	5½-5¾	20	5	—	—	105	5	17	4
Sinagar ...	396		6¼	—	—	150	†6½	30	5½	116	6½	75	5½-5¾	25	†4¼
Soekamana ...	58		4½	—	—	—	—	—	—	58	4½	—	—	—	—
Tendjo Aijoe ...	222		4½	—	—	41	†5¼	35	4¼	42	4¾	50	4¾	54	3½-4
Tjisalak ...	250		5¼	—	—	100	†5½†5¾	50	4¾	100	5	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

upplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *May 6th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,142,183 packages.	596,715 packages.	53,255 packages.
1891-1892.	1,255,027 ,,	748,828 ,,	40,645 ,,

During the week

2,443 packages Indian
5,468 ,, Ceylon
— ,, Java

} Total 42,911 packages have been offered in public auction.

The increase in the deliveries of Indian and Ceylon Tea last month, compared with April 1891, s satisfactory and illustrates the effect of prolonged low prices. Considering that Easter fell in pril this year but in March in 1891, the comparison is even more favorable.

NDIAN. The market has continued very firm for all descriptions, and good liquoring kinds re if anything dearer. The following averages are worthy of note :—"Jhanzie T Association," 1/2, nd "Panitola" of the Jokai T Co., 1/1¾.

This weeks average price of New Season's Teas sold on Garden Account. Total 10,380 pkgs. average 8d.

	pkgs.	price.		pkgs.	price.		pkgs.	price.
Assam	3854 p	9½d	Chota Nagpore ..			Kangra Valley, Etc.	149 p	7d
Cachar and Sylhet..	5494 p	7d	Darjeeling			Neilgherry.. ..	80 p	6d
Chittagong	146 p	6¼d	Dooars	29 c	9½d	Travancore	628 p	6¾d

Comparative prices of Indian Tea in London :—

DUST.	(Fair ordinary, dark liquor)	1892,	3½d.	1891,	6½d.	1890,	5¼d.	1889, 5d
TANNINGS.	(Red to brown, strong rough liquor)	,,	4¼d.	,,	7¼d.	,,	5¾d.	,, 4½d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	5¾d.	,,	9¼d.	,,	7¾d.	,, 6d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	10d.	,,	8½d.	,, 7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	9½d.	,,	10¾d.	,,	9¼d.	,, 9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9¼d.	,,	7¼d.	,, 6½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	6¾d.	,,	9¾d.	,,	8d.	,, 7d.

CEYLON. The quantity brought forward was again heavy although below last week's total. ittle change can be recorded in prices; competition has been fairly brisk and values are about aintained. Tuesday's sale of 19,183 packages contained 873 breaks, a number extremely difficult r buyers to value carefully in the limited time available. Exports from Ceylon to the United ingdom during April were 6,000,000 lbs. Average, 8¾d.

Comparative prices of Ceylon Tea in London :—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6d.	1891,	9¼d.	1890,	8¼d.	1889, 7¼d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	8¾d.	,,	10d.	,,	10d.	,, 9d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	4¾d.	,,	8¾d.	,,	8d.	,, 6¾d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	5¾d.	,,	9¼d.	,,	8¾d.	,, 7¼d.

AVA was not represented. Catalogues are issued for 930 packages.

MOVEMENTS OF TEA IN LONDON (in lbs.) DURING APRIL.

	Imports.			Deliveries.		
	1890.	1891.	1892.	1890.	1891.	1892.
Indian	4,214,772	2,381,283	2,656,602	5,155,941	8,061,642	9,153,735
Ceylon.....	3,403,832	5,941,264	6,005,394	1,334,678	3,942,242	4,968,026
Java	110,740	428,400	220,570	186,830	378,420	231,210
China, etc.	604,659	1,289,239	23,845	4,685,713	6,911,256	5,009,614
Total lbs,	8,334,003	10,040,186	8,906,411	11,363,162	19,293,560	19,362,585

FROM 1st JUNE TO 30th APRIL.

	Imports.			Deliveries.			Stock.		
	1889-1890.	1890-1891.	1891-1892.	1889-1890.	1890-1891.	1891-1892.	1890.	1891.	1892.
DIAN	100,598,280	99,616,182	110,517,483	86,675,840	93,924,654	98,586,768	41,527,833	33,181,317	38,592,147
YLON.....	30,179,150	42,225,800	58,110,866	26,927,082	38,037,432	55,361,536	10,543,190	13,778,742	17,724,222
A	2,523,550	3,672,620	2,758,420	2,931,090	3,611,860	2,944,340	829,290	1,125,600	663,670
INA, etc	89,895,041	69,578,964	60,146,226	76,142,676	75,295,223	63,547,966	51,299,005	34,253,597	25,042,729
Total lbs.	223,196,021	215,093,566	231,532,995	192,676,688	210,869,169	220,440,610	104,199,318	82,339,256	82,022,768

BANK RATE. 2 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3⅜. Colombo 1/3⅜

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity.	Price	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
ASSAM	**3854 p**	**9½**												
*Dejoo T Co . .	224	9½	11	1/6¼	34	1/0½	60	8¼ 1/1¾	67	8¼	40	5¾	12	4¼
Dhoolie ...	127	9½	—	—	30	1/0¾	25	1/2	40	7¼	24	6	8	4¼
*Eastern AssamC	300 p	11	170½c	1/0¾-1/7	1/4 57	8¾-9¼	—		73	6¼6½	—	—	—	—
*Jhanzie T Assoc	324 p	1/2	—	—	151	1/2-1/3¼	62	1 7[illegible]	72	8½ 10½	—	—	39	1/5 1 1½
Jokai Co Bokel...	361	8	23	1/4	149	9-11	—	—	91	6	66	5¼	32	5¼
,, Jamira ...	112	7¼	—	—	32	10¼	—	—	45	7	35	4½	—	—
,, Joyhing ...	395	9¼	—	—	100	9¼	100	1/2¼ 1/2½	100	6¼	95	6½	—	—
,, Muttuck ...	163	7¾	24	1/3¼	58	7¾8½	—		61	5¼	—	—	20	5
,, Panitola ...	319	1/1¾	—	—	155	1/3¼ 1/3½	45	†1/4¼	81	1/1-1/1¼	—	—	38	†4¾
,, Subansiri ...	427	7¼	—	—	113	10 11¼	55	9¼9¾	157	5¼5½	90	4½6½	12	3¼
Nahor Habi ...	161 p	6½	—	—	29	9¾	11½c	1/1¾	25	6½	96	5¼	—	—
Ohat ...	171	9¼	—	—	43	1/0½	—	—	60	7½	19	4¾ 8	49	9½
Rungajaun ...	120	6½	—	—	19	9¾	15	10 10¼	23	6½	12	3	51	5
*SalonahTC Kon	377 p	8	66½c	1/5¼-1/7	56	11¼	5½c	11¾	43	7½	73	3¼ 5	1-1 1	3¾7¼
*Tiphook T Co...	273	9½	—	—	50	1/1¾	12	1/6½	177	8¼8½	34	5½	—	—
CACHR & SYLHT	**5494 p**	**7**												
*B&CoChargola S	160 p	8	25	†9¼1/0¾	52	8½-9½	20	6 9¼	50	†5¾ 6¼	9	4½	4	3½
* ,,Mookham Co	295 p	8¼	26	1/1¼	90	10	38	10½	114	5¾	18	5	9½c	4¼
*Baraoora	494 p	9½	97	1/0½ 1/6	135	9½-10	97 p	8¾ 9	152	6¼	—	—	15	1¼
Chandkhira ...	243 p	5¼	—	—	34	6¾	42	7	79	4¾	36 p	†4¼ 4½	52	3½ 1[illegible]
*Chandpore Co...	285	7¼	—	—	139	8 10½	62	5½-1/	84	†5¾	—	—	—	—
Chundeecherra C	261	7	12	1/3¼	123	7-8	45	6½	62	5½	—	—	30	4¼
Derby T Co . .	223	6	—	—	—	—	42	8	129	5½5¾	52	5	—	—
*Doloi T Co ...	271	7	21	†10 1/5	101	48	27	†7½	86	†5½ †5¾	14	4¼	22	1[illegible]
*DoodputleeTCK	194 p	7	—	—	39	8¾	41	9¼	69	5½5¾	23	5	22½c	3
Dooloogram ...	167	5½	—	—	44	6½	27	8	14	5½	31	5	51	3 4½
*Kaline T Co ...	605	10	—	—	203	1 1¾ 1/0¼	81	1/1½ 1/8¾	—	—	266	7 7¾	55	6¾
Longai ...	175 p	4¼	—	—	1	6¼	—	—	29	†4¾	32	4½	113 p	3-4
Luayuni ...	178	6¼	—	—	111	6½	13	10	42	4½	—	—	12	5¼
*Luugla T Co ...	273 p	5¼	17 p	1/7-1/8½	2	6¼	47	4-6	114	4¾5¼	74	4 4¼	19½c	3¾
Mertinga ...	114	4½	—	—	20	5½	23	5	50	4¾	14	2¾	19	†3 †3
*Parbutpore ...	120	5¾	—	—	7	†7½	24	†8¼ 8¾	58	†5 5½	—	—	31	3¼4¾
Pathemara ...	61 p	7¾	14½c	†10	8	8½	39	7 7¼	—	—	—	—	—	—
Patrakola ...	197	8¾	111	3¼ 1/6¼	73	9¼	49	†8¾	58	6¾	6	5¼	—	—
Rajnagar ...	133	6	—	—	11	8¾	11	8¾	56	5½	28	5¾	27	5¼
*ScottporeTCo...	96	5¾	—	—	7	8¼	10	10	28	5¾	18	5¾	33	3¼
SephinjuriBhTCo	352 p	4¾	—	—	21	6	53 p	7 †8	186	4½4¾	30	3¾	62	4 4½
*Sonarupa ...	156	8¾	36	11 1/8¼	18	8½	26	10¼	53	5½	23	5¼	—	—
Sreekonah ...	48½c	6¼	—	—	—	—	10½c	†8¾	27½c	6¼	11½c	†4	—	—
*TarraporeTC ...	139 p	9½	—	—	1	1/0½	8 p	1/5¼	44	1/0¼	85	6¾ 10	1	3
Thaligram ...	242	5½	—	—	—	—	—	—	242	5¼5¾	—	—	—	—
CHITTAGONG														
*Chandpore ...	146 p	6¼	—	—	37	9	20½c	7¼	34	5¼	55	4½ 5	—	—
KANGRAVALEY														
Kangra Valley G	149 p	7	67 p	7-1/2¼	26	†6-6¾	14	†7	42	†5¼ 6¼	—	—	—	—
NEILGHERRY														
Culloocordy ...	80½c	6	—	—	80½c	†5¾†6¼	—	—	—	—	—	—	—	—
TRAVANCORE	**628 p**	**6½**												
Bon Accord ...	80½c	5½	—	—	40½c	5	20½c	†8	—	—	17½c	4	3½c	2¾
Braemore ...	59½c	7	—	—	34½c	6½	13½c	10¾	—	—	10½c	5	2½c	3¼
Glenbrittle ..	80½c	5¾	—	—	40½c	5¼	20½c	9	—	—	17½c	3¾	3½c	3
Great Valley ...	32½c	7¼	—	—	32½c	7¼	—	—	—	—	—	—	—	—
Home ...	32½c	7¼	—	—	32½c	7¼	—	—	—	—	—	—	—	—
Kinmylies ...	66½c	6½	—	—	60½c	6¾	—	—	—	—	4½c	4	2½c	3
M.M.S.S. ...	19	5	—	—	17	4¾	1	8¼	—	—	1	5	—	—
Penshurst ...	92	8	—	—	32	8¾	13	1/1½	29	6¾	18	5	—	—
Poonmudi ...	59 p	6½	—	—	30 p	6¼	12	9	—	—	13 p	†4¾	4½c	3¼
Seenikali ...	49½c	5¾	—	—	22½c	5½	14½c	†7¼	—	—	10½c	4¾	3½c	2¾
TPC ...	60	5½	—	—	12	6¼	12	7¼	35	†4¾	—	—	1	7¾

Gardens marked thus * are last of the Season.

CEYLON. Average 8¾d.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Aadneven ...	50	9½	—	—	22	9½	16	1/0¾	12	5½	—	—	—	—
Aberdeen ...	100½c	6½	—	—	45½c	5¾	30½c	9	25½c	4¾	—	—	—	—
Abbotsleigh ...	100	11	—	—	64	9¾	36	1/1¼	—	—	—	—	—	—
Agrakande ...	54	10½	—	—	31	9½	23	1/	—	—	—	—	—	—
Aldie & Dunlow...	80 p	10¾	—	—	24	10½	35½c	1/2¾	21	7¾	—	—	—	—
Allagalla ...	65	8	—	—	20	9¼	20	11	20	5	3	4½	2	3½
Ambawella ...	31½c	7¾	—	—	18½c	7	9½c	10½	—	—	2½c	3¼-3½	2½c	5½
Amherst ...	29 p	10	—	—	9	9½	15½c	1/1	4	6¼	—	—	1	5½
Angrowelle ...	45½c	7¾	—	—	23½c	7½	15½c	9¾	5½c	4¾	—	—	2½c	3½
Ardross ...	112	7	—	—	36	5¾	56	8½-8¾	20	5	—	—	—	—
Attabage ...	140 p	8	—	—	24	6¾	82 p	9¾-10	31	5	1½c	2½	2½c	4
Augusta ...	63	6¼	—	—	18	6¼	12	10	32	5	—	—	1	3
Avisawella ...	139 p	7¾	30 b	1/7½	21	9	21	11½	55	5½	10	4½	2	3
Balmoral ...	55	9½	—	—	15	9½	23	1/	17	6	—	—	—	—
Bambrakelly&D.	117	1/0½	—	—	69	11¾	48	1/1¾	—	—	—	—	—	—
Battalgalla ...	68	9	20	10½	20	8¼	13	11¼	15	5½	—	—	—	—
Beaumont ...	109	7¾	—	—	41	7¾	36	9¾	32	5¾	—	—	—	—
Binoya ...	106 p	7½	—	—	70	6¾-7¼	25	10¾	—	—	—	—	11½c	2¾
Blackwater ...	235 p	7¼	49½c	1 0½ 1/1¼	56	8	33	8½	73	5¾	21	4½	3	3
Blairavon ...	107	7¼	—	—	46	7½	25	10	33	5	—	—	3	4
Bo Pat ...	36 p	9¾	—	—	14	8¼	22½c	11¾	—	—	—	—	—	—
Broad Oak ...	74½c	10¾	35½c	11 1/1¾	32½c	9½	—	—	7½c	7	—	—	—	—
Brownlow ...	86	11	—	—	68	10¼	18	1/1¾	—	—	—	—	—	—
Brunswick ...	91 p	11¼	60½c	1/0½ 1/0¾	28	10	—	—	—	—	—	—	—	—
Calsay ...	190	8	—	—	57	†7¾	71	10¼	59	5½	—	—	3	7¾
Carlabeck ...	93	11	—	—	64	10	29	1/1	—	—	—	—	3	2¾
Carney ...	76½c	5¾	—	—	13½c	5¼	22½c	8¼	36½c	4¾	—	—	—	—
Caskie Ben ...	58	9	25	11¼	31	6½-†8	—	—	—	—	—	—	5½c	4¼
Chesterford ...	45	7¾	—	—	20	7½	12	10½	13	5¼	—	—	2	6
CLPC. N Peradn.	126	6¾	—	—	48	6¼	27	10½	47	5¼	2	3½	—	—
Clunes ...	179½c	8	—	—	92½c	7½	64½c	10	23½c	5	—	—	2	3
Columbia ...	46½c	11¼	—	—	18½c	10¾	23½c	1/0¾	3½c	7¼	—	—	—	—
Come Away ...	73 p	9¼	—	—	36	8	37½c	11½	—	—	—	—	2½c	4¾
Coolbawn ...	40	7¼	—	—	14	6¾	13	9¾	13	5	—	—	—	—
Craighead ...	76	7	—	—	42	5¾	21	10¾	13	5	—	—	—	—
CTPC Bolgownie	63	6¼	—	—	30	5¾	15	9¼	17	5	—	—	—	—
,,Dewalakanda	208 p	7¼	14	1/0¾	143 p	5¾-7¼	33	9¼	18	4½	—	—	1	3
,,East Holyrood	159 p	11¼	—	—	83 p	10½ 10¾	76	11¾	—	—	—	—	—	—
,,Mariawatte ...	116	7½	—	—	52	6½	36	10¾	28	4¾	—	—	—	—
,,Mudumana ...	100	7½	—	—	40	7	34	9½	26	5¼	—	—	—	—
,,Rosita ...	149 p	11¼	87 p	1/0¼-1/4	50	10 10¼	—	—	12	6¾	—	—	—	—
,,Sembawatte	75	6	—	—	30	5¼	25	7¾	20	5	—	—	—	—
,,Tangakelly ...	111	1/0¼	—	—	43	11¼	43	1/3¼	23	8½	—	—	—	—
,,Tillyrie ...	81	9¾	32	11¾	35	9	—	—	14	6½	—	—	2	6
,,Wallaha ...	149	9¾	—	—	75	9¼ †9¾	50	†11½	24	6	—	—	—	—
Culloden ...	149 p	7½	—	—	101 p	7¾ †7¾	28	11½	20	5½	—	—	—	—
Dambulagalla ...	124	7½	14	9¾	47	6½	35	9½	28	5	—	—	—	—
Daphne ...	32	5¼	—	—	20	4¾	7	7¼	5	4¼	—	—	—	—
Dea Ella ...	85½c	6¼	—	—	45½c	†6	22½c	8¾	16½c	†4½	—	—	2½c	†3½
Dedugalla ...	86	9¼	—	—	44	9½	25	†11¼	17	6	—	—	—	—
Deeside ...	90	10	—	—	46	9	44	11¼	—	—	—	—	—	—
Dchiowita ...	127	7½	—	—	71	7½	27	10	29	5¼	—	—	—	—
Dellotte ...	35	7½	—	—	6	7	17	9½	9	5¼	2	5	1	5¼
Delpotonoya ...	76	7¼	—	—	14	7	28	9¾	19	5½	15	5	—	—
Delta ...	78	9½	—	—	19	9¼	38	1½†11½	21	6	—	—	—	—
Deyanella ...	57	10½	14	10½	23	9	17	1/1¼	—	—	1	5½	2	4½
Dicoya ...	83	7	—	—	51	†6½	20	9¾	12	5	—	—	—	—
Dikmukalana ...	30½c	9	—	—	—	—	30½c	9	—	—	—	—	—	—
Dimbula ...	93 p	10⅓	—	—	29	11½	25½c	1/3½	39	8¼	—	—	—	—
Dolgalla ...	69	8¼	—	—	26	7½	25	11¼	18	5¼	—	—	—	—
Donside ...	54	6¾	—	—	20	6¼	14	10¼	20	5	—	—	—	—
Dotala ...	92 p	9¼	—	—	25	7	66½c	11	—	—	—	—	1	3
Drayton ...	192 p	10¼	128 p†	10½ 1/5	¼ —	—	—	—	49	†6¾	5	5¼	10½c	8
Dunnottar ...	46 p	9½	27½c	1/1	5	7	11	†8	1	4¼	—	—	2 p	†3¼
Elerapolla ...	130 p	7¼	—	—	38	6	71½c	9¾	21	5	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pekoe Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Edinburgh ...	50	1/1¼	—	—	15	1/1½	19	1 4¼	—	—	10	9¼	—	—
Ekkie Oya ...	83	6	—	—	41	5½	18	9	22	5	—	—	2	3
Ekolsund ...	54	7¾	—	—	18	8½	16	10¼	15	5½	2	3¾	3	3½
Elangapitiya ...	69	7¼	—	—	+3	6	24	10	2	+3	—	—	—	—
Elbedde ...	138	1/0¼	—	—	69	1/	44	†1/3½	25	7¾	—	—	—	—
Elfindale ...	231½c	6½	50½c	9¾	90½c	5½	59½c	6	32½c	4½	—	—	—	—
Elston ...	100	8	—	—	52	7½	30	10¼	18	5¼	—	—	—	—
Elstree ...	360½c	7	—	—	175½c	6 16¾	102½c	9¼ 6½	8 3½c	+3	—	—	—	—
Eltofts ...	88 p	9	—	—	25	9¾	40½c	†11¼	23	†6¼	—	—	—	—
EP&ECo Cndegal	54	1/	—	—	38	9¾ 1/0¼	15	1/1¾	—	—	—	—	1	9¾
,,Ingurugalle ...	58	7½	16	9¾	42	6¾	—	—	—	—	—	—	—	—
,,Labukelle ..	95 p	1/1	—	—	74 p	10½ 1/1¼	19	1/4¼	—	—	—	—	2	8¾
,,Meddecombra	129	9¼	—	—	76	7	53	†1/0¼	—	—	—	—	—	—
Ernan ...	123 p	8	28½c	11¾	47	7	24	10½	24	5	—	—	—	—
Excelsior ...	80½c	9¾	—	—	26½c	11	27½c	†11½	23½c	7	2½c	5½	2½c	4½
Fairfield ...	64	11¼	—	—	38	10½	26	1/0¼	—	—	—	—	—	—
Ferndale ...	35	9½	—	—	23	8¼	12	1/	—	—	—	—	—	—
Frogmore ...	22 p	10¼	—	—	10 p	8½ 9	11	1/	—	—	—	—	1½c	4½
Fruit Hill ...	90 p	9	48½c	1/	17	9½	—	—	23	5½	—	—	2½c	5¾
Gallawatte ...	44½c	7¼	—	—	18½c	5	25½c	†7 9¼	1½c	3¾	—	—	—	—
,, ...	44½c	7	—	—	18½c	5¼	25½c	†7 †8¾	1½c	4	—	—	—	—
Gallebodde ...	148	9¼	—	—	57	9½	48	11½	43	6	—	—	—	—
Gammadua ...	154	6	—	—	96	5 5¼	47	†7¾ 8	—	—	4	3¾	7	3
,, ...	45	7	—	—	27	5½	16	10	—	—	1	†3¼	1	†3
Ganapalla ...	71	6½	—	—	34	6	18	9¾	17	4¾	—	—	2	2½ 2¾
Geddes ...	89 p	10	—	—	39	7½ 10¼	45	†11	—	—	—	—	7½c	4
Gikiyanakanda ...	102	9½	—	—	45	5¾ 10	35	1/0½	22	5¾	—	—	—	—
Gingranoya ...	57	10½	20	1/1½	30	9¾	—	—	7	5¾	—	—	—	—
Glassaugh ...	103 p	10¾	—	—	37	11½	23½c	1/3½	23	9	—	—	20½c	6½
Glen Alpin ...	100 p	11½	—	—	53	11	31	1/2¾	10	7¼	2	5¼	4½c	4¾
Glendon ...	58	8¼	—	—	32	8	16	10¾	9	4¾	—	—	1	†2¾
Glentaaffe ...	67	10¼	—	—	31	10¼	14	1/3¼	21	7	—	—	1	3
Glentilt ...	133 p	9¼	56¾c	†1/0¼	24	10¼	—	—	33	7¼	—	—	20½c	4
Goatfell ...	84 p	1/1½	14	1/1½	50 p	11¾	20	†1/4	—	—	—	—	—	—
Good Hope ...	33	7	—	—	33	7	—	—	—	—	—	—	—	—
Gonakelle ...	41	9½	13	1/0½	10	10	—	—	16	7¼	—	—	2	3¾
Goomera ...	72	7¾	—	—	30	†7	27	9¾	12	5¼	3	5	—	—
,, ...	47	8¼	—	—	20	8½	14	10¼	12	5¾	1	3½	—	—
Gouravilla ...	82 p	9¾	34½c	1/1¾	20	10	—	—	28	7¼	—	—	—	—
Hangran Oya ...	43 p	7¼	—	—	15	8	10	9¾	15	5	—	—	3½c	3
Hardenhuish & L.	56	9	—	—	—	—	31	10	25	8	—	—	—	—
Harmony ...	50 p	6½	—	—	13	6¼	18½c	9½	16	5¼	1½c	2½	2½c	4
Hayes ...	259½c	6¾	—	—	80½c	6¼	79½c	9½	100½c	4½ 4¾	—	—	—	—
Heatherley ...	97	8½	—	—	56	8	26	11¾	15	5½	—	—	—	—
Heatherton ...	54 p	9	—	—	23	9½	18½c	1/1	13	5¾	—	—	—	—
Heeloya ...	104 p	7½	—	—	71 p	†5¾ †6½	24	10¼	5	4½	—	—	4½c	4
Helbeck ...	20	10½	—	—	11	9½	7	1/1¼	2	6¼	—	—	—	—
Hethersett ...	66 p	10	—	—	16	†9¾	36½c	1/1	12	†6½	1	3¾	1½c	6¼
Holmwood ...	139 p	8¼	—	—	37	8	64	9½	29	5¾	—	—	9½c	6
Hornsey ...	102	10¼	38	1/1	40	10¼	—	—	17	6¾	—	—	7	5½
Hunasgeria ...	103	8¾	—	—	43	9¼	24	11½	31	6¾	2	2½ 4	3	3¼
Iddegodda ...	47	9¼	—	—	15	10	17	11½	15	5½	—	—	—	—
Imboolpittia ...	198 p	7¾	25	10¾	61 p	7¼ 7½	25	11	81 p	5 5½	—	—	6½c	+¼
IMP ...	140 p	9	—	—	43 p	9¾ 10	46	†11¼	51	6¼	—	—	—	—
,, ..	59	5½	—	—	—	—	—	—	—	—	20	4½	39	4½ 7¼
Indian Walk ...	72½c	6¼	—	—	54½c	5¼	18½c	8¾	—	—	—	—	—	—
Indurana ...	77	7¼	—	—	23	8¼	19	9¾	34	5¼	—	—	1	2¾
Ingrogalla ...	66	6½	—	—	17	†6½	16	†10	33	†5	—	—	—	—
Kaipoogala ...	91	9¼	—	—	41	8½	41	10¾	9	5¼	—	—	—	—
Kallebokka ...	55 p	10¾	30 p	11-1/5	18	10	—	—	6	6	—	—	1½c	3¼
Kaloogala ...	64	7½	—	—	22	6½ 7	26	9¾ 10¼	16	5 5¼	—	—	—	—
,, ...	77	7¾	—	—	30	7½	25	10¼	22	5½	—	—	—	—
Kaluganga ...	52	6¾	—	—	22	6	19	9	10	5	—	—	1	3½
Kandapolla ...	92 p	1/0¾	52½c	1/1	—	—	24	1/1¾	16	10¾	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Katooloya ...	79	10¼	—	—	32	9¾	29	1/1¾	18	6	—	—	—	—
Kelaneiya ...	115	7¾	—	—	58	†6	57	†9¾	—	—	—	—	—	—
KelaniValAsso D	117	8	—	—	56	7	42	10½	19	5¼	—	—	—	—
Kelvin ...	111	8¾	—	—	42	8	46	11	23	5½	—	—	—	—
Kintyre ...	74 p	9½	39 p	1/0½-1/2	35	6½	—	—	—	—	—	—	—	—
,, ...	38	9	20	1/0¾	—	—	—	—	18	5	—	—	—	—
Kirkoswald ...	185 p	11¼	50½c	1/6¼	59	10¼	29	1/2	47	7	—	—	—	—
Knuckles Group	72	7¾	—	—	28	7½	23	10½	21	5¼	—	—	—	—
Kottagalla ...	59 p	11½	31½c	1/1¾	28	10¼	—	—	—	—	—	—	—	—
Lauderdale ...	70	7¼	—	—	18	7	20	10½	32	5¼	—	—	—	—
Leangapella ...	32	9	20	10½	12	6¼	—	—	—	—	—	—	—	—
Lesmoir ...	54	6¾	—	—	19	†6½	13	9¾	22	5¼	—	—	—	—
Lippakelle ...	95	1/	—	—	53	8½ 11¼	36	1/2-1/3½	—	—	—	—	6	8½
Liskillen ...	34	6½	—	—	19	5½	15	7¾	—	—	—	—	—	—
Little Valley ...	47	6¾	—	—	32	5¾	15	8¾	—	—	—	—	—	—
Logan ...	66½c	8¼	—	—	32½c	6¾	34½c	9¾	—	—	—	—	—	—
Lynsted ...	144½c	10¾	—	—	96½c	6¾ 10½	48½c	1/1¼	—	—	—	—	—	—
Maddegadera ...	50	7	—	—	18	7¼	12	10	20	5¼	—	—	—	—
Mahacoodagalla	111 p	11	19	1/	43	10	49 p	11½-1/-	—	—	—	—	—	—
Mahalla ...	53	6¼	—	—	12	5¾	16	9	25	4¾	—	—	—	—
Maha Nilu ..	63 p	9½	5 b	1/7¾	23	10½ 10¾	6	1/2¾	27	7¼	2	2½	—	—
Mahousa .	78	8½	40	10¾ 11	21	†6½	—	—	16	5	—	—	1	3
Mapitigama ...	23	6	—	—	17	5	6	9	—	—	—	—	—	—
Marguirita ..	28½c	11½	—	—	9½c	1/3¾	8½c	11	11½c	8¾	—	—	—	—
Maskeliya ...	103 p	9½	63½c	†10¼ 1/1½	34	8¼	—	—	—	—	—	—	6½c	4¼
Melrose ...	78	6¼	—	—	29	5½	27	8½	22	4½	—	—	—	—
Midlands ...	157½c	7½	—	—	42½c	7¼	45½c	11½	47½c	5½	—	—	23½c	5
Mipitiakande ...	183 p	9	—	—	95	9	36	1/2½	47	5½	1	3¼	4½c	4
Mirisketiya ...	62	7¼	—	—	32	†7¼	12	10½	18	†4¾	—	—	—	—
M' K' Oya ...	72 p	7	—	—	14	6¾	17	10½	27	5¼	6½c	4½	8½c	6¾
Mooloya ...	54	1/1¾	—	—	24	1/0½	30	1/2¾	—	—	—	—	—	—
Mottingham ...	91 p	7½	—	—	31	8¼	29½c	11	31	5½	—	—	—	—
Narangalla ...	80 p	10¼	—	—	25	11	25	1/1¾	23	7¼	4	4¾	3½c	3½
Nayabedde ...	87	8½	—	—	50	†7-9¼	18	1/0½	16	6¼	3	2½-3½	—	—
Neuchatel ...	52	7½	—	—	14	8½	17	9¾	21	5¼	—	—	—	—
NewDimbulaD...	249	1/2¼	—	—	91	1/1½	110	1/4½	48	10½	—	—	—	—
New Peacock ...	256 p	7	—	—	67	7¾	94½c	10	86	4¾	3½c	3½	6½c	4¼
New Valley ...	86	10¼	17	†1/0½	50	10¼	—	—	19	8	—	—	—	—
Nyanza ...	94	10	—	—	38	10½	21	1/2¼	29	7½	6	5	—	—
OBECCraigieLea	102	8½	—	—	46	8½	26	11½	30	5¾	—	—	—	—
Ooragalla ...	88	8	—	—	15	6¼	53	9¼	20	5½	—	—	—	—
Orion ...	168 p	8½	—	—	64 b	9½	81 b	11	12	5¼	7½c	4¾	4½c	2¾
Osborne ...	133	10¼	—	—	70	10	43	1/0¼	20	7	—	—	—	—
Ouvah Kellie B...	41	11¼	—	—	18	10½	15	1/2¼	8	7¾	—	—	—	—
Ouvahkellie ...	59	10¾	—	—	19	11	18	1/3	20	†7½	—	—	2	4
,, D ...	46	11¼	—	—	13	11¼	12	1/4	21	8½	—	—	—	—
Ovoca ..	74	11	—	—	37	11	20	1/2½	17	7	—	—	—	—
Palliagodde ...	67½c	8¼	—	—	30½c	7¾	24½c	10½	—	—	13½c	5¼	—	—
Pambagama ...	156 p	7¾	—	—	96	†7¼	55½c	9½	5	5	—	—	—	—
Pantiya ...	120	7¾	—	—	31	8¼	38	10¼	29	5¼	22	4¾	—	—
PDM ...	32 p	1/1½	—	—	12	11¾	20½c	1/3½	—	—	—	—	—	—
Penrith ...	85	9	—	—	24	8¾	31	1/	19	6¾	—	—	11	4-5
Pen-y-lan ...	126	8½	—	—	54	7½	57	10½	10	4¾	1	3½	4	4¾
Poolbank ...	57½c	8¾	32½c	10¼	25½c	6¾	—	—	—	—	—	—	—	—
Portswood ...	89½c	1/0½	—	—	35½c	†1/2½-†1/	4½27½c	†1/-†1/	2 27½c	†8½†9¼	—	—	—	—
Preston ...	55 p	1/0¼	21	1/2¾	27	11¼	—	—	—	—	—	—	7 p	6¼-6¾
Queensberry ...	82 p	7¾	—	—	—	—	23	11½	52	6¼	2	3½	5½c	4½
Ragalla ...	67 p	10¼	—	—	21	10½	32½c	1/1	11	6¾	—	—	3½c	4¼
Rangbodde ...	67	9	—	—	34	9	20	†11½	13	†5¾	—	—	—	—
Rappahannock ...	45	10½	—	—	29	8¾	16	1/1½	—	—	—	—	—	—
Relugas ...	62	6¾	—	—	24	6¾	16	9½	19	4¾	—	—	3	3
Retnagherry ...	56	8½	12	9¾	22	6¾	16	†10¾	—	—	—	—	—	—
Richlands ...	62 p	6¾	25½c	9½-9¾	23½c	†6¼	—	—	14	4¾	—	—	—	—
Rillamulla ...	84½c	6¼	—	—	48½c	5½ †5¾	19½c	†8½	16⅓c	5	—	—	1½c	2½

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Rookwood ...	81½c	10	20½c	11½	27½c	11	9½c	11¼	23½c	7	—	—	2½c	6¼
Rowley ...	26½c	5¾	—	—	26½c	5¾	—	—	—	—	—	—	—	—
Sanquhar ...	91	7¼	—	—	33	7	23	10	35	5½	—	—	—	—
Scarborough ...	128 p	9½	41	11½	52	9	12	11¼	19	6¼	—	—	4½c	5¼
SCTC Abergeldie	59 p	10¾	—	—	25	10¾	22½c	1/3	12	7¼	—	—	—	—
St. Andrews ...	60 p	9¼	25	10¾	20	7½	15½c	8¾	—	—	—	—	—	—
St. George ...	55	11½	—	—	20	10½	27	1/1¾	8	7	—	—	—	—
St. John Del Rey	129 p	10¾	—	—	41	†11¼	46½c	1/2½	38	8¼	—	—	4 p	6¼ 11
Stonycliff ...	145	9½	—	—	65	9¼	54	11¾	12	6¼	14	4½ 5	—	—
Summerville ...	60 p	10¼	—	—	20	8½	40½c	1/	—	—	—	—	—	—
Sunnycroft ...	169	6¾	43	7 10	72	5¾	33	8¼	21	4¾	—	—	—	—
Tellisagalla ...	44	7¼	—	—	22	7	11	9⅜	11	5¼	—	—	—	—
Thornfield ...	120 p	10¾	—	—	38	9¼	73½c	1/1¼	6	5½	—	—	3½c	8
Torwood ...	107 p	7¾	—	—	57	6¾	50½c	10¼	—	—	—	—	—	—
Tunisgalla ...	160	7½	—	—	48	6 7½	53	8 10¼	57	4½5¼	—	—	2	3¼
Udaradella ...	131 p	8½	66 p	1/	32	8	—	—	30	5½	—	—	3	5¼
Ukuwela ...	69	6¼	—	—	21	6¼	19	9	18	5¼	7	3¾	4	3
Uplands ...	119 p	6	—	—	30	5	52½c	9	37	4¾	—	—	—	—
Valamaly ...	62	11½	—	—	42	10½	19	1/1¾	—	—	—	—	1	4
Vallambrosa ...	44 p	11	33 p 1	1½ 1/4¾	—	—	—	—	11	7¼	—	—	—	—
Vogan ...	103	7½	—	—	36	6½	45	9½	22	5¼	—	—	—	—
Wangie Oya ...	112	10	40 1/	0¼ 1/2½	60	9	—	—	12	5½	—	—	—	—
Wariagalla ...	56	7	—	—	16	6¾	21	9	17	5	—	—	2	3¼
Wattegodde ...	113 p	9½	—	—	58	9¼	27	1/	21½c	5¾	—	—	7½c	6¼
Wavendon ...	82½c	6¾	—	—	10½c	†5¾	24½c	†8¾	48½c	5¾	—	—	—	—
Woodend ...	50	7	—	—	26	6½	13	10	10	4¾	—	—	1	2¼
Woodlands ...	43	7	—	—	16	6¾ 7	16	†6½ 9½	9	5	—	—	2	3-3½
Yapane ...	61 p	9	—	—	23	8¼	23	11¾	11	5¾	—	—	4½c	3¼

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *May 13th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,151,218 packages.	614,265 packages.	55,780 packages.
1891-1892.	1,268,514 ,,	769,276 ,,	41,425 ,,

During the week

3,487 packages Indian
0,448 ,, Ceylon } Total 34,715 packages have been offered in public auction.
780 ,, Java

The increase in Home Consumption during the past eleven months is satisfactory.

Exports of Indian and Ceylon Teas from Great Britain during April were Indian, 349,152, Ceylon, 340,123; against Indian, 169,104, Ceylon, 151,536 in April last year.

Figures below show a remarkable expansion in the re-export of Indian and Ceylon Teas during *even* months.

It has been arranged that until August, Indian Sales shall be held only on Mondays and Wednesdays, and Ceylons on Tuesdays and Thursdays. This plan may promote the more even distribution of the Ceylon auctions on the two days mentioned, and thus relieve the pressure of sales on Tuesdays.

Quantity of Tea (in lbs.) on which Duty was paid at all Bonded Warehouses in the Kingdom from 1st June to 30th April.

	1888-1889.	*per centages.*	1889-1890.	*per centages.*	1890-1891.	*per centages.*	1891-1892.	*per centages.*
Indian	82,582,401	49	81,117,248	53	93,584,697	51	95,349,797	50
Ceylon	20,937,366	12	24,186,728	16	36,313,139	20	52,536,284	28
China, etc.	65,572,871	39	47,725,964	31	52,626,764	29	40,787,664	22
Total lbs.	169,092,638		153,029,940		182,524,600		188,673,745	

Quantity of Tea exported from Great Britain, from 1st June to 30th April.

	1888-89.	1889-90.	1890-91.	1891-92.
Indian	*Included with China.*	*Included with China.*	2,134,262	3,860,315
Ceylon	,,	,,	1,294,162	2,672,592
China, etc.	36,231,595	32,649,646	27,521,659	26,745,800

INDIAN. The market continues very steady. Invoices of new Tea just to hand from Darjeeling and Terai show excellent quality and flavor, combined with useful strength.

This weeks average price of New Season's Teas sold on Garden Account. Total 6,228 pkgs. average 8¼d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	1328 p	9½d	Chota Nagpore ..			Kangra Valley, Etc.	52 p	5¾d
Cachar and Sylhet..	4276 p	8d	Darjeeling			Neilgherry.. ..	25 b	9d
Chittagong			Dooars	486 p	9d	Travancore	61 c	6¼d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892,	3½d.	1891,	6½d.	1890,	5¾d.	1889, 4¾d
CANNINGS.	(Red to brown, strong rough liquor)	,,	4½d.	,,	7d.	,,	6d.	,, 4¼d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6d.	,,	8½d.	,,	7¾d.	,, 5½d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	6½d.	,,	9½d.	,,	8¾d.	,, 7½d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	10d.	,,	10½d.	,,	9¾d.	,, 9d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9d.	,,	7½d.	,, 6d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7d	,,	9¼d.	,,	8¼d.	,, 6½d.

CEYLON. The presence of several invoices of improved quality conduced to the distinctly better tone noticeable in the bidding. Prices are dearer to the extent of a halfpenny to a penny per lb., only a few poor liquoring lots not participating in the general advance. Average, 9½d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6¼d.	1891,	8½d.	1890,	8¼d.	1889, 6¾d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9d.	,,	9½d.	,,	9¾d.	,, 7¾d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	8¼d.	,,	8d.	,, 6½d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6d.	,,	8¾d.	,,	8¾d.	,, 7d.

JAVA. The small sale passed at rather better rates—export demand being strong and the quantity arriving very small.

BANK RATE. 2 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3⅝. Colombo 1/3⅝.

INDIAN. Average 8¼d.

Garden.	Total. Quantity.	Total. Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Broken Org. Pekoe or Flowery Pekoe. Price	Pekoe and Unassorted. Quantity.	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity.	Broken Pekoe. Price.	Pekoe Souchong. Quantity	Pekoe Souchong. Price	Broken and Souchong. Quantity	Broken and Souchong. Price	Fannings, Dust and Various. Quantity	Fannings, Dust and Various. Price
ASSAM	**1328 p**	**9½**												
AssamCo Gelakey	351	11¼	60	1/5-1/6½	67	10-1/1	—	—	—	—	224	3¼ 1/5¼	—	—
,, Mackeypore	480 p	8½	40½c	1/4	155	9½ 10½	62½c	1/4½	120	5½ 5¾	103	6 6¼	—	
,, Mazenga ...	102 p	7½	—	—	11	1/0½	24½c	1/2½	13	7½	26	2½ 5½	28½c	5
,, Towkok ...	208 p	11	20½c	2/1	—	—	24	1/4½	—	—	89	8	75½c	1
*British Assam C	187	7½	—	—	20	1/1¾	—	—	73	8¾	61	5¾	33	3 3
CACHR & SYLHT	**4276 p**	**8**												
Adam Tila ...	61 p	7	—	—	15	9¼	15½c	9	10	5½	10½c	4¼	11½c	3
*B&CoChargolaC	57	9	11	1/1½ 1/2¼	25	9	3	6¾	18	6¼	—	—	—	
* ,, ,, ,,	347	8½	38	1/2-1/6	116	9½	39	8	154	16	—	—	—	—
* ,, ,, H	359 p	9	40	1/-1/5½	77	9¾	110	8¼-8½	96	7½	13	4¾	23½c	4
* ,, ,, M	105	6¾	—	—	37	8	16	17	38	5¾	1	4	3	2½
* ,, ,, ,,	105	7½	15	1/1	38	8¼	10	16¼	26	5¼	15	4¾	1	2¼
Cherrie Valley ...	175	7	—	—	40	8¾	25	11½	50	5¾ 6	60	4¾ 5	—	—
Digun ...	40	6¾	—	—	—	—	—	—	20	7¾	14	7	6	3
Pathecherra ...	174 p	10½	54½c	1/1	72	9½	48	10¼	—	—	—	—	—	—
Sathgao ...	278 p	9½	—	—	106 p	11¼ 1/1	26 p	1/7¼	43	8¾	—	—	103	3½ 8¼
SephinjuriBhTCo	516	5½	—		148	6¼	75	7¾	27	4¾	—	—	16	1¼
SSTCoBalisera	721 p	8½	169	10¼ 1/10½	133	8½ 8¾	101	10¼	205	6	60	5	53½c	3¾
,,Jagcherra ...	270 p	8¾	12	1/9¼	79	8½	90	9½	60	6¾	—	—	29½c	4
,,Phulcherra ...	306 p	9	70	10½ 1/8	62	9¼	71	10	41	6¼	36	5¼	7 1c	1
,,Rajghat ...	620 p	9¼	149	1 0¾ 1/7¾	147	9¼	96	10	125	7 7¼	66	6	37½c	5
DOOARS	**486 p**	**9**												
*NSTC Bytagool	164 p	10½	43 p	11-1/5	41	9½ 10¼	29	8¼ 1/7½	14	5½	25	4¾-6½	12½c	6
*,,Nowrea Nuddy	322 p	8¼	77 p	9¼ 1/9½	65	8¾ 9	50	7½9½	77	6	36	5 5¼	17½c	4 4
KANGRAVALEY														
Glaghnaguddin	52 p	5¾	8 p	7¼-9½	13	5½	3	8½	28	4½-5	—	—	—	
NEILGHERRY														
Guernsey ...	25 b	9	10 b	10	13 b	8½	—	—	—	—	2 b	6	—	—
TRAVANCORE														
Isfield ...	61	6¼	—	—	11	7	10	9	25	5½	15	4¾	—	—

Gardens marked thus * are last of the Season.

CEYLON. Average 9½d.

Garden.	Total. Quantity.	Total. Average Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Broken Org. Pekoe or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity.	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity.	Broken Pekoe. Price	Pekoe Souchong. Quantity.	Pekoe Souchong. Price.	Broken and Souchong. Quantity.	Broken and Souchong. Price	Fannings, Dust and Various. Quantity.	Fannings, Dust and Various. Price
Abbotsford ...	108	9½	—	—	40	9¾	38	11½	30	6⅓	—	—	—	—
Abbotsleigh ...	100	11¼	—	—	67	10½	33	1/0½	—	—	—	—	—	—
Aberfoyle ...	58 p	8	—	—	24	8¼	24½c	9¾	7	5	—	—	3½c	3½
Amuna Mulle ...	94½c	9¼	54½c	10¾	40⅓c	7½	—	—	—	—	—	—	—	—
Avoca ...	62	10½	19	1/1¼	32	10¼	—	—	11	6¼	—	—	—	—
Barnagalla ...	131	9	20	11½	36	9¼	26	1/0½	49	6¼	—	—	—	—
Bathford ...	49	1/	—	—	15	10½	26	1/1¾	8	8¾	—	—	—	—
Beaumont ...	94	7¾	—	—	31	7¾	31	10	32	5½	—	—	—	—
Belgravia ...	46	1/0½	—	—	13	1/0½	23	1/2¼	9	9	1	4	—	—
Blackwater ...	237 p	7½	42½c	1/0¼ 1/5¼	54	9	20	9¼	97	5¾	21	4½	3	3½
Bloomfield ...	56 p	1/1¼	39½c	1/2¾	15	1/	—	—	—	—	—	—	2	7½
Bollagalla ...	47 p	6¼	—	—	12	6	18½c	9¾	14	5	—	—	3	2¾
Bukanda ...	68	7¼	—	—	22	7¼	22	9½	23	5½	1	3	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
ampion ...	81	10½	—	—	25	10¼	30	1/1¾	26	7	—	—	—	—
almers ...	94	7¾	—	—	27	7½	40	9½	21	5¾	4	4½	2	3
apelton ...	165 p	1/1	—	—	55	1/0¾	75½c	1/5	35	9	—	—	—	—
arley Valley ...	217 b	10¼	—	—	44 b	9¾	51 b	1/3¾	122 b	8	—	—	—	—
&PC Eadella	129	6¾	—	—	44	6¼	31	10⅓	54	4¾	—	—	—	—
,Fetteresso ...	123 p	11¼	—	—	38	11	58½c	1/2¼	24	8¾	1	5⅓	2½c	5
,Leaston ...	107 p	1/	13	1/2	30	11¼	32½c	1/7	23	8¾	5	6¾	4	5½
,Narangalla ...	81	6¾	—	—	52	5¾	24	†9½	5	4¾	—	—	—	—
NewPeradeniya	85	7	—	—	27	6¾	18	10½	39	5½	—	—	1	2¾
verton ...	85	11	19	1/1	41	9¾	12	1/5	13	6¾	—	—	—	—
me Away ...	75 p	9½	—	—	37	8¾	38½c	11¼	—	—	—	—	—	—
PCo Alton ...	207	10	—	—	65	10	69 1	1¼1/1½	53	6½	—	—	20	10¼
,Mariawatte ...	98	7	—	—	37	6½	23	10¾	38	5¼	—	—	—	—
,Tillyrie ...	123	9¾	53	11¼	46	9¼	—	—	24	6¾	—	—	—	—
,Wallaha ...	216	9¾	—	—	105	9¼ 10½	59	1/	52	6½	—	—	—	—
,Waverley ...	125	1/1¾	—	—	53	1/1	72 1/	2¼ 1/2½	—	—	—	—	—	—
,Yoxford ...	43 p	11¾	—	—	26	9-1/-	17½c	1/1½	—	--	—	—	—	—
eside	80	9¾	—	—	37	10¼	31	10½	12	7	—	—	—	—
hiowita ...	72	8¼	—	—	34	7¾	26	10¼	12	5½	—	—	—	—
nmark Hill ...	50	9	—	—	16	†9	18	11½	15	†6	—	—	1	7¼
ssford ...	100	10½	—	—	50	10	28	1/1½	22	7¾	—	—	—	—
tenagalla ...	52½c	9	—	—	28½c	†7	24½c	11¼	—	—	—	—	—	—
vituraí ...	50	9½	—	—	23	8¾	23	11¼	—	—	2	4¾	2	3½
,, ...	20	5¾	—	—	20	5¾	—	—	—	—	—	—	—	—
vonford ...	64 p	11½	—	—	19	11	38½c	1/1¼	7	8¼	—	—	—	—
galla ...	93 p	7¾	—	—	35	7	35	10¼	16	5¼	4	4½	3½c	3
mukalana ...	60½c	8¼	—	—	18½c	7½	24½c	10¾	18½c	5½	—	—	—	—
anellekelle ...	98	10	—	—	41	9¾	41	11¾	16	6	—	—	—	—
nkeld ...	125 b	9	125 b	8¾-9⅓	—	—	—	—	—	—	—	—	—	—
nsinane ...	256 p	10¾	56½c	1/3¾	120 p	10 10¾	—	—	66 p	8-8¾	—	—	14	10
a ...	109	5½	—	—	61	6	—	—	48	4¾	—	—	—	—
in ...	69	1/0¼	—	—	23	11½	28	1/3	15	8¾	—	—	3	9¼
kadua ...	124	7½	—	—	34	7½	37	10	53	5½	—	—	—	—
agalla ...	59	7½	—	—	4	7½	24	10	27	5¾	2	3¼	2	3¼
&ECo Asgeria	45	7¼	—	—	32	5¾	13	11¼	—	—	—	—	—	—
Doombagastala	62	7	—	—	41	5½	21	9¾	—	—	—	—	—	—
Hope ...	115	7¾	—	—	58	6¼	57	9½	—	—	—	—	—	—
Ingurugalle ...	28	9	—	—	—	—	28	9	—	—	—	—	—	—
Kirrimattia ...	50	10	—	—	31	9	19	11¾	—	—	—	—	—	—
Norwood ...	70	1/2	—	—	42	1/0½	28	1/4	—	—	—	—	—	—
Rothschild ...	48	7¾	15	10	33	6¾	—	—	—	—	—	—	—	—
Sogama ...	73	7	23	9½	50	6	—	—	—	—	--	—	—	—
peranza ...	25½c	8	13½c	10½	11½c	5¾	—	—	—	—	—	—	1½c	2¾
nlands ...	117 p	11	—	—	44	8¾-10	69½c	1/1¼	—	—	2½c	6½	2½c	4¾
dyce ...	188 p	10¼	—	—	38	10¼	102½c	1/0¾	33	7½	—	—	15½c	7¼
edland ...	90½c	10¾	—	—	25½c	11½	32½c	†1/0¾	33½c	8	—	—	—	—
aha ...	206	8¾	—	—	34	8¼-8½	110	10½	57	6¼	—	—	5	4-7¾
,, ...	20	7¾	—	—	20	7¾	—	—	—	—	—	—	—	—
,, ...	86	9	—	—	—	—	50	10¾	30	6¼	—	—	6	8½
ata ...	161 p	8¾	—	—	36 b	9½	104 b	11¼	17	5¾	4	4½	—	—
ella ...	22½c	5½	—	—	22½c	5½	—	—	—	—	—	—	—	—
kadua ...	75	7½	—	—	29	7	26	9¾	19	5	1	3½	—	—
lebodde ...	108	9¼	—	—	39	9¾	37	11½	32	6¼	—	—	—	—
watenne ...	118½c	8½	—	—	64½c	8	40½c	10¾	—	—	—	--	14½c	4
iyanakanda ...	160	9½	—	—	52	9¼	67	1/	41	6	—	—	—	—
ssel ...	75	8¼	26	10 1/0¾	34	6¾	—	—	15	5¼	—	—	—	—
nalla ...	44	5½	—	—	44	5½	—	—	—	—	—	—	—	—
,, ...	98	8¾	33	1 1-1/1¼	44	7¾	—	—	12	5¾	—	—	9	4¾
ncairn ...	90	7¾	—	—	22	8¾	22	11½	44	5¾	—	—	2	3¾
ngariffe ...	101 p	8¼	—	—	31	8¾	37	10¼	26	5½	15	5¾	2½c	4¾
ntilt ...	131	9	51½c	1/0¾	27	10½	—	—	36	7¼	17	4¾	—	—
nugie ...	155 p	10¼	—	—	60	9½	74½c	†1/1¾	14	6½	7½c	3¾	—	—
tfell ...	100	1/1	23	1/1¼	63	1/0¼	14	1/3½	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Gona Adika Co G	74 p	9	—	—	26	7¾	48 p	†9½ 10¼	—	—	—	—	—	—
Gonamotava ...	44 p	7½	—	—	24	8	9	9¾	8	4¾	1½c	4¼	2	2
Goorookelle ...	62	9	—	—	13	8¾	33	10½	15	6¼	—	—	1	7¾
Goorookoya ...	144	6¾	—	—	45	5¼	50	†9½	49	5¼	—	—	—	—
Gorthie ...	131 p	10¾	—	—	47	10½	56½c	1/2¼	23	7½	—	—	5½c	6½
Great Western ...	179	9¼	83	7¼ 11¼	35	9¼	23	11	38	7¼	—	—	—	—
Hantane ...	85 p	8¼	—	—	35	9	25½c	11½	24	5½	—	—	1	4½
Happugahalande	70	9¾	—	—	23	8¾	22	†11¼	23	9½	—	—	2	3
Hatale ...	92	8¼	15	9¾	36	8	17	10¾	24	5¾	—	—	—	—
Hauteville ...	79	1/0¾	—	—	27	11½	40	1/2¾	12	9	—	—	—	—
,, ..	82	1/0¾	—	—	30	11¾	40	1/2¾	12	8¾	—	—	—	—
Hemingford ...	146	6¾	—	—	56	6¼	46	9½	34	5	10	3¾	—	—
Henfold ...	128	1/1½	—	—	62	1/0¼ 1/0½	54	1/4	12	8	—	—	—	—
Hindagalla ...	90 p	10¾	—	—	51	10½	17	1/3	13	8¼	2	5¾	7½c	7
IMP ...	148 p	8½	—	—	43 p	10 10½	33	11	72	6½	—	—	—	—
Inchstelly ...	97½c	6½	—	—	28½c	†6¼	19½c	10½	46½c	5	2½c	4	2½c	3¾
Ingestre ...	80 p	9	—	—	51	8¼	29½c	1/	—	—	—	—	—	—
Kabragalla ...	235 p	7½	—	—	43½c	8¼	48½c	10½	111 p	5¾-†7	33½c	3½-4¼	—	—
Kadien Lena ...	199	7½	—	—	72	6½	80	9½	45	5¼	1	3¼	1	4
Kaluphani ..	59 p	9¾	—	—	1½c	8½	41½c	1/0¾	16	6¾	—	—	1	2¾
Kandal Oya ...	261½c	7¼	58½c	8¾	116½c	6¼	52½c	9¼	35½c	4¼	—	—	—	—
Kandapolla ...	126 p	11¾	60½c	1/1	—	—	30	1/1	18	10¾	—	—	18½c	6
Kandenewera ...	48	7¾	—	—	48	7¾	—	—	—	—	—	—	—	—
Kataboola ...	48	8¼	—	—	17	9	10	11½	21	6¼	—	—	—	—
Katooloya ...	110 p	9¾	—	—	29	10	32	1/2	18	7¾	14	5	17½c	4¼
KAW ...	286	10¼	—	—	226	9½ 1/0½	34	1/1½	—	—	26	6½	—	—
Kelburne ...	29	9½	—	—	15	8¼	14	11	—	—	—	—	—	—
,, ...	27	5¾	—	—	27	5¾-6	—	—	—	—	—	—	—	—
Kellie ...	139	8¾	—	—	61	8¾	33	1/	45	6	—	—	—	—
Kinloch ...	16	10	—	—	—	—	16	10	—	—	—	—	—	—
Kintyre ...	63 p	11	40	1/0½ 1/3¼	—	—	—	—	—	—	16	5½	7½c	5¼
Kiriwana ...	62	8¾	—	—	13	8½	33	10½	15	5½	—	—	1	5¾
Kotiyagalla ...	135 p	1/0¾	—	—	52	11½	83½c	1/2¼	—	—	—	—	—	—
Kowlahena ...	37	1/1	—	—	16	11½	21	1/2¼	—	—	—	—	—	—
Laurence ...	107	10¾	42	1/0⅓	47	10	—	—	18	8	—	—	—	—
Laxapana ...	174 p	9¼	28½c	1/0¾	77	8¾	45½c	1/	24	6	—	—	—	—
Le Vallon ...	130 p	10½	—	—	27	10½	78½c	11¾	25	8¼	—	—	—	—
Lindoola ...	51	10½	—	—	24	8¾	27	1/0¼	—	—	—	—	—	—
Liskillen ...	26	7½	—	—	9	5¼	17	8½	—	—	—	—	—	—
Longford ...	51½c	6¼	—	—	33½c	5¼	18½c	8	—	—	—	—	—	—
Lynsted ..	98 p	8	—	—	—	—	64½c	11½	—	—	14	4¼	20	4½
Mattakelly ...	181	9	—	—	69	9¼	52	11¾	57	6	—	—	3	6¾
Maturatta ...	74½c	10¾	6½c	†8¾	36½c	11	28½c	11¼	—	—	—	—	4½c	6¾
Mayfair ...	78	9	24	11¼	40	8¾	—	—	14	6	—	—	—	—
Melfort ...	85	11¾	43	1 1¾ 1/2½	42	10	—	—	—	—	—	—	—	—
Minna ...	219 p	8½	—	—	109½c	9½-9¾	50½c	1/0¼	60	†6	—	—	—	—
MK ..	24	8¾	—	—	12	7¼	12	10	—	—	—	—	—	—
Mooloya ...	35	1/0½	—	—	17	†11	18	†1/2	—	—	—	—	—	—
Morar ...	87 p	10	—	—	23	10¼	41½c	1/1	23	7¼	—	—	—	—
Moray ...	145	10	—	—	59	7¾-10	70	11½	—	—	—	—	16	7
Mount Vernon ...	211 p	9¼	52 p	1/3¼ 1/8¼	88	9	—	—	22	6¼	49	5	—	—
Nartalgalena ...	171½c	6	—	—	81½c	5¾	43½c	8	29½c	5	18½c	4½	—	—
Nathapane ...	44	8½	—	—	15	8½	14	10¾	12	5¾	2	5¼	1	8½
Nayabedde ...	60	9¼	—	—	26	8¾	19	1/0½	15	6	—	—	—	—
New Dimbula D...	168	1/1¼	—	—	62	1/0⅕	78	1/3-1/3¼	28	10	—	—	—	—
OBEC Craigie Lea	31 p	5½	—	—	—	—	—	—	—	—	11	4-4½	20½c	4½-7
,, Dangkande...	65½c	7¼	—	—	20½c	6¾	26½c	9¼	17½c	5½	—	—	2½c	3¾
,, Darrawella...	129	9	—	—	68	9¼	33	11	26	6	2	4¾	—	—
,, Glendevon ...	100	11¼	—	—	31	11	39	1/1	30	9¼	—	—	—	—
,, Loolecondera	75	8¾	—	—	29	7¼	28	11¼	18	7½	—	—	—	—
,, ,, ...	16	10	—	—	—	—	16	10	—	—	—	—	—	—
,, Nilloomally...	80	9¼	14	1/1¾	36	8	16	11	14	5½	—	—	—	—
Oliphant ...	270 p	9¾	—	—	72½c	9¾	109	10¾ 11½	75½c	†7½	12	5¾	2	4½

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Oodewelle ...	80	9½	—	—	24	10	32	11½	24	6¼	—	—	—	—
Oolanakande ...	59½c	7½	—	—	31½c	6	24½c	9¾	—	—	—	—	4½c	4
PDM ...	42 p	1/0¼	—	—	17	11¾	25½c	†1/1½	—	—	—	—	—	—
Pen-y-lan ...	128	8¾	—	—	52	7¼	60	10¾	10	5½	2	3¾	4	5½
Peradenia ...	124	8¼	—	—	27	8¾	34	1/0¼	63	5¾	—	—	—	—
Poengalla ...	91	7¼	23	8¾	30	6¼	24	8¾	14	5	—	—	—	—
Portmore ...	50	1/2½	—	—	24	1/1½	26	1/3¼	—	—	—	—	—	—
Portswood ...	138 p	11½	—	—	62½c	1/-1/2	27½c	1/4	38 p	†8½ †9½	—	—	11½c	8½
Poyston ...	54 p	9	—	—	14	9	26½c	11½	14	6½	—	—	—	—
Pundaloya ...	134 p	10¾	57½c	1/2¾	52	10¾	—	—	25	6¾	—	—	—	—
Putupaula ...	144	7¾	—	—	36	8-8¾	49	10 10½	59	5-5¾	—	—	—	—
Queensberry ...	119 p	9¼	—	—	25	11¼	25	1/1½	60	7	1	3¼	8½c	7¾
Rahatungoda ...	40	10¾	—	—	16	10	23	11½	—	—	—	—	1	4½
Rajatalawa ...	90 p	10½	—	—	20	10¼	50½c	1/0¼	20	8½	—	—	—	—
Rangbodde ...	115 p	10	—	—	47	9¾	49½c	1/1¼	19	6½	—	—	—	—
Rothes ...	30 b	8	—	—	30 b	8	—	—	—	—	—	—	—	—
,, ...	30 b	8¾	—	—	30 b	8¾	—	—	—	—	—	—	—	—
Ruanwella ...	77½c	7	—	—	34½c	6½	25½c	9½	16½c	5	—	—	2½c	3¼
SCTCo Invery ...	105 p	1/1¼	—	—	34	1/3	34½c	1/5½	—	—	37 F	5 9¾	—	—
,,Mincing Lane	96 p	10¾	—	—	39	†10¼	38½c	1/3	13	7¼	2½c	4	4½c	5¼
Sheen ...	110 p	11¼	49½c	1/3¼	42	11	—	—	19	7¼	—	—	—	—
Spring Valley ...	167 p	11½	—	—	73	11¼	45	1/3	40	8¼	—	—	9½c	5¾
Stamford Hill & O	107	10	—	—	57	10½	27	†1/0½	23	6½	—	—	—	—
St. Clair ...	144	8¾	50	10 10¼	19	9	21	1/1½	50	5¾	1	3½	3	3½
St. Johns ...	60	10	—	—	29	10	15	1/0¾	16	7¾	—	—	—	—
Strathellie ...	149	7¼	—	—	53	6¾-7	53	8¾	43	5½	—	—	—	—
Strathspey ...	65	10	—	—	35	10	14	†1/2¼	13	6¾	1	3½	2	4¼
Stubton ...	58	7½	—	—	22	6½	18	10¾	17	†5¼	—	—	1	4¼
Sunnycroft ...	189	6¾	58	8¾-9¾	19	6¾	—	—	86	5½	26	4¾	—	—
Talagalla ...	63	6	25	7½	25	5¼	—	—	13	4¾	—	—	—	—
Talawakellie ...	122 p	11½	—	—	52	1/0½	16	1/4	46	8¾	—	—	8½c	1/1
Thornfield ...	115 p	11¾	—	—	38	10¾	68½c	1/1¾	6	6¾	—	—	3½c	7¾
Tommagong ...	80 p	1/0½	—	—	23	1/0¼	30½c	†1/3½	20	11	7½c	7¼	—	—
Torrington ...	73	11¾	—	—	40	11¼	28	1/1¼	5	7	—	—	—	—
Tyspany ...	85	9	—	—	61	8¼	24	11¼	—	—	—	—	—	—
Udabage ...	171½c	7¾	—	—	69½c	6½	68½c	10¼	14½c	5	—	—	20½c	5
Udugama ...	55	6¼	—	—	32	5¼	16	8¾	7	4¾	—	—	—	—
Uva ...	90½c	10¾	—	—	47½c	10	29½c	1/2¼	10½c	6	1½c	4¾	3½c	3½
Valamaly ...	89	1/0¼	—	—	42	11¼	46 1/0½	1/2½	—	—	—	—	1	11
Vedehette ...	62	8¾	—	—	13	7½	33	10½	15	16	—	—	1	4¾
Venture ...	135 p	10	—	—	46	10½	43½c	1/2½	34	7½	—	—	12½c	3¾-7
Waltrim ...	135	11¼	—	—	44	11	55	†1/1¾	36	7¾	—	—	—	—
Warleigh ...	21	8¾	—	—	21	8¾	—	—	—	—	—	—	—	—
Warwick ...	82½c	9¼	—	—	56½c	8½	26½c	†11¼	—	—	—	—	—	—
Westhall ...	81	8¾	—	—	34	9¾	14	1/0¾	31	6¼	—	—	2	5
West Haputale ...	39½c	5½	—	—	39½c	5½	—	—	—	—	—	—	—	—
Wewelmadde ...	68	7½	—	—	17	6½	36	9	15	5½	—	—	—	—
Weyweltalawa ...	152½c	8¾	42½c	10-11	37½c	8¼	29½c	11¾	36½c	6	—	—	8½c	4
Wiltshire ...	46½c	7¾	—	—	27½c	6	19½c	10	—	—	—	—	—	—
Windsor Forest	154	8	—	—	52	8¼	49	10½	—	—	53	5½	—	—
Woodstock ...	27	8¼	—	—	27	8¼	—	—	—	—	—	—	—	—
Yahalakela ...	41	7	—	—	12	7	15	9	14	5¼	—	—	—	—
Ythanside ...	140	10½	26	1/5¼	—	—	40	10¾	51	9¼	23	5¾	—	—
Zululand ...	80	6½	—	—	28	5½	24	9¾	28	4¾	—	—	—	—

JAVA. 780 chests. Average 6¼d.

Garden.	Total.		Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Jasinga ...	98		8¾	—	—	38	1/3¼	—	—	—	—	6	4¾	—	—
Perbawattee ...	152		9½	—	—	73	8¼ 8½	79	10½	—	—	—	—	—	—
Sinagar ...	412		5¼	—	—	150	5½ 5¾	123	5¼	139	4 5	—	—	—	—
Tjogreg ...	118		5¾	—	—	49	5¾	21	6½	35	5½	13	5	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for hal -chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *May 20th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,151,260 packages.	614,898 packages.	57,216 packages.
1891-1892.	1,283,636 ,,	683,807 ,,	41,765 ,,

During the week

5,122 packages Indian
4,531 ,, Ceylon
340 ,, Java

} Total 29,993 packages have been offered in public auction.

It is hoped that the Indian Tea Industry will be adequately represented at the Chicago Exhibition.

The Indian Tea Districts Association have sent out a circular to Tea Planters, inviting a subscription towards a Fund for developing New Markets; the immediate object being the representation of Indian Tea at the coming Chicago Exhibition.

At present 60,000 acres have subscribed from London, Calcutta not yet having had time to reply. It is earnestly hoped that Planters intending to subscribe will lose no time in sending in their names, as unless 200,000 acres are represented out of the 300,000 or so, under Tea in India, no action will be taken. The sum asked for is only 2 annas per acre of cultivation, plus ½ an anna per maund of Tea made.

Ceylon has already raised a considerable sum of money, with the aid of a grant from Government;—and sent a Commissioner to Chicago.

INDIAN. The firmness noted last week has now hardened into an advance, all grades being slightly dearer, with keen competition. The first sale of the season was held in Calcutta yesterday the 19th inst., when about 5,000 packages were brought to auction. The following averages are worthy of note:—"Panitola" of the Jokai Co., 1/2; "Jaipur," 1/1¾; "Singlo," 1/0¾.

This weeks average price of New Season's Teas sold on Garden Account. Total 9,597 pkgs. average 8¼d.

	Pkgs.	Price.		Pkgs.	Price.		Pkgs.	Price.
Assam	3034 p	9¼d	Chota Nagpore ..	73 p	5d	Kangra Valley, Etc. ..		
Cachar and Sylhet..	6017 p	8d	Darjeeling			Neilgherry		
Chittagong			Dooars	118 c	6½d	Travancore	355 p	6¾d

Comparative prices of Indian Tea in London:—

DUST.	(Fair ordinary, dark liquor)	1892	3¾d.	1891,	6½d.	1890,	5¾d.	1889,	4¼d
FANNINGS.	(Red to brown, strong rough liquor)	,,	4¾d.	,,	7d.	,,	6½d.	,,	4 l.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6½d.	,,	8½d.	,,	8d.	,,	5 l.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	7d.	,,	9½d.	,,	9 l.	,,	7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	10¼d.	,,	10½d.	,,	10 l.	,,	8½ l.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9d.	,,	7¾d.	,,	5½ l.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7¼d.	,,	9¼d.	,,	8¾ l.	,,	6¼ l.

CEYLON. Supplies brought forward were small, the quantity being only 14,531 against 9,448 last week. The advance noted a week since has further developed, and all descriptions must again be quoted fractionally dearer. Poor Teas and Teas "for price," which were not affected last week, have now participated in the better prices generally ruling. The improvement recently noticed in quality is fully maintained. The following averages may be mentioned:—"Norwood" of the EP & ECo., 1/1¾; "New Dimbula," 1/1½; "Bambrakelly and Dell," 1/1½.

Average for week, 9½d.

Comparative prices of Ceylon Tea in London:—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6¾d.	1891,	8½d.	1890,	8¼d.	1889,	6¾d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9½d.	,,	9½d.	,,	9¾d.	,,	8¼d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5¼d.	,,	8d.	,,	8d.	,,	6d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6d.	,,	8½d.	,,	8½d.	,,	6½d.

JAVA. The auctions were very small, representing only 340 packages. Competition for these was good, this grade of Tea sharing in the better demand for Indian and Ceylon noted above. A small parcel of white tipped Pekoe from the "Tjisalak" Estate realised 1/11 per lb.

BANK RATE. 2 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3 9/16. Colombo 1/3

Garden.	Total. Quantity.	Average. Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Price	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price	Pekoe Souchong. Quantity	Price	Broken and Souchong. Quantity	Price	Pannings, Dust and Various. Quantity	Price
ASSAM	**3034 p**	**9¼**												
*Dhoolie ...	71	9¾	—	—	12	1/2¼	13	1/3½	16	8½	30	5¾ 6	—	—
*Harmutty ...	417	8¼	—	—	35	1/-1/1¾	21	1/5¾	131	8½	144	4 5½	86	8¾
*Jaipur ..	116 p	1/1¾	—	—	36 p	1 0¾ 1/3¼	35 p	11½	10	10¾	23 p	9 11½	14	5¾
*Jokai Co Bokel	351 p	8½	42	9¼ 1/4½	126	9 10¾	—	—	83	7 7¼	66	5¾ 6	34 p	4 5½
* ,, Jamira ...	263 p	7¼	23	1/3-1/5¼	20	9½ 11¼	—	—	59	7¾ 7½	65	4¾	40 p	5¼
* ,, Joyhing ...	247	9½	—	—	113	11 1/1½	9	1/1¼	90	7¼	—	—	35	4½
* ,, Muttuck ...	115 p	7¼	15	1/2½	9	10¼	—	—	68	6¼	10	4	13 p	2¾ 4½
* ,, Panitola ...	295	1/2	26	1/7½	116	1/3	34	1/1¾	108	1/0¼-1/1	—	—	11	5¾
* ,, Subansiri ...	342	7¼	—	—	82	7¾ 10¾	68	8¾ 9	104	5¾ 6½	88	4¾ 5¼	—	—
NoakachareeCo R	210	7½	—	—	50	8¾	40	11¾	60	5¾	60	5¼		
,, Kakajan	164 p	9½	30½c	1/7½	40	11¼	10	1/2	54	6½	25	6	5	3¾
*Ohat ...	103	10¼	—	—	61	1/1½	8	1/3¼	—	—	13	4	21	2¾ 4½
Sagmootea ...	106	9½	13	1/2¼	28	10¼	19	11	21	7¾	25	5¾	—	—
Singlo ...	80 p	1/0¾	15½c	1/3½	65	1/0½ †1/0½	—	—	—	—	—	—	—	—
CACHR & SYLHT	**6017 p**	**8**												
*B&Co Eraligool	204 p	8¼	17	1/1½ 1/6½	54	9¼	23	10½	76	6	23	6	11½c	3¾
* ,, ,, ...	23	6¾	—	—	—	—	—	—	18	7	5	5½	—	—
* ,,Singla T Co	397	8½	39	1/3¼-1/6	129	9½ 10¼	21	8¾ 11	130	6½ 7¼	63	5¼ 5½	15	†2 3¼
*Cherrie Valley	287	8	—	—	68	9¾	55	1/-1/0¼	87	6¾	32	5½	45	5¾
*Cherra C Heron	75	4¾	—	—	—	—	—	—	—	—	—	—	75	4¾
Clevedon ...	133	5¾	—	—	16	6½	35	7	—	—	41	5	41	3¼ 5
Dhamai ...	218 p	6¾	6½c	1/4¼	—	—	93 p	9¾	5	6	29	5½	85	3½ 5½
*Endogram ...	283	6¾	24	1/1½	—	—	62	8½	119	5¼ 5½	—	—	78	5
Kapnaphar ...	106 p	6	—	—	—	—	28	9	52	5¼	—		26 p	2½ 5¼
Lallchira ...	191 p	5	—	—	—	—	66	6¼ 6½	70	4½ 4¾	—	—	55 p	3½ 5¼
Luayuni ...	44 p	7½	—	—	30	6¾	14 p	9¾	—	—	—	—	—	—
Luskerpore ...	109	5½	—	—	—	—	57	5¾	52	5	—	—	—	—
Madoora ...	172 p	5½	—	—	53	6¼	13½c	8	42	4¾	12	2¾	22	3½
NSTCBaitakhal	130 p	7¼	21	9¾	37	7	25	10	21	5¼	21	4¾	5½c	3¾
,,Burjan ...	132	9½	2	1/5¾	75	8¾ 10¼	35	10	20	8¾	—	—	—	—
,,Jafflong ...	143 p	10½	40	1/1	40	9¾	26	11¼	20	7¼	—	—	17½c	5½
,,Khadim ...	91	9	—	—	32	10½	16	9¼	39	8½	—	—	4	3¾
,,Lallakhal ...	224	10¼	53	11½ 1/11½	104	9¼	—	—	35	6¾	32	5¾	—	—
Pathini ..	429	6¼	59	10¼ 10½	163	5¾ 6½	81	5¼ 5½	126	¼ 5	—	—	—	—
SephinjuriBhTCo	286	7¾	—	—	81	7	28	8¾	124	9¼	33	4¼	20	4¼
SSTCoAmrail ..	149 p	10¾	38	1/0¼ 1/7½	46	10½	25	10¾	28	7¾	—	—	12½c	5½
,,Goombira ...	502 p	8	73	1/1-†1/2	132	8½	75	9	141	5¾	41	5¼	40½c	4
,,Holicherra ...	132 p	9	—	—	32	10½	32	11¾	53	7½	13	5½	2½c	4¼
,,Jagcherra ...	314 p	9½	12	1/11½	96	9½	104	10	62	7½	—	—	40½c	5¼
,,Phulcherra ...	509 p	9	94	11	118	9½	117	10½ 10¾	75	7	91	5¾	14½c	4¼
,,Rajghat ...	653 p	9¼	99	1 1¼ 1/8½	126	9½ 9¾	238	8½ 10½	112	7¾	62	6¼	16½c	5½
CHOTA NAGPRE														
Indian Hill T Co	73 p	5	—	—	6½c	7¼	—	—	56	5 6¼	11	3 4½	—	—
DOOARS														
*Hahai Patha ...	118	6½	12	†9¾	51	†8	—	—	36	†5	—	—	19	†1½
TRAVANCORE	**355 p**	**6¾**												
Arnakel ...	8	3½	—	—	3	3¾	—	—	—	—	—	—	5	3½
Bonaccord ...	80½c	6¼	—	—	40½c	6	20½c	8¼	—	—	17½c	4¾	3½c	3¼
CMR ...	32½c	7	—	—	31½c	7	—	—	—	—	1½c	3½	—	—
Kinmylies ...	24½c	8	—	—	24½c	8	—	—	—	—	—	—	—	—
Mount ...	58	7	—	—	—	—	10	11¼	44	6¼	4	3½	—	—
Seenikali ...	33½c	6½	—	—	10½c	6	20½c	7 7½	—	—	3½c	4¾	—	—
Venture ...	120 p	7	29½c	9½ 11	52	6½ 7½	10	10	14	5½ 5¾	4	5	11	3½

Gardens marked thus * are last of the Season.

CEYLON. Average 9⅝d.

Garden.	Total.		Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.		Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Adams Peak ...	250		9½	—	—	102	9-9¼	95	11¼	48	7	—	—	5	5¼
Agrakande ...	51		1/	—	—	30	10¾	21	1/2	—	—	—	—	—	—
Alnwick ...	70		10½	—	—	37	10	21	1/1½	12	6½	—	—	—	—
Ambatenne ...	84		9¾	—	—	37	9	30	1/0¾	17	6	—	—	—	—
Amblamana ...	100		9¼	—	—	16	9¼	55	10¾	29	6¾	—	—	—	—
Amuna Mulle ...	35½c		6½	—	—	—	—	7½c	10¼	27½c	5¾	—	—	1½c	5
Atherfield ...	114		9¼	—	—	36	8½	57	10¼	21	7½	—	—	—	—
Ambrakelly&D.	105		1/1½	—	—	60	1/0¼	45	1/3¼	—	—	—	—	—	—
Attalgalla ...	163	p	10½	76 p	1/0¾ 1/6¼	59	9¾	—	—	24	6½	—	—	4	6½
Beverley ...	109	p	8	—	—	50 p	7¾	38½c	10¼	18 p	5¾	—	—	5½c	3
Blackwater ...	305	p	8	50½c	1/-1/5¼	95	9	25	9¾	99	6	30	5	6	4
Blackwood ...	64		9	—	—	30	8¾	19	11¾	15	6	—	—	—	—
Bunyan ...	75		9½	—	—	34	9½	20	†1/0½	21	6½	—	—	—	—
Campden Hill ...	181		6¾	—	—	90	6¼	55	8½	36	5	—	—	—	—
Campion ...	75		10¾	—	—	25	10½	30	1/1¾	20	7	—	—	—	—
Castlemilk ...	130		9¼	—	—	29	9	74	10¼10½	27	6	—	—	—	—
Cattaratenne ...	45	p	8¾	—	—	14	6¾	30½c	11	—	—	—	—	1½c	3¼
Chapleton ...	160	p	11½	—	—	45	1/0¼	60½c	1/4½	44	8½	11	5½	—	—
Galla ...	47		11	—	—	22	10	22	1/0¾	2	4¾	—	—	1	5
Choisy ...	71	p	8½	—	—	13	10	23½c	1/0¾	26	7½	2	4¾	7	4¾
,, ...	18		11	—	—	18	11	—	—	—	—	—	—	—	—
Ceylon Land&ProdC															
,,Fetteresso ...	125	p	11½	—	—	43	11¼	54½c	1/3	23	9	2	6	3½c	8¾
,, N. Matale	76		8¼	—	—	24	8	22	11¾	30	6	—	—	—	—
Clunes ...	217½c		8½	—	—	119½c	8	73½c	10½	25½c	5½	—	—	—	—
Cocoawatte ...	20½c		7¼	—	—	—	—	20½c	7¼	—	—	—	—	—	—
Ceylon T PlantCo															
,,Mariawatte ...	159	p	7½	—	—	48	7	41	10¾	50	5½	—	—	20½c	4¾
,, ,, ...	136		7½	—	—	55	7	38	11	43	5¼	—	—	—	—
,,Tillyrie ...	49		10¾	21	1/0¼	18	10	—	—	10	8¾	—	—	—	—
,, ,, ...	47	p	6	—	—	—	—	—	—	—	—	—	—	47 p	5-7½
,,Wallaha ...	177	p	10¾	—	—	77	9½-11	60	1/1¼	40	6¾	—	—	—	—
,, ,, ...	140	p	11½	—	—	81 p	10 11½	40	1/1¾	19	7¼	—	—	—	—
C. & C. ...	23		6¼	—	—	11	5½	8	8¼	3	4¾	1	3½	—	—
Calleagles ...	156	p	7¾	—	—	79	6½-8¼	52½c	11	25	5¾	—	—	—	—
Debatgama ...	98		9	—	—	25	8¼	55	10¼	18	6	—	—	—	—
Denegama ...	20½c		1/0¾	—	—	—	—	20½c	1/0¾	—	—	—	—	—	—
Densworth ...	62		7¼	—	—	12	6¾	24	9½	14	5¾	12	5	—	—
Derry Clare ...	93		9¾	—	—	37	9½	36	11¾	20	6¾	—	—	—	—
Dicoya ...	92		7¾	—	—	76	7¼	16	10½	—	—	—	—	—	—
Dig Dola ...	45		8¼	—	—	30	7	15	10½	—	—	—	—	—	—
Doragalla ...	120		8¾	—	—	44	8½	41	11¾	35	5¾	—	—	—	—
Drayton ...	286	p	10	165 p	1¼ 1/4¼	—	—	—	—	117	7-7¾	4	5¾	—	—
Dickie Oya ...	72		7½	—	—	34	7¼	17	10	20	5½	—	—	1	4½
Dangapitiya ...	81		7½	—	—	52	6¼	29	10	—	—	—	—	—	—
Dfindale ...	208½c		7	—	—	110½c	5½-6½	40½c	11½	58½c	5½	—	—	—	—
Dkadua ...	57		8¼	—	—	20	8¼	19	10¼	18	6	—	—	—	—
Dlston ...	130		8¼	—	—	50	8	40	11	35	6	5	4½	—	—
Dtofts ...	96	p	10	—	—	25	10½	40½c	1/1	31	7¾	—	—	—	—
Elsmere ...	74		11½	51	10 11¾	—	—	23	1/1¼	—	—	—	—	—	—
Elnan ...	86	p	8¾	36 b	1/1	25	8	12	10½	13	5½	—	—	—	—
F. and E. Co															
F,,Dromoland ...	62½c		6	—	—	62½c	6	—	—	—	—	—	—	—	—
F,,Hope ...	165		8¼	—	—	79	6½	86	9¾	—	—	—	—	—	—
F,,Koladenia ...	63		7¾	—	—	42	6½	21	10½	—	—	—	—	—	—
F,,Labukelle ...	119	p	1/0¾	—	—	100 p	8¾-1/2	18	1/5¼	—	—	—	—	1	9½
F,,Meddecombra	182		9¾	—	—	81	7½	101	† 11¼11¾	—	—	—	—	—	—
F,,Norwood ...	84		1/1¾	—	—	52	1/0¼	32	1/4¼	—	—	—	—	—	—
Fesperanza ...	72½c		8½	18½c	1/1½	54½c	7	—	—	—	—	—	—	—	—
Fairlawn ...	22½c		1/3	—	—	—	—	22½c	†1/3	—	—	—	—	—	—
Farham&S. Andre	48		1/0¾	20	1/2	28	1/	—	—	—	—	—	—	—	—
Fulkadua ...	34		7¼	—	—	12	6¾	12	9¾	10	5¼	—	—	—	—
Fullawatte ...	100½c		7½	—	—	43½c	5¾	54½c	9¼	2½c	4½	—	—	1½c	4¼

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong		Pekoe Dust and Various.	
	Quantity.	Price	Quantity.	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Glencorse ...	48	8¾	—	—	17	9	13	1	18	6	—	—	—	—
Goomera ...	66	9	—	—	42	8¾-9½	12	11	12	7¼	—	—	—	—
Goorookoya ...	411	8¼	—	—	154	7¾-8½	142	10 10¼	57	5¼	58	6	—	—
Hatale ...	54	9¼	12	11¼	15	9¼	12	11	15	6¾	—	—	—	—
Hattangalla ...	41	8¼	—	—	25	7½	13	10¾	—	—	2	4¼	1	3
Hauteville ...	83	1/0¾	—	—	31	11¼	41	1 3	11	—	—	—	—	—
Heathersett ...	140 p	10½	—	—	30	9½ 1/0¼	69½c	11 1 2¼	31	6¼-9½	1	4¼	1½c	4¼
Hemingford ...	113½c	7½	—	—	48½c	7¼	35½c	9¾	30½c	5¼	—	—	—	—
Hindagalla ...	93 p	10½	—	—	50	10¾	12	1 3½	19	8¾	6	6¼	6½c	6¼
Hiralouvah ...	40 p	8¾	—	—	—	—	27 p	10¼ 10¾	13	5¾	—	—	—	—
Hunugalla ...	120 p	7¾	—	—	45	7½	35½c	11	—	—	40	5¼	—	—
Imboolpittia ...	173 p	8	28	10½	49 p	7½	26	11½	70	4¼	—	—	—	—
Ivanhoe ...	122 p	9¾	—	—	27	10¼	6[illegible]	11½ 1/0¼	23	6½	—	—	1	9
Kabragalla M...	81½c	10½	—	—	33½c	10	30½c	1 1	18½c	7¼	—	—	—	—
Kandapolla ...	106 p	1/0¾	63½c	1/1¼	—	—	40	1/1¼	17	10½	—	—	—	—
Karagastalawa ...	29	10½	—	—	—	—	20	10½	—	—	—	—	—	—
Kelani ...	193½c	7¼	—	—	82½c	7	43½c	10	13½c	5¼	—	—	—	—
Kelburne ...	42	9¼	—	—	15	9¾	13	11¾	14	6¼	—	—	2	7
Kellie ...	178 p	8½	—	—	64	9¾	20	11¾	51	6¼	12	5¼	25½c	5¼
Kelliewatte ...	95	10½	—	—	33	11½	20	1 3¼	44	7¼	—	—	—	—
Kirkoswald ...	172	11	—	—	75	11¼	34	1 2½	63	8¼	—	—	—	—
Kitoolamoola ...	62	9	—	—	13	8¾	33	10½	15	6	—	—	1	7
Lauderdale ...	47	7¾	—	—	12	8¾	12	10¼	23	5¾	—	—	—	—
Legalla ...	120½c	7¾	—	—	33½c	6½	53½c	10	28½c	5½	3½c	2½-4	3½c	4½
Logan ...	71½c	7¼	—	—	20½c	7½	20½c	10¼	25½c	5¼	—	—	6½c	4½
Loinorn ...	74 p	1/0¾	32½c	1/5¼	—	—	—	—	42	10½	—	—	—	—
Lindoola ...	63	11¼	—	—	32	9¾	31	1/0½	—	—	—	—	—	—
Macduff ...	77	11½	—	—	17	11½	42 1	1-1 2½	17	7	—	—	1	3
Mahacoodagalla	31	11	—	—	18	10	13	1/0½	—	—	—	—	—	—
Maha Eliya ...	122 p	11	19½c	1/0¾	55	10¾	30½c	1/0¾	12	7¼	—	—	—	—
Maha Nilu ..	56 p	10½	5 b	1/6¾	16	10½	23½c	1/0½	12	7½	—	—	—	—
Mahatenne ...	79 p	7¾	—	—	24	7½	20½c	10	20	6¼	—	—	—	—
Mahousa ..	85	9	42	10¾ 11½	20	8½	—	—	22	5¾	—	—	1	3¾
Marske ...	89½c	8¼	—	—	66½c	6¾-7¾	21½c	11½	—	—	—	—	2½c	5
Mattakelly ...	116	9¾	—	—	43	9½	37	1/0¼	34	7½	—	—	2	6¼
Meria Cotta ...	52	10	—	—	38	9	14	1/1	—	—	—	—	—	—
Mooloya ...	34	1/1	—	—	16	11¾	18	1/2¼	—	—	—	—	—	—
New Dimbula D...	167	1/1½	—	—	61	1/0¼	78	-/3½	28	10	—	—	—	—
Nilambe ...	72	9	—	—	18	7½	44	10¼	10	5¼	—	—	—	—
North Cove ...	72 p	10¼	—	—	36	9½	36½c	1/0½	—	—	—	—	—	—
Old Madegama	36½c	10½	—	—	—	—	36½c	10½	—	—	—	—	—	—
Oliphant ...	154½c	9½	—	—	48½c	10½	31½c	11¾	59½c	8½	11	5½	5	6¼
Opalgalla ...	60	9	—	—	36	7¾	24	10½	—	—	—	—	—	—
Orwell ...	85	9	—	—	40	9¼	15	1/	25	7¼	3	4¾	2	4½
Osborne ...	85	11	—	—	45	11¼	26	1/1¼	—	—	—	—	14	5¾-7¼
Ouvah Kellie ...	20	8	—	—	—	—	—	—	20	8	—	—	—	—
Panmure ...	63	9	—	—	31	9½	16	10¾	16	6¾	—	—	—	—
Penrith ...	62	9½	—	—	25	8¾	25	11½	12	6½	—	—	—	—
Rangalla ...	120 p	9¼	—	—	53	8¾	38	10¾	15	6¾	—	—	14½c	8¼
Ravenscraig ...	34	7¾	12	9¾	21	6¾	—	—	—	—	—	—	1	5
Raxawa ...	85	7¼	25	10	49	6¼	—	—	7	5	4	4	—	—
Retnagherry ...	36	7¼	—	—	36	7¼	—	—	—	—	—	—	—	—
,, ...	58	9	13	11¼	16	7¾	15	11½	14	6	—	—	—	—
Rookwood ...	86½c	11¼	42½c	1/0¼	42½c	10½	—	—	—	—	—	—	2½c	7½
Rothes ...	30 b	9¾	—	—	30 b	9¾	—	—	—	—	—	—	—	—
Rowley ...	41½c	8¼	—	—	21½c	6½	20½c	10¼	—	—	—	—	—	—
Saumarez ...	73	6¾	—	—	48	6½	13	9½	12	5	—	—	—	—
St. Andrews ...	87½c	10½	20½c	1/3¾	50½c	8¾	17½c	9	—	—	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
St. Helen ...	130	7¾	—	—	43	6½7½	48	9½ 10½	39	5½5¾	—	—	—	—
S. Leonards-on-S	34	7½	—	—	18	6¼	16	9	—	—	—	—	—	—
St. Leys ...	49 p	11¼	—	—	14	10¾	28½c	1/1¾	5	7¼	2	5¼	—	—
St. Vigeans ...	52 p	10	—	—	25	10	17½c	1/2	9	7	—	—	1	6
,, JG	53 p	10	—	—	26	10	17½c	1/2½	8	6	2½c	4¼	—	—
Sumtravalle ..	54	11¼	—	—	20	10¾	17	1/3½	17	7½	—	—	—	—
Sunnyside ...	31	6¼	—	—	9	6½	5	10	15	5¼	1	3½	1	3½
S. Wana Rajah...	118 p	9¼	55½c	1/0½	36	9¼	—	—	27	6¼	—	—	—	—
Talgaswella ...	63	9	—	—	—	—	63	9	—	—	—	—	—	—
Tamaravelly ...	96	10	—	—	40	8¾	50	11½	6	5¾	—	—	—	—
Torrington ...	65 p	11	—	—	29	10½	24	1/1¼	4	6	—	—	8½c	7
Venture ...	27½c	1/1¾	—	—	—	—	27½c	1/1¾	—	—	—	—	—	—
Wootton ..	86 p	1/0¼	26½c	1/8¼	42	11½	—	—	13	7½	—	—	5½c	5
Yahalakela ...	45	7¼	—	—	12	7¼	16	9	17	5½	—	—	—	—

JAVA. 319 chests. Average 6½d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust,	
	Quantity.	Price	Quantity.	Price.	Quantit,.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Bagelen ...	56	5¾	—	—	56	5¾	—	—	—	—	—	—	—	—
Sinagar ...	38	5½	—	—	—	—	28	6	—	—	—	—	10	4½
Sindang Sarie ...	35	6¾	—	—	35	6¾	—	—	—	—	—	—	—	—
Tjisalak ...	190	7	15	1/11	100	5½-6	25	5	50	5½	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for hal -chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *May 27th*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1890-1891.	1,159,343 packages.	633,503 packages.	57,339 packages.
1891-1892.	1,293,266 ,,	708,750 ,,	42,746 ,,

During the week

9,660 packages Indian
4,943 ,, Ceylon } Total 35,584 packages have been offered in public auction.
981 ,, Java

Promises of support towards the fund for representing Indian Tea at the Chicago Exhibition ppear to be coming in rather more rapidly.

The appropriation of Thursday to Ceylon Tea auctions exclusively until August—Indians eing held on Wednesday instead—is having a beneficial effect in promoting a more equal division f the Ceylon Sales, now that the whole attention of buyers can be concentrated upon them on hat day as on Tuesday.

Yesterday's Ceylon Sale was the largest yet held on a Thursday, and comprised 7,902 packages. Vith a full room bidding was animated and competition was general and well maintained

NDIAN. With strong competition for all grades, last week's rates were now and again exceeded. here was no Public Sale in Calcutta this week. The following averages are worthy of note :— Gabroo Purbot" of the Assam Co., 1/0¾ ; "Gelakey" of the same Comp., and "Kelly Den," 1/-

This weeks average price of Indian Tea sold on Garden Account. Total 4,605 pkgs. average 10d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
Assam	3054 p	10½d	Chota Nagpore ..			Kangra Valley, Etc.		
Cachar and Sylhet..	1542 p	9¾d	Darjeeling			Neilgherry.. ..		
Chittagong			Dooars			Travancore	9½c	7¾d

Comparative prices of Indian Tea in London :—

DUST.	(Fair ordinary, dark liquor)	1892.	3¾d.	1891,	6½d.	1890,	5¾d.	1889, 4¼d
FANNINGS.	(Red to brown, strong rough liquor)	,,	5d.	,,	7d.	,,	6½d.	,, 4d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6½d.	,,	8½d.	,,	8d.	,, 5d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	7¼d.	,,	9½d.	,,	9d.	,, 7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	10¼d.	,,	10½d.	,,	10d.	,, 8½d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9d.	,,	7¾d.	,, 5¾d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7¼d.	,,	9¼d.	,,	8¾d.	,, 6½d.

CEYLON. The market continues very firm and prices are fully maintained for all grades except roken Pekoes over 1/2, which are less eagerly bid for and have occasionally sold at rather easier ices. The following averages may be mentioned :—"New Dimbula, D.," 1/1¾ ; "Bambrakelly Dell, and "Ouvahkellie, B.," 1/1½ ; "Hauteville," "Portmore," and "Waverley" of the TPCo. 1/1 ; "Ferham & St. Andrews," "Kotiyagalla and "Mooloya," 1/0¾.

verage for week, 9¾d.

Comparative prices of Ceylon Tea in London :—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6¾d.	1891,	8½d.	1890,	8¼d.	1889, 6¾d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9½d.	,,	9½d.	,,	9½d.	,, 8½d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5¼d.	,,	8¼d.	,,	8d.	,, 6¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6d.	,,	8¾d.	,,	8¾d.	,, 6¾d.

AVA was fairly represented. Catalogues included some good useful Teas from the "Tjiomas" state, which were grown from Assam seed, and sold at full prices. A Flowery Pekoe from Perbakti" brought 1/2¾ per lb., and a White Tipped Pekoe from "Jasinga," 1/5 per lb. Compe- ion was good and prices continue firm.

BANK RATE. 2 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3½. Colombo 1/3½

INDIAN. Average 10d.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust and Varieties.	
	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity	Price.	Quantity.	Price	Quantity.	Price.	Quantity	Price.
ASSAM	**3054 p**	**10½d**												
Assam Co Gabr P	220 p	1/0¾	—	—	67	11¾-1/	29 p	1/7¾	—	—			5½c	
,, Gelakey ...	160	11½	—	—	—	—	60	1/4½	—	—			—	—
,, ,, ...	466	1/	—	—	103	11¾ 1/9	58	1/4½ 1/5¾	87	6¾ 10¾	183	4½ 1/10½		
,, ,, ...	531 p	10¼	32	1/7½	143	1 1½ 1/0¼	44	1/8¾	292					
,, Mackeypore	405 p	11	—	—	83	1/0½ 1/1¾	91½c	1/4-1/8½	26					
,, Mazenga ...	288 p	9¾	—	—	62	1/0¾	24	1/7	—	—				
Kelly Den ...	149	1/	55	1/1¾-1/5	62	11 11¼	—	—	—	—				
Mahmara Pltns D	160	10½	—	—	37	1/1-1/3½	—	—	28					
NoakachareeCoD	168	8½	—	—	44	11¼	22	1/2¼	59					
,, Kakajan	260 p	9¾	16½c	1/11½	80	11½ 11¾	36	1/2	74					
*NSTC Borpani V	247 p	8	40½c	1/2½ 1/3¾	43	†19¼ 9¾	48	†6 †6½	78					
CACHR & SYLHT	**1542 p**	**9¼**												
*NSTC Degachra	136 p	9	—	—	55	10	37	10½	32					
SSTCoBalisera	1023 p	9¼	234	1 1¼ 1/9½	176	10¾	185	9½	302					
*,,Duckingole ...	213 p	10¼	—	—	72 p	10½	37	1/0¼ 1/0½	81					
,,Sagurnal ...	170	8¾	—	—	44	9¼	51	11	53					

Gardens marked thus * are last of the Season.

CEYLON. Average 9¾d.

Garden.	Total.	Average	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Pannings, Dust and Varieties.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price.	Quantity.	Price	Quantity.	Price.
Abbotsford ...	117	8¾	—	—	54	†8½	40	†10¾	23	6	—	—	—	—
Aberdeen ...	100½c	7½	—	—	43½c	7¼	27½c	10¼	30½c		—	—	—	—
Aigburth ...	55	9	—	—	13	8½	24	11¼	18				—	—
Aldie ...	103 p	10	—	—	29	10¼	42½c	1/1¼	26					
Alnwick ...	120	10¾	—	—	70	10	40	1/1	—	—	—	—	10	
Ampittiakande ...	37 p	8½	13½c	1/2	22	7¼	—	—	—	—	—	—	2½c	4
Ayr ...	2 b	2/4½	2 b	2/-2/9	—	—	—	—	—	—	—	—	—	—
Bambrakelly&D.	61	1/1½	—	—	33	1/	28	1/3	—	—	—	—	—	—
Battagalla ...	48	9½	8	10	27	9	13	†10	—	—	—	—	—	—
Bearwell ...	82 p	11	—	—	30	9½	43	†10½ 11½	7	6½	—	—	2½c	4½
Binoya ...	31	8	—	—	31	8	—	—	—	—	—	—	—	—
Bitterne ...	138	8	—	—	47	8½	42	†10⅝	31	6¾	—	—	18	5¾
Blackburn ...	76 p	7	—	—	35 p	6¼	21 p	9½	14½c	4¾	3	3½	3½c	3¼
Blackstone ...	88 p	8¼	—	—	17	9½	35½c	11½	35	6¼	1½c	3½	—	—
Blair Athol ...	157 p	9¼	75½c	11¼ 11¾	62	6¾-8¾	—	—	—	—	—	—	20½c	6½
Blairgowrie ...	63½c	11	—	—	25½c	11¼	21½c	1/2	13½c	7	1½c	4	3½c	5¾
Bogahawatte ...	137 p	10¼	56½c	11¼	69	10½	—	—	12	6	—	—	—	—
Bogawantalawa	109 p	11¼	—	—	41	11¼	33	†1/1½	27	9½	2	6	6½c	6¼
Bon Accord ...	43	11¾	—	—	19	10	24	†1/1¼	—	—	—	—	—	—
Bromley ...	60	9	—	—	18	9½	17	1/	22	6½	—	—	3	7½
Brownlow ...	117	11	—	—	93	10½	24	†1/0½	—	—	—	—	—	—
Burnside ...	104½c	8	—	—	45½c	7	47½c	9¾	—	—	9½c	4½	3½c	4½
Calsay ...	116	8½	78	8½ 10¾	35	6¼	—	—	—	—	—	—	3	3¼
Campion ...	78	10¼	—	—	25	10¼	30	1/0½	23	7	—	—	—	—
Cattaratenne ...	76 p	8¼	—	—	25	7	50½c	†9¾	—	—	—	—	1½c	3¼
Chapleton ...	159 p	10¾	—	—	46	11¼	56½c	1/3½	50	7¾	—	—	7½c	6½
Chrystler's Farm	104	11¼	—	—	47	10½	23	1/6	34	7½	—	—	—	—
CLPC. NPeradn.	332	7¼	—	—	102	7	78	†10¼ †10½	150	5¾-6	—	—	2	3½
,,Rickarton ...	88 p	10¾	—	—	33	10¾	23½c	†1/5¼	22	8¾	10	6½-8½	—	—
Claremont ...	54	9	—	—	24	7¼	30	10½	—	—	—	—	—	—
Clontarf ...	66	11¼	—	—	20	11½	18	1/1¾	26	9¾	2	5½	—	—
Come Away ...	93 p	8	—	—	32	8	37½c	11	19	5½	—	—	5½c	6½
Coodagalla ..	40	6½	—	—	17	5¾	12	9½	5	4¾	1	2½	5	3-3
Crathie ...	42	9¾	—	—	15	9¾	15	11½	10	7¼	—	—	2½c	4¼
CTPCEstHolyod	279 p	11	—	—	149 p	10¼ 10¾	130	11½	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
CTPC Mariawate	97	7½	—	—	41	7½	21	11¼	35	5½	—	—	—	—
,,Tillyrie ...	77	10¼	—	—	27	9¼	38	1/	12	7	—	—	—	—
,, ,, ...	97	11¼	—	—	34	10½	46	1/0½	17	8¾	—	—	—	—
,,Wallaha ...	186 p	10¼	—	—	94 p	9½ 11¼	47	1/0¾	21	7¼	—	—	24	5¼-6¾
,,Waverley ...	306 p	1/1	—	—	164 p	1/0½-1/0¾	102	1/2¼	18	9-10	—	—	22½c	8¼
Dahanaike ...	135	8½	29½c	11	21½c	†8¾	18½c	1/1½	45½c	†6¼	15½c	†5½ 6¼	7½c	4¾
Dambulagalla ...	102	8	—	—	58	8¼	17	10	27	6	—	—	—	—
Dehiowita ...	77	9	—	—	49	8	28	11	—	—	—	—	—	—
Delta ..	76	9¼	—	—	37	9½	19	11½	20	6½	—	—	—	—
Devonford ...	56 p	10¼	—	—	16	8¼	34½c	1/0¾	6	8	—	—	—	—
Deyanella ...	85	11¾	11	1/0½	36	10	34	1/2¼	—	—	—	—	—	—
Dickoya ...	133	7½	—	—	93	†6¾ 7½	23	10¾	17	5¼	2	5¾	2	6¼
Dimbula ...	235 p	10¾	42½c	1/2¾	66 p	1/0½	—	—	99	9¼	—	—	—	—
Dotala ...	88 p	10¼	—	—	48	7 9¼	38½c	1/2	—	—	—	—	28½c	6½
Doteloya ...	150	8¾	—	—	52	8½	71	10	17	7	5	5½	2	5¾
Drayton ...	131 p	10¾	81 p	1/-1/3¾	—	—	—	—	36	7¾	—	—	5	5½
Duckwari T P Co	39	9¼	—	—	12	9⅓	12	1/1	15	6¼	—	—	14½c	7½
DYK ..	91½c	7½	—	—	29½c	†6¾	30½c	†10	32½c	5½	—	—	—	—
Easdale ...	44	9½	—	—	18	9¼	14	1/0¼	12	7	—	—	—	—
Eilandhu ..	61	7½	—	—	42	6½	19	9½	—	—	—	—	—	—
Ekolsund ...	71	8½	—	—	26	9	21	10¾	21	6½	1	4	2	3¼
Elbedde ...	244	11¼	—	—	128	† 11 11½	56	1/3¾	46	8	7	5¾	7	6½
Eltofts ...	115 p	10	—	—	29	10½	49½c	1/0¾	29	8¼	6	6	2	6¼
Emelina ...	91	9½	—	—	44	9¼	19	†11¾	21	9½	4	4½	3	4¼
EP&ECo Cndegal	61	1/	—	—	43	10-1/0¼	16	1/2¼	—	—	—	—	2	10
,,Doombagastala	60	8¼	—	—	40	6¾	20	11	—	—	—	—	—	—
,,Hope ...	161	9	—	—	113	8¼ 8½	48	10½	—	—	—	—	—	—
,,Ingurugalle ...	94	8¼	21	10⅛	73	7¾	—	—	—	—	—	—	—	—
Erroll ..	127 p	1/0¼	—	—	56	1/	48⅜c	1/3½	19	10	4½c	6¾	—	—
Fairlawn ...	64½c	1/	—	—	41½c	†10½	23½c	1/2¾	—	—	—	—	—	—
,, ...	126½c	10	—	—	76½c	9¾	30½c	†11¾	20½c	7¾	—	—	—	—
Faithlie ..	66	8½	—	—	31	8½	16	11¼	19	6	—	—	—	—
Fassifern ...	49	1/	—	—	29	10½	20	1/2	—	—	—	—	—	—
Ferham&S. Andre	35	1/0¾	16	1/2	19	11½	—	—	—	—	—	—	—	—
Fordyce ...	170 p	9¾	—	—	40	9¾	85½c	1/0½	45	7	—	—	—	—
Frotoft ...	241½c	1/0½	—	—	54½c	1/1¼	69½c	1/3¼	83½c	11½	27½c	6½ 10	8½c	6½ 8
Galgawatte ...	48	10¼	—	—	21	9	27	11¼	—	—	—	—	—	—
Gallaheria ...	104 p	8¾	26½c	1/0½	37	7¾	23	11	18	5¾	—	—	—	—
Gallebodde ...	151	9¾	—	—	61	9¾	50	11¾	40	7	—	—	—	—
Gingranoya ...	99	10	39 p	1/0¼-1/1	47	9½	—	—	13	6	—	—	—	—
Glassaugh ...	157 p	11¼	—	—	56	11¾	40½c	1/3	45	9¼	—	—	16½c	7½
Glen Alpin ...	160 p	11½	—	—	86	11½	35	1/2	26	10	5	8¼	8½c	6¼
Glencairn ...	100	8	—	—	28	9	24	11½	45	5½	—	—	3	5
Glencoe ...	114 p	8	—	—	31	8¼	42½c	11	34	6¼	3	4¾	4 p	4¼-6
Glengariffe ...	56	8¾	—	—	16	9¼	23	10¼	17	6	—	—	—	—
Glenorchy ...	117½c	11¼	—	—	54½c	10¾	44½c	1/1¼	19½c	7¾	—	—	—	—
Glenugie .	209 p	10¾	—	—	62	9½	126½c	1/0¾-1/2	15	6½	—	—	6½c	7
Goatfell ...	134 p	11	18	1/1	37 p	10¾ 11½	26	†1/1½	—	—	17	7¾	36½c	9
Gonakelle ...	52	11	20	1/1	24	10¼	—	—	8	8	—	—	—	—
,, ...	47	11	—	—	20	11½	15	1/0½	10	8½	—	—	2	5¼
Goomera ...	38	9½	—	—	13	9¼	16	11	9	7½	—	—	—	—
Goorookoya ...	44 p	5	—	—	—	—	—	—	—	—	26	5	18½c	4¾
Gorthie ...	88 p	10	—	—	32	9¾	36½c	1/0½	16	7½	—	—	4½c	7
Great Western ...	192 p	9¼	63	11	39	9	24	10½	46	7	—	—	20½c	7¼
Happugahalande	80	8¾	—	—	28	8½	30	11¼	20	6¼	1	3¾	1	3
Hatherleigh ...	71 p	9	—	—	27	8¾	28½c	1/1¼	16	6	—	—	—	—
Hattanwella ...	43	6	—	—	23	5¾	7	9½	—	—	9	4½	4	3¼
Hauteville ...	78	1/1	—	—	30	1/0¼	40	1/2¾	8	7¾	—	—	—	—
Hoolankande ...	132 p	9	48½c	1/0¼	40	9¾	—	—	41	6½	—	—	3½c	6½
Hoonoocotua ...	121	8¾	—	—	32	8¾	41	10¾	45	7	—	—	3	5¼
,, ..	103	8¾	—	—	24	9	36	11¼	41	6½	—	—	2	4¼
Imugalla ...	45	9¼	—	—	15	9	15	1/0½	15	6	—	—	—	—
MP ...	141 p	9¼	—	—	51 p	10 11½	40	†11	50	7¼	—	—	—	—
Indian Walk ...	77½c	6½	—	—	59½c	5¼5¾	18½c	9¾	—	—	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Small		Pekoe and Pekoe Souchong	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Ingiriya ...	72	7½	—	—	72	7¼7½	—	—	—	—	—	—	—	—
Ingrogalla ...	66	8	—	—	17	8¼	16	1/	33	5¾	—	—	—	—
Kabragalla M...	168½c	11	—	—	64½c	11¼11½	66½c	1/0½ 1/0¾	38½c	7½-7¾	—	—	—	—
Kadien Lena ...	163	9½	—	—	24	8¾	126	9½ 10½	12	9½	—	—	1	3¾
Kahagalla ...	26	7½	—	—	13	6	12	9¼	—	—	1	4¼	—	—
Kaloogala ...	57	8	—	—	19	8	19	10	19	6	—	—	—	—
Kandal Oya ...	309½c	7¾	66½c	8¾-9	137½c	6¾	61½c	11	45½c	5½	—	—	—	—
Kandapolla ...	129 p	11¾	77½c	1/	—	—	33	1/0¾	19	10	—	—	—	—
Kataboola ...	75	9¼	—	—	21	9½	31	† 10½-1/-	22	6¾	—	—	1	4
Katookella ..	55 p	10¾	—	—	19	†11¼	12	†1/2	21	8½	—	—	3½c	11¼
KAW ...	281	10½	—	—	208	9¼ 1/1¼	73	6½ 1/1¾	—	—	—	—	—	—
Keenagaha Ella...	48	9	—	—	12	11	9	11¾	27	7¼	—	—	—	—
Kelliewatte ...	88 p	9¾	—	—	29	10½	20	†1/1¼	37	7¼	—	—	2½c	3¼
Kelvin ...	105	9	—	—	34	8½	48	11	23	6	—	—	—	—
Kew ...	132 p	1/0½	—	—	43	†1/0¼	46½c	†1/6¼	36	†9¾	—	—	7½c	9
Kinloch ...	45	9½	—	—	18	9	20	11	7	6	—	—	—	—
Kiriwana ...	95	9	—	—	15	9	50	10½	30	6½	—	—	—	—
Kirkoswald ...	220 p	11	57½c	†1/3¼	62	10½	37	1/1½	64	8	—	—	—	—
Kotiyagalla ...	142 p	1/0¾	—	—	57	11½	85½c	1/2¼	—	—	—	—	—	—
Kottagalla ...	113	10½	49½c	1/1¼	46	10	18	7½	—	—	—	—	—	—
Kowlahena ...	78	11¼	—	—	26	11½	29	1/2¼	23	7½	—	—	—	—
Leangapella ...	82	8	45	†9½	37	†6¼	—	—	—	—	—	—	—	—
Loinorn ...	61 p	10¼	23½c	1/3½	—	—	—	—	32	9½	4	3¼-5¼	2	3
Loonagalla ...	59 p	7¾	15½c	11¼	16	8	—	—	28	6½	—	—	—	—
Lynsted ...	201½c	9¾	—	—	126½c	7¼ †9½	75½c	†11	—	—	—	—	—	—
Macduff ...	65	10	—	—	23	11¼	17	1/2	22	6½	—	—	3	6½
Mahacoodagalla	31	11¼	—	—	17	10¼	14	1/0¼	—	—	—	—	—	—
Mahatenne ...	69 p	7¾	—	—	27	7½	24½c	10¾	18	5¾	—	—	—	—
Manickwatte ...	71 p	8	—	—	43	7¼	28½c	10¼	—	—	—	—	—	—
Mapitigama ...	34	6	—	—	24	5½	7	8¾	—	—	1	2¼	2	3
,, ...	29	5	—	—	29	5	—	—	—	—	—	—	—	—
Marlborough ...	64	9¾	—	—	33	9½	19	1/	12	6¼	—	—	—	—
Maskeliya ...	51 p	8¾	22½c	11½	15	8¾	—	—	14	6¼	—	—	—	—
Meria Cotta ...	82	10¼	—	—	43	9½	27	1/1¼	12	6¾	—	—	—	—
Mipitiakande ...	212	9¼	—	—	98	9½	43	1/1½	63	6½	1	5	7	4¼-4¾
Monterey ...	75 p	10	—	—	24 p	8¾-9½	32	1/0¼	16	7	1	4¾	2	4
Mooloya ...	32	1/0¾	—	—	15	11¼	17	1/2	—	—	—	—	—	—
Moralioya ...	62	7½	—	—	36	7	17	10	9	4¾	—	—	—	—
Moray ...	133	10¾	—	—	66	8¼ 10¼	67	11¾	—	—	—	—	—	—
Mossville ...	225½c	9½	—	—	26½c	10¼	105½c	11¼	94½c	7½	—	—	—	—
Mottingham ...	65 p	7¾	12	9¾	—	—	19½c	†11	34	6	—	—	—	—
Mount Pleasant	90	8	—	—	19	9	23	11½	48	6	—	—	—	—
Mousaheria ...	97½c	7¾	—	—	25½c	6¾	40½c	10¼	25½c	5½	6½c	4-5	1½c	3
Narangalla ...	91 p	10¼	—	—	31	10½	29	†1/0½	21	8	3	5¾	7½c	6½-7¼
New Dimbula D...	141	1/1¾	—	—	54	1/1	62	1/4	25	10¼	—	—	—	—
,, ...	123	1/1	—	—	46	11¾	52	1/3¾	25	10	—	—	—	—
New Forest ...	56	10	—	—	24	8½	32	11¼	—	—	—	—	—	—
Newton ...	233½c	9	—	—	108½c	8½	89½c	†10¾	36½c	6¼	—	—	—	—
North Cove ...	86 p	9¾	—	—	40	8¾	46½c	11½	—	—	—	—	—	—
Norton ...	134½c	8½	—	—	57½c	8½	31½c	1/	37½c	6	—	—	9½c	6
Nyanza ...	90	10¼	—	—	35	11	20	1/2	24	8½	6	5½	5	5¾
OBEC Craigie Lea	105 p	8¾	—	—	41	9	23	11¾	30	6¾	5	4-4¾	6½c	3-6¼
,, Dangkande...	131½c	8¼	—	—	39½c	8¼	50½c	10½	28½c	6½	11½c	5	3½c	3¾
,, Darrawella ...	93	10½	—	—	53	9¼	43	11¾	—	—	—	—	—	—
,, Glendevon ...	100	10¾	—	—	35	10¾	35	1/0¼	30	9	—	—	—	—
,, Kuda-Oya ...	135	11	—	—	54	10¼	52	1/1¾	23	7¾	—	—	6	4
,, Sinnapittia...	113	8½	—	—	38	9¼	29	11½	35	6½	—	—	11	5½
,, Wattawella	86	8¾	—	—	32	9	25	11	23	6¼	—	—	6	7¾
Old Madegama	73½c	9¾	12½c	11	—	—	27½c	10¾	34½c	8¾	—	—	—	—
Oononagalla ...	111 p	9½	23½c	1/0¾	33	8½	24	1/1¼	31	6¼	—	—	—	—
Ooragalla ...	76	8¼	—	—	14	7¾	41	9¾	21	6	—	—	—	—
Ouvahkellie ...	67	1/1	—	—	28	11	27	1/5	12	8¾	—	—	—	—
Ouvah Kellie B...	69	1/1½	—	—	34	11¼	33	1/4	—	—	—	—	2	7¼
,, D ...	75	1/0¾	—	—	32	11	30	1/4¼	11	9¼	—	—	2	6¾

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Ovoca ..	94	10½	20	1/1¾	39	10½	13	11¾	22	7¼	—	—	—	—
Panslatenne ...	92	7½	—	—	28	7½	31	†9¼	33	5¾	—	—	—	—
Pathragalla ...	149	7	—	—	31	6¾	11	9¼	7	4¾	—	—	—	—
Peacock Hill ...	166 p	8½	—	—	47	9¼	79½c	10½	40	5¾	—	—	—	—
Pita Ratmalie ...	105½c	10¾	—	—	69½c	10¼ 10½	28½c	1/0¾	—	—	4½c	5½	4½c	8½
Pittawella ...	49½c	8¾	—	—	19½c	7¾	28½c	9¾	—	—	2½c	3¾	—	—
Portmore ...	61	1/1	—	—	26	†11¼	33	†1/2¼	—	—	2	7	—	—
,, ...	51	1/0¾	—	—	20	1/	29	1/1¾	—	—	—	—	2	8¼
Portree ...	83 p	9¾	—	—	21	10¼	34½c	1/0½	28	7¾	—	—	—	—
Preston ...	49	10¾	14	1/1	21	11¼	—	—	14	7¾	—	—	—	—
Putupaula ...	84	9¼	—	—	20	9½	32	1/	32	6¼	—	—	—	—
Rahatungoda ...	32	11	—	—	12	10¼	20	11¼	—	—	—	—	—	—
Ragalla ...	54 p	10¼	—	—	21	10½	24½c	1/0¼	9	6¾	—	—	—	—
Rambodde ...	60½c	9½	—	—	16½c	10½	15½c	1/0¼	16½c	8¼	11½c	6½	2½c	5¼
Rangalla ...	73 p	9	—	—	33	9	22	10¾	11	6	—	—	7½c	7
Rangbodde ...	86	10½	—	—	45	10¼	24	1/1	17	7¾	—	—	—	—
Relugas ...	88 p	8¼	—	—	29	8	34	10	22	5¾	—	—	3½c	2
Retnagherry ...	46	8½	12	†9½	—	—	14	11	20	6	—	—	—	—
Riverside ...	69	8½	—	—	39	†8¼	17	†10¾	13	6¼	—	—	—	—
Sandringham ...	136	10	—	—	45	9½	59	1/0½	28	6¼	—	—	4	3½-6¾
Sanquhar ...	117 p	8½	—	—	38	8¾	44½c	10¾	35	6½	—	—	—	—
Somerset ..	130 p	9¼	—	—	69	†8¼	61½c	11½	—	—	—	—	—	—
Spring Valley ...	174 p	11½	—	—	77	11½	36	1/2½	50	9½	—	—	11½c	7¼
Stamford Hill & O	179 p	9	—	—	94½c	10¼	43½c	1/0¼	32	6¾	10	4½	—	—
St. Andrews ...	100½c	8¾	16½c	1/2	63½c	†7¼	21½c	9½	—	—	—	—	—	—
St. Clair ...	105	9½	14	11¼	28	10	16	1/2¾	43	6¾	2	5¼	2	4¾
St. John Del Rey	192 p	10¾	—	—	87	10¾	55½c	1/2½	45	8¾	—	—	5½c	5¾-8½
St. Johns ...	72	10	—	—	39	9¾	18	1/1	15	6¾	—	—	—	—
Stonycliff ...	71	10¾	—	—	42	9¾	29	1/0¼	—	—	—	—	—	—
Strathspey ...	14	1/2½	—	—	—	—	14	1/2½	—	—	—	—	—	—
Summerville ...	52	9¼	—	—	22	9	17	11¾	13	6	—	—	—	—
Sunnycroft ...	109	7¼	33	9½	19	7¼	—	—	45	6¼	12	4¾	—	—
Tamaravelly ...	91	10	—	—	38	9	48	11¼	2	5¾	—	—	3	6
Taprobana ...	111 p	9¾	—	—	64½c	9½	30	11¾	14	5¾	—	—	3½c	8½
Templestowe ...	68	9¼	22	1/2½	22	8¼	—	—	20	6	2	4½	2	3½
Theresia ...	94 p	9	—	—	28	7¼	64½c	†10¾	—	—	1	4	1	4
Theydon Bois ..	92	7½	—	—	28	10	39	7	25	5½	—	—	—	—
Torrington ...	62 p	10¼	—	—	32	9¾	21	1/	3	6¼	—	—	6½c	5¼
Ugieside ...	83 p	7	17	10¾	50 p	6¾	—	—	—	—	6	4	10	4½
Ukuwela ...	67	7¼	—	—	18	8¼	20	9¼	18	6	6	5	5	3
Wallambrosa ...	156 p	10	105 p	1 0¼ †1/3	—	—	—	—	51	7-8½	—	—	—	—
Wedehette ...	69	9	—	—	12	9	36	10½	20	6½	—	—	1	6¼
W.A.H. ...	91	7¾	—	—	42	7¼	31	10	18	5½	—	—	—	—
Wariagalla ...	49	6¾	—	—	16	6½	18	8¼	13	5¼	—	—	2	4
Warleigh ...	53	8¾	—	—	41	8¼	12	10¾	—	—	—	—	—	—
Wattakelly ...	175	9¼	126	8¾ 10¼	46	7½-7¾	—	—	—	—	2	5	1	5
Wavendon ...	141½c	7¾	—	—	18½c	8	63½c	†9-9½	52½c	6¼	—	—	8½c	5½
Wellekelle ..	110½c	10¼	—	—	61½c	9¾	45½c	11¼	—	—	2½c	5¾	2½c	3¼
Westhall ...	90	9¼	—	—	39	10	17	1/0¾	32	6¾	—	—	2	6¼
Wewelmadde ...	75	7¾	—	—	20	7¼	34	9¼	21	5¾	—	—	—	—
West Haputale...	94½c	10¼	—	—	28½c	10¼	29½c	1/	29½c	9½	8½c	†6¾	—	—

JAVA. 981 chests. Average 6½d.

Garden.	Total.		Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust	
	Quantity.	Price	Quantity.	Price.	Quantit.	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Ardja Sarie ...	350	5¾	—	—	100	6½	100	5½	150	5½	—	—	—	—
Jasinga ...	171	6¾	14	9¾	37	6-1/5	18	4¾	28	5¼	74	4¾ 5	—	—
Montana ...	201	5½	—	—	—	—	69	†5¼ 6	—	—	132	5¼5½	—	—
Perbakti ...	106	7	16	1/2¾	17	6¼	19	6	15	5½	30	5	9	4¾
Tjiomas ...	153	8½	—	—	85	6¼9½	52	6¼ 10½	16	7¾	—	—	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes, ½c for half-chests, p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half chests or four boxes are taken as equal in weight to one chest

GOW, WILSON & STANTON, Brokers.

J. W. Parkins, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

Supplement to "CEYLON OBSERVER."

GOW, WILSON & STANTON'S INDIAN, CEYLON, AND JAVA TEA REPORT.

13, Rood Lane, London, E.C. *June 3rd*, 1892.

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

		Indian.	Ceylon.	Java.
During the week	1890-1891.	1,159,343 packages.	633,503 packages.	57,339 packages.
	1891-1892.	1,309,592 ,,	728,448 ,,	43,062 ,,

6,326 packages Indian
9,698 ,, Ceylon } Total 36,340 packages have been offered in public auction.
316 ,, Java

Deliveries of Indian and Ceylon Tea from London during May rank amongst the highest recorded, except during Budget excitement. Auctions were only held on Monday and Tuesday.

Average price of Indian Tea sold on Garden Account during the Season ending 31st May, 1892.
886,047 packages, 9¼d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
Assam	403,558 p	10d	Chota Nagpore	2,576 p	6¾d	Neilgherry ..	3,869 p	7¼d	Kangra Valley }		
Cachar & Sylhet	273,052 p	8d	Darjeeling ..	69,887 p	11¼d	Terai	10,973 p	9d	Kumaon ..	7,398 p	7¾d
Chittagong ..	6,387 p	8¾d	Dooars	87,886 p	8½d	Travancore ..	20,461 p	7¼d	Dehra Doon .. }		

INDIAN. The market was hardly so strong as last week, the proportion of reprints and second and Teas being very large. The first invoices of New Season's Teas are printed for the 8th inst. from "Moondakotee and Kurseong," of the Land Mortgage Bank, and from the Goomtee Estate.

This weeks average price of Indian Tea sold on Garden Account. Total 7,123 pkgs. average 9d.

	PKGS.	PRICE.		PKGS.	PRICE.		PKGS.	PRICE.
Assam	2508 p	10¼d	Chota Nagpore ..			Kangra Valley, Etc.	124 p	5¼d
Cachar and Sylhet..	3344 p	8½d	Darjeeling			Neilgherry	110 p	7d
Chittagong			Dooars			Travancore	1037 p	7¾d

Comparative prices of Indian Tea in London :—

DUST.	(Fair ordinary, dark liquor)	1892,	3¾d.	1891,	6½d.	1890,	6¼d.	1889,	4¼d
FANNINGS.	(Red to brown, strong rough liquor)	,,	5d.	,,	7d.	,,	6¾d.	,,	4d.
BROKEN TEA.	(Brownish to blackish, strong liquor)	,,	6½d.	,,	8½d.	,,	8d.	,,	5d.
PEK. SOUG.	(Blackish greyish, useful liquor)	,,	7¼d.	,,	9½d.	,,	9d.	,,	7¾d.
PEKOE.	(Greyish to blackish some tip, useful liquor)	,,	10d.	,,	10½d.	,,	10½d.	,,	8½d.
PEK. SOUG.	(Blackish greyish, inferior liquor)	,,	5¼d.	,,	9d.	,,	8¼d.	,,	5½d.
PEKOE.	(Blackish, greyish, some tip, inferior liquor)	,,	7¼d.	,,	9¼d.	,,	9¼d.	,,	6¼d.

CEYLON. Deliveries from London during May exceeded any previous record. Prices for the higher grades have receded slightly, common Teas being also less firm. Average for week, 8⅜d.

Comparative prices of Ceylon Tea in London :—

PEKOE SOUG.	(Ordinary leaf; fair liquor)	1892,	6½d.	1891,	8½d.	1890,	8½d.	1889,	6¾d.
PEKOE	(Ordinary leaf, little twist; fair liquor)	,,	9d.	,,	9½d.	,,	9¾d.	,,	8¼d.
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	,,	5d.	,,	8¼d.	,,	8d.	,,	6¼d.
PEKOE	(Somewhat bold leaf; indifferent liquor)	,,	6d.	,,	8¾d.	,,	8¾d.	,,	6¾d.

JAVA. Good invoices from "Perbawattee and Tjiogreg," sold at firm rates.

MOVEMENTS OF TEA IN LONDON (in lbs.) DURING MAY.

	Imports.			Deliveries.		
	1890.	1891.	1892.	1890.	1891.	1892.
Indian	453,984	263,049	415,860	14,492,028	6,783,828	9,590,598
Ceylon.....	4,067,074	5,178,902	6,030,614	5,019,890	4,578,406	5,947,492
Java	584,150	108,080	215,740	348,600	382,620	257,740
China, etc.	201,186	176,849	225,138	11,510,000	6,086,834	5,051,413
Total lbs,	5,306,394	5,726,880	6,887,352	31,370,518	17,831,688	20,897,243

FROM 1st JUNE TO 31st MAY.

	Imports.			Deliveries.			Stock.		
	1889-1890.	1890-1891.	1891-1892.	1889-1890.	1890-1891.	1891-1892.	1890.	1891.	1892.
IAN	101,052,264	99,879,231	110,933,343	101,167,868	100,708,482	108,177,366	27,489,789	26,660,538	29,304,654
'LON.....	34,246,224	47,404,702	64,141,480	31,946,972	42,615,838	61,359,028	9,590,374	14,974,892	17,761,142
A	3,107,700	3,780,700	2,974,160	3,279,690	3,994,480	3,202,080	1,064,840	851,060	612,500
NA, etc	90,096,227	69,755,713	60,371364	87,652,676	81,382,057	68,599,379	39,990,303	28,341,426	20,546,688
Total lbs.	228,502,415	220,820,346	238,420,347	224,047,206	228,700,857	241,337,853	78,135,306	70,827,916	68,224,984

BANK RATE. 2 per cent. **EXCHANGE** on London three months sight.—Calcutta 1/3⅝. Colombo 1/3⅝

INDIAN. Average 9d.

Garden.	Total. Quantity.	Total. Average Price.	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Price	Pekoe and Unassorted. Quantity.	Price	Broken Pekoe. Quantity.	Price.	Pekoe Souchong. Quantity.	Price	Broken and Souchong. Quantity.	Price	Pannings, Dust and Various. Quantity.	Price
ASSAM	**2508 p**	**10¼**												
*AssamC Cherido	866 p	9½	—	—	193	11 1/6½	1,7 p	8½ 1/6¼	—	—	188	5¾ 11¼	14	3½
* ,, Gelakey ...	201	10¼	—	—	61	10½ 10¾	—	—	—	—	140	7¾-1/3	—	—
* ,, Mackeypore	246 p	9¾	15½c	1/6½	52	10¼	14	1/3½	122	8	43	11	—	—
* ,, Rookang ...	321 p	1/3¼	5½c	1/11¼	140	1/2-2/0¼	17 p	11 7½	—	—	105 p	8½ 1/3	9½c	4
Mahmara Pltns...	351	10¼	—	—	121	11 1/1	—	—	49	8	121	6½-7¼	60	1/2¼
NoakachareeCoD	98	10¼	—	—	33	1/0¼	16	1/3½	49	7	—	—	—	—
,, Kakajan	167	8	—	—	40	1/0½	18	1/0¼	33	7½	61	3½-5¼	15	3¾
,, ,, ...	100	8¼	—	—	—	—	20	1/0¾	80	7-7¼	—	—	—	—
*NSTC Sagmotea	158	9½	19	1/1-1/3	36	11 11½	28	11¾ 1/0¼	32	8	43	2½-6¼	—	—
CACHR & SYLHT	**3344 p**	**8½d**												
*Chandkhira ...	67 p	5¾	—	—	11	6	15	6¼	11	5¼	—	—	30 p	7¾ c
*Cherra C Naren	110	4¾	—	—	—	—	—	—	—	—	—	—	110	3¾-5
NSTC Baitakhal	295 p	7½	38	9½	106	7¾	41	9¾	37	5¾	34	5¼	10½c	3¾
,,Burjan ...	138 p	10	—	—	45	11½	44	10½	38	8½	—	—	11½c	5
,,Jafflong ...	228 p	9½	73	11¾	64	9¾	17	1/0¼	18	7½	35	6¼	21½c	5¾
* ,,Khadim ...	273	9¾	15	1/7	67	10¾	55	9¾ 10½	95	8½-9	34	7¼	7	3½
,,Lallakhal ...	147 p	9	28	1/	35	10	14	1/	13	7¼	34	6¼	23½c	4½
Pathini ...	164	7¼	70	10	—	—	24	5¼-7¼	—	—	—	—	—	—
*SephinjuriBhTC	413	5½	—	—	112	3-7½	19	8¼	18	5¼	101	3¾ 4¼	5	5
SSTCoAmrail ...	411 p	10¼	89	1 1¾ 1/6½	129	10 10¼	74	11¼	90	7½	—	—	29½c	5¼
,,Goombira ...	260 p	7¾	30	1/0¼ 1/3½	70	8¼	40	9¼	80	5¾	20	5	20½c	4
*,,Holicherra ...	132 p	8½	—	—	28	10	29	10¾	53	7½	10	5	2½c	2¼
,,Jagcherra ...	230 p	10½	12	1/11	69	10	77	11½	19	8¼	—	—	23¼c	4
,,Phulcherra ...	229 p	10½	57	1/0¼ 2/0¾	49	10	47	10½	30	7¼	33	6¼	13½c	4¾
*,,Sagurnal ...	270 p	1/0¼	95	1/0½-1/8	78	10 1/1	41	10¼ 1/3½	32	7¾-8	—	6¼	10½c	5¾
KANGRAVALEY	**124 p**	**5¼**												
Perindotty ...	80	5	—	—	—	—	—	—	—	—	80	5	—	—
Snow View ...	9½c	8½	5½c	10 1/0½	2½c	6	—	—	2½c	6	—	—	—	—
NEILGHERRY														
Curzon ...	110½c	7	—	—	—	—	25½c	10¼	34½c	6¾	38½c	5¼-16	13½c	5¼
TRAVANCORE	**1037 p**	**7¾**												
Aneimudi ...	118½c	7	—	—	35½c	7¼	18½c	10¼	65½c	6	—	—	—	—
,, ...	104½c	7	—	—	14½c	6¾	30½c	10	60½c	5½	—	—	—	—
Balamore ...	32½c	7½	—	—	30½c	7¾	—	—	—	—	1½c	4½	1½c	2½
Belford ...	40 p	7½	—	—	38	7½	—	—	—	—	1½c	5½	1½c	2½
Bonaccord ...	40½c	5¾	—	—	24½c	5½	6½c	9	—	—	10½c	4¾	—	—
Bon Ami ...	96	9	—	—	12	7¼	42	10¾	6	6	31	8¼	5	4½
Brigton ...	27	6½	13	7½	2	5½	—	—	12	5¾	—	—	—	—
Corrimony ...	126½c	8¼	—	—	92½c	8	27½c	10½	—	—	3½c	4	4½c	3
Glenmary ...	85	8¾	19	11½	58	8¼	—	—	—	—	6	5¾	2	3½
Invercauld ...	29 p	6¼	—	—	16	6¼	5	8¾	5	5	—	—	3½c	3¾
Linwood ...	32½c	7	—	—	32½c	7	—	—	—	—	—	—	—	—
Nagamally Co N	51	8¾	—	—	18	18¾	12	11¾	16	7½	3	5¼	2	3
Poonmudi ...	71 p	8	—	—	38 p	7¾-8	20 p	9¾	—	—	9 p	5	4½c	3¼
Rockwood ...	26½c	7¾	—	—	26½c	7¾	—	—	—	—	—	—	—	—
Seafield ...	110½c	8½	—	—	74½c	8	25½c	1/0¼	—	—	7½c	4¾	4½c	2½
TPC ...	50	6¾	—	—	46	7	—	—	—	—	—	—	4	3-6

Gardens marked thus * are last of the Season.

CEYLON. Average 8¾d.

Garden.	Total. Quantity.	Total. Average Price	Broken Org. Pekoe or Flowery Pekoe. Quantity.	Price.	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price.	Pekoe Souchong. Quantity.	Price.	Broken and Souchong. Quantity.	Price.	Pannings, Dust and Various. Quantity.	Price
Aberdeen ...	100½c	7¼	—	—	44½c	6¾	26½c	9¾	30½c	5½	—	—	—	—
Aberfoyle ...	80 p	7¾	—	—	38	7	28½c	9¾	14	5½	—	—	—	—
Agra Ouvah ...	51 b	1/6½	51 b	1/6½	—	—	—	—	—	—	—	—	—	—
Allagalla ...	65	8	—	—	21	9	15	10½	25	6¼	2	4½	2	3½
Ambawella ...	56½c	7¾	—	—	37½c	6¾	15½c	11	—	—	1½c	4¾	3½c	5¼
Annfield ...	118	9½	—	—	48	8¾	52	11	18	7	—	—	—	—
Ardross ...	112	7¼	—	—	32	6	52	7¾ 9	28	5¾	—	—	—	—
Atherfield ...	69	8¼	—	—	28	7½	26	10⅓	15	6	—	—	—	—

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Attabage ...	147 p	7½	—	—	41	8	54½c	10½	47	5¾	1½c	3	4½c	4
Balmoral ...	68	9¾	—	—	25	8¾	29	1/0¼	14	6½	—	—	—	—
Bambrakelly&D.	83	11¾	—	—	43	11	40	1/0¾	—	—	—	—	—	—
Barnagalla ..	159 p	9¼	21	11¾	37	9¾	24	1/1	45	6¾	—	—	32 p	5¾7¼
Battawatte ...	52½c	8½	—	—	23½c	7¾	26½c	10	—	—	1½c	3¾	2½c	3
Beaumont ...	90	8¼	—	—	30	8	35	10	25	6¼	—	—	—	—
Belgravia ...	52	11½	—	—	17	10½	25	1/1¾	10	8¼	—	—	—	—
Binoya ...	56	7½	—	—	—	—	28	10	—	—	28	4¼ 5	—	—
Blairavon ...	68	7½	—	—	28	7¾	15	10¼	25	5¾	—	—	—	—
Blackwater ...	237 p	8	31½c 1/0½-1/9		60	9	23	10	98	6½	20	5¼	5	3
Bowhill ...	50	8½	—	—	20	8¼	15	11	15	6	—	—	—	—
Broad Oak ...	120½c	10¾	54½c 1/-1/2		66½c	6¾9½	—	—	—	—	—	—	—	—
Campion ...	78	9½	—	—	28	9½	27	11⅝	23	7	—	—	—	—
Castlemilk ...	92	8½	—	—	34	8¾	31	10½	27	6¼	—	—	—	—
Chapleton ...	159 p	11	—	—	45	11¾	65½c	1/3¼	49	7½	—	—	—	—
Choisy ...	89 p	8¼	—	—	22	9¼	30½c	11¼	29	6½	2	4¾	6½c	5¾
CLPC. NPeradn.	70	9	—	—	27	6¾	43	†10¼	—	—	—	—	—	—
Cocagalla ..	28½c	9¾	—	—	8½c	8	15½c	1/0¼	5½c	5½	—	—	—	—
Court Lodge ...	28½c	1/2½	—	—	—	—	28½c	1/2½	—	—	—	—	—	—
CTPCo Dewalaky	247 p	7¼	17	10½	163 p	6¼7½	44	8¾	23	5¼	—	—	—	—
,,Dunedin ...	362 p	8	50 b	1/3¼	200	7¼	64	9¼	48	5½	—	—	—	—
,,Mariawatte ...	214	7½	—	—	82	7 7½	59	†10¼†10½	73	5½	—	—	—	—
,,Mudumana ...	150	7½	—	—	60	7	51	9½	39	5½	—	—	—	—
,,Sembawatte	75	6¾	--	—	30	6	25	9	20	5½	—	—	—	—
,,Tillyrie ...	97	9¼	40	11	36	9	—	—	21	6½	—	—	—	—
,, ,, ...	84	9¼	—	—	28	8¾	40	11	16	6¼	—	—	—	—
,,Wallaha ...	163 p	10¼	—	—	94 p	9 10¼	48	1/	21	7¼	—	—	—	—
alhousie ...	90 p	8½	16 b	†11½	51½c	7¼	23½c	10	—	—	—	—	—	—
amblagolla ...	68	8	—	—	53	7¼	15	11	—	—	—	—	—	—
ambulagalla ...	96 p	8¼	18½c	10½	34	8	19	10½	27	6	—	—	—	—
ammeria ...	84½c	8½	36½c	9¾	48½c	7¾	—	—	—	—	—	—	—	—
,, ...	151½c	8	53½c	9¼	73½c	7	10½c	10¾	14½c	5½	1½c	3¾	—	—
aphne ..	22	5⅓	—	—	11	5¼	5	7½	5	4¼	1	2¾	—	—
eaculla ...	84 p	8½	26½c	11½	58 p	7¼7¾	—	—	—	—	—	—	—	—
eanstone ...	84½c	7	69½c	†7¾	—	—	9½c	5	—	—	3½c	3¼	3½c	2¾
elpotonoya ...	92	7¼	—	—	18	7½	32	9½	24	5¾	18	5¼	—	—
elta ..	57	10	—	—	38	9	19	1/0¼	—	—	—	—	—	—
enmark Hill ...	80 p	9	—	—	27	†8¾	27	11	24	6½	—	—	2½c	6¼
oteloya ...	149 p	9	—	—	51	8¼	77	10	13	6¼	2	5	6½c	4¾
linburgh ...	44	1/1¾	—	—	20	1/0¾	24	1/2¾	—	—	—	—	—	—
Chico ...	137½c	8¼	—	—	20½c	7¾	63½c	10½	54½c	5¾	—	—	—	—
kadua ...	90	8	—	—	27	8¼	30	10	33	6	—	—	—	—
ston ...	134	8½	—	—	75	7¾	35	11½	24	6	—	—	—	—
P&ECo Hope	104	8½	—	—	68	7¼	36	10½	—	—	—	—	—	—
,,Montefiore ...	52	8	17	†10¾	26	7	—	—	8	5½	1	2¾	—	—
,,Norwood ...	58	1/1¾	—	—	35	1/0½	23	1/3¾	—	—	—	—	—	—
,,Rothschild ...	67	7¼	22	9½	45	6¼	—	—	—	—	—	—	—	—
,,Sogama ...	80	7	25	9½	55	6	—	—	—	—	—	—	—	—
irfield ...	25	11½	—	—	14	10¾	11	1/0½	—	—	—	—	—	—
ogmore ...	40 p	10	—	—	19	8½	19	11¾	—	—	—	—	—	—
uit Hill ...	79 p	8¾	34½c	1/0½	24	†8¾	—	—	18	6	—	—	2½c	4½
lata ...	161 p	8½	—	—	60 b	11	62	1/0¼	27	6	7 p	3¼5¼	3½c	4
lkadua ...	53	6¾	—	—	20	6½	15	8¾	18	5¼	—	—	5½c	6
llantenne ...	72	7¾	—	—	24	7½	25	9¾	23	5¾	—	—	—	—
mmadua ...	80	7	—	—	47	†5¾	28	9½	—	—	5	3¼3¾	—	—
,, ..	48	7¾	—	—	20	†6	26	9¼	—	—	1	3¾	—	—
,, ...	73	6½	—	—	32	†5¾	24	8¾	13	5	2	4	1	3½
ngwarily ...	92	7¾	—	—	55	7¼	25	9¾	12	5 5½	—	—	2	3½
rtmore	101 p	10¼	6 b	1/10	50	10	27	†1/1	16	7	—	—	—	—
lde s ...	185 p	9¾	—	—	61	7½ 9	113	10¾†10¾	—	—	—	—	2	4
iyanakanda ...	139	8¾	—	—	44	8¼	51	11	31	6½	13	5¾	11½c	5¾
ssel ...	80	7¾	26	9¾ 11¼	39	6¾	—	—	15	5½	—	—	—	—
ncairn ...	54 p	8½	—	—	40	†8	12	10¾	—	—	—	—	—	—
ndon ...	154	8¾	—	—	108	7¾ 8	46	10¾	—	—	—	—	2 p	7¾

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings Dust, and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity	Price.	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Glentaffe ...	69 p	11	—	—	41	10¼	15	1/3½	12	7¾	—	—	1½c	3¼
Hallowella ...	67	9¼	14	1/0½	36	8¾	—	—	17	7¼	—	—	—	—
Hangran Oya ...	49	7½	—	—	16	7¾	11	11¾	20	5¼	—	—	2	3¾
Hantane ...	93 p	7¼	—	—	40	7¾	20½c	10	33	6	—	—	—	—
Hardenhuish & L.	102 p	9	—	—	20	8¼	36	11	46½c	6½	—	—	—	—
Hatale ...	101	8¼	13	10½	45	8¼	15	11	28	5¾	—	—	—	—
Hayes ...	242½c	6¾	—	—	60½c	6½	55½c	9¼-9½	106½c	5¼	—	—	21½c	7½
Heatherley ...	108 p	9	—	—	64 p	8½-9½	29	11¼	15	6	—	—	—	—
Hemingford ...	111	6¾	—	—	41	7¼	25	9½	34	5½	—	—	11	3¼
Henfold ...	153	1/0¾	—	—	64	1/-1/0¼	60	1/3¼ 1/3½	17	8¼	—	—	12	8¼
Heathersett ...	104 p	9½	—	—	34	†9-9¾	36	11½ †11¾	31	†6½ 7¾	1	3¾	2½c	6¼
HPA ...	41 p	5¼	—	—	10 p	7-7¼	—	—	17 p	5	13 p	3¾-4¼	1½c	3
Indurana ...	82	7¾	—	—	37	7¾	24	9¾	19	5½	—	—	2	3½
Ingestre ...	97 p	8¼	—	—	53	8	26½c	11¾	—	—	—	—	18	5-7¼
Kabragalla M...	90 b	6¾	—	—	—	—	—	—	90 b	6¾	—	—	—	—
Kandapolla ...	101 p	11¼	44½c	11¾	—	—	21	1/1¾	28	9¾	—	—	18½c	7
Karagastalawa ...	94	10	—	—	31	10	34	1/0¼	29	7¼	—	—	—	—
Katooloya ...	74	10½	—	—	30	9¾	30	1/1	14	7¼	—	—	—	—
Kelburne ...	50	8¾	—	—	16	9	16	11¼	12	6¾	6	4½-4½	—	—
Kellie ...	140	8	—	—	42	9½	20	11½	66	5½	12	5¾	—	—
Kirklees ..	64 p	7½	—	—	21	7½	18	10¼	21	5½	—	—	4½c	3½
Kitoolpatna ...	36	7	—	—	16	†6	13	†9¼	—	—	—	—	7	†4½
Kottiagalla ...	50	5¾	—	—	26	5¼	13	7¾	11	4¼	—	—	—	—
Lawrence ...	74	10	23	1/0¼	36	10	—	—	15	7	—	—	—	—
Laxapana ...	130 p	8¾	22½c	11¾	44	8¼	36½c	11¼	10	5¾	—	—	18½c	5½
Leangawella ...	51 p	8	18½c	†10¾	33 p	7	—	—	—	—	—	—	—	—
Lippakelle ...	103	11½	—	—	66	8¾-11	32	1/2¼	—	—	—	—	5	6¼
Little Valley ...	56	7	—	—	42	6¼	14	9½	—	—	—	—	—	—
Loinorn ...	84 p	10¾	33½c	†1/2¾	—	—	—	—	51	9½	—	—	—	—
Luccombe ...	327½c	8	—	—	168½c	7¼	94½c	10½ 10¾	65½c	5¾	—	—	—	—
Lunugalla ...	220½c	8½	—	—	64½c	8¾	79½c	10½	55½c	6	13½c	5	3½c	6¼
Macduff ...	85	10½	—	—	29	10½	26	1/2½	27	7¾	—	—	3	4
Mahadowa ..	69	1/0¼	—	—	19	1/1¼	32	1/1	16	10½	—	—	2	5¼
Mahagastotte ...	175	9	—	—	60	9	75	10½	40	6¼	—	—	—	—
Mahousa ..	96	7¼	35	†9	39	6¾-7¼	—	—	21	5½	—	—	1	2¾
Malvern ...	44	7	—	—	11	7	11	9¾	22	5½	—	—	—	—
Marguirita ..	40½c	7¼	—	—	—	—	—	—	40½c	7¼	—	—	—	—
Maskeliya ...	58 p	10	52 p	†9-1/2	—	—	—	—	6	5½	—	—	—	—
Mattakelly ...	138	8¾	—	—	45	9	45	11¼	46	6	—	—	9	6¼
Maturatta ...	120½c	8½	—	—	57½c	7½	45½c	†10¼	—	—	—	—	18½2	7½
Mayfield ...	172	8½	—	—	55	8½	70	10¼ 10½	47	6	—	—	—	—
Melfort ...	94 p	10½	43	1/0½	28	9¾	—	—	—	—	—	—	23½c	5
Melrose ...	34	8¾	—	—	18	7	16	10½	—	—	—	—	—	—
Minna ...	126 p	8	—	—	62½c	9	21½c	1/0¾	30	5¾	—	—	13½c	5½
Mooloya ...	46	1/0¼	—	—	21	10¾	25	1/1¾	—	—	—	—	—	—
Moray ...	235 p	9¾	—	—	102	7½-9¼	108	11¼ 11½	—	—	—	—	25½c	6½
Nayabedde ...	163	8½	—	—	74	7-8½	41	1/	48	6½	—	—	—	—
Nayapane ...	239 p	7¼	—	—	66	7½	88½c	10¼	76	5½	3½c	3¼	6½c	4½
New Dimbula D...	148	1/0¾	—	—	57	11½	65	1/3¼	26	9¾	—	—	—	—
New Forest ...	59	9¾	—	—	35	9	24	11	—	—	—	—	—	—
New Peacock ...	366 p	7	—	—	102	7¼-7½	136½c	9½-9¾	114	5¼-5½	4½c	3	10½c	5
Nilambe ...	145	8	—	—	44	6¾	82	9-9¼	19	5¼	—	—	—	—
OBEC Darrawela	105	7¾	—	—	33	8-9½	30	10½	37	5¾	3	4-5	2	3¾
,, Glendevon ...	136	9½	—	—	42	10	33	11¾	43	8¼	—	—	18	8½
,, Nilloomally...	106 p	8¼	10	1/2¼	49	8	17	10	30 p	5½-6	—	—	—	—
,, Stellenberg ...	90 p	9¾	—	—	24	10⅓	25	1/0½	26	7¾	—	—	15	6¼-8
OGA ...	62	7	—	—	38	5¾	24	9	—	—	—	—	—	—
Oononagalla ...	124 p	9¼	24½c	1/0¾	40	8½	20	1/1¾	40	7	—	—	—	—
Orion ...	127 p	9	—	—	48 b	10	63 b	11¼	12	5¾	2½c	4½	2½c	4¾
Ormidale ...	108½c	1/3¾	—	—	35½c	1/4½	55½c	1/4¾	18½c	11	—	—	—	—
Ottery & Stamfd H	161 p	8¾	—	—	88½c	8¾	53½c	†10¾	20	5¾	—	—	—	—
Pambagama ...	150 p	7½	—	—	92	7	52½c	9½	6	5¼	—	—	—	—
Pantiya ...	110	9	—	—	41	8¾	41	11	28	6	—	—	—	—
PDM ...	46 p	11½	—	—	13	10¾	24½c	1/2-1/3¼	9	7¾	—	—	—	—

CEYLON.—Continued.

Garden.	Total.	Average.	Broken Org. Pekoe or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
Pen-y-lan ...	149	8¾	—	—	61	7¾	74	10 10¼	10	5½	1	4	3	4
Pine Hill ...	174½c	9½	27½c	1/2½	61½c	10¾	—	—	54½c	8½	17½c	4¼	15½c	4¼
Poolbank ...	86½c	8¾	47½c	†10½	33½c	7	—	—	—	—	3½c	3¾	3½c	5
Portswood ...	107½c	11¾	—	—	64½c	†1 1-1/2½	21½c	†1/3	22½c	†9	—	—	—	—
Rahatungoda ...	31	9	—	—	13	†8	18	†9¾	—	—	—	—	—	—
Raxawa Panwila	70	8¼	—	—	18	9¼	22	10½	30	6	—	—	—	—
Relugas ...	43	7	—	—	25	8¼	—	—	18	5¼	—	—	—	—
Richlands ...	122 p	8	—	—	59½c	7¼7¾	39½c	11¾	24	5¾	—	—	—	—
Riseland ...	21	6	—	—	5	6¼	5	7½	9	5	2	4¾	—	—
Rookwood ...	92½c	9	12½c	1/0¼	59½c	9½	—	—	18½c	6¾	—	—	3	6¾
Scarborough ...	89 p	9½	—	—	37	8¾	36	11½	12	6¾	4½c	2½	—	—
Scrubs ...	235	9¼	—	—	75	8½	120	†10¾	40	5¾	—	—	—	—
SCTCo Invery ...	146 p	11¾	—	—	50	11¾	50½c	1/4¼	—	—	46 p	5¼9½	—	—
Selegama ...	104½c	7¼	12½c	10¼	58½c	5¾	34½c	8¾	—	—	—	—	—	—
Somerset ..	78 p	9¼	—	—	46	8½	32½c	11¼	—	—	—	—	—	—
St. Clair ...	130	8¾	16	10¾	35	9¼	17	1/2	57	6¾	3	5½	2	4
St. George ...	64 p	11¼	—	—	24	10	31	1/1¼	7	7	—	—	2½c	7½
Stonycliff ...	79	10	—	—	32	9¾	30	11¾	17	7½	—	—	—	—
Strathellie ...	151	7¼	—	—	46	7	63	9	42	5¼	—	—	—	—
Suduganga ...	60 p	8½	36½c	10½ 1/1¼	—	—	—	—	20	6¼	4	4¾	—	—
Talawakelle ...	131 p	10	—	—	37	11½	18	1/2½	46	8½	12	5	18½c	8
Talgaswella ...	78	8	—	—	—	—	78	8	—	—	—	—	—	—
Thornfield ..	110 p	10¼	—	—	38	†9	65½c	1/0¾	5	6	—	—	2½c	3¼
Tommagong ...	79 p	10¾	—	—	23	11	25½c	1/1¾	19	9¼	7½c	8	5½c	7¼
Torrington ...	62 p	10	—	—	32	9½	20	†11¾	4	6	—	—	6½c	7
Tunisgalla ..	84	8¼	—	—	20	9	22	10¾	38	6½	—	—	4	5¾
Valamaly ...	65	11¼	—	—	41	†10¼	24	†1/1	—	—	—	—	—	—
Vogan ...	108	7¾	—	—	24	7½	41	10	43	5¾	—	—	—	—
W.A.H. ...	69	7¼	—	—	34	6¾	19	9½	16	5¼	—	—	—	—
Waltrim ..	132 p	11	—	—	37	10½	41	1/0¾	34	10¼	—	—	20½c	8
Variagalla ...	56	7¼	—	—	19	6¼	20	10¼	13	5½	1	3½	3	3½
Wattegodde ...	113 p	9	—	—	63	8¾	30	11¼	14	6½	—	—	6½c	6
Wereagalla ..	73 p	8¼	—	—	31	8¼	27	11¼	15	6	—	—	—	—
Weyweltalawa ...	140½c	8¾	22½c	10¾	40½c	8¾	28½c	11½	50½c	6¼	—	—	—	—
Windsor Forest	120	8½	—	—	66	7¼7½	54	10	—	—	—	—	—	—
Yahalakela ...	43	7	—	—	12	6¾	15	9	16	5½	—	—	—	—

JAVA. 316 chests. Average 7½d.

Garden.	Total.	Average.	Fine & Flowry Pek.		Medium Pekoe.		Broken Pekoe.		Pekoe Souchong.		Souchong.		Cong. Bro. & Dust.	
	Quantity.	Price	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price	Quantity.	Price
Bagelen ...	59	5¾	—	—	59	5½ 6	—	—	—	—	—	—	—	—
Perbawattee ...	109	9¾	—	—	40	8¾	69	10¼	—	—	—	—	—	—
Djogreg ...	148	6¾	—	—	64	7¼	25	7¾	45	5¾	14	5½	—	—

In these tables all packages are chests unless otherwise stated. b stands for boxes; ½c for half-chests; p for packages. † Prices marked thus represent the highest offer in the room. In calculating these averages two half-chests or four boxes are taken as equal in weight to one chest.

GOW, WILSON & STANTON, Brokers.

J. W. PARKINS, Printer & Stationer, 1 & 2, Bury Street, St. Mary Axe.

CHARTERED MERCANTILE BANK OF INDIA, LONDON, AND CHINA.

(INCORPORATED BY ROYAL CHARTER.)

Paid up Capital.....£750,000

Reserve Liability of Shareholders.....£750,000.

Reserve Fund.....£125,000

Head Office.

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BANK OF ENGLAND, LONDON JOINT STOCK BANK.

The Bank opens **Current Accounts** and allows interest at 2 % per annum calculated on the minimum monthly balance.

When the balance at credit falls below R2,000 in any month, no interest will be allowed for that month.

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Bills of Exchange are bought or sent for Collection.

Drafts are granted on the principal cities of Europe, India, China, Australia, and New Zealand, and **Circular Notes** are issued for the use of travellers available in all parts of the world.

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SUBSCRIBED CAPITAL	£1,000,000
PAID-UP CAPITAL	£500,000
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SPECIAL RESERVE AGAINST DEPRECIATION OF CAPITAL	£116,625

HEAD OFFICE:—London.

BRANCHES:—Calcutta, Bombay, Madras, Colombo, Kurachee, Delhi, Tuticorin, Rangoon, and Mandalay.

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JAS. BUCHAN,
Manager.

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BANK OF MADRAS.

(Established 1843.)

Constituted and regulated by Government of India Act No. XI of 1876. ("The Presidency Banks Act.")

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Reserve Fund.....R1,400,000.

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A MONTHLY MAGAZINE OF

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AND

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OVER **2,500** NOW IN USE.

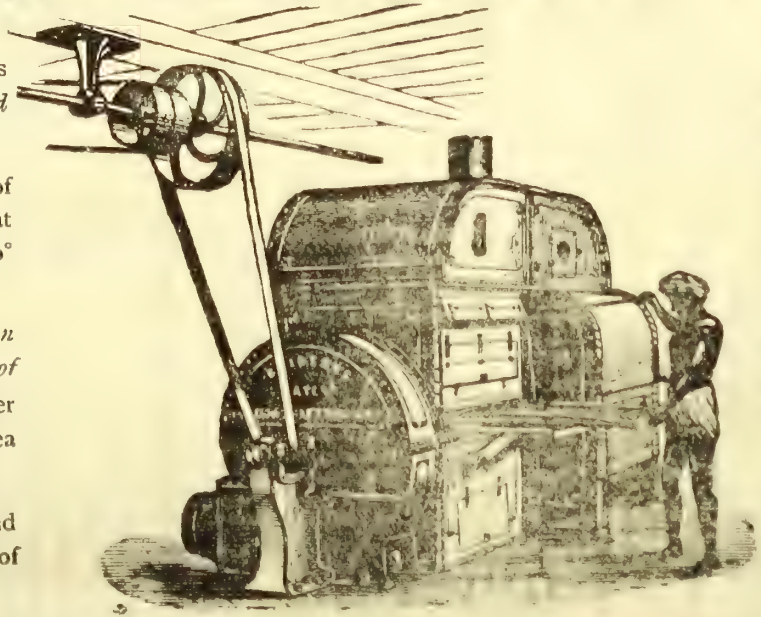
THE NEW DOWN-DRAFT SIROCCO.

The Down-Draft Sirocco (as per illustration) is the *most rapid* drier of Tea Leaf extant.

It works with a hurricane of pure hot air through the Tea, at any desired temperature from 160° to 240° F.

The lower temperatures, *in conjunction with the hurricane speed of air blast employed*, give higher quality, but less quantity of dried Tea per hour.

Any fuel may be used and about 3/4 lb. of wood dries 1 lb. of Tea.



The air is heated by the New Patent Sirocco Stove, with cast-iron flues, the construction of which is so strong and durable, that for many years, practically the only wearing parts are the Furnace-bars and side-tiles.

The apparatus is easily erected the principal working parts being sent out in made-up sections ready for bolting together.

The large Down-Draft Sirocco is 7 feet high and occupies a floor space of only 6 ft. by 14 ft.,

These Machines are in two sizes as follows : —

Large size, Down-Draft Sirocco { Dries about 200 lbs. Tea per hour at 240° F. / do do 120 do do do do at 160° F. } **£185**

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	With Self-acting Air-Chimney	With Exhaust Fan.	With Self-acting Air-Chimney.	With Exhaust Fan.
Original make of No. 1 "Sirocco," with Compound Air and Smoke Chimney.	40 lbs.	—	£ 85	—
End Slide "Sirocco," 8 Tray size, with Exhaust Fan or large Air-Chimney for self-acting draft.	60 „	80 lbs.	£ 90	£ 95
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End Slide "Sirocco," 16-Tray size, ditto	100 „	140 „	£ 130	£ 135
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Diamond Table Napkins

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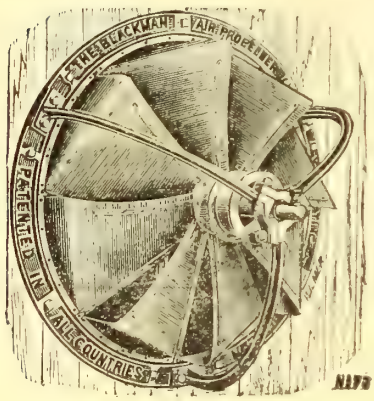

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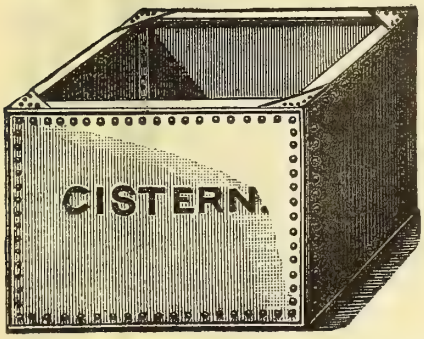

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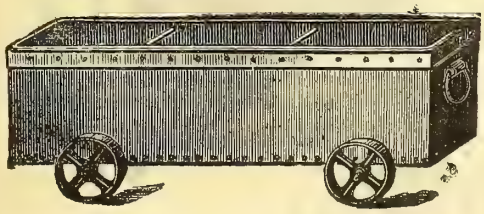

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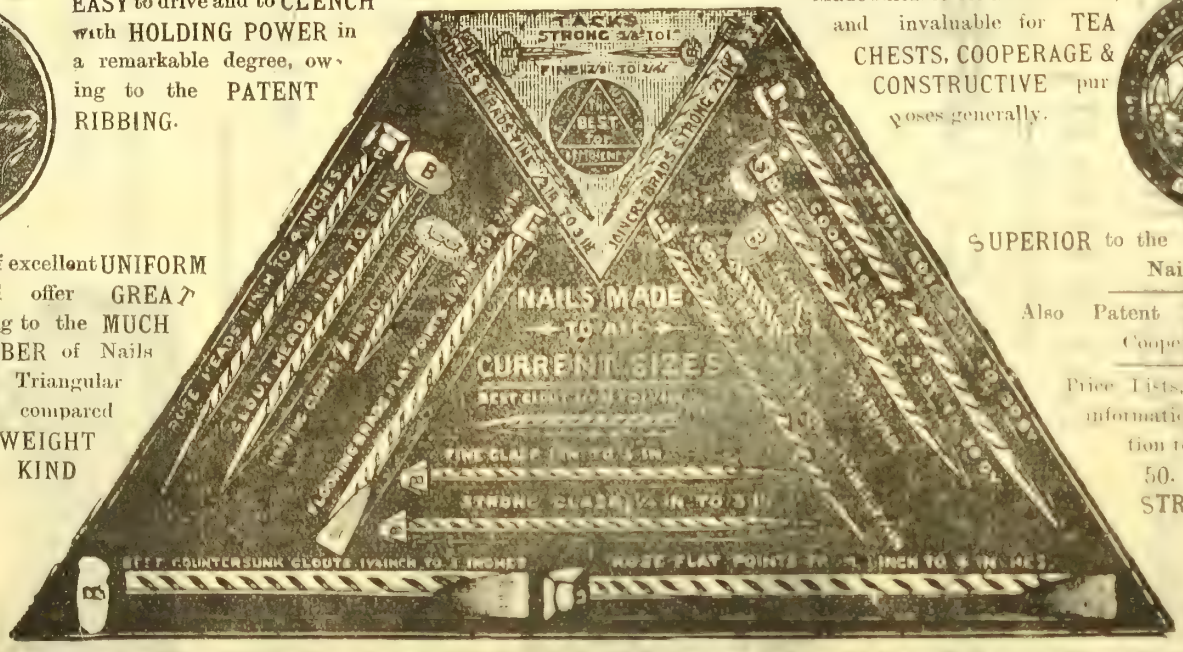
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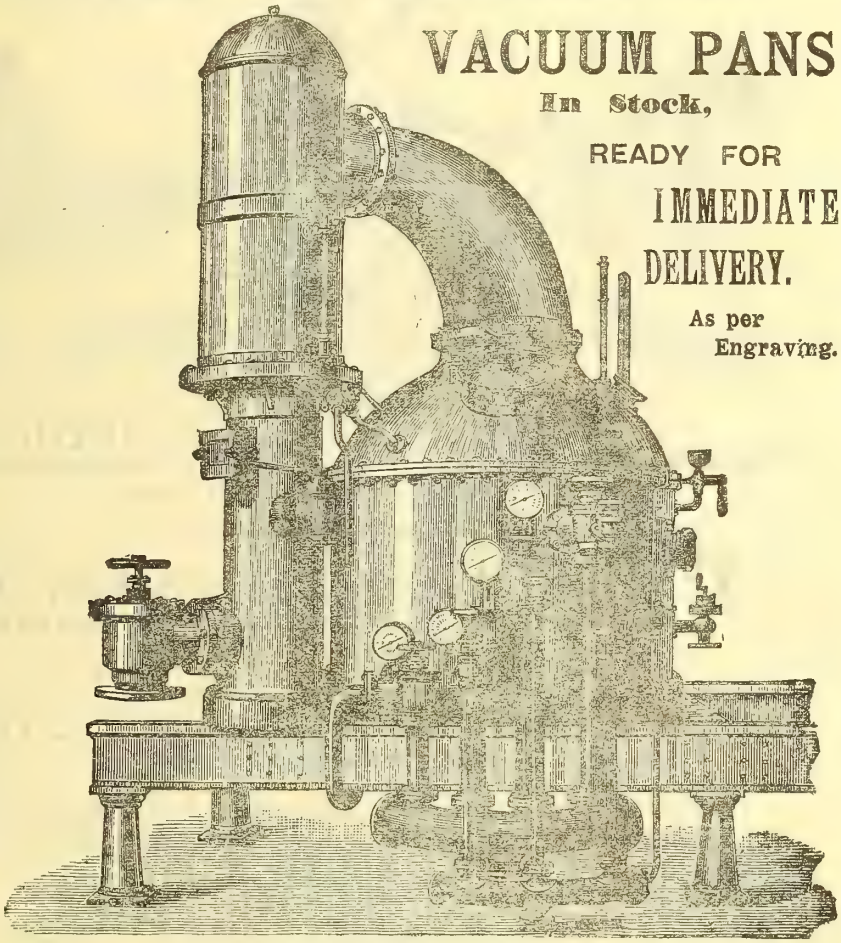

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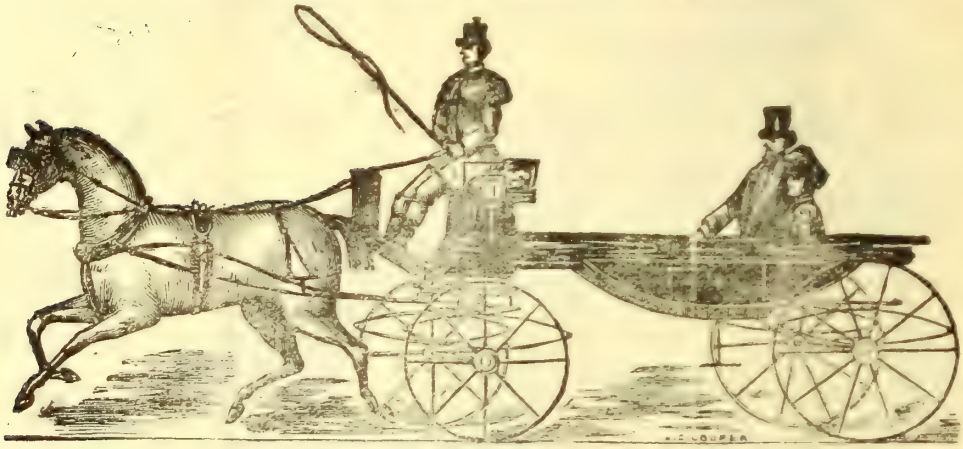

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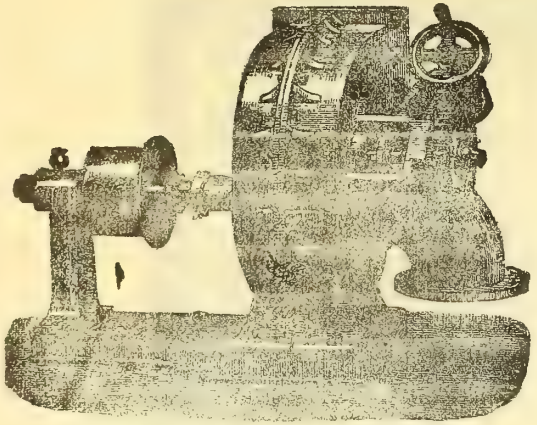

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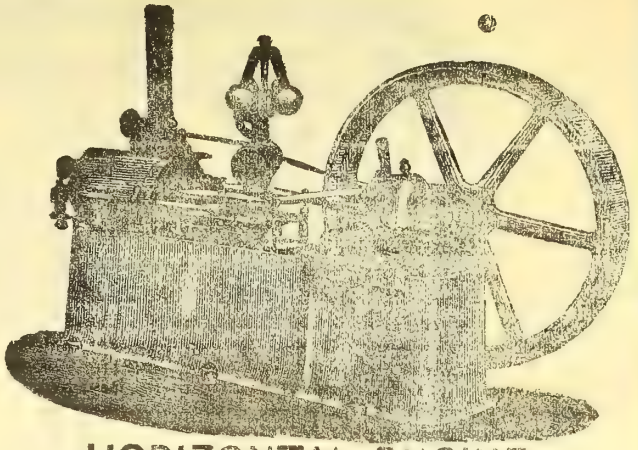
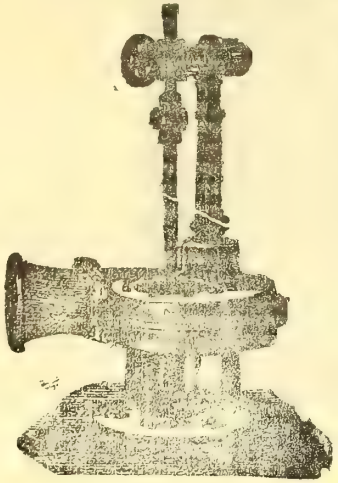


HORIZONTAL ENGINE.



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Is the best Preventive and Cure for

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ENO'S "VEGETABLE MOTO" is mild, effective, and agreeable, and lasting without force or strain in indigestion, biliousness, sick headache, gout, rheumatism, female ailments, suppressed secretions, head affections, nervousness, sleeplessness from liver derangement, flatulence, wind on the stomach. As a laxative, stomachic, blood, brain, nerve, bile, or liver tonic pill it will be found invaluable for creating and sustaining a natural action of the stomach and biliary secretions.

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Anyone whose duties require them to undergo mental or unnatural excitement or strain should use

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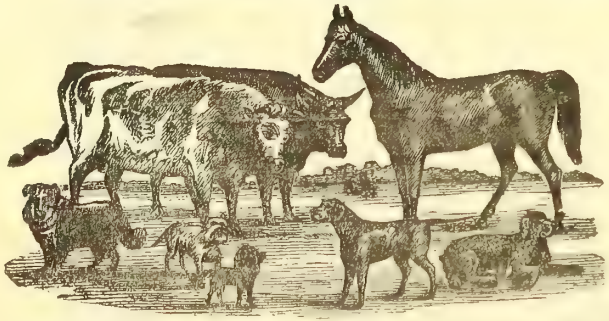
IMPORTANT TO OWNERS OF HORSES & DOGS.



Copy of letter from Captain G. TODD, Kingston Vale, London, S.W.—"I had a horse with a very bad and infectious skin disease treated in ordinary manner without success, and I was at last advised to kill it, but a friend suggested trial of CALVERT'S CARBOLIC SOFT SOAP, with which, in warm water, I washed all over its body twice; when dry I rubbed in CALVERT'S CARBOLIC OIL. This entirely cured the horse, and the coat came on in a short time soft and glossy as ever."

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L. C. P. ASTLEY, Esq. (Judge at Dog Shows) reports that he cured a Fox Terrier, in acute state of Red Mange, by use of Calvert's Carbolic Soft Soap, and he states that "it could not have had a more severe test."

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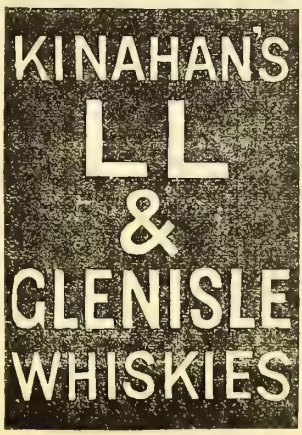

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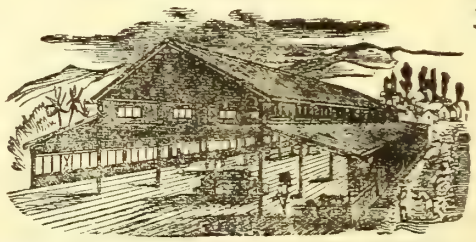

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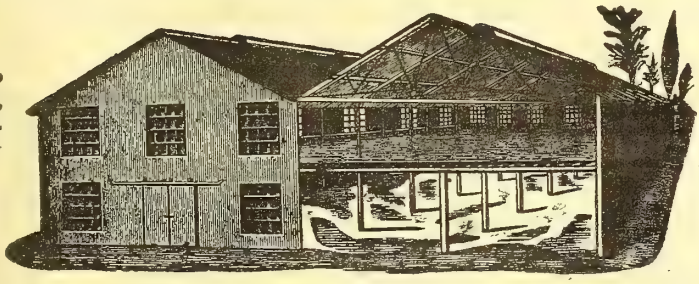

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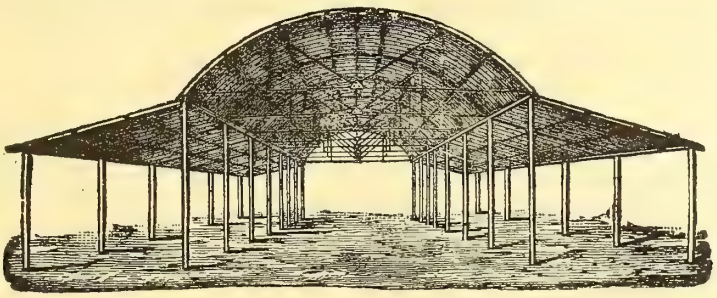

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